BRIDGE REPLACEMENT - PPCB
BRFN-218-2(155)--39-44
HENRY Co.

LETTING DATE 07-16-2024

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IOWA DOT

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

HENRY COUNTY

BRIDGE REPLACEMENT - PPCB

NB US 218 over North Fish Creek
1.1 Miles North of County Rd J20

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.14 of the Specifications.

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

REVISIONS

	TOTAL 57
PROJECT IDENTIFICATION NUMBER	
19-44-218-030	
PROJECT NUMBER	
BRFN-218-2(155)--39-44	
R.O.W. PROJECT NUMBER	

Does DOT Maintenance want to salvage steel beam guardrail?

DESIGN DATA RURAL		
2018 AADT	4400	V.P.D.
2044 AADT	6900	V.P.D.
2044 DHV	710	V.P.H.
TRUCKS	24	%
Total Design ESALs	5,913,440	

INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.1	X	Primary Signature Block

PRELIMINARY PLANS

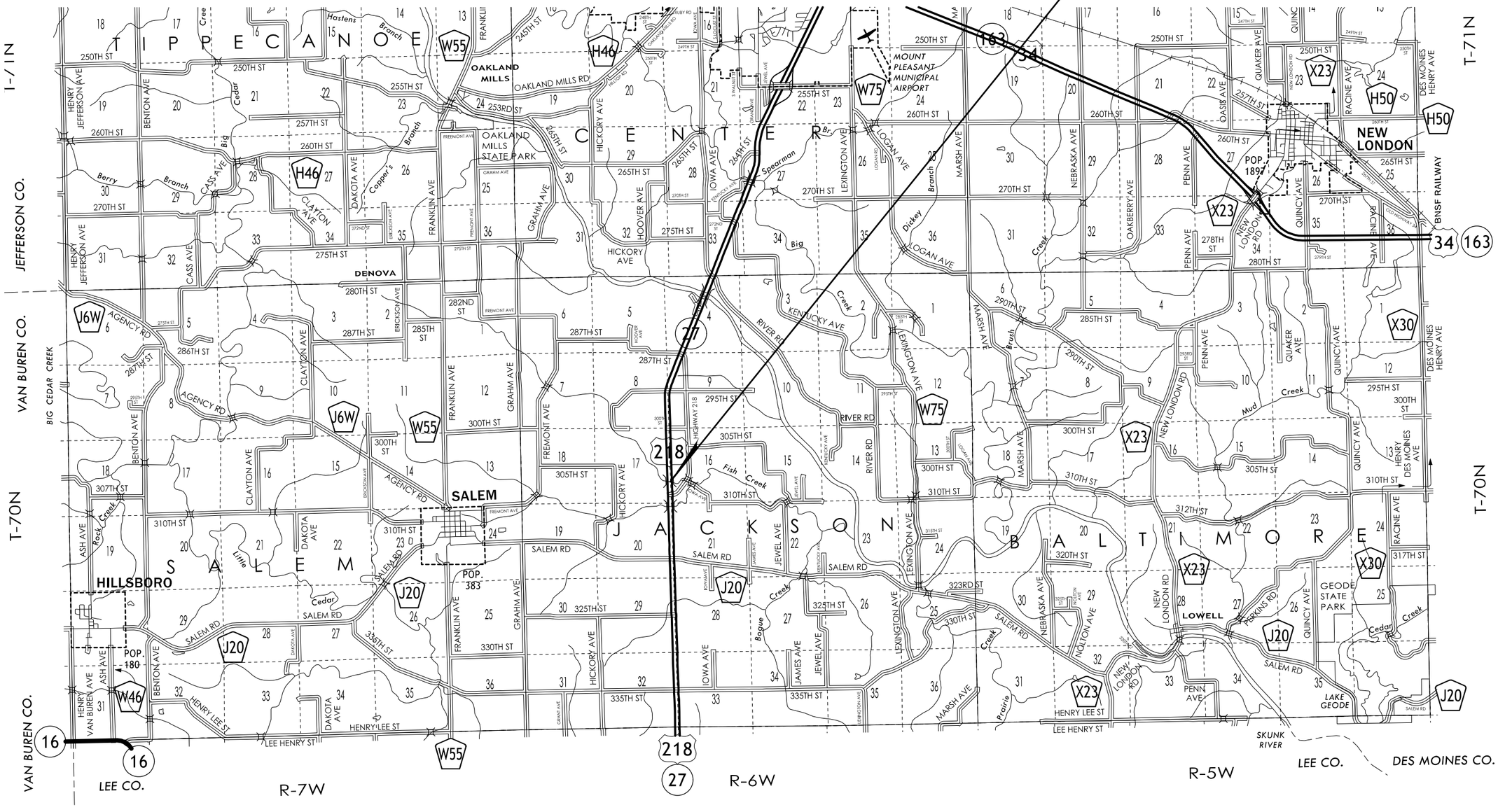
Subject to change by final design.

D5 PLAN – Date: Feb. 22, 2022

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER A.1

2:24:22 PM 2/22/2022 8877 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\4421803019\Design\CADD_Files\Sheet_Files\SHT_44218155_A01.dgn

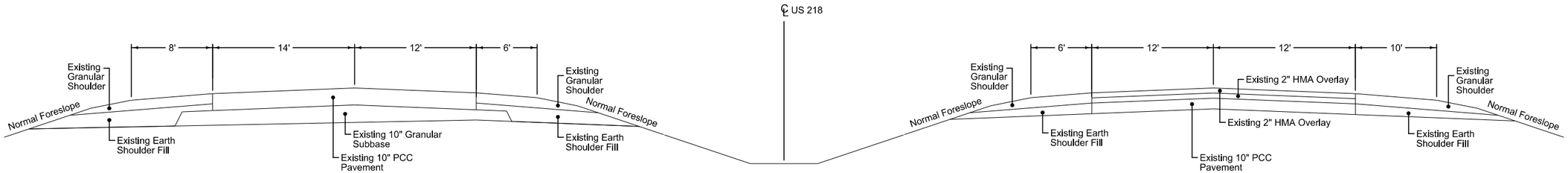
NB US 218 BRIDGE REPLACEMENT
FHWA NO. 028461
MAINT. 4434.8R218
STA. 502+28.00



LOCATION MAP SCALE
0 0.5 1 1.5 2
Miles

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER A.2

1:46:51 PM 12/6/2021 3994 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\44218030l9\Design\CADD_Files\Sheet_Files\SHT_44218155_A01.dgn



US 218 SB

Shoulders near bridge ends are partially paved.

US 218 NB

Shoulders near bridge ends are partially paved.

EXISTING US 218

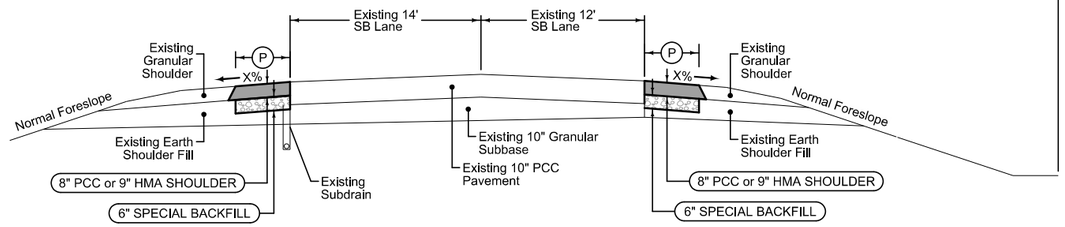
Does DOT Maintenance want Class 13 Waste from paved shoulder construction?

Paved Shoulder Alternates

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 17' spacing
HMA Shoulder Jointing:
Longitudinal joint: B

					4_P_ALT_ MODIFIED	
	Direction of Travel	BEGIN STATION	END STATION	(P) Feet	(X) Slope	
	SB	418+38.57	445+89.43	4	-4%	
	SB	448+29.71	483+78.50	4	-4%	
	SB	486+61.10	501+55.43	4	-4%	
	SB	503+82.88	517+02.61	4	-4%	

Refine limits of shoulders after limits of approaches for both SB bridges are finalized.



* See Sheet B.3 for "Paved Shoulder at Guardrail" Details

Paved Shoulder Alternates

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 17' spacing
HMA Shoulder Jointing:
Longitudinal joint: B

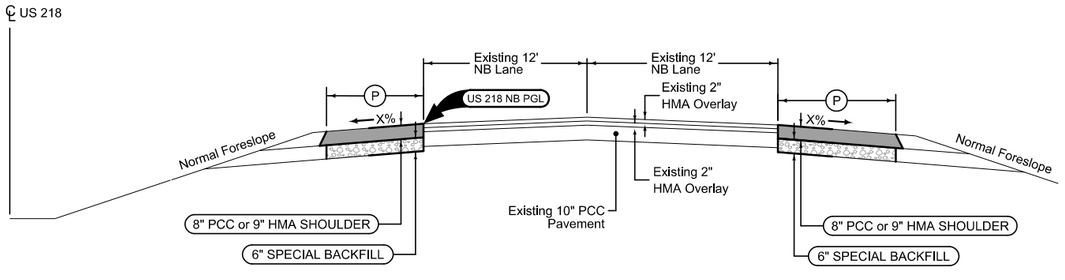
					4_P_ALT_ MODIFIED	
	Direction of Travel	BEGIN STATION	END STATION	(P) Feet	(X) Slope	
	SB	421+78.01	445+50.07	4	-4%	
	SB	450+37.60	455+98.88	4	-4%	
	SB	460+19.49	483+78.62	4	-4%	
	SB	486+61.74	501+55.61	4	-4%	
	SB	503+82.94	513+47.29	4	-4%	

US 218 SB

Paved Shoulder Alternates

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 17' spacing
HMA Shoulder Jointing:
Longitudinal joint: B

					4_P_ALT_ MODIFIED	
	Direction of Travel	BEGIN STATION	END STATION	(P) Feet	(X) Slope	
*	NB	498+17.57	498+37.57	9.5	-4%	
*	NB	498+37.57	498+87.68	9.5 to 7.5	-4%	
*	NB	498+87.68	500+64.50	7.5	-4%	



* See Sheet B.3 for "Paved Shoulder at Guardrail" Details

** For Pavement Details at Bridge Approaches, Refer to BR-203
- Sta. 500+64.50 to Sta. 501+34.50
- Sta. 503+21.50 to Sta. 503+91.50

Paved Shoulder Alternates

PCC Shoulder Jointing:
Longitudinal joint: BT-1 or BT-5
Transverse joints: C at 17' spacing
HMA Shoulder Jointing:
Longitudinal joint: B

					4_P_ALT_ MODIFIED	
	Direction of Travel	BEGIN STATION	END STATION	(P) Feet	(X) Slope	
*	NB	498+17.57	498+37.57	13.5	-4%	
*	NB	498+37.57	498+86.88	13.5 to 11.5	-4%	
*	NB	498+86.88	500+64.50	11.5	-4%	

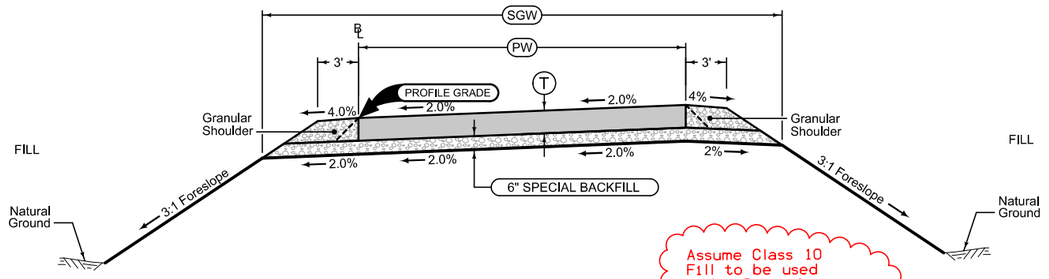
US 218 NB

LOCATION			DIMENSIONS					
			HMA			PCC		
ROAD IDENTIFICATION	STATION TO STATION		(PW) Feet	(T) Inches	(SGW) Feet	(PW) Feet	(T) Inches	(SGW) Feet
South Crossover	5409+33.48	5421+82.94	16	12	31	16	9	29.5
North Crossover	5513+47.29	5525+58.38	16	12	31	16	9	29.5

Quantity calculations based on vertical pavement edges.

Normal section shown may be modified appropriately in areas of superelevated curves or other locations specifically designated by the Engineer.

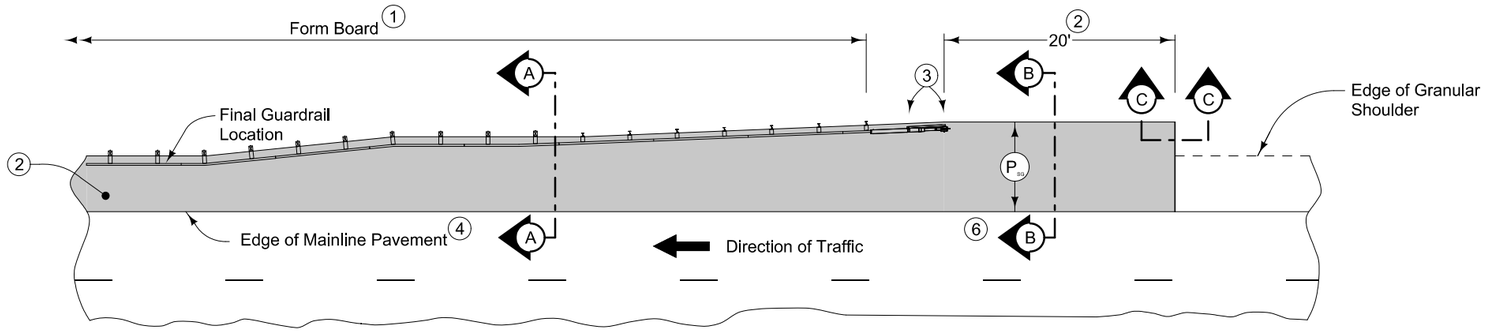
Detour baseline and profile grade may be on right side of pavement.
Refer to F sheets for further details.



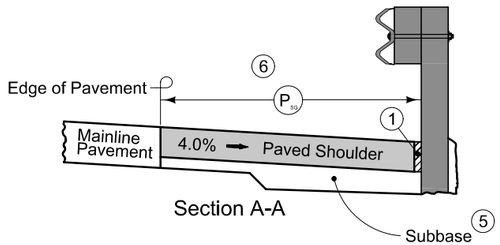
Assume Class 10 Fill to be used under Special Backfill for both crossovers.

DETOUR PAVING

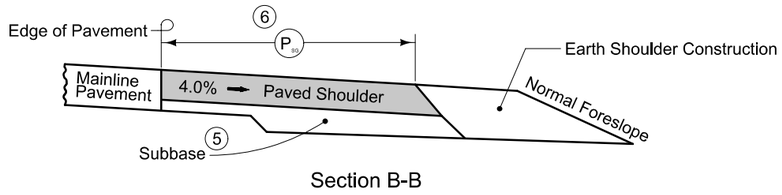
D_Detour
Modified



PLAN VIEW

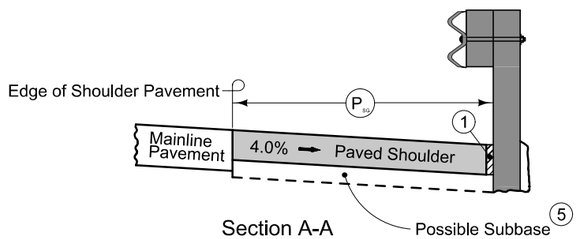


Section A-A

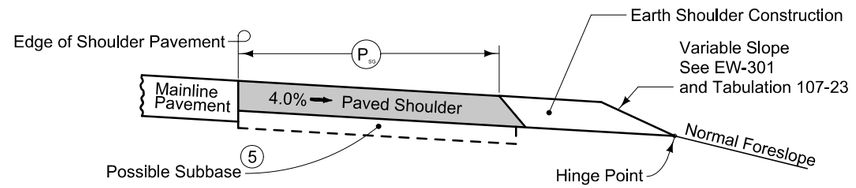


Section B-B

NEW CONSTRUCTION



Section A-A



Section B-B

EXISTING SHOULDER

9" HMA Paved Shoulder at guardrail. 8" PCC may be substituted with the following jointing layout:

Match mainline pavement joint spacing. When mainline pavement is 8" or greater in thickness, place additional transverse 'C' joints in shoulder at mid-panel of the mainline pavement. Place longitudinal 'C' joint at P/2 from edge of mainline pavement when P is greater than 10' wide. Terminate longitudinal joint at transverse joint less than 10' in length.

Compaction of HMA is required to face of guardrail post. Hand compaction will be allowed under guardrail. Removal and reinstallation of guardrail will be allowed with no additional payment.

Refer to Tabulation 112-9 for shoulder quantities.

(1) PCC option only: When guardrail posts are installed prior to construction of PCC paved shoulder, fasten form board to the face of guardrail posts for the length shown.

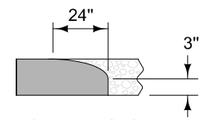
(2) Continue paved shoulder 20 feet beyond the center of the first post.

(3) Shoulder may be notched for first 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.

(4) 'KT-1 joint for PCC shoulder.
'B' joint for HMA shoulder.

(5) Refer to other details in the plan.

(6) P is based on 8" block is used for BA-205 and BA-225 end terminals and P will need to be reduced by 4 inches when BA-205 and BA-225 are specified.



Section C-C
Roll down at granular shoulder or earth.

PAVED SHOULDER AT GUARDRAIL
(GRANULAR SHOULDER ADJACENT TO MAINLINE)

100-1D
10-18-05

PROJECT DESCRIPTION

This project involves the replacement of the Northbound U.S. 218 bridge (Maint. No.4434.8R218) over North Fish Creek, located 1.1 mile north of south junction of County Road J20.

100-0A
10-28-97

ESTIMATED ROADWAY QUANTITIES
(1 DIVISION PROJECT)

Item No.	Item Code	Item	Unit	Total	As Built Qty.

105-4
10-18-11

STANDARD ROAD PLANS

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

Number	Date	Title
BA-200	04-20-21	Steel Beam Guardrail Components
BA-201	04-19-22	Steel Beam Guardrail Barrier Transition Section (MASH TL-3)
BA-202	10-20-15	Steel Beam Guardrail Bolted End Anchor
BA-205	10-19-21	Steel Beam Guardrail Tangent End Terminal (MASH TL-3)
BA-250	04-20-21	Steel Beam Guardrail Installation at Concrete Barrier or Bridge End Post (MASH TL-3)
BA-401	04-20-21	Temporary Barrier Rail (Precast Concrete)
BA-500	04-20-21	Temporary Crash Cushions Sand Barrel
BR-203	10-19-21	Double Reinforced 12" Approach
BR-211	10-19-21	Bridge Approach (Abutting PCC or Composite Pavement)
DR-303	10-17-17	Subdrains (Longitudinal)
DR-306	10-16-18	Precast Concrete Headwall for Subdrain Outlets
DR-402	04-19-22	Rock Flume for Bridge End Drain
EC-201	04-20-21	Silt Fence
EC-202	10-21-14	Floating Silt Curtain
EC-204	10-19-21	Perimeter, Slope and Ditch Check Sediment Control Devices
EC-303	10-19-21	Stabilized Construction Entrance
EC-502	04-21-15	Seeding in Rural Areas
EW-202	04-19-16	Bridge Berm Grading without Recoverable Slope (Non-Barnroof Section)
EW-301	04-20-21	Guardrail Grading
PM-110	04-21-20	Line Types
PM-111	04-21-20	Symbols and Legends
PV-12	10-20-20	Milled Shoulder Rumble Strips
PV-101	04-19-22	Joints
PV-102	04-21-20	PCC Curb Details
SI-172	04-19-16	Delineators
SI-173	04-19-16	Object Markers
SI-881	04-16-19	Special Signs for Workzones
TC-1	10-15-19	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-61	04-19-22	Two-Lane, Two-way Operation
TC-202	10-19-21	Work Within 15 ft of Traveled Way
TC-418	04-19-22	Lane Closure on Divided Highway
TC-421	04-19-22	Lane Closure with TBR
TC-433	10-17-17	Pavement Marking Operations

SURVEY SYMBOLS

- CP Control Point
- BM Bench Mark
- PCP Photo Control Point
- SOP Size of Pipe or Culvert
- BL Topo Breakline
- CON Concrete or A/C Slab
- PLG Location of General Photo
- PIP Pipe Culvert
- GR Ground Shot
- DU Centerline Draw or Stream (Up)
- BNK Stream Bank
- TW Top of Water
- DTM Photogrammetry Elv Control Check
- D Centerline Draw or Stream (Down)
- SNP Unpaved Shoulder
- EP Edge of Paved Roads (ML or SR)
- C Centerline BL of Road (ML or SR)
- SH Paved Shoulder
- LIN Miscellaneous Line
- BD Bridge Deck
- BRG Bridge
- BCL Bridge Centerline
- CU Back of Curb
- GU Gutter In Front of Curb
- OUT Tile Outlet
- TILE — TIL Tile Line
- PPA Power Pole Co. 1
- TOP Top of Bridge Pier
- BLS Bridge Low Steel
- ENU Edge Unpaved Entrance & Parking
- ENT Centerline BL of Entrance
- SBR Size of Bridge
- MH Utility Access (Manhole)
- UE Utility Elevation
- — T1 — TL1D Telephone Line Co. 1 - Quality D
- — W — WL1D Water Line Co. 1 - Quality D

SURVEYED UTILITY OWNER SYMBOLS

Sub-Surface Utility Mapping Quality Level is in accordance with CI/ASCE 38-02 Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data.

Remark Abbreviations
QLA Quality Level A Highest guideline quality level
QLD Quality Level D Lowest guideline quality level

PPA Power Pole, Access Energy Coop
Tyler Thein
1800 W. Washington
P.O. Box 440
Mt. Pleasant, IA 52641
319-385-6877

— T1 — TL1D Telephone Line, Windstream - Quality D
Luke Niles
4001 N. Rodney Parham Rd.
Little Rock, AR 72212
501-748-5893

— W — WL1D Water Line, Rathbun Regional Rural Water - Quality D
Jim Hopp
1677 Salem Rd
P.O. Box 261
Salem, IA 52649
319-258-2103

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 and F)

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER D.1

9:33:27 AM 2/11/2022 8877 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\4421803019\Design\CADD_Files\Sheet_Files\SHT_44218155_D01.dgn

Note 1:
Shoulder Strengthening
shall remain in place
at completion of project.

Begin 4ft wide Shoulder
Strengthening
Sta. 418+38.57

417 418 SB US 218 419 420 421 422

Begin 4ft wide Shoulder
Strengthening
Sta. 421+78.01

℄ US 218
(ML218)

NB US 218

0 FEET 20

For Crossover Details
Refer to Sheet No. F.1

US 218

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER D.2

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Note 1:
Shoulder Strengthening
shall remain in place
at completion of project.

4ft wide Shoulder
Strengthening

(U.A.C.)
+15 Ent.

SB US 218

423

424

425

4ft wide Shoulder
Strengthening

426

427

428

℄ US 218
(ML218)

NB US 218

0 20
FEET

US 218

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER D.3

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Note 1:
Shoulder Strengthening
shall remain in place
at completion of project.

(U.A.C.)
+15 Ent.

4ft wide Shoulder
Strengthening

SB US 218

4ft wide Shoulder
Strengthening

429 430 431 432 433 434

℄ US 218
(ML218)

NB US 218

(U.A.C.)
+40 Ent.

0 20
FEET

US 218

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER D.4

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Note 1:
Shoulder Strengthening
shall remain in place
at completion of project.

4ft wide Shoulder
Strengthening

SB US 218

4ft wide Shoulder
Strengthening

435 436 437 438 439 440

℄ US 218
(ML218)

NB US 218

0 20
FEET

US 218

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER D.5

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Note 1:
Shoulder Strengthening
shall remain in place
at completion of project.

Stop 4ft wide Shoulder
Strengthening
Sta. 445+89.43

SB US 218

441 442 443 444 445 446

Stop 4ft wide Shoulder
Strengthening
Sta. 445+50.07

℄ US 218
(ML218)

NB US 218

0 20
FEET

US 218

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER D.6

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Note 1:
Shoulder Strengthening
shall remain in place
at completion of project.

Resume 4ft wide Shoulder
Strengthening
Sta. 448+29.71

SB US 218

447 448 449 450 451 452

Resume 4ft wide Shoulder
Strengthening
Sta. 450+37.60

℄ US 218
(ML218)

NB US 218

APPROX. SEC. LINE APPROX. SEC. LINE APPROX. SEC. LINE APPROX. SEC. LINE

0 20
FEET

US 218

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER D.7

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Note 1:
Shoulder Strengthening
shall remain in place
at completion of project.

4ft wide Shoulder
Strengthening

(U.A.C.)
+20 Ent.

SB US 218

453

454

455

456

457

458

Stop 4ft wide Shoulder
Strengthening
Sta. 455+98.88

℄ US 218
(ML218)

NB US 218

APPROX. SEC. LINE

(Close During
Construction)
+20 Ent.

0 20
FEET

US 218

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER D.8

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Note 1:
Shoulder Strengthening
shall remain in place
at completion of project.

4ft wide Shoulder
Strengthening

SB US 218

459 460 461 462 463 464

Resume 4ft wide Shoulder
Strengthening
Sta. 460+19.49

℄ US 218
(ML218)

NB US 218

APPROX. SEC. LINE

W

0 20
FEET

US 218

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER D.9

9:33:42 AM 2/11/2022 8877 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\4421803019\Design\CADD_Files\Sheet_Files\SHT_44218155_D01.dgn

Note 1:
Shoulder Strengthening
shall remain in place
at completion of project.

4ft wide Shoulder
Strengthening

SB US 218

4ft wide Shoulder
Strengthening

465 466 467 468 469 470

℄ US 218
(ML218)

NB US 218

APPROX. SEC. LINE APPROX. SEC. LINE APPROX. SEC. LINE APPROX. SEC. LINE APPROX. SEC. LINE APPROX. SEC. LINE

W W W W W

0 20
FEET

US 218

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER D.10

9:33:45 AM 2/11/2022 8877 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\4421803019\Design\CADD_Files\Sheet_Files\SHT_44218155_D01.dgn

JACKSON TWP.
T-70N R-6W
SEC. 20

Note 1:
Shoulder Strengthening
shall remain in place
at completion of project.

4ft wide Shoulder
Strengthening

SB US 218

4ft wide Shoulder
Strengthening

471 472 473 474 475 476

℄ US 218
(ML218)

NB US 218

APPROX. SEC. LINE

JACKSON TWP.
T-70N R-6W
SEC. 21

W

0 20
FEET

US 218

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER D.11

9:33:47 AM 2/11/2022 8877 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\44218030\19\Design\CADD_Files\Sheet_Files\SHT_44218155_D01.dgn

JACKSON TWP.
T-7ON R-6W
SEC. 20

(U.A.C.)
Sta. 481+20(SUR) LT 46'
24"x124' RCP&HDPE
D.A.= Median

Note 1:
Shoulder Strengthening
shall remain in place
at completion of project.

(U.A.C.)
Sta. 476+41(SUR) LT 46'
24"x72' RCP
D.A.= Median

(U.A.C.)
+95 Ent.

4ft wide Shoulder
Strengthening

477 478 479 SB US 218 480 481 482

4ft wide Shoulder
Strengthening

℄ US 218
(ML218)

NB US 218

APPROX. SEC. LINE

JACKSON TWP.
T-7ON R-6W
SEC. 21

0 FEET 20

US 218

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER D.12

9:33:49 AM 2/11/2022 8877 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\44218O3019\Design\CADD_Files\Sheet_Files\SHT_44218155_D01.dgn

JACKSON TWP.
T-7ON R-6W
SEC. 20

JACKSON TWP.
T-7ON R-6W
SEC. 17

(U.A.C.)
12"x136.5'
C.M.P.

Note 1:
Shoulder Strengthening
shall remain in place
at completion of project.

Field Review:
This bridge appears
to have duct embedded
in west barrier; may be
empty/available.

Field Review:
Replace full 70' approach
pavement plus 15' beyond
approach. Need more discussion
on timing/funding/etc.

Field Review:
Replace full 70' approach
pavement and steel beam
guardrail. Need more discussion
on timing/funding/etc.

Install Temporary Guardrail.
At the End of the Project,
Remove and Deliver to Mt.
Pleasant Maintenance Shop.

Stop 4ft wide Shoulder
Strengthening
Sta. 483+28.67

Resume 4ft wide Shoulder
Strengthening
Sta. 486+92.21

South Fish
Creek

SB US 218

483 484 485 486 487 488

Steel Beam
Guardrail (Typ.)

Stop 4ft wide Shoulder
Strengthening
Sta. 483+28.75

Resume 4ft wide Shoulder
Strengthening
Sta. 486+92.25

℄ US 218
(ML218)

NB US 218

APPROX. SEC. LINE

Existing Cable Guardrail
Missing from Survey dgn.

Refer to Tied Project
BRF-218-2(158)--38-44
for Bridge Replacement
of NB US 218 over
South Fish Creek

JACKSON TWP.
T-7ON R-6W
SEC. 21

JACKSON TWP.
T-7ON R-6W
SEC. 16

Surveyor Review:
This Section Line is from the
"dis" dgn.

Surveyor Review:
This Section Line is from the
"sur" dgn.

W

0 20
FEET

US 218

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER D.13

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JACKSON TWP.
T-7ON R-6W
SEC. 17

Note 1:
Shoulder Strengthening
shall remain in place
at completion of project.

(U.A.C.)
Sta. 492+12(SUR) LT 46'
24"x86.5' RCP
D.A.= Median

(U.A.C.)
+70 Ent.

Steel Beam
Guardrail (Typ.)

4ft wide Shoulder
Strengthening

489 490 491 SB US 218 492 493 494

4ft wide Shoulder
Strengthening

℄ US 218
(ML218)

NB US 218

APPROX. SEC. LINE

Surveyor Review:
This Section Line is from the
"dis" dgn.

Surveyor Review:
This Section Line is from the
"sur" dgn.

JACKSON TWP.
T-7ON R-6W
SEC. 16

(U.A.C.)
Old HWY 218

0 20
FEET

Exist. R.O.W.

US 218

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER D.14

9:33:54 AM 2/11/2022 8877 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\4421803019\Design\CADD_Files\Sheet_Files\SHT_44218155_D01.dgn

JACKSON TWP.
T-70N R-6W
SEC. 17

Note 1:
Shoulder Strengthening
shall remain in place
at completion of project.

(U.A.C.)
Sta. 500+00(SUR) LT 46'
24"x69' RCP
D.A.= Median

4ft wide Shoulder
Strengthening

495 SB US 218 496 497 498 499 500

4ft wide Shoulder
Strengthening

℄ US 218
(ML218)

US 218 NB PGL
(MLNBPGL218)

NB US 218

APPROX. SEC. LINE APPROX. SEC. LINE APPROX. SEC. LINE APPROX. SEC. LINE APPROX. SEC. LINE APPROX. SEC. LINE

Surveyor Review:
This Section Line is from the
"dis" dgn.

Surveyor Review:
This Section Line is from the
"sur" dgn.

JACKSON TWP.
T-70N R-6W
SEC. 16

Steel Beam
Guardrail (Typ.)

(U.A.C.)
18"x121'
H.D.P.E.

Exist. R.O.W.

0 20
FEET

Exist. R.O.W.

US 218

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER D.15

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JACKSON TWP.
T-7ON R-6W
SEC. 17

(U.A.C.)
12"x113.5'
C.M.P.

(U.A.C.)
Sta. 505+97(SUR) LT 46'
24"x177' RCP
DA.= Median

Note 1:
Shoulder Strengthening shall remain in place at completion of project.
Note 2:
RCE requests patching along SB US 218 detour route; to be further evaluated during final design.

North Fish Creek

Field Review:
This bridge appears to have duct embedded in west barrier; may be empty/available.

Field Review:
Replace full 70' approach pavement. Need more discussion on timing/funding/etc.

Field Review:
Replace full 70' approach pavement and steel beam guardrail. Need more discussion on timing/funding/etc.

Install Temporary Guardrail. At the End of the Project, Remove and Deliver to Mt. Pleasant Maintenance Shop.

Stop 4ft wide Shoulder Strengthening
Sta. 501+04.31

Resume 4ft wide Shoulder Strengthening
Sta. 504+13.83

Steel Beam Guardrail (Typ.)

SB US 218

501 502 503 504 505 506

Stop 4ft wide Shoulder Strengthening
Sta. 501+04.28

Resume 4ft wide Shoulder Strengthening
Sta. 504+13.82

℄ US 218
(ML218)

Sta. 500+45.91
Begin Construction, NB Lanes

Sta. 500+64.50
Begin NB Bridge Approach

Sta. 503+91.50
End NB Bridge Approach

Sta. 504+11.63
End Construction, NB Lanes

US 218 NB PGL
(MLNBPGL218)

NB US 218

APPROX. SEC. LINE

TILE

(U.A.C.)
18"x121'
H.D.P.E.

Steel Beam Guardrail (Typ.)

Field Review:
Replace additional pavement to approx. 100' beyond existing bridge joint.

Refer to V Sheets for Bridge Replacement of NB US 218 over North Fish Creek

JACKSON TWP.
T-7ON R-6W
SEC. 16

DR-402, Rock Flume/ Bridge End Drain (Typ.)

Field Review:
Replace additional pavement to approx. 100' beyond existing bridge joint.

Surveyor Review:
This Section Line is from the "dis" dgn.

Surveyor Review:
This Section Line is from the "sur" dgn.

Exist. R.O.W.

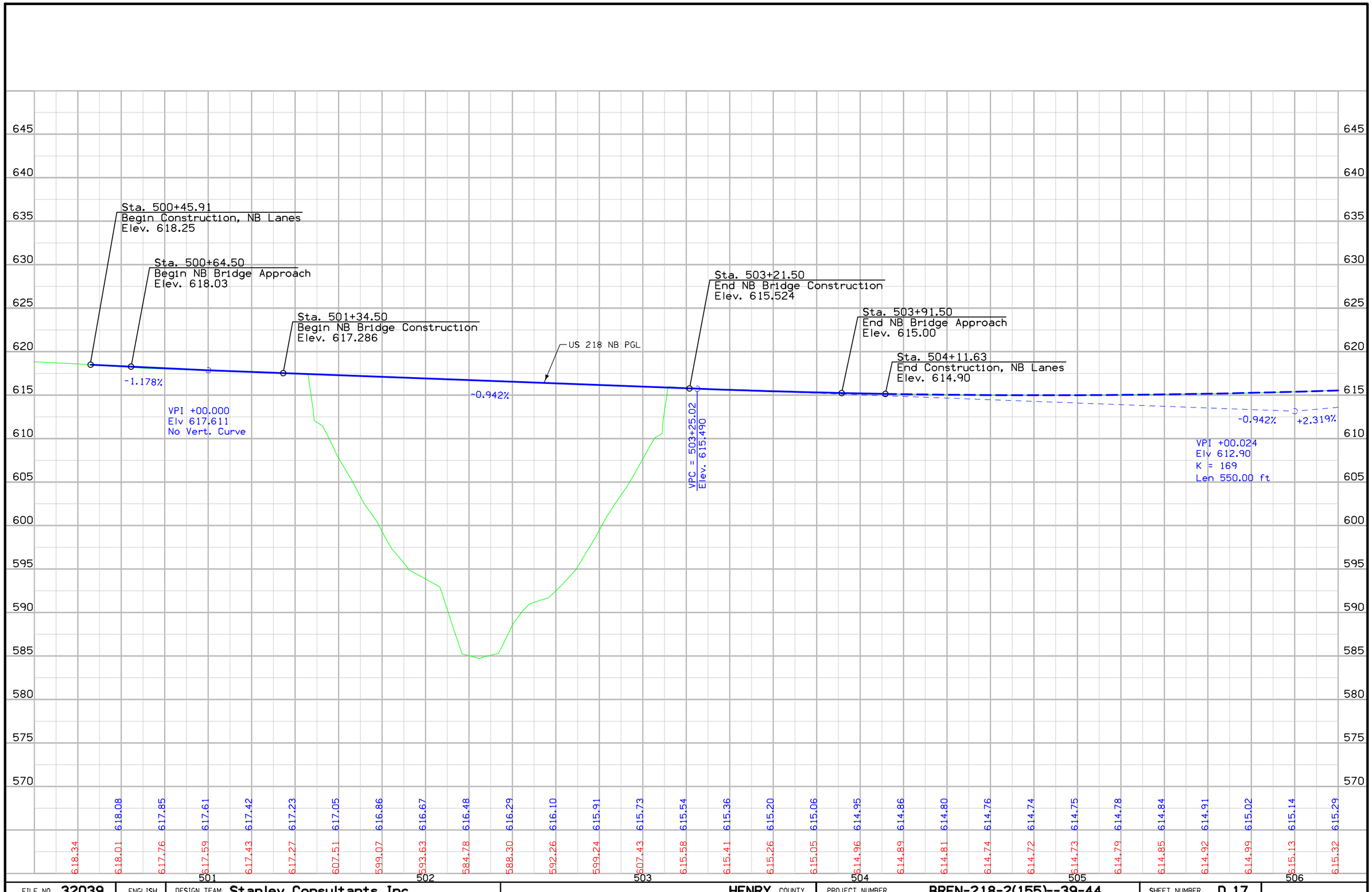
0 20
FEET

For Profile Details
Refer to Sheet No. D.17

US 218

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER D.16

8:41:08 AM 2/23/2022 8877 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\4421803019\Design\CADD_Files\Sheet_Files\SHT_44218155_D01.dgn



FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER D.17

8:43:18 AM 2/23/2022 8877 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\4421803019\Design\CADD_Files\Sheet_Files\SHT_44218155_D01.dgn

JACKSON TWP.
T-70N R-6W
SEC. 17

Note 1:
Shoulder Strengthening
shall remain in place
at completion of project.

4ft wide Shoulder
Strengthening

507 SB US 218 508 509 510 511 512

4ft wide Shoulder
Strengthening

℄ US 218
(ML218)

NB US 218

APPROX. SEC. LINE

Surveyor Review:
This Section Line is from the
"dis" dgn.

Surveyor Review:
This Section Line is from the
"sur" dgn.

JACKSON TWP.
T-70N R-6W
SEC. 16

Exist. R.O.W.

0 20
FEET

US 218

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER D.18

9:34:03 AM 2/11/2022 8877 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\4421803019\Design\CADD_Files\Sheet_Files\SHT_44218155_D01.dgn

JACKSON TWP.
T-70N R-6W
SEC. 17

Note 1:
Shoulder Strengthening
shall remain in place
at completion of project.

(U.A.C.)
Sta. 513+75(SUR) LT 46'
24"x109' RCP&HDPE
D.A.= Median

(U.A.C.)
+98 Ent.

End 4ft wide Shoulder
Strengthening
Sta. 517+02.61

513 SB US 218 514 515 516 517 518

End 4ft wide Shoulder
Strengthening
Sta. 513+47.29

℄ US 218
(ML218)

NB US 218

APPROX. SEC. LINE

Surveyor Review:
This Section Line is from the
"dis" dgn.

Surveyor Review:
This Section Line is from the
"sur" dgn.

(U.A.C.)
+15 Ent.

Exist. R.O.W.

JACKSON TWP.
T-70N R-6W
SEC. 16

0 FEET 20

For Crossover Details
Refer to Sheet No. F.2

US 218

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER D.19

9:34:06 AM 2/11/2022 8877 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\4421803019\Design\CADD_Files\Sheet_Files\SHT_44218155_D01.dgn

District requests making paved shoulder 2' wider in taper areas.

Curve Data
Δ = 6° 21' 33.27" (RT)
T = 195.32
L = 390.24
R = 3,516.00
E = 5.42

Curve Data
Δ = 0° 04' 48.28" (LT)
T = 24.99
L = 49.98
R = 35,758.89
E = 0.01

Crossover to be removed at end of project.

See Sheet xxx for Crossover Connection S2

POC Sta. 5418+42.95
End Full Width Pavement

325TH ST

POT Sta 5408+83.48

PC Sta 5409+33.48

5410

PT Sta 5413+48.43

5415

Approx. Location Existing Median Drain Pipe (U.A.C.)

PI Sta 5419+88.02

5420

PT Sta 5422+32.92

(U.A.C.) +15 Ent.

Construction Limits (Typ)

℄ US 218
(ML218)

SB US 218

(DET01)

NB US 218

Approx. Location Proposed DR-504 Crossover Pipe

PC Sta 5417+92.70

PRC Sta 5421+82.94

PI Sta 5422+07.93

(U.A.C.) +40 Ent.

PI Sta 5411+41.20

POC Sta. 5412+89.36
Begin Full Width Pavement

See Sheet xxx for Crossover Connection S1

Curve Data
Δ = 6° 47' 34.28" (LT)
T = 207.72
L = 414.95
R = 3,500.00
E = 6.16

Final Design Note: Ensure cross slope is sufficient for drainage when profile grades are less than 0.7% in vertical curve.

PRC Sta. 5421+82.94
=ML Sta. 421+77.87
End South Crossover

PC Sta. 5409+33.48
=ML Sta. 409+33.48
Begin South Crossover

0 100 FEET

For Main Line Details Refer to Sheet No. D.2

US 218 - South Crossover

720 710 700 690 680 670 660 650 Lt Rt

Sta. 5412+89.36
Begin Full Width Pavement
Elev. 670.67

-1.300%

+1.300%

VPI +88.85
Elv 666.78
Len 360.00 ft
K = 138
D.S. = 60mph

Sta. 5418+42.95
End Full Width Pavement
Elev. 670.08

670.53 670.21 669.88 669.56 669.23 668.92 668.64 668.41 668.23 668.09 668.00 667.95 667.95 667.99 668.08 668.21 668.39 668.62 668.88 669.20 669.52 669.85

5410 5415 5420

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER F.1

3:39:09 PM 2/22/2022 8877 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\4421803019\Design\CADD_Files\Sheet_Files\SHT_44218155_F01.dgn

Crossover to be removed at end of project.

Jackson TWP.
T-70N R-6W
SEC. 17

We will need a crossover median drain here

Curve Data
Δ = 8° 14' 57.60" (RT)
T = 252.40
L = 503.92
R = 3,500.00
E = 9.09

District requests making paved shoulder 2' wider in taper areas.

(U.A.C.)
Sta. 505+97(SUR) LT 46'
24"x177' RCP
DA.= Median

(U.A.C.)
Sta. 513+75(SUR) LT 46'
24"x109' RCP&HDPE
DA.= Median

(U.A.C.) +98 Ent.

5515

PI Sta 5515+99.69

5520

PC Sta 5520+52.17

PT Sta 5525+58.38

5525

(U.A.C.) +07 Ent.

POT Sta 5526+08.38

POT Sta 5512+97.29

See Sheet xxx for Crossover Connection N1

See Sheet xxx for Crossover Connection N2

℄ US 218
(ML218)

(DET02)

SB US 218

NB US 218

APPROX. SEC. LINE

Existing R.O.W

(U.A.C.) +15 Ent.

PC Sta 5513+47.29

PT Sta 5518+51.21

PI Sta 5523+05.71

(DET02)

PC Sta. 5513+47.29
=ML Sta. 513+47.29
Begin North Crossover

POT Sta. 5517+03.22
Begin Full Width Pavement

POT Sta. 5522+02.45
End Full Width Pavement

PT Sta. 5525+58.38
=ML Sta. 525+52.82
End North Crossover

Curve Data
Δ = 8° 14' 56.31" (LT)
T = 253.54
L = 506.20
R = 3,516.00
E = 9.13

Jackson TWP.
T-70N R-6W
SEC. 16

0 FEET 100

For Main Line Details
Refer to Sheet No. D.19

US 218 - North Crossover

VPI +02.45
Elv 663.05
Len 180.00 ft
K = 115
D.S. = 55mph

+2.510%

+4.077%

+3.040%

Sta. 5517+03.22
Begin Full Width Pavement
Elev. 647.81

Sta. 5522+02.45
End Full Width Pavement
Elev. 665.56

VPI +03.22
Elv 650.85
Len 180.00 ft
K = 174
D.S. = 65mph

680 670 660 650 640 630 620 610

Lt
Rt

648.48 649.27 650.10 650.97 651.87 652.81 653.79 654.80 655.82 656.83 657.85 658.87 659.89 660.85 661.76 662.62 663.42 664.17 664.86 665.50

5515 5520

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER F.2

3:45:21 PM 2/22/2022 8877 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\4421803019\Design\CADD_Files\Sheet_Files\SHT_44218155_F02.dgn

County: Henry
SAP 836.5
PIN: 19-44-218-030
Project Number: BRFN-218-2(155)--39-44
Location: North Fish Creek 1.1 mi N of Co Rd J20 (NB)
Type of Work: Bridge-Unspecified
Project Directory: 4421803019

Party Personnel
Nels Sutherland- Party Chief
Myron Fox- Assistant Survey Party Chief

Date(s) of Survey
Begin Date	07/02/2020
End Date	09/03/2020

General Information
Measurement units for this survey are US survey feet. This survey is for a bridge over North and South Fish Creek 1.1 mi N of Co Rd J20 (NB) on Hwy218. Project datum and control information is provided by Design Survey Office. This project is a Partial DTM Survey. This survey request was for the Hwy218 corridor only.

Vertical Control
Vertical datum for this survey is NAVD88 (Computed using Geoid12B). Benchmarks were placed throughout the project using post processed static observations relative to IaRTN Base Network. A minimum of 6hrs of data was simultaneously collected on each of the primary control points. Reference Project# NHSN-218-2(152)--2R-44.

Pt# 318, NGS Monument #LD0867, was checked for vertical tolerance. The difference was less than 0.10ft.

Horizontal Control
The project coordinate system for this survey is IaRCS Zone 14 (U.S. Survey Feet). This survey control is relative to IaRTN reference stations. IaRTN Reference Station coordinates are relative to the National Reference Station network datum: NAD83 (2011) for Epoch 2010.00. Reference Project# NHSN-218-2(152)--2R-44.

Henry County GPS Control Pt# 341 was checked for horizontal tolerance. The difference was less than 0.10ft.

Alignment Information
The horizontal alignment for this survey is a retrace of As-built Plans NHSX-218-2(115)—3H-44. Metric survey stationing was scaled by 3.28083333 at plan POT station 139+34(m) to equal 457+15.13(ft) and ran ahead in US feet without equation throughout the survey. Reference Project# NHSN-218-2(152)--2R-44.

Survey stationing relates to as built plan stationing as follows:

POT Sta.139+34.000(m) Project NHSX-218-2(115)—3H-44
Survey POT Sta. 457+15.13(US ft)

POT Sta.164+47.554(m) Project NHSX-218-2(115)—3H-44
Survey POT Sta. 539+61.65(US ft)

Utility Information
Sub-Surface Utility Mapping Quality Level is in accordance with CI/ASCE 38-02 *Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data*.

Remark abbreviations
QLA – Quality Level A Highest guideline quality level
QLD – Quality Level D Lowest guideline quality level

A One-call utility Design Information request (Ticket# 552004512) was made on 07/01/2020. The following Companies were listed:
Following are the list of contacts made in the order they were received:

Rathbun Water - Received an E-mail from Scott Jackson, onecall@rrwa.net , on 07/24/2020. Attached was a map showing their utility crossing Hwy218 at three locations on the south half of the project area. The utility will be located using the map provided.

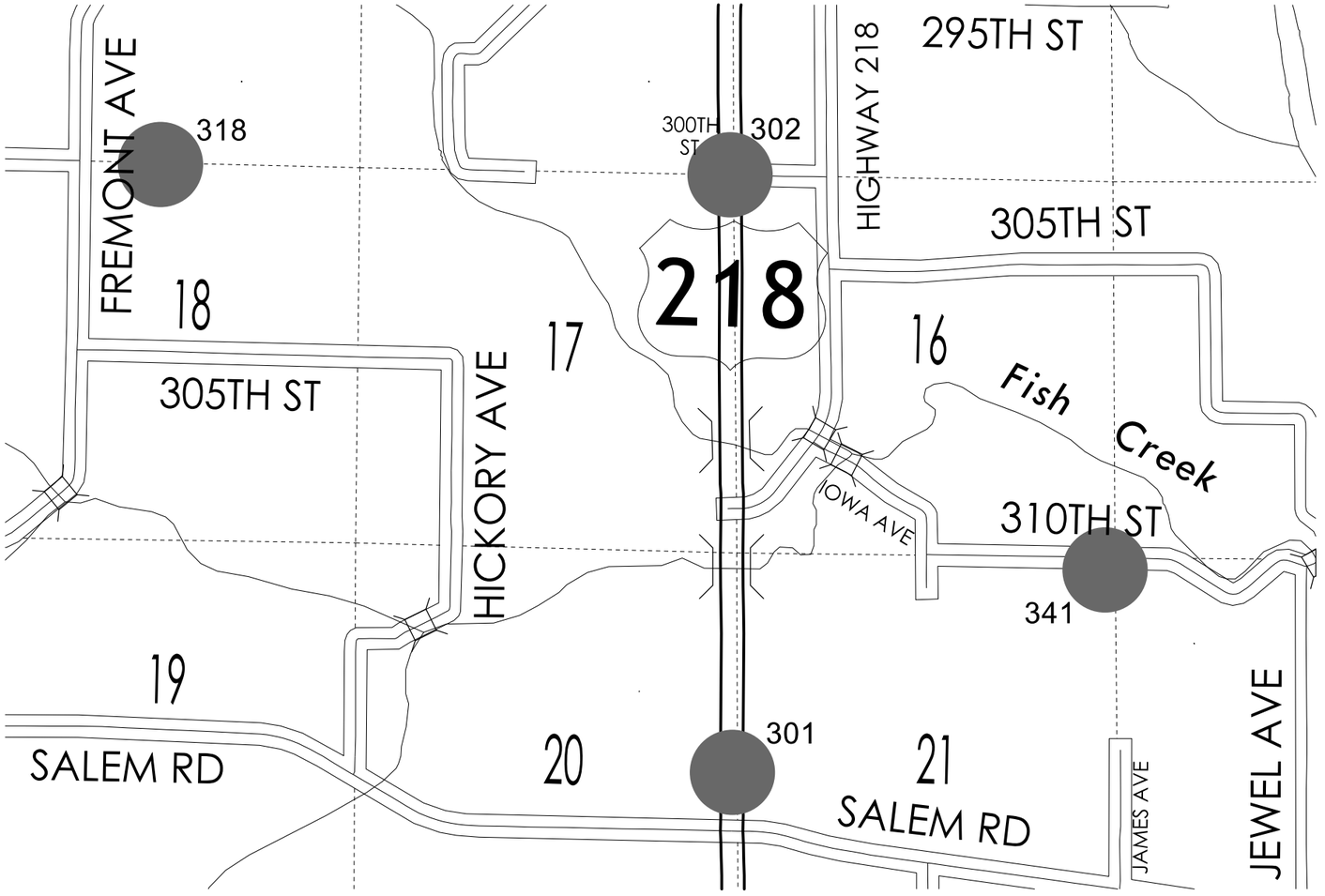
Access Energy – Don Roach, droach@accessenergycoop.com, is the contact person for this utility. Overhead power runs along the east side of Hwy218, north and south through the length of the project. Power poles will be collected and mapped.

Windstream Communications - Received an E-mail from Lisa Zingula, Lisa.Zingula@windstream.com, on 07/01/2020. Attached was a map showing their utility running across Hwy218 just north of the intersection of Old Hwy218. The utility will be located using the map provided.

Company (Quality)	Symbol	Remark
Rathbun Water	WL1D1	Buried Water Line
Access Energy(QLD)	PPA	Power Poles
Windstream	TL1D1	Buried Telephone Line

CONTROL POINT VICINITY MAP

This map is a guide to the vicinity of the primary project control points
Primary control is for use with RTK base stations and for RTN validation.
Future surveys will use primary project control to establish temporary control as needed for construction or other surveying applications.



HORIZ. DATUM: NAD83(2011) EPOCH 2010.00
VERT. DATUM: NAVD88
Ia. Regional Coordinate System Zone 14

Coordinate listing from next sheet will be used with IaRTN for monument recovery. No other reference ties are given.

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 14

Project Control Marks are Benchmarks

Point Name	North	East	Height	Code Description
318	6426901.941	24403825.73	716.821	CP NGS 10IN X 10IN CON MON LD0867 WITH DISC 108FT E OF INTERSECTION OF FREMONT AVE AND 300TH ST IN FENCE LINE
341	6421302.132	24417898.71	604.519	CP HENRY CO MON DISC IN CAN INTERSECTION OF IOWA AVE AND 310TH ST W 2300FT THEN S 28.5FT FROM CL 310TH AVE.
301	6418460.044	24412895.25	712.555	CP CUT X IN CON 990FT N OF INTERSECTION OF HWY218 AND SALEM RD IN CENTER OF CROSSOVER
302	6426706.448	24412852.19	681.164	CP CUT X IN CON AT INTERSECTION OF HWY218 AND 300TH ST IN CENTER OF CROSSOVER

ALIGNMENT COORDINATES

Name	Location	Point on Tangent			Begin Spiral			Begin Curve			Simple Curve PI or Master PI of SCS			End Curve			End Spiral		
		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates	
			Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)
1	ML218	345+57.07	6407302.35	24412974.63															
2	ML218							354+48.13	6408193.27	24412959.10	362+87.03	6409032.05	24412944.49	371+25.91	6409870.94	24412940.11			
3	ML218	554+58.56	6428203.35	24412844.37															
1	US 218 NB PGL	478+00.00	6420545.17	24412939.37															
2	US 218 NB PGL	510+00.00	6423745.13	24412922.66															
	South Crossover																		
1	DET01	5408+83.48	6413628.74	24412973.51															
2	DET01							5409+33.48	6413678.74	24412973.25	5411+41.20	6413886.45	24412972.16	5413+48.43	6414092.58	24412946.51			
3	DET01							5417+92.70	6414533.45	24412891.65	5419+88.02	6414727.28	24412867.54	5421+82.94	6414922.58	24412865.03			
4	DET01							5421+82.94	6414922.58	24412865.03	5422+07.93	6414947.57	24412864.71	5422+32.92	6414972.55	24412864.36			
	North Crossover																		
1	DET02	5512+97.29	6424041.96	24412834.39															
2	DET02							5513+47.29	6424091.96	24412834.13	5515+99.69	6424344.36	24412832.81	5518+51.21	6424594.33	24412867.72			
3	DET02							5520+52.17	6424793.36	24412895.51	5523+05.71	6425044.46	24412930.58	5525+58.38	6425298.00	24412929.25			
4	DET02	5526+08.38	6425348.00	24412928.99															

SPIRAL OR CIRCULAR CURVE DATA

Name	Location	ΔSCS	Horizontal Alignment Data													Remarks
			Spiral Data								Curve Data					
			θS	Ls	Ts	Es	Xc	Yc	L.T.	S.T.	ΔC	T	L	R	E	
C1	ML218										0°41'56.565"	838.903	1677.784	137515.990	2.559	
	South Crossover															
C1	DET01										6°47'34.284"	207.719	414.952	3500.000	6.158	
C2	DET01										6°21'33.274"	195.320	390.240	3516.000	5.421	
C3	DET01										0°04'48.280"	24.989	49.977	35758.892	0.009	
	North Crossover															
C1	DET02										8°14'57.602"	252.398	503.923	3500.000	9.089	
C2	DET02										8°14'56.310"	253.540	506.205	3516.000	9.130	

108-23A
08-01-08

TRAFFIC CONTROL PLAN

US 218
- Maintain US 218 2-lane, two-way traffic utilizing median crossovers and Standard Road Plan TC-61 during construction of new NB bridges over North Fish Creek (this project) and South Fish Creek (tied project; refer to Tab. 111-01). Maintain both lanes of NB traffic and one lane of SB traffic utilizing Standard Road Plans TC-418 and TC-421 during construction of SB shoulder strengthening, bridge approaches, and guardrail.

Median Crossings
- Close median crossings as shown on Sheets J.2 to J.5 for duration of the project.

Private Entrances
- Maintain entrances as shown on J sheets.

108-26A
08-01-08

STAGING NOTES

Stage 1:
- Close median crossings as identified on Sheets J.2 to J.5.
- Shift traffic using Standard Road Plans TC-418 and TC-421 and construct both median crossovers, shoulder strengthening, approach pavements, and install temporary and permanent guardrail on both existing SB bridges.
- Install traffic control per Standard Road Plan TC-61.

Stage 2:
- Construct new NB bridge over North Fish Creek, roadway approaches, shoulders and guardrails. New NB bridge over South Fish Creek will also be constructed; refer to tied project noted in Tab. 111-01.

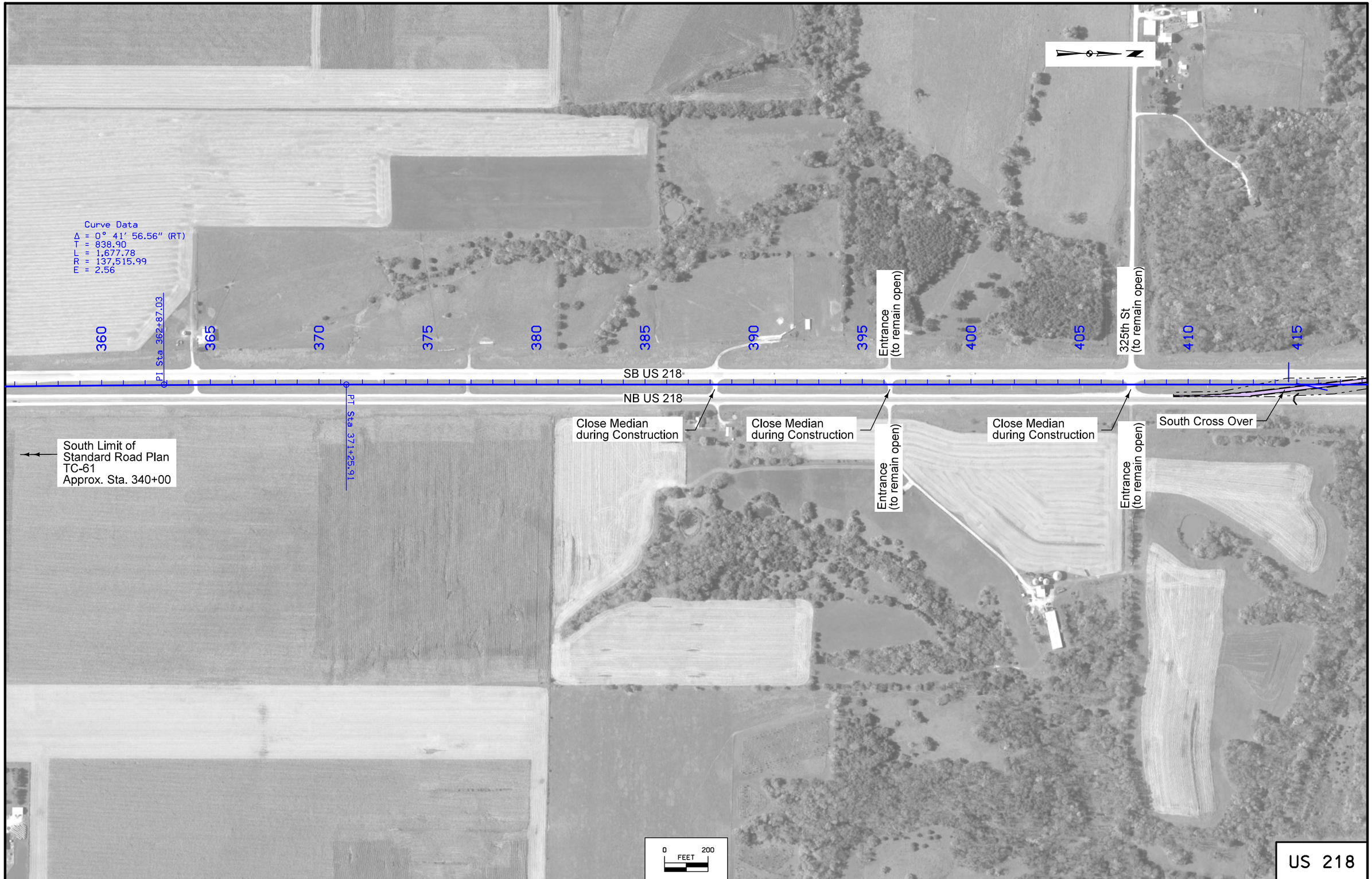
Stage 3:
- Remove Standard Road Plan TC-61 traffic control.
- Install traffic control per Standard Road Plan TC-418 to remove both median crossovers and to remove temporary guardrail on both existing SB bridges.
- Remove traffic control and open all lanes to traffic. Re-open all median crossings.

111-01
04-17-12

COORDINATED OPERATIONS

Other work in progress during the same period of time will include the construction of the projects listed. Coordinate operations with those of other contractors working within the same area.

Project	Type of Work
BRF-218-2(158)--38-44	NB Bridge replacement over South Fish Creek.



FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER J.2

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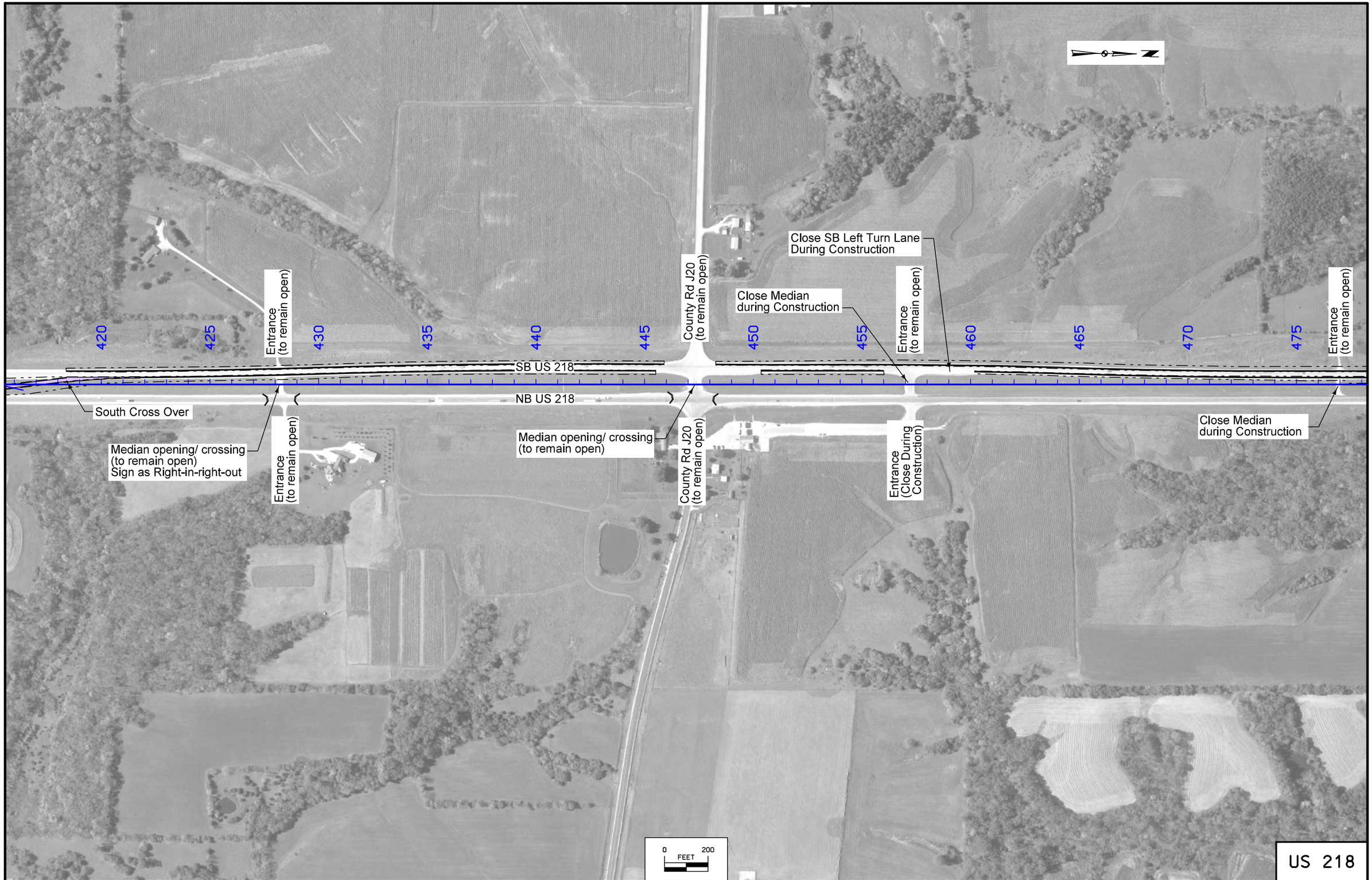

US 218

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER J.3

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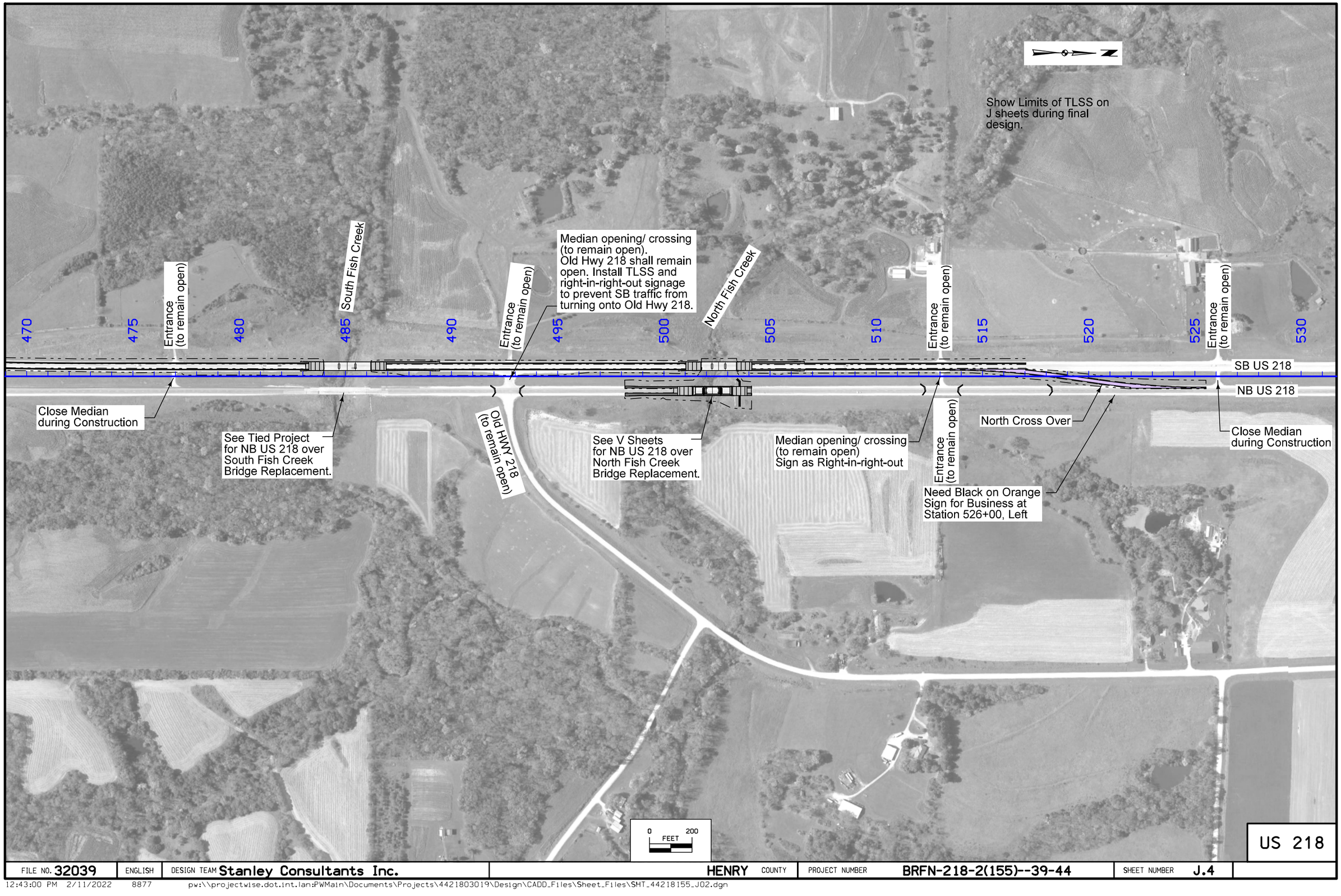

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER J.4

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525
530
535
540
545
550

Entrance (to remain open)

300th St (to remain open)

295th St (to remain open)

SB US 218

NB US 218

POT Sta 554+58.56

Close Median during Construction

Close Median during Construction

Median opening/ crossing (to remain open)

Existing NB Left Turn Lane

300th St (to remain open)

295th St (to remain open)

Approx. North Limit of Standard Road Plan TC-61

0 200 FEET

US 218

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER J.5

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POLLUTION PREVENTION PLAN

This project is regulated by the requirements of the Iowa Department of Natural Resources (DNR) National Pollutant Discharge Elimination System (NPDES) General Permit No. 2 OR an Iowa Department of Natural Resources (DNR) National Pollutant Discharge Elimination System (NPDES) individual storm water permit. The Contractor shall carry out the terms and conditions of this permit and the Pollution Prevention Plan (PPP).

This Base PPP includes information on Roles and Responsibilities, Project Site Description, Controls, Maintenance Procedures, Inspection Requirements, Non-Storm Water Controls, Potential Sources of Off Right-of-Way Pollution, and Definitions. This plan references other documents rather than repeating the information contained in the documents. A copy of this Base Pollution Prevention Plan, amended as needed during construction, will be readily available for review.

All contractors shall conduct their operations in a manner that controls pollutants, minimizes erosion, and prevents sediments from entering waters of the state and leaving the highway right-of-way. The Contractor shall be responsible for compliance and implementation of the PPP for their entire contract. This responsibility shall be further shared with subcontractors whose work is a source of potential pollution as defined in this PPP.

I. ROLES AND RESPONSIBILITES

A. Designer:
1. Prepares Base PPP included in the project plan.
2. Prepares Notice of Intent (NOI) submitted to Iowa DNR.
3. Is signature authority on the Base PPP. If consultant designed, signature from Contracting Authority is also required.

B. Contractor:
1. Signs a co-permittee certification statement adhering to the requirements of the NPDES permit and this PPP. All co-permittees are legally required under the Clean Water Act and the Iowa Administrative Code to ensure compliance with the terms and conditions of this PPP.
2. Designates a Water Pollution Control Manager (WPCM), who has the duties and responsibilities as defined in Section 2602 of the Standard Specifications.
3. Submits an Erosion Control Implementation Plan (ECIP) and ECIP updates according to Section 2602 of the Standard Specifications.
4. Installs and maintains appropriate controls. This work may be subcontracted as documented through Subcontractor Request Forms (Form 830231).
5. Supervises and implements good housekeeping practices according to Paragraph III, C, 2.
6. Conducts joint required inspections of the site with inspection staff. When Contractor is not mobilized on site, Contractor may delegate this responsibility to a trained or certified subcontractor. Contracting Authority also may waive joint inspection requirement during winter shutdown. In both circumstances, WPCM (or trained or certified delegate from the Contractor) is still responsible to review and sign inspection reports.
7. Complies with training and certification requirements of Section 2602 of the Standard Specifications.
8. Submits amended PPP site map according to Section 2602 of the Standard Specifications.

C. Subcontractors:
1. Sign a co-permittee certification statement adhering to the requirements of the NPDES permit and this PPP if: responsible for sediment or erosion controls; involved in land disturbing activities; or perorming work that is a source of potential pollution as defined in this PPP. Subcontracted work items are identified in Subcontractor Request Forms (Form 830231). All co-permittees are legally required under the Clean Water Act and the Iowa Administrative Code to ensure compliance with the terms and conditions of this PPP.
2. Implement good housekeeping practices according to Paragraph III, C, 2.

D. RCE/Project Engineer:
1. Is Project Storm Water Manager.
2. On projects where DOT is the Contracting Authority, is current with erosion control training or certification.
3. Takes actions necessary to ensure compliance with storm water requirements including, where appropriate, issuing stop work orders, and directing additional inspections at construction project sites that are experiencing problems with achieving permit compliance.
4. Orders the taking of measures to cease, correct, prevent, or minimize the consequences of non-compliance with the storm water requirements of the Applicable Permit.
5. Supervises all work necessary to meet storm water requirements at the Project, including work performed by contractors and subcontractors.
6. Requires employees, contractors, and subcontractors to take appropriate responsive action to comply with storm water requirements, including requiring any such person to cease or correct a violation of storm water requirements, and to order or recommend such other actions as necessary to meet storm water requirements.
7. Is familiar with the Project PPP and storm water site map.
8. On projects where DOT is Contracting Authority, is responsible for periodically monitoring inspection reports to determine whether deficiencies identified in inspection reports were adequately and timely addressed, and if not, has the authority and responsibility to direct immediate actions to correct the deficiencies.
9. Is the point of contact for the Project for regulatory officials, Inspector, contractors, and subcontractors regarding storm water requirements.
10. Is signature authority on Notice of Discontinuation.
11. Maintains an up-to-date record of contractors, subcontractors, and subcontracted work items through Subcontractor Request Forms (Form 830231).
12. Makes information to determine permit compliance available to the DNR upon their request.

E. Inspector:
1. Updates PPP through fieldbook entries and storm water site inspection reports if there is a change in design, construction, operation, or maintenance which has a significant effect on the discharge of pollutants from the project.
2. Makes information to determine permit compliance available to the DNR upon their request.
3. Conducts joint required inspections of the site with the contractor/subcontractor.
4. Completes an inspection report after each inspection.
5. Is signature authority on storm water inspection reports.

II. PROJECT SITE DESCRIPTION

A. This Pollution Prevention Plan (PPP) is for the reconstruction of the NB US 218 bridge over North Fish Creek.

B. This PPP covers approximately 13 acres with an estimated 12.9 acres being disturbed. The portion of the PPP covered by this contract has 12.9 acres disturbed.

C. The PPP is located in an area of one soil association (Grundy-Haig-Arispe-Gara). The estimated weighted average runoff coefficient number for this PPP after completion will be 0.43.

D. Storm Water Site Map is located in the R sheets. Proposed slopes are shown in cross sections, details, or standard road plans. Supplemental information is located in the Tabulations in the C or CE sheets.

E. The base storm water site map is amended by contract modifications and progress payments (fieldbook entries) of completed erosion control work. Also, due to project phasing, erosion and sediment controls shown on project plans may not be installed until needed, based on site conditions. For example, silt fence ditch checks will typically not be installed until the ditch has been

110-12
10-20-20

POLLUTION PREVENTION PLAN

installed. Installed locations may also be modified from tabulation locations by field staff. Installed locations will be documented by fieldbook entries and amended PPP site map.

F. Runoff from this work will flow into North Fish Creek and South Fish Creek.

III. CONTROLS

A. The Contractor’s ECIP specified in Article 2602.03 of the Standard Specifications for accomplishment of storm water controls should clearly describe the intended sequence of major activities, and for each activity define the control measure and the timing during the construction process that the measure will be implemented.

B. Preserve vegetation in areas not needed for construction.

C. Sections 2601 and 2602 of the Standard Specifications define requirements to implement erosion and sediment control measures. Actual quantities used and installed locations may vary from the Base PPP and amendment of the plan will be documented via fieldbook entries, amended PPP site map, or by contract modification. Additional erosion and sediment control items may be required as determined by the inspector and/or contractor during storm water site inspections. If the work involved is not applicable to any contract items, the work will be paid for according to Article 1109.03 paragraph B of the Standard Specifications.

1. EROSION AND SEDIMENT CONTROLS

a. Stabilization Practices
1) Site plans will ensure that existing vegetation or natural buffers are preserved where attainable and disturbed portions of the site will be stabilized.
2) Initialize stabilization of disturbed areas immediately after clearing, grading, excavating, or other earth disturbing activities have:
a) Permanently ceased on any portion of the site, or
b) Temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days.
3) Staged permanent and/or temporary stabilizing seeding and mulching shall be completed as the disturbed areas are completed. Incomplete areas shall be stabilized according to paragraph III, C, 1, a, 2, b above.
4) Permanent and Temporary Stabilization practices to be used for this project are located in the storm water site map, Estimated Project Quantities (100-0A, 100-1A, or 100-1C), and Estimate Reference Information (100-4A) located in the C or R sheets. Typical drawings detailing construction of the practices to be used on this project are referenced in the Standard Road Plans Tabulation (105-4) in the C or R sheets.
5) Preservation of existing vegetation within right-of-way or easements will act as vegetative buffer strips.
6) Preservation of topsoil: Bid items to be used for this project are located in the Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located in the C or R sheets. Additional information may be found in the Tabulations in the C or T Tabulation sheets, or is referenced in Section 2105 of the Standard Specifications.

b. Structural Practices
1) Structural practices will be implemented to divert flows from exposed soils and detain or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Additionally, structural practices may include: silt basins that provide 3600 cubic feet of storage per acre drained or equivalent sediment controls, outlet structures that withdraw water from surface when discharging basins, and controls to direct storm water to vegetated areas.
2) Structural practices to be used for this project are located in the storm water site map, Estimated Project Quantities (100-0A, 100-1A, or 100-1C), and Estimate Reference Information (100-4A) located in the C or R sheets, as well as all other item specific Tabulations. Typical drawings detailing construction of the devices to be used on this project can be found on the B or R sheets or are referenced in the Standard Road Plans Tabulation (105-4) located in the C or R sheets.

c. Storm Water Management
Measures shall be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. This may include velocity dissipation devices at discharge locations and along length of outfall channel as necessary to provide a non-erosion velocity flow from structure to water course. If included with this project, these items are located in the storm water site map and Estimated Project Quantities (100-0A, 100-1A, or 100-1C) and Estimate Reference Information (100-4A) located in the C or R sheets, as well as all other item specific Tabulations. Typical drawings detailing construction of the practices to be used on this project are referenced in the Standard Road Plans Tabulation. The installation of these devices may be subject to Section 404 of the Clean Water Act.

2. OTHER CONTROLS

Contractor disposal of unused construction materials and construction material wastes shall comply with applicable state and local waste disposal, sanitary sewer, or septic system regulations. In the event of a conflict with other governmental laws, rules and regulations, the more restrictive laws, rules or regulations shall apply.

a. Vehicle Entrances and Exits - Construct and maintain entrances and exits to prevent tracking of sediments onto roadways.
b. Material Delivery, Storage and Use - Implement practices to prevent discharge of construction materials during delivery, storage, and use.
c. Stockpile Management - Install controls to reduce or eliminate pollution of storm water from stockpiles of soil and paving.
d. Waste Disposal - Do not discharge any materials, including building materials, into waters of the state, except as authorized by a Section 404 permit.
e. Spill Prevention and Control - Implement chemical spill and leak prevention and response procedures to contain and clean up spills and prevent material discharges to the storm drain system and waters of the state.
f. Concrete Residuals and Washout Wastes - Waste shall not be discharged to a surface water and is not allowed to adversely affect a water of the state. Designate temporary concrete washout facilities for rinsing out concrete trucks. Provide directions to truck drivers where designated washout facilities are located. Designated washout areas should be located at least 50 feet away from storm drains, streams or other water bodies. Care should be taken to ensure these facilities do not overflow during storm events.
g. Concrete Grooving/Grinding Slurry – Do not discharge slurry to a waterbody or storm drain. Slurry may be applied on foreslopes or removed from the project.
h. Vehicle and Equipment Storage and Maintenance Areas - Perform on site fueling and maintenance in accordance with all environment laws such as proper storage of onsite fuels and proper disposal of used engine oil or other fluids on site. Employ washing practices that prevent contamination of surface and ground water from wash water. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge.
i. Litter Management - Ensure employees properly dispose of litter. Minimize exposure of trash if exposure to precipitation or storm water would result in a discharge of pollutants.
j. Dewatering – Properly treat water to remove suspended sediment before it re-enters a waterbody or discharges off-site. Measures are also to be taken to prevent scour erosion at dewatering discharge point.

3. APPROVED STATE OR LOCAL PLANS

During the course of this construction, it is possible that situations will arise where unknown materials will be encountered. When such situations are encountered, they will be handled according to all federal, state, and local regulations in effect at the time.

POLLUTION PREVENTION PLAN

IV. MAINTENANCE PROCEDURES

The Contractor is required to maintain all temporary erosion and sediment control measures in proper working order, including cleaning, repairing, or replacing them throughout the contract period. This shall begin when the features have lost 50% of their capacity.

V. INSPECTION REQUIREMENTS

A. Inspections shall be made jointly by the Contractor and the Contracting Authority's inspector at least once every seven calendar days. Storm water site inspections will include:
   1. Date of the inspection.
   2. Summary of the scope of the inspection.
   3. Name and qualifications of the personnel making the inspection.
   5. Review of erosion and sediment control measures within disturbed areas for the effectiveness in preventing impacts to receiving waters.
   6. Major observations related to the implementation of the PPP.
   7. Identification of corrective actions required to maintain or modify erosion and sediment control measures.

B. Include storm water site inspection reports in the Amended PPP. Incorporate any additional erosion and sediment control measures determined as a result of the inspection. Immediately begin corrective actions on all deficiencies found within 3 calendar days of the inspection and complete within 7 calendar days following the inspection. If it is determined that making the corrections less than 72 hours after the inspection is impracticable, it should be documented why it is impracticable and indicate an estimated date by which the corrections will be made.

VI. NON-STORM WATER DISCHARGES

This includes subsurface drains (i.e. longitudinal and standard subdrains) and slope drains. The velocity of the discharge from these features may be controlled by the use of headwalls or blocks, Class A stone, erosion stone or other appropriate materials. This also includes uncontaminated groundwater from dewatering operations, which will be controlled as discussed in Section III of the PPP.

VII. POTENTIAL SOURCES OF OFF RIGHT-OF-WAY (ROW) POLLUTION

Silts, sediment, and other forms of pollution may be transported onto highway right-of-way (ROW) as a result of a storm event. Potential sources of pollution located outside highway ROW are beyond the control of this PPP. Pollution within highway ROW will be conveyed and controlled per this PPP.

VIII. DEFINITIONS

A. Base PPP - Initial Pollution Prevention Plan.
B. Amended PPP - Base PPP amended during construction. May include Plan Revisions or Contract Modifications for new items, storm water site inspection reports, fieldbook entries made by the inspector, amended PPP site map by the Contractor, ECIP, NOI, co-permittee certifications, and Subcontractor Request Forms. Items amending the PPP are stored electronically and are readily available upon request.
C. Fieldbook Entries – This contains the inspector’s daily diary and bid item postings.
D. Controls - Methods, practices, or measures to minimize or prevent erosion, control sedimentation, control storm water, or minimize contaminants from other types of waste or materials. Also called Best Management Practices (BMPs).
E. Signature Authority - Representative authorized to sign various storm water documents.

CERTIFICATION STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature

Printed or Typed Name

Signature

STORMWATER DRAINAGE BASIN AND STORAGE

Refer to EC Standards and 570s Details.

Drainage Basin Location						Summary of Stormwater Storage							
Basin No.	Station to Station		Side	Discharge Point		Total Disturbed Area	Disturbed Area with Storage Provided	Disturbed Area without Storage Provided	Best Management Practice	Total Storage Volume Provided	Total Storage Volume Required	Storage Volume Met?	Remarks
				Station	Side	Acres	Acres	Acres		CF	CF	Yes/No	
1	409+32.00	445+51.00	Both	414+61.00	Med	2.5	2.5	0.0	Silt Fence for Ditch Check (EC-201)	5654.5	9000.0	No	Vegetated Buffers provided in all areas of project.
1									Vegetated Buffer	0.0	0.0	No	
2	418+38.00	445+89.00	Lt	418+28.00	Lt	1.2	0.0	1.2	Vegetated Buffer	0.0	0.0	No	
3	448+30.00	484+00.00	Lt	483+72.00	Lt	2.0	0.0	2.0	Vegetated Buffer	0.0	0.0	No	
4	450+38.00	455+99.00	Lt	455+99.00	Med	0.3	0.0	0.3	Vegetated Buffer	0.0	0.0	No	
5	460+19.00	484+00.00	Lt	483+80.00	Med	1.1	1.1	0.0	Silt Fence for Ditch Check (EC-201)	547.4	3960.0	No	
5									Vegetated Buffer	0.0	0.0	No	
6	486+22.00	492+70.00	Lt	486+38.00	Lt	0.3	0.0	0.3	Vegetated Buffer	0.0	0.0	No	
7	486+22.00	492+70.00	Lt	492+06.00	Med	0.4	0.4	0.0	Silt Fence for Ditch Check (EC-201)	942.8	1440.0	No	
7									Vegetated Buffer	0.0	0.0	No	
8	492+70.00	525+53.00	Both	502+20.00	Rt	5.0	5.0	0.0	Silt Fence for Ditch Check (EC-201)	2919.5	18000.0	No	
8									Vegetated Buffer	0.0	0.0	No	

100-18
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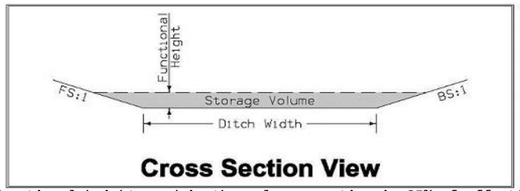
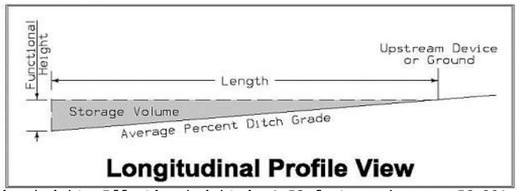
SILT FENCES FOR DITCH CHECKS

Possible Standard: EC-201



Cross Section View



Longitudinal Profile View

* The functional height used in the volume equation is 85% of effective height. Effective height is 1.58 feet as shown on EC-201.

* Volume equation: [0.5*Spacing*(0.5*H^2*FS+DW*H+0.5*H^2*BS)]

Basin No.	Type	Location		Bid Items			Stormwater Storage Volume Summary					Remarks
		Station	Side	Installation	Maintenance	Removal	Foreslope	Backslope	Ditch Width	Avg.% Slope Ditch Grade	Volume*	
				LF	LF	LF	FS:1	BS:1	FT		CF	
1	1	412+89.00	Med	60.0	6.0	60.0	6.0	6.0	5.0	1.3%	876.8	
1	1	414+45.00	Med	44.0	4.4	44.0	3.0	6.0	1.0	1.3%	473.0	
1	1	414+72.00	Med	44.0	4.4	44.0	3.0	6.0	1.0	1.0%	141.9	
1	1	416+47.00	Med	32.0	3.2	32.0	3.0	3.0	5.0	0.5%	818.5	
1	1	417+85.00	Med	45.0	4.5	45.0	3.0	3.0	10.0	1.0%	1460.2	
1	1	419+35.00	Med	55.0	5.5	55.0	3.0	3.0	10.0	1.5%	942.0	
1	1	420+78.00	Med	66.0	6.6	66.0	3.0	3.0	10.0	1.5%	942.0	
5	1	481+07.00	Med	66.0	6.6	66.0	6.0	6.0	1.0	4.0%	243.3	
5	1	483+45.00	Med	55.0	5.5	55.0	6.0	6.0	1.0	3.0%	304.1	
7	1	492+05.00	Med	64.0	6.4	64.0	6.0	6.0	1.0	0.8%	942.8	
8	1	499+85.00	Med	53.0	5.3	53.0	6.0	6.0	1.0	0.9%	942.8	
8	1	499+87.00	Rt	29.0	2.9	29.0	3.0	3.0	1.0	3.1%	152.0	
8	1	501+39.00	Med	70.0	7.0	70.0	6.0	6.0	1.0	2.7%	304.1	
8	1	503+63.00	Med	65.0	6.5	65.0	6.0	6.0	1.0	1.0%	942.8	
8	1	513+93.00	Med	65.0	6.5	65.0	6.0	6.0	1.0	4.5%	212.9	
8	1	521+39.00	Med	57.0	5.7	57.0	6.0	6.0	1.0	2.5%	364.9	

100-17
04-20-10

TABULATION OF SILT FENCES

Refer to EC-201

Location			Length	Remarks
Begin Station	End Station	Side	LF	
501+72.00	502+02.00	Rt	130.0	South Bridge Berm
502+68.00	502+90.00	Rt	150.0	North Bridge Berm
	Total:		280.0	

100-19
10-19-21

PERIMETER, SLOPE AND DITCH CHECK SEDIMENT CONTROL DEVICES

Possible Standards: EC-204

Location			Perimeter and Slope			Ditch Check		Remarks
			Length of Installation			Length of Installation		
Begin Station	End Station	Side	9 inch Dia	12 inch Dia	20 inch Dia	12 inch Dia	20 inch Dia	
			LF	LF	LF	LF	LF	
481+85.00	484+05.00	Lt		230				
482+12.00	484+05.00	Med		210				
486+20.00	489+64.00	Lt		350				
486+20.00	490+17.00	Med		410				
498+83.00	501+84.00	Lt		310				
500+06.00	501+79.00	Med		180				
498+06.00	501+35.00	Med		330				
498+16.00	501+56.00	Rt		340				
503+42.00	506+88.00	Lt		350				
503+46.00	506+86.00	Med		350				
503+26.00	504+11.00	Med		90				
503+22.00	504+22.00	Rt		110				Top of foreslope
503+10.00	504+20.00	Rt		120				Half way down foreslope
502+88.00	504+31.00	Rt		150				Toe of foreslope
	Totals:			3530				

100-10
10-21-14

FLOATING SILT CURTAINS

Refer to EC-202

Station	Hanging	Containment	Clean-out (Containment)	Maintenance of Floating Silt Curtain	Remarks
	LF	LF	LF	LF	
502+05.00	150.0			75.0	South Bank
502+35.00	150.0			75.0	North Bank

LINE STYLE LEGEND OF EROSION CONTROL SHEETS

- Silt Fence
- Perimeter and Slope Sediment Control Device (9")
- Perimeter and Slope Sediment Control Device (12")
- Perimeter and Slope Sediment Control Device (20")
- Open-Throat Curb Intake Sediment Filter
- Concentrated Flow
- Sheet Flow

CELL LEGEND OF EROSION CONTROL SHEETS

- Temporary Sediment Control basin
- Erosion Control for Circular Intake or Manhole Well
- Erosion Control for Rectangular Intake or Manhole Well
- Grate Intake Sediment Filter Bag
- Silt Basin
- Silt Fence Tail
- Stormwater Drainage Basin Discharge Point

PLAN VIEW COLOR LEGEND OF EROSION CONTROL 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
Black	(0)	Permanent Erosion Control Features
Blaze Orange	(222)	Temporary Erosion Control Features

SHADING	Design Color No.		Transparency
Citron	(234)	Mulching, All Types	50%
Light Brown	(238)	Special Ditch Control, Wood Excelsior Mat	0%

PATTERN LEGEND OF EROSION CONTROL SHEETS

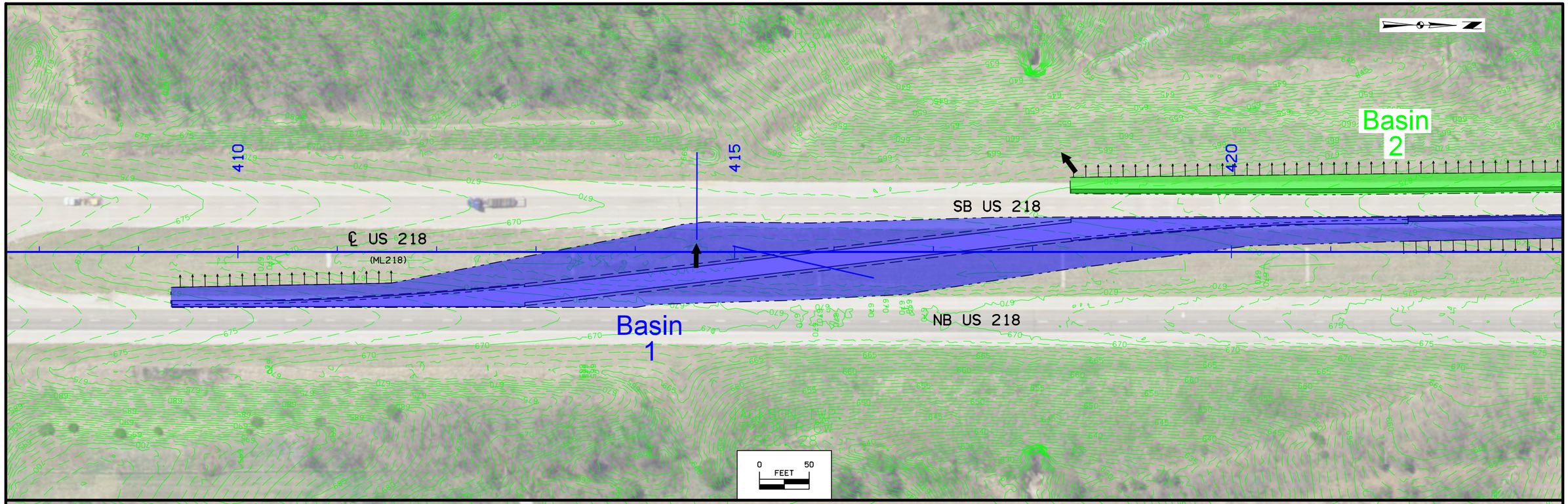
- Seeding and Fertilizing
- Seeding and Fertilizing (Rural) (R)
- Seeding and Fertilizing (Urban) (U)
- Native Grass Seeding (N)
- Salt Tolerant Seeding (ST)
- Wetland Grass Seeding (WL)
- Wildflower Seeding (WF)
- Sodding (SOD)
- Turf Reinforcement Mat Type 1
- Turf Reinforcement Mat Type 2
- Turf Reinforcement Mat Type 3
- Turf Reinforcement Mat Type 4
- Slope Protection, Wood Excelsior Mat
- Transition Mat
- Rock Features, Permanent
- Rock Features, Temporary

EROSION CONTROL LEGEND AND SYMBOL INFORMATION SHEET

(COVERS SHEET SERIES R)

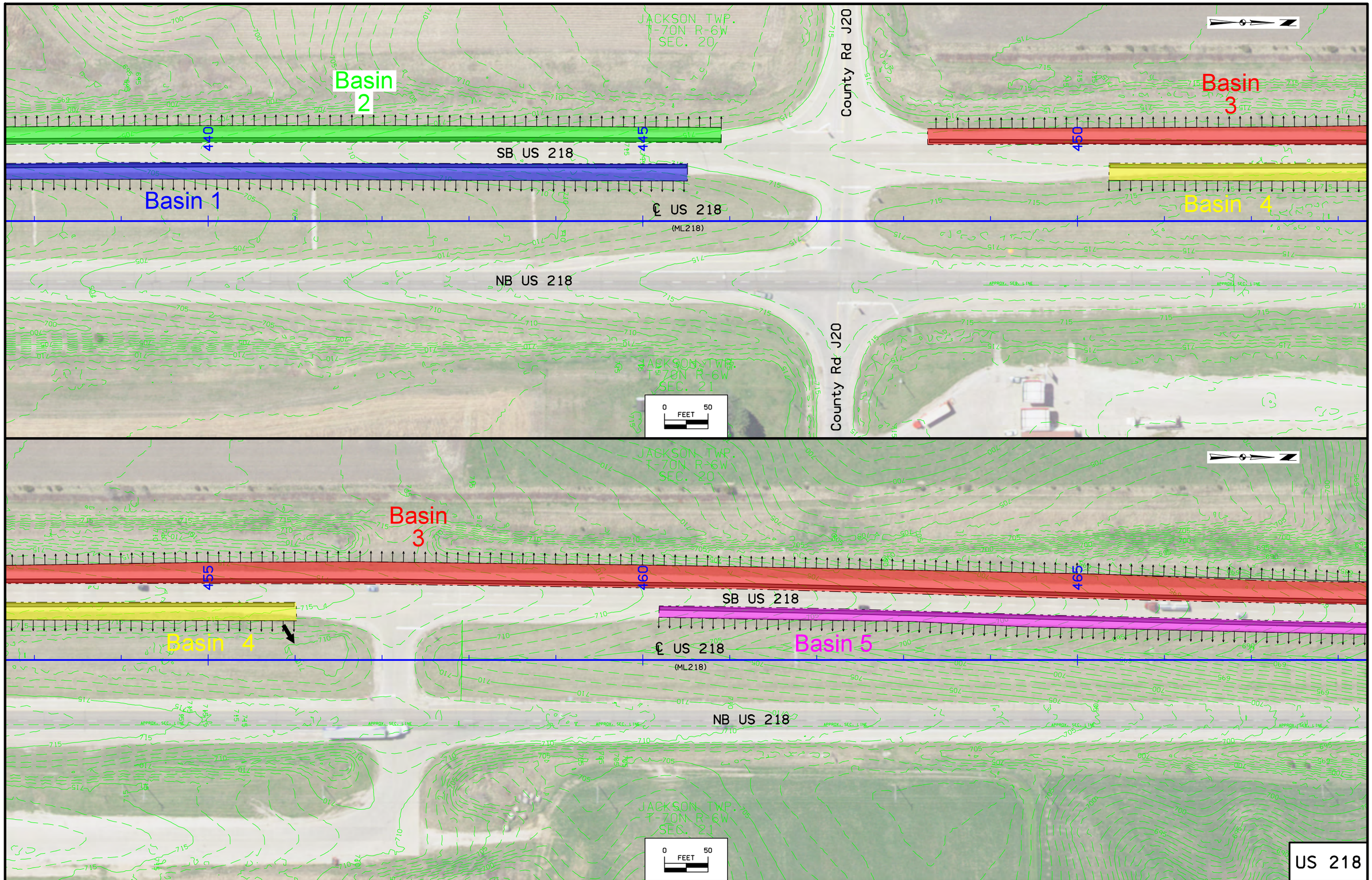
FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER RR.1

8:15:32 AM 12/7/2021 3994 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\4421803019\Design\CADD_Files\Sheet_Files\SHT_44218155_RR01.dgn



FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER RR.2

10:16:26 AM 12/28/2021 8877 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\44218030I9\Design\CADD_Files\Sheet_Files\SHT_44218155_RR01.dgn



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Basin 3

470

475

480

SB US 218

℄ US 218

(ML218)

Basin 5

NB US 218

APPROX. SEC. LINE

APPROX. SEC. LINE

APPROX. SEC. LINE

JACKSON TWP.
T7ON R6W
SEC. 20

JACKSON TWP.
T7ON R6W
SEC. 21

0 FEET 50

Basin 3

South Fish Creek

485

Basin 6

490

495

Basin 8

SB US 218

℄ US 218

(ML218)

Basin 5

Basin 7

Basin 8

NB US 218

APPROX. SEC. LINE

APPROX. SEC. LINE

APPROX. SEC. LINE

Old HWY 218

JACKSON TWP.
T7ON R6W
SEC. 29

JACKSON TWP.
T7ON R6W
SEC. 16

0 FEET 50

US 218

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER RR.4

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North Fish Creek

JACKSON TWP.
T-7ON R-6W
SEC. 17

Basin 8

500 505 510

SB US 218

℄ US 218
(ML218)

NB US 218

APPROX. SEC. LINE

Exist. R.O.W.

0 FEET 50

JACKSON TWP.
T-7ON R-6W
SEC. 16

515 520 525

SB US 218

℄ US 218
(ML218)

NB US 218

APPROX. SEC. LINE

US 218

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER RR.5

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410

415

420

SB US 218

℄ US 218

(ML218)

NB US 218

0 50

FEET

425

430

435

SB US 218

℄ US 218

(ML218)

NB US 218

0 50

FEET

US 218

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER RR.6

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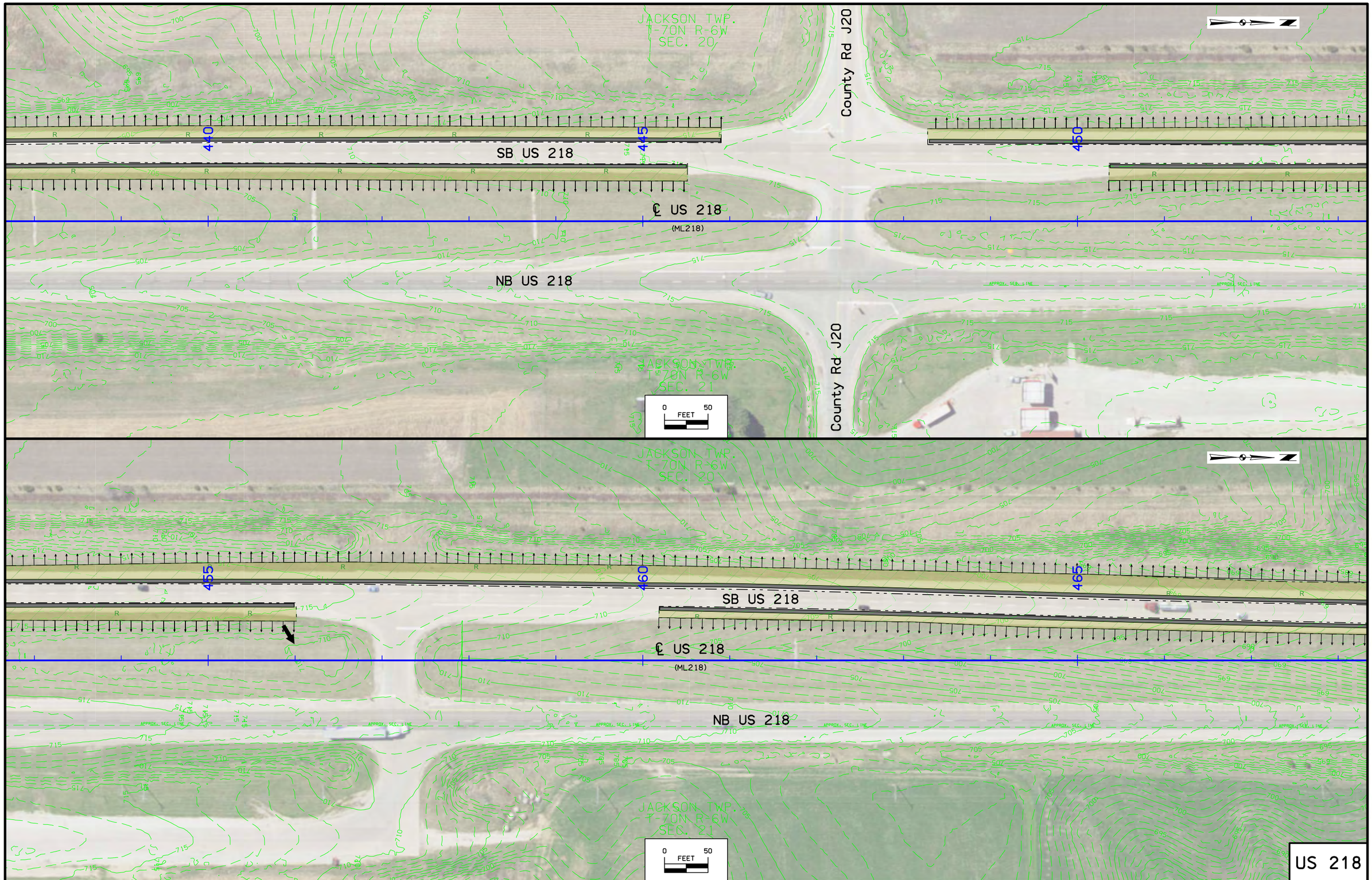

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JACKSON TWP
T7ON R6W
SEC. 20

470 475 480

SB US 218

℄ US 218

(ML218)

NB US 218

APPROX. SEC. LINE

0 FEET 50

JACKSON TWP
T7ON R6W
SEC. 21

JACKSON TWP
T7ON R6W
SEC. 17

South Fish Creek

485 490 495

SB US 218

℄ US 218

(ML218)

NB US 218

Old HWY 218

JACKSON TWP
T7ON R6W
SEC. 20

JACKSON TWP
T7ON R6W
SEC. 16

0 FEET 50

US 218

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER RR.8

9:44:34 AM 12/7/2021 3994 pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\4421803019\Design\CADD_Files\Sheet_Files\SHT_44218155_RR01.dgn

North Fish Creek

JACKSON TWP.
T-70N R-6W
SEC. 17

500 505 510

SB US 218

℄ US 218
(ML218)

NB US 218

Exist. R.O.W.

0 50
FEET

JACKSON TWP.
T-70N R-6W
SEC. 17

515 520 525

SB US 218

℄ US 218
(ML218)

NB US 218

JACKSON TWP.
T-70N R-6W
SEC. 16

0 50
FEET

US 218

FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER RR.9

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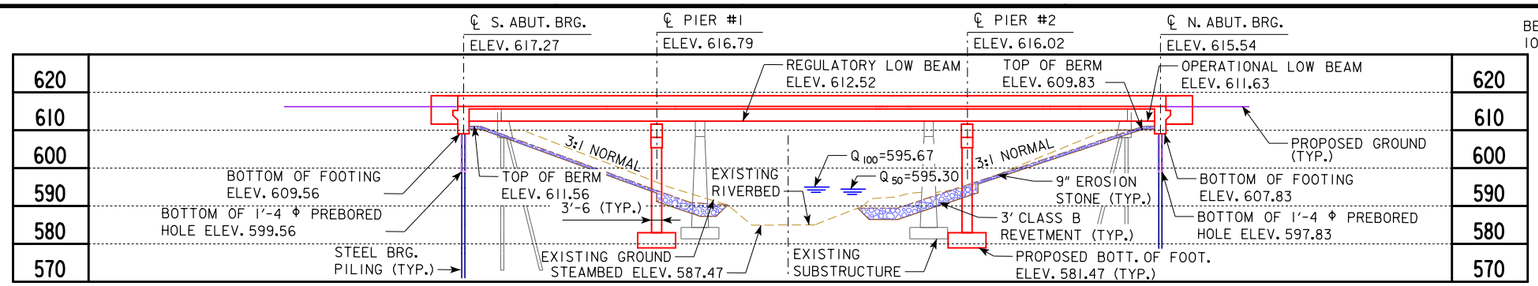


LONGITUDINAL SECTION ALONG ℄ N.B. US 218

BENCH MARK: CP NGS 10" X 10" CONCRETE MONUMENT LD0867 WITH DISC
108' EAST OF INTERSECTION OF FREMONT AVENUE AND 300TH STREET FENCE LINE

-0.942%

VPI STA. = 501+00.00
VPI ELEV. = 617.611

VPI STA. = 503+25.02
VPI ELEV. = 615.490

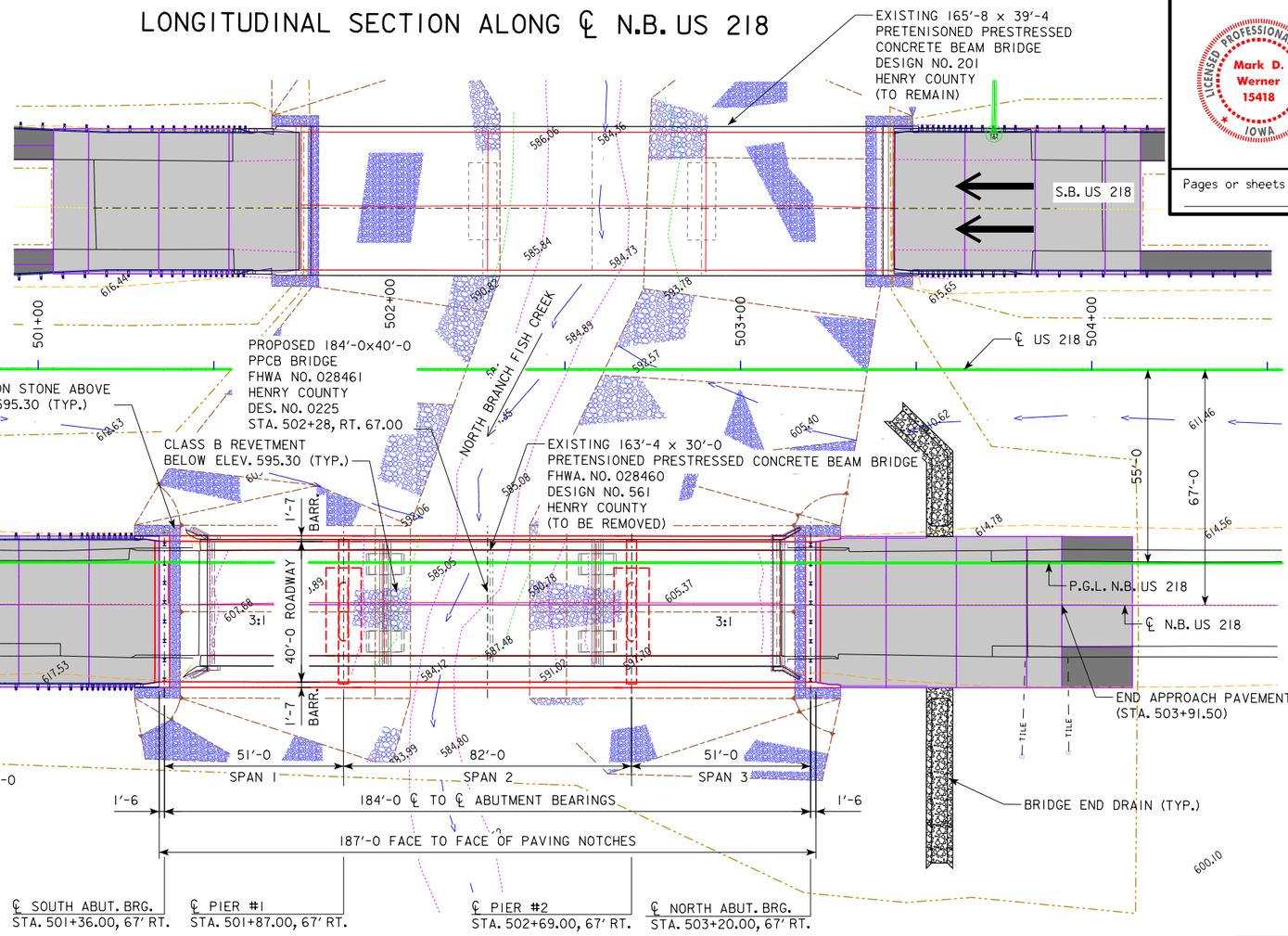
PROPOSED PROFILE GRADE US 218

PLAN NOTES:

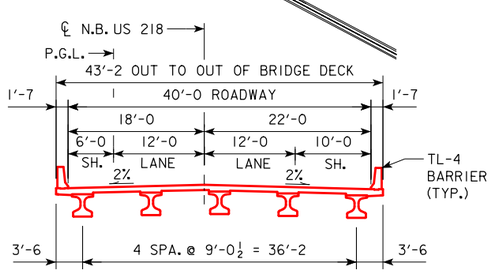
1. TOP OF BRIDGE DECK AT N.B. CENTERLINE US 218 IS 0.21' ABOVE THE PROFILE GRADE TO ACCOUNT FOR DECK CROSS SLOPE AND PARABOLIC CROWN.
2. CLASS B REVETMENT STONE AND EROSION STONE IS EMBEDDED.

GENERAL NOTES:

1. THIS DESIGN IS FOR THE REPLACEMENT OF THE EXISTING 163'-4 x 30'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE, HENRY DESIGN NO. 561, FHWA NO. 028460, MAIN. NO. 4434.8R218



SITUATION PLAN



BRIDGE CROSS SECTION

(LOOKING NORTH)

TRAFFIC ESTIMATE

2018 AADT	4400	V.P.D.
2044 AADT	6900	V.P.D.
TRUCKS	24	%
TOTAL DESIGN ESALs	5,913,440	

0 ENGLISH 40
SCALE IN FEET

HYDRAULIC DESIGN

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.

Mark D. Werner — 01/04/2022
Signature — Date

Mark D. Werner
Printed or Typed Name

My license renewal date is December 31, 2023

Pages or sheets covered by this seal: V.01 & V.02

HYDRAULIC DATA

DRAINAGE AREA = 6.9 SQ. MI.
STREAM SLOPE = 9.9 FT./MI.

Q_{50} = 2,945 CFS
STAGE = 595.30
REGULATORY LOW BEAM = 612.52
AVG. BRIDGE VELOCITY = 8.3 FPS

Q_{100} = 3,492 CFS
STAGE = 595.67
OPERATIONAL LOW BEAM = 611.63
BACKWATER = 1.31 FT.
AVG. BRIDGE VELOCITY = 9.3 FPS

Q_{200} = 4,534 CFS
DESIGN SCOUR = 576.1
Q_{500} = 4,969 CFS
CHECK SCOUR = 574.5

UTILITIES LEGEND:

TI - BURIED TELEPHONE LINE - WINDSTREAM
⊕ - POWER POLE - ACCESS ENERGY (QLD)
W - BURIED WATER LINE - RATHBUN WATER

UTILITIES SHOWN ON THIS SHEET ARE FOR INFORMATION ONLY, SEE ROAD DESIGN SHEETS FOR FINAL UTILITY INFORMATION.

LOCATION

N.B. US 218 OVER NORTH BRANCH FISH CREEK
T-70N R-6W
SECTION 16 & 17
JACKSON TOWNSHIP
HENRY COUNTY
FHWA NO. 028461
BRIDGE MAINT. NO. 4434.8R218
LATITUDE 40.861357
LONGITUDE -91.564687

PRELIMINARY

DESIGN FOR 0° SKEW

184'-0 X 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

51' END SPANS (BTB BEAM TYPE) 82' INTERIOR SPAN

SITUATION PLAN

STA. 502+28.00, RT. 67.00'

JANUARY 2022

HENRY COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 1 OF 2 FILE NO. 32039 DESIGN NO. 225

DESIGN TEAM Stanley Consultants Inc. | HENRY COUNTY | PROJECT NUMBER BRFN-218-2(155)--39-44 | SHEET NUMBER V.01

BENCH MARK: CP NGS 10" X 10" CONCRETE MONUMENT LD0867 WITH DISC
108' EAST OF INTERSECTION OF FREMONT AVENUE AND 300TH STREET FENCE LINE

BERM SLOPE LOCATION TABLE

POINTS	SOUTH ABUTMENT			NORTH ABUTMENT		
	STATION	OFFSET	ELEV.	STATION	OFFSET	ELEV.
A1	501+96.00	44.42 RT.	591.57	502+50.50	44.42 RT.	586.67
A2	501+96.00	93.58 RT.	593.07	502+50.50	93.58 RT.	588.16
B1	501+40.50	44.42 RT.	611.57	503+15.50	44.42 RT.	609.83
B2	501+40.50	93.58 RT.	611.57	503+15.50	93.58 RT.	609.83
W1	501+27.50	44.42 RT.	616.21	503+28.50	44.42 RT.	614.64
W2	501+27.50	93.58 RT.	616.05	503+28.50	93.58 RT.	614.48

BERM SLOPE ELEVATIONS REFLECT THE GRADING SURFACE

DESIGN NOTES:

ALL UNITS ARE IN FEET UNLESS NOTED OTHERWISE.

TL-4 BRIDGE RAILING PROPOSED

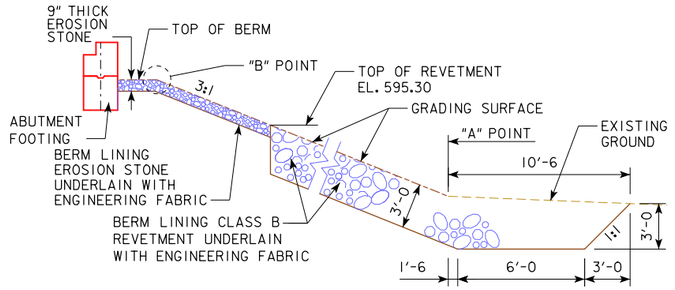
TOP OF BRIDGE DECK AT ℄ N.B. US 218 IS 0.21' ABOVE THE PROFILE GRADE TO ACCOUNT FOR DECK CROSS SLOPE AND PARABOLIC CROWN.

PIER TYPE - TEE PIERS

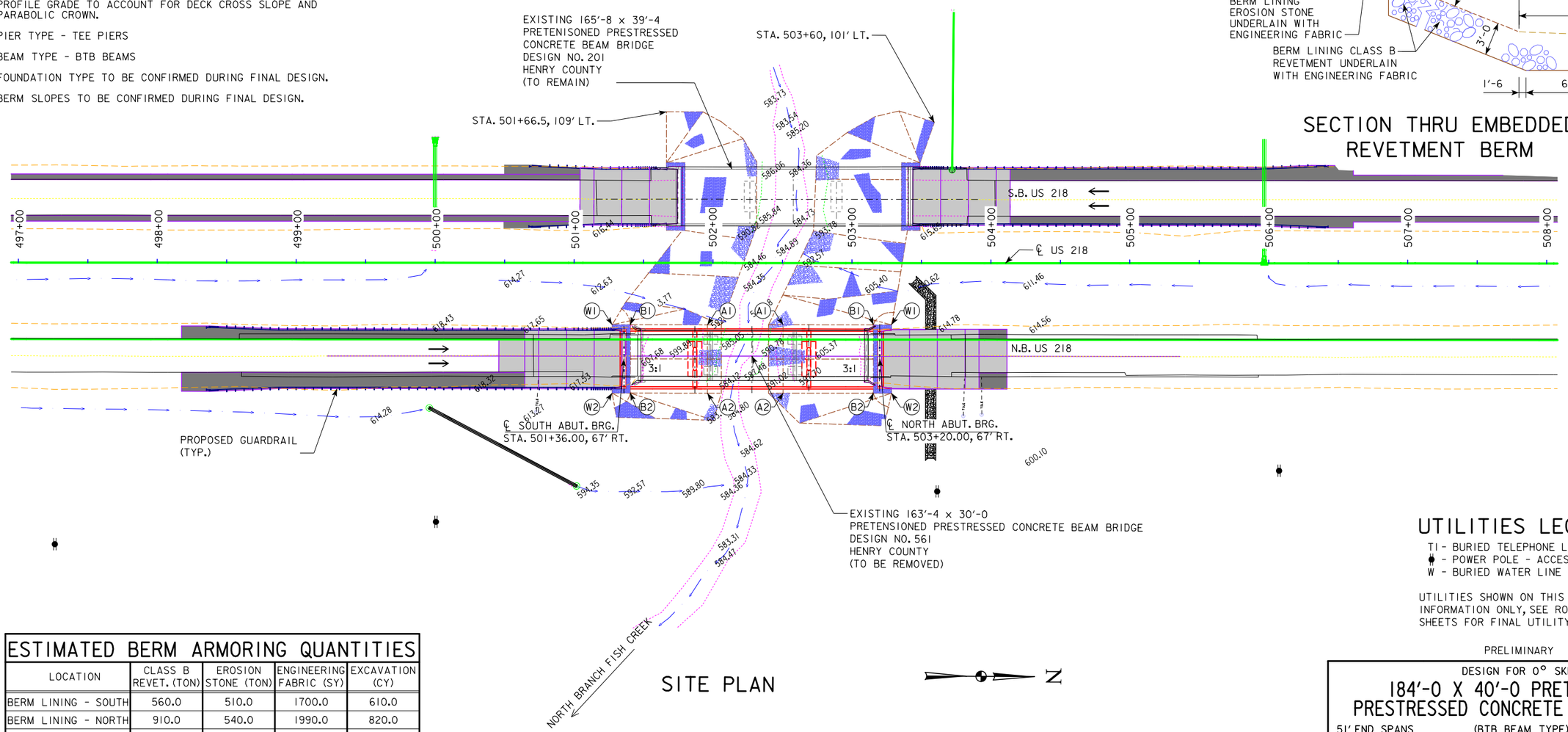
BEAM TYPE - BTB BEAMS

FOUNDATION TYPE TO BE CONFIRMED DURING FINAL DESIGN.

BERM SLOPES TO BE CONFIRMED DURING FINAL DESIGN.



SECTION THRU EMBEDDED REVETMENT BERM



SITE PLAN

0 ENGLISH 80
SCALE IN FEET

N

UTILITIES LEGEND:

TI - BURIED TELEPHONE LINE - WINDSTREAM
⊕ - POWER POLE - ACCESS ENERGY (QLD)
W - BURIED WATER LINE - RATHBUN WATER

UTILITIES SHOWN ON THIS SHEET ARE FOR INFORMATION ONLY, SEE ROAD DESIGN SHEETS FOR FINAL UTILITY INFORMATION.

ESTIMATED BERM ARMORING QUANTITIES

LOCATION	CLASS B REVET. (TON)	EROSION STONE (TON)	ENGINEERING FABRIC (SY)	EXCAVATION (CY)
BERM LINING - SOUTH	560.0	510.0	1700.0	610.0
BERM LINING - NORTH	910.0	540.0	1990.0	820.0
TOTALS	1470.0	1050.0	3690.0	1430.0

EXCAVATION QUANTITY CALCULATED FROM GRADING SURFACE.
REVETMENT ESTIMATED AT 1.6 TON / CY

PRELIMINARY

DESIGN FOR 0° SKEW

184'-0 X 40'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

51' END SPANS (BTB BEAM TYPE) 82' INTERIOR SPAN

SITE PLAN

STA. 502+28.00, RT. 67.00'

JANUARY 2022

HENRY COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 2 OF 2 FILE NO. 32039 DESIGN NO. 225

DESIGN TEAM Stanley Consultants Inc. | HENRY COUNTY | PROJECT NUMBER BRFN-218-2(155)--39-44 | SHEET NUMBER V.02

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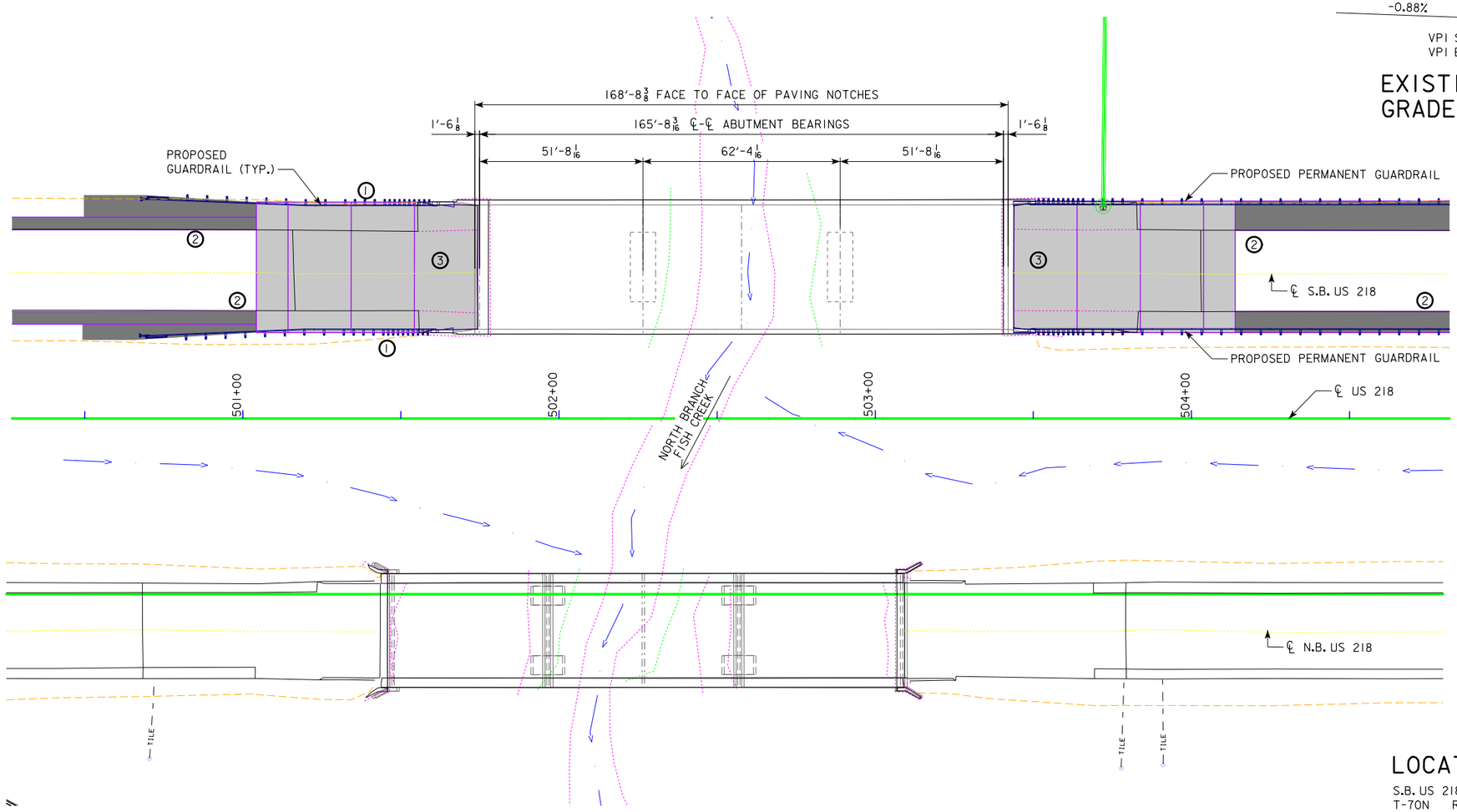


SITUATION PLAN

LOCATION

S.B. US 218 OVER NORTH BRANCH FISH CREEK
T-70N R-6W
SECTION 17
JACKSON TOWNSHIP
HENRY COUNTY
FHWA NO. 608125
BRIDGE MAINT. NO. 4434.8L218
LATITUDE 40.861819°
LONGITUDE -91.565181°

NOTE TO DESIGNER:
TS&L FOR BRIDGE APPROACH REPAIR INCLUDED FOR INFORMATION. THIS WORK TO BE INCLUDED IN THE ROADWAY PLANS FOR FINAL DESIGN. NO BRIDGE DESIGN NUMBER WILL BE ASSIGNED.

REPAIR LEGEND

REPAIR SHALL CONSIST OF:
1. INSTALL TEMPORARY GUARDRAIL.
2. INSTALL SHOULDER STRENGTHENING FOR TWO-LANE, TWO-WAY OPERATION.
3. REMOVE AND REPLACE 70' BRIDGE APPROACHES.

TRAFFIC ESTIMATE

2018 AADT	4400	V.P.D.
2044 AADT	6900	V.P.D.
TRUCKS	24	%
TOTAL DESIGN ESALs	5,913,440	

0 ENGLISH 40
SCALE IN FEET

PRELIMINARY

DESIGN FOR 0° SKEW

165'-8 X 39'-4 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

51-8' END SPANS — 62'-4 INTERIOR SPAN

SITUATION PLAN

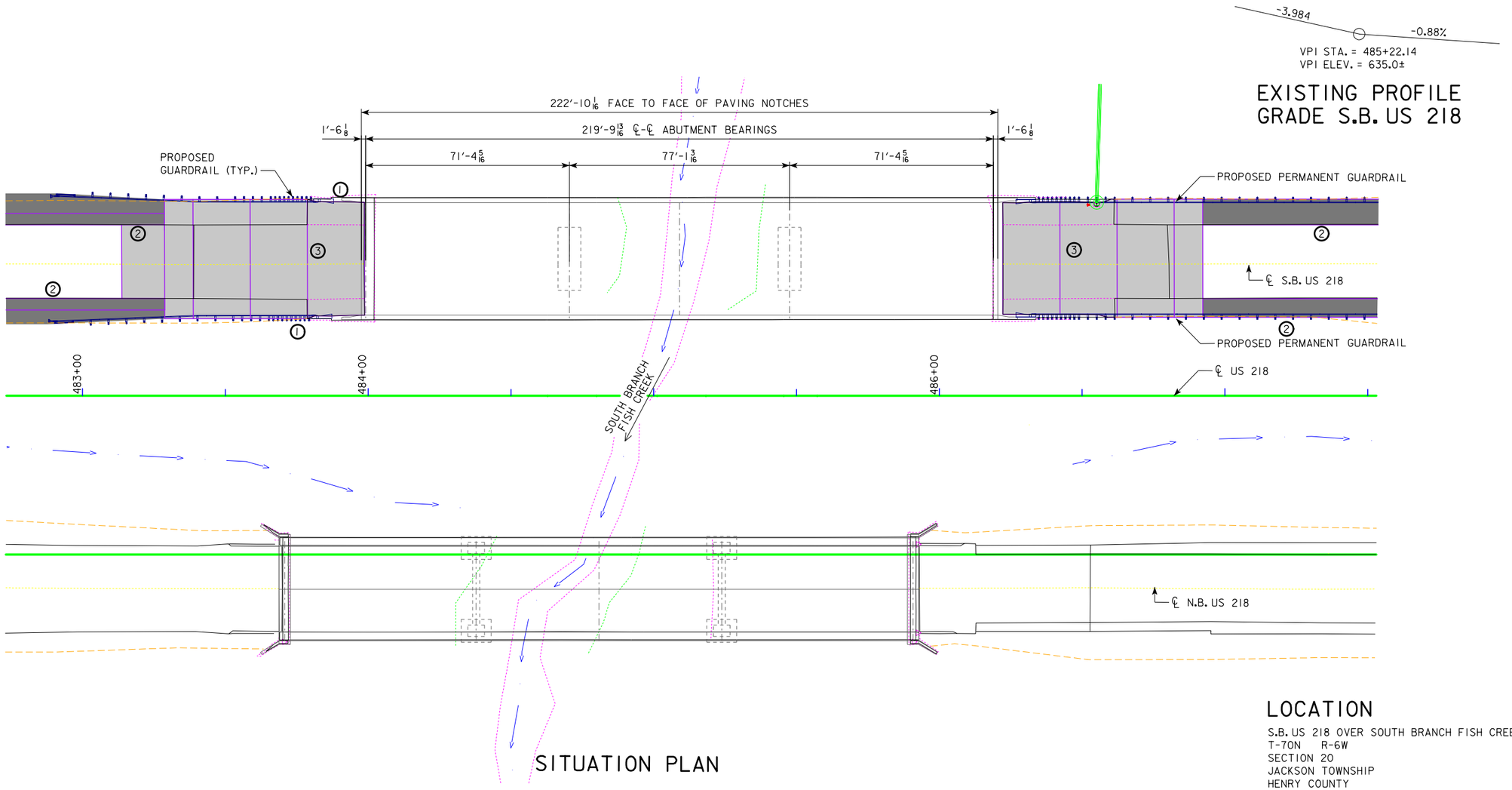
STA. 502+57.71, LT. 45.90' — JANUARY 2022

HENRY COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 1 OF 1 FILE NO. 32039 DESIGN NO. TBD

DESIGN TEAM Stanley Consultants Inc. | HENRY COUNTY | PROJECT NUMBER BRFN-218-2(155)--39-44 | SHEET NUMBER V.03



LOCATION

S.B. US 218 OVER SOUTH BRANCH FISH CREEK
T-70N R-6W
SECTION 20
JACKSON TOWNSHIP
HENRY COUNTY
FHWA NO. 608120
BRIDGE MAINT. NO. 4434.4L218
LATITUDE 40.857036°
LONGITUDE -91.565119°

NOTE TO DESIGNER:
TS&L FOR BRIDGE APPROACH REPAIR INCLUDED FOR INFORMATION. THIS WORK TO BE INCLUDED IN THE ROADWAY PLANS FOR FINAL DESIGN. NO BRIDGE DESIGN NUMBER WILL BE ASSIGNED.

REPAIR LEGEND

REPAIR SHALL CONSIST OF:
① INSTALL TEMPORARY GUARDRAIL.
② INSTALL SHOULDER STRENGTHENING FOR TWO-LANE, TWO-WAY OPERATION.
③ REMOVE AND REPLACE 70' BRIDGE APPROACHES.

TRAFFIC ESTIMATE

2018 AADT	4400	V.P.D.
2044 AADT	6900	V.P.D.
TRUCKS	24	%
TOTAL DESIGN ESALs	5,913,440	

0 ENGLISH 40
SCALE IN FEET

PRELIMINARY

DESIGN FOR 0° SKEW

219'-9 X 39'-4 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

71-4' END SPANS 77'-1 INTERIOR SPAN

SITUATION PLAN

STA. 485+09.02, LT. 45.90' JANUARY 2022

HENRY COUNTY

IOWA DEPARTMENT OF TRANSPORTATION

DESIGN SHEET NO. 1 OF 1 FILE NO. 32039 DESIGN NO. TBD

DESIGN TEAM Stanley Consultants Inc. | HENRY COUNTY | PROJECT NUMBER BRFN-218-2(155)--39-44 | SHEET NUMBER V.04

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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)
- SLOPE DRESSING — Slope Dressing Only
- 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

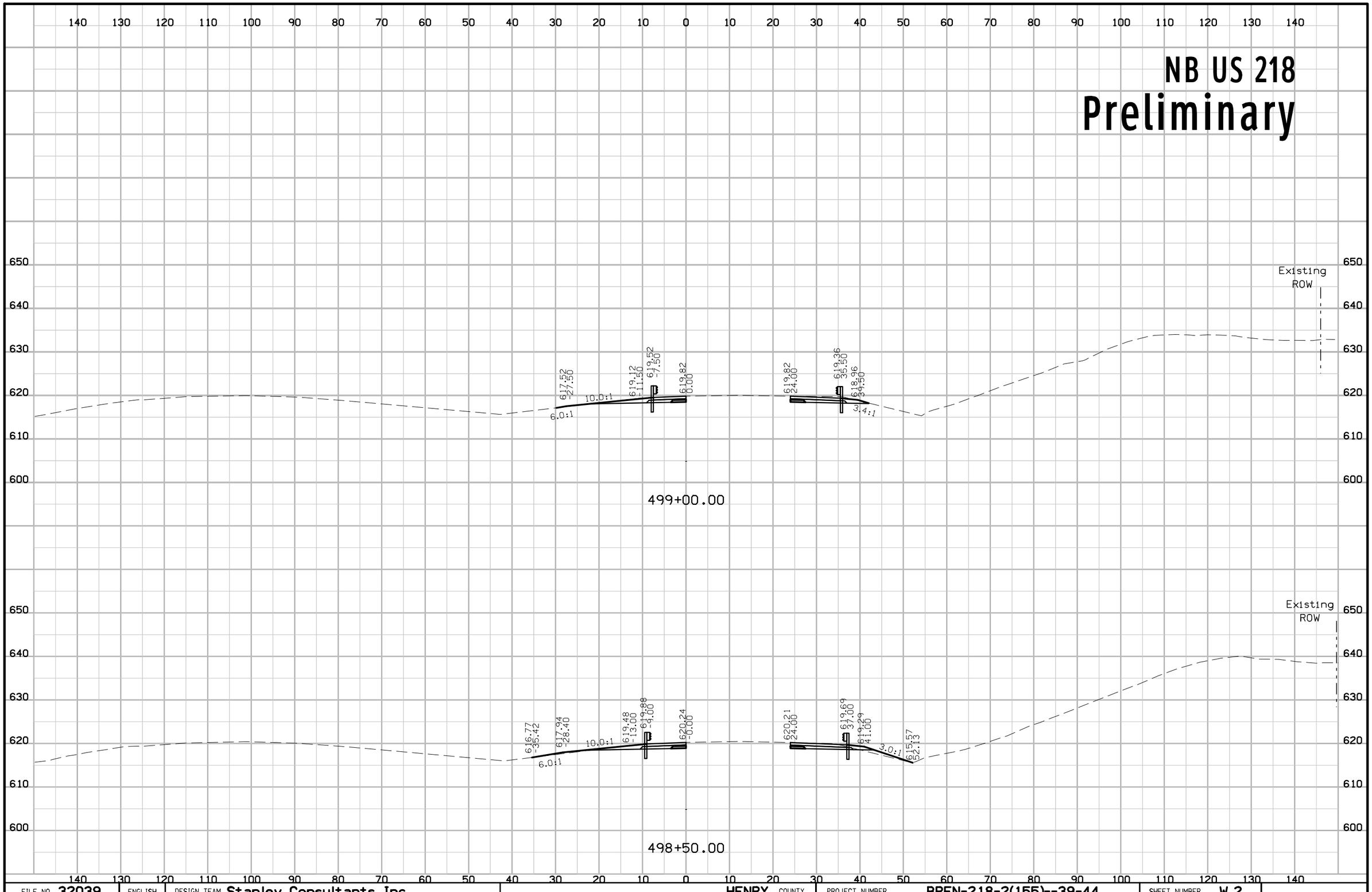
Proposed ROW — Proposed Right-of-Way Limit

Temporary ROW — Temporary Right-of-Way Limit

CROSS SECTION LEGEND AND SYMBOL INFORMATION SHEET

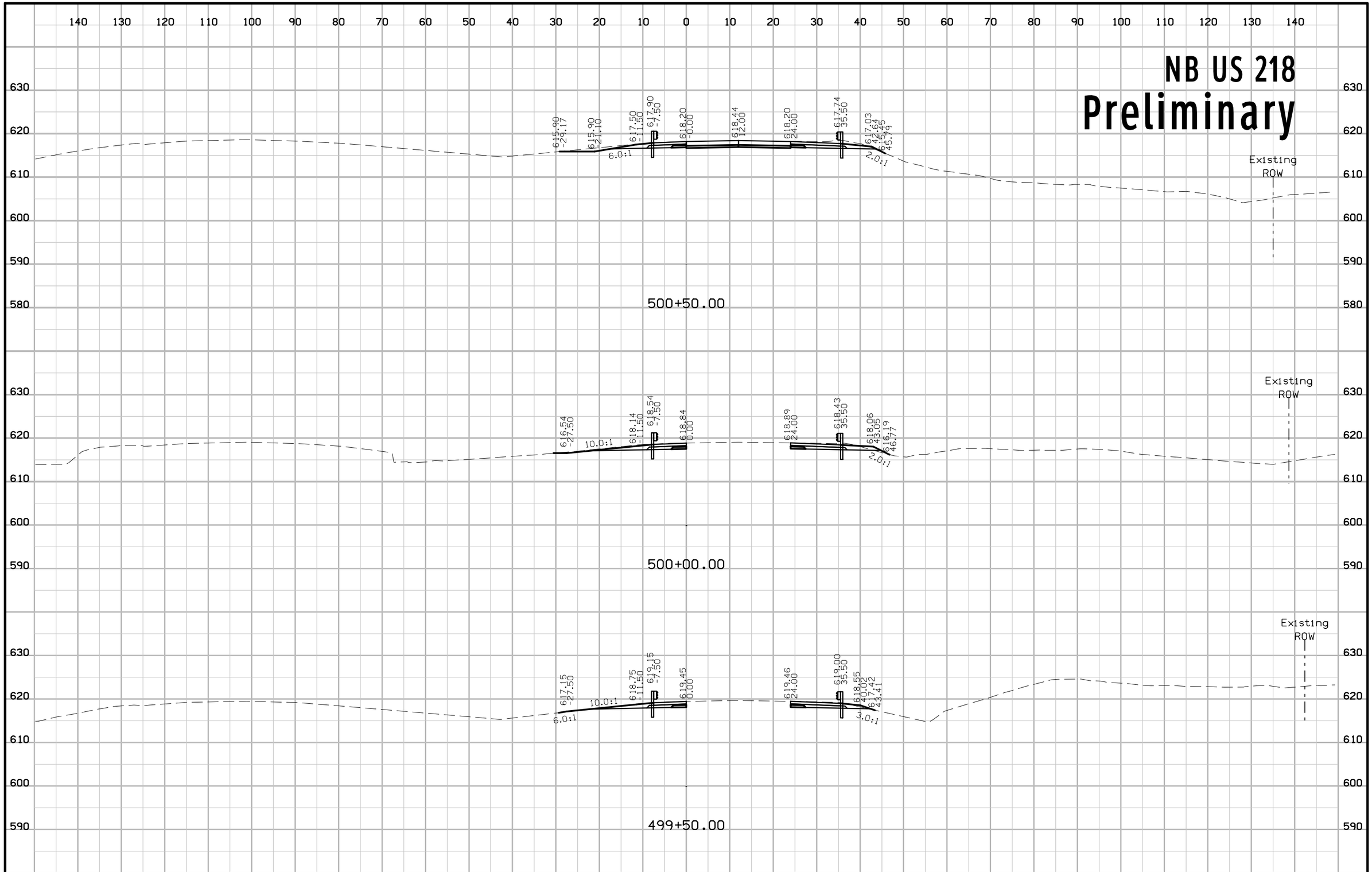
(COVERS SHEET SERIES W, X, Y, & Z)

NB US 218
Preliminary



FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER W.2

NB US 218
Preliminary



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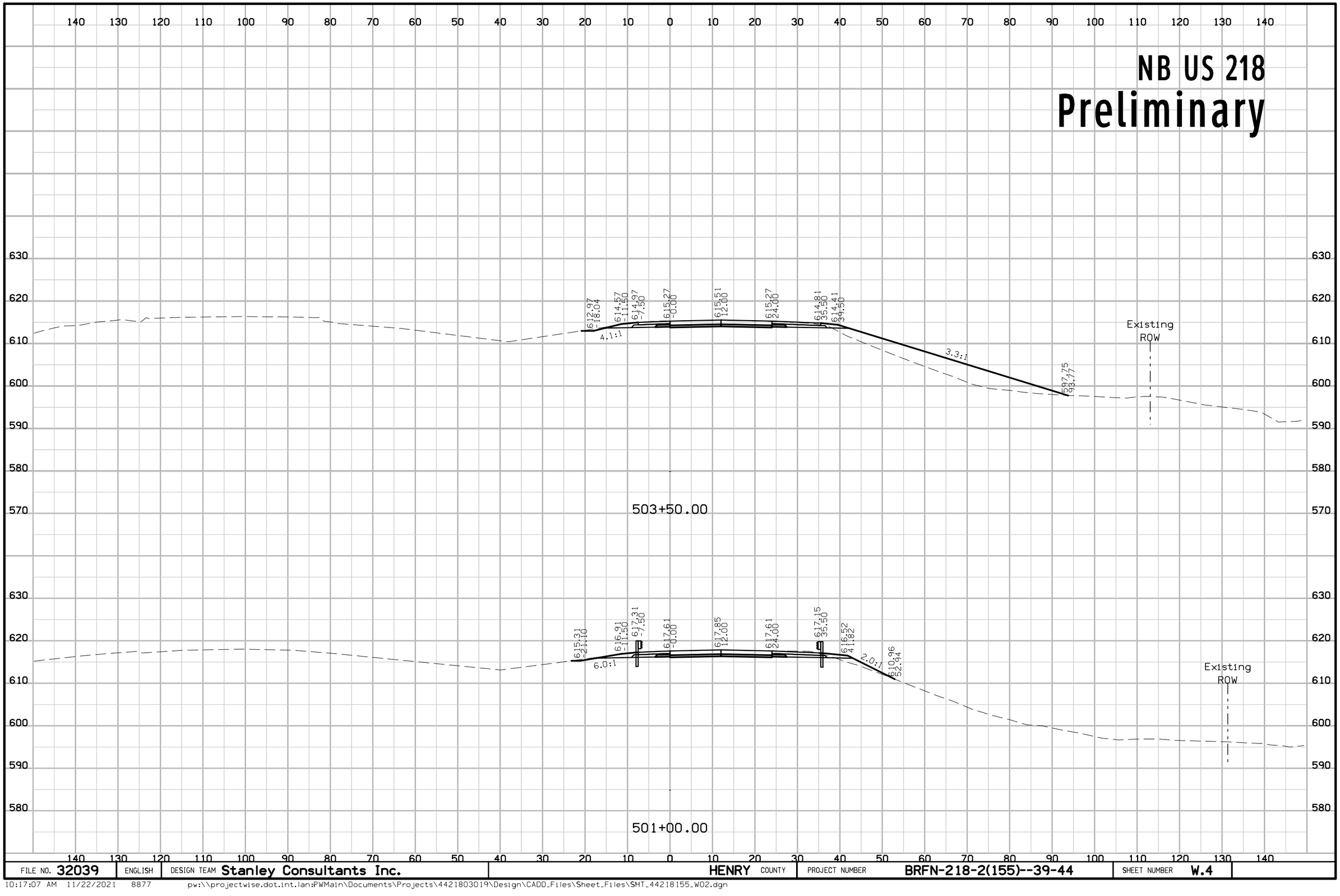
NB US 218
Preliminary



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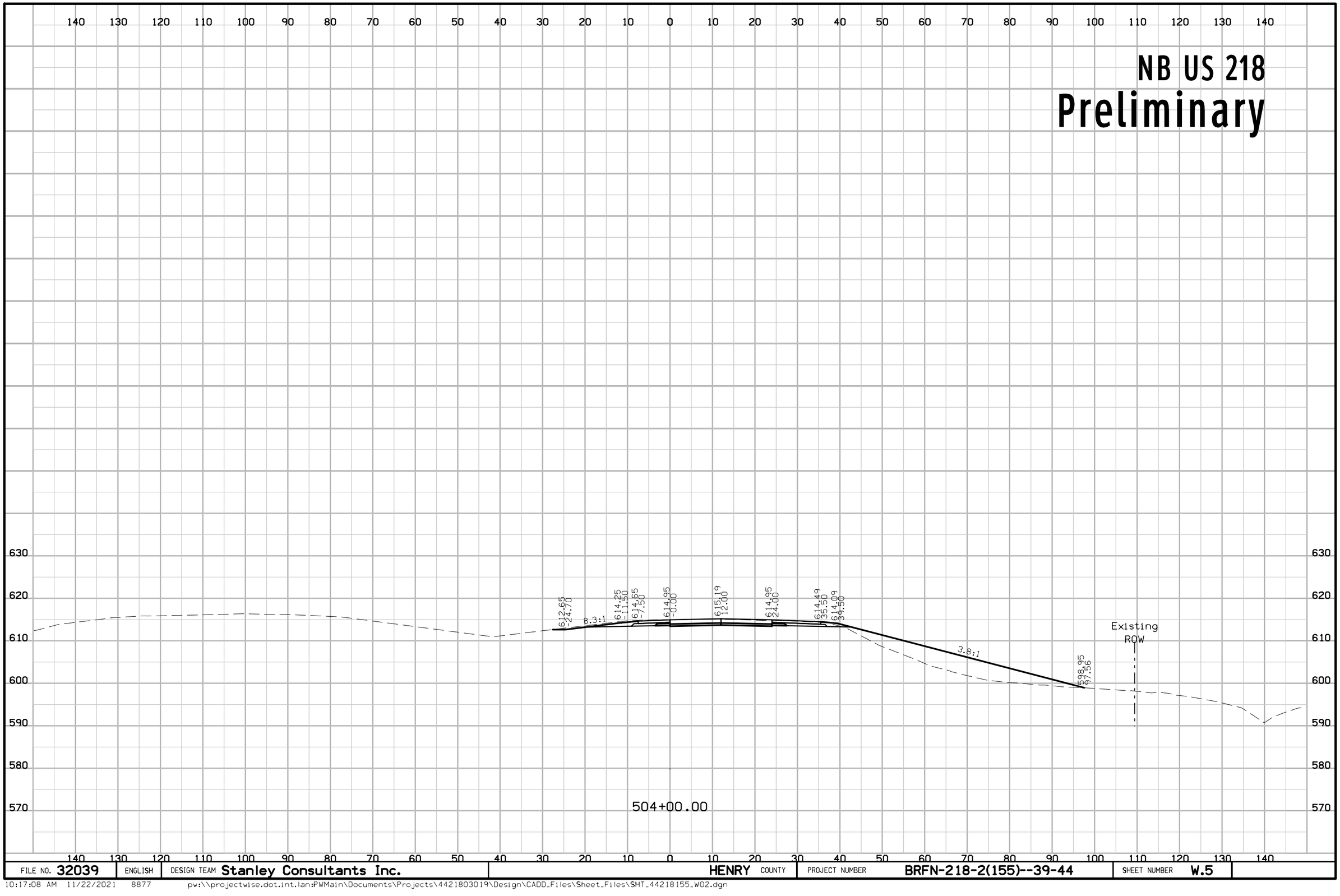
NB US 218
Preliminary



FILE NO. 32039	ENGLISH	DESIGN TEAM Stanley Consultants Inc.	HENRY COUNTY	PROJECT NUMBER BRFN-218-2(155)--39-44	SHEET NUMBER W.5