



REVISIONS

TOTAL

27

PROJECT IDENTIFICATION NUMBER

20-14-030-010

PROJECT NUMBER

BRF-030-1(172)--38-14

R.O.W. PROJECT NUMBER

Hydraulic Design

No.	DESCRIPTION
INDEX OF SHEETS	
A Sheets	Title Sheets
A.1	Title Sheet
A.2	Location Map Sheet
B Sheets	Typical Cross Sections and Details
B.1 - 3	Typical Cross Sections and Details
D Sheets	Mainline Plan and Profile Sheets
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2	US 30
G Sheets	Survey Sheets
G.1 - 3	Reference Ties and Bench Marks
J Sheets	Traffic Control and Staging Sheets
J.1	Traffic Control Plan
* J.2	Stage 1
* J.3	Stage 2
* J.4	Stage 3
V Sheets	Bridge and Culvert Situation Plans
V.1 - 3	Bridge and Culvert Situation Plans
W Sheets	Mainline Cross Sections
W.1	Cross Sections Legend & Symbol Information Sheet
W.2 - 10	Mainline Cross Sections
	* Color Plan Sheets

H Sheets

PLANS OF PROPOSED IMPROVEMENT ON THE
PRIMARY ROAD SYSTEM
CARROLL COUNTY
Bridge Replacement
Storm Creek 2.5 mi W of Co Rd N41

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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



DESIGN DATA RURAL			
2025	AADT	7,600	V.P.D.
2045	AADT	8,700	V.P.D.
2045	DHV	900	V.P.H.
	TRUCKS	9	%
	Total Design ESALs	--	

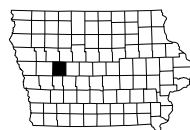
INDEX OF SEALS		
	Michael J. Janecek	
V.1	Phillip M. Harpole	Hydraulic Design

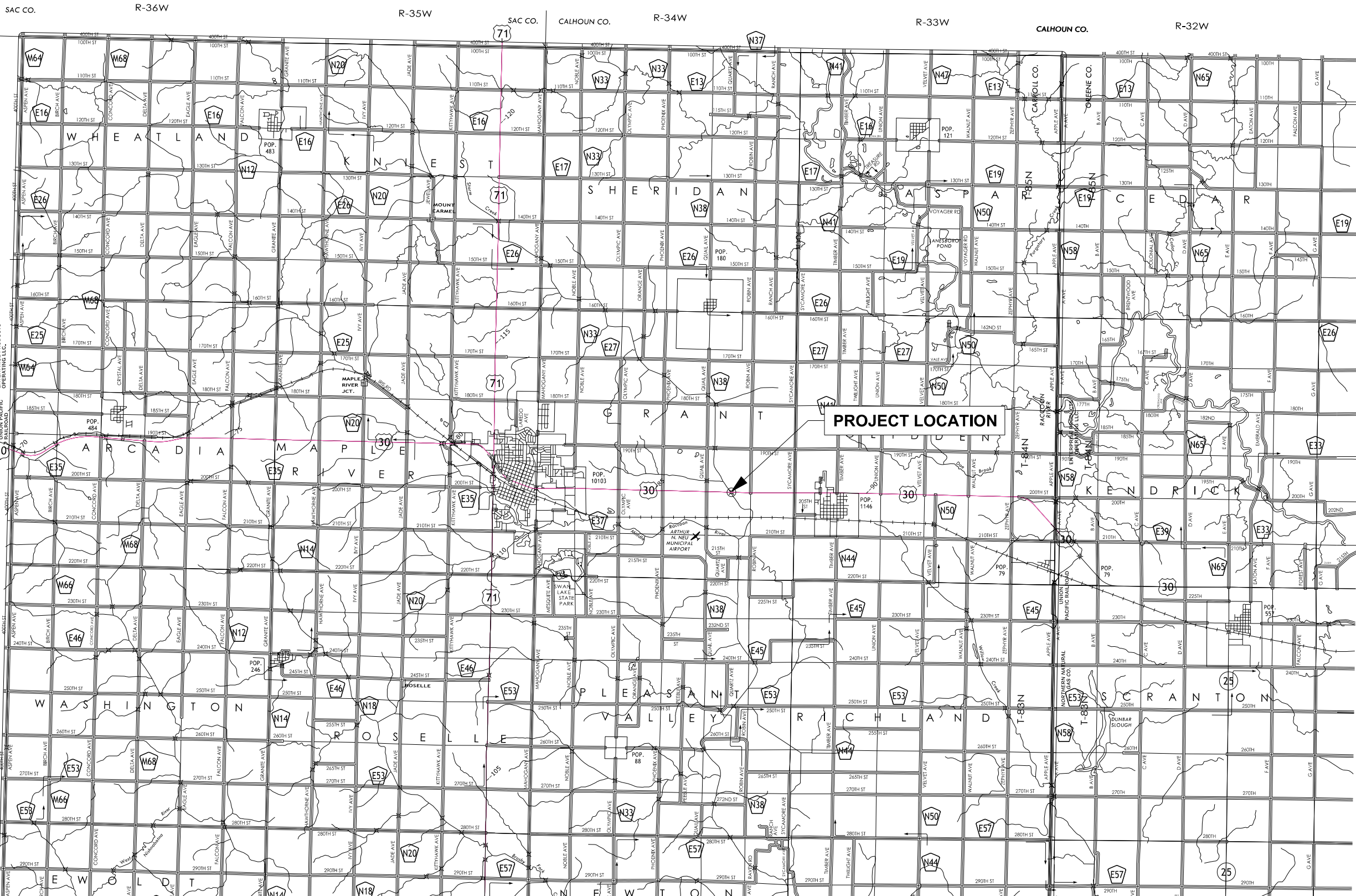
D4 PLAN - June 18, 2024

PRELIMINARY PLANS

Subject to change by final design.

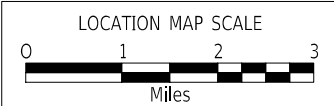
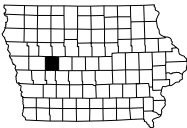
D5 PLAN - September 9, 2022





US 30
 STA. 214+36
 FHWA #17110

CARROLL COUNTY



Paved Shoulder at Guardrail

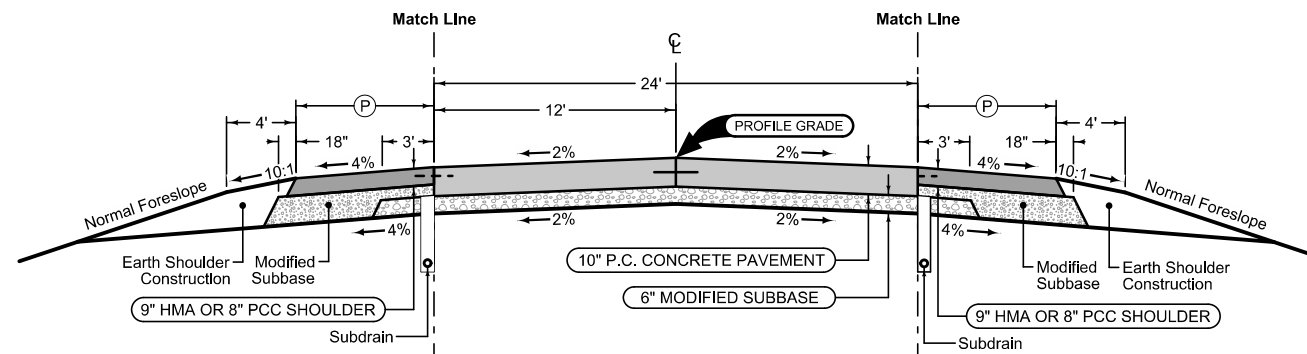
PCC Shoulder Jointing:
 Longitudinal joint: BT-1 or BT-5
 Transverse joints: C at mainline spacing
 HMA Shoulder Jointing:
 Longitudinal joint: B

2_P_Guard_ 04-21-20		
STATION TO STATION	(P)	Feet
212+09.00	212+84.00	VARIES
215+88.00	216+83.50	VARIES

Paved Shoulder at Guardrail

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

2_P_Guard_ 04-21-20		
STATION TO STATION	(P)	Feet
211+89.00	212+84.00	VARIES
215+88.00	216+63.50	VARIES



Mainline Jointing:
 Transverse joints: CD at 17' spacing
 Longitudinal joint: L-2

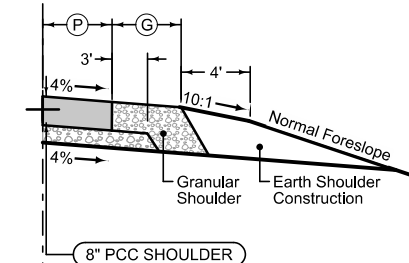
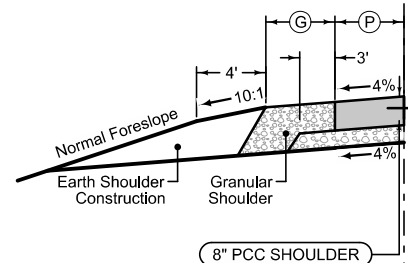
2P_ 04-21-20	
STATION TO STATION	
211+80.00	212+84.00
215+88.00	217+09.00

Full Depth PCC Combination Shoulder

Shoulder Jointing:
 Longitudinal joint: L-2 or KT-2
 Transverse joints: C at 17' spacing

2_C_FullPCC_ 04-21-20			
STATION TO STATION	(P)	(G)	Feet
* 210+25.00	211+80.00	6	4
211+80.00	212+09.00	6	4
216+83.50	217+09.00	6	4
* 217+09.00	219+59.00	6	4

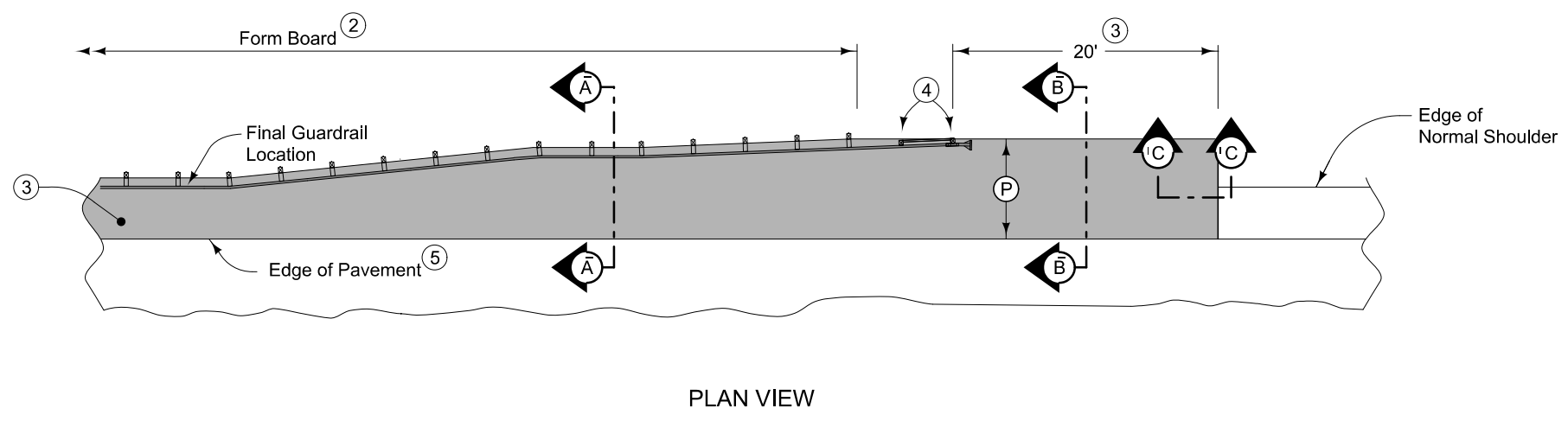
* SHOULDER RECONSTRUCTION/TEMP PAVING LEFT IN PLACE FROM TO STAGED CONSTRUCTION/TEMPORARY PAVEMENT



Full Depth PCC Combination Shoulder

Shoulder Jointing:
 Longitudinal joint: L-2 or KT-2
 Transverse joints: C at 17' spacing

2_C_FullPCC_ 04-21-20			
STATION TO STATION	(P)	(G)	Feet
211+80.00	211+89.00	6	4
216+63.50	217+09.00	6	4

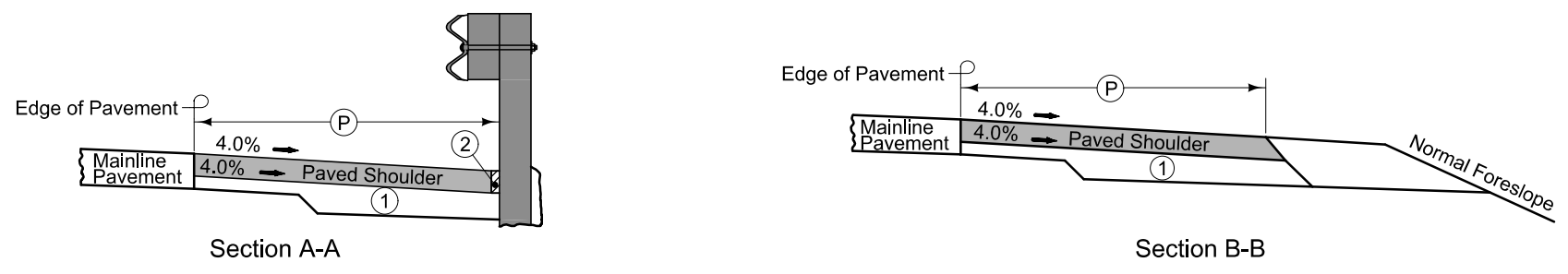


9" HMA Paved Shoulder at guardrail. 8" PCC may be substituted with the following jointing layout:

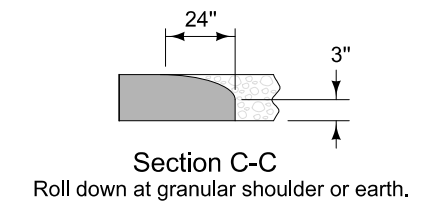
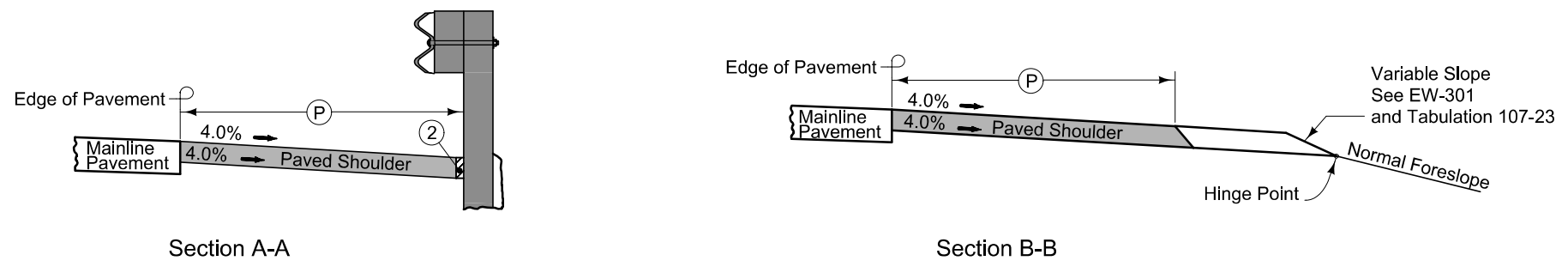
Match mainline pavement joint spacing. When mainline pavement is 8" or greater in thickness, place additional transverse 'C' joints in shoulder at mid-panel of the mainline pavement. Place longitudinal 'C' joint at P/2 from edge of mainline pavement when P is greater than 10' wide. Terminate longitudinal 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 For subgrade treatment, refer to other details in the plan.
- ② 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. Refer to note 4 for final 2 posts.
- ③ Continue paved shoulder to existing paved shoulder or 20 feet beyond the center of the first post.
- ④ Shoulder may be notched for final 2 posts or post sleeves may be installed through pavement. Do not drive posts through pavement.
- ⑤ 'KT-1 joint for PCC shoulder. 'B' joint for HMA shoulder.



PAVED SHOULDER AT GUARDRAIL

SURVEY SYMBOLS

- Interstate Highway Symbol
- U.S. Highway Symbol
- Iowa Highway Symbol
- County Road Highway Symbol
- Evergreen Tree
- Deciduous Tree
- Fruit Tree
- Shrub (Bushes)
- Timber
- Hedge
- Stump
- Swamp
- Rock Outcrop
- Broken Concrete
- Revetment (Rip Rap)
- Cemetery
- Grave
- Cave
- Sink Hole
- Board Fence
- Chain Link or Security Fence
- Wire Fence
- Terrace
- Earth Dam or Dike (Existing)
- Tile Outlet
- Edge of Water
- Existing Drainage
- Right of Way Rail or Lot Corner
- Concrete Monument
- Well
- Windmill
- Beehive Intake
- Existing Intake
- Existing Utility Access (Manhole)
- Fire Hydrant
- Water Hydrant (Rural)
- Septic Tank
- Cistern
- L.P. Gas Tank (No Footing)
- Underground Storage Tank
- Latrine
- Satellite TV Dish
- Water Hook Up
- Radio Tower
- Tower Anchor
- Guardrail (Beam or Cable)
- Guard Post (one or two)
- Guard Post (over two)
- Filler Pipe
- Gas Valve
- Water Valve
- Speed Limit Sign
- Mile Marker Post
- Sign
- Traffic Signal Control Box
- Rail Road Signal Control Box
- Telephone Switch Box
- Electric Box

UTILITY LEGEND

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

- TLID, CenturyLink - Quality D
- PPA, Raccoon Valley Electric Cooperative
- FO1D, ICN - Quality D
- FO2D, Mediacom - Quality D

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.
Lavender	(9)	Temporary Pavement Shading
Yellow	(4)	Proposed Pavement Shading
Orange	(6)	Proposed Granular Shading
Orange	(70)	Proposed Shoulder Granular Shading
Yellow	(68)	Proposed Shoulder Paved Full Depth Shading
Yellow	(132)	Proposed Shoulder Paved Partial Depth Shading
Gray, Dark	(112)	Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)	Grading Shading
Orange, Light	(134)	Proposed Granular Entrance Shading
Yellow	(220)	Proposed Paved Entrance Shading
Tan	(8)	Proposed Sidewalk Shading
Blue, Light	(230)	Proposed Sidewalk Landing Shading
Pink	(11)	Proposed Sidewalk Ramp Shading
Green, Light	(225)	Existing Pavement Shading
Red	(3)	Proposed Structure 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

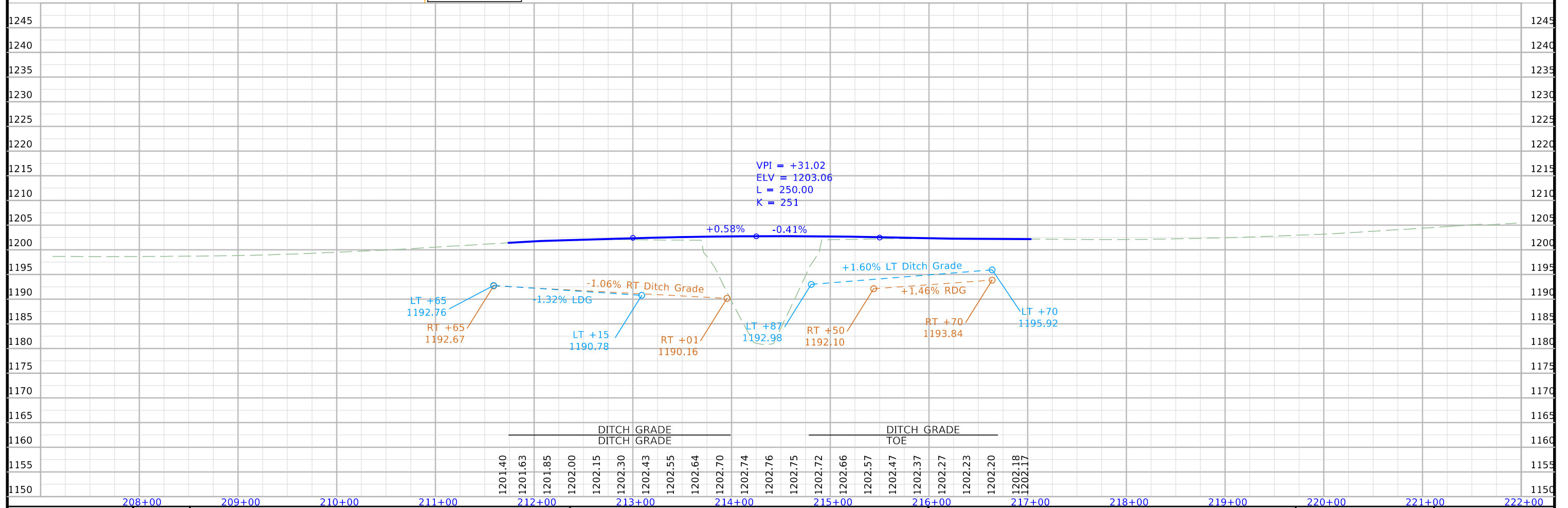
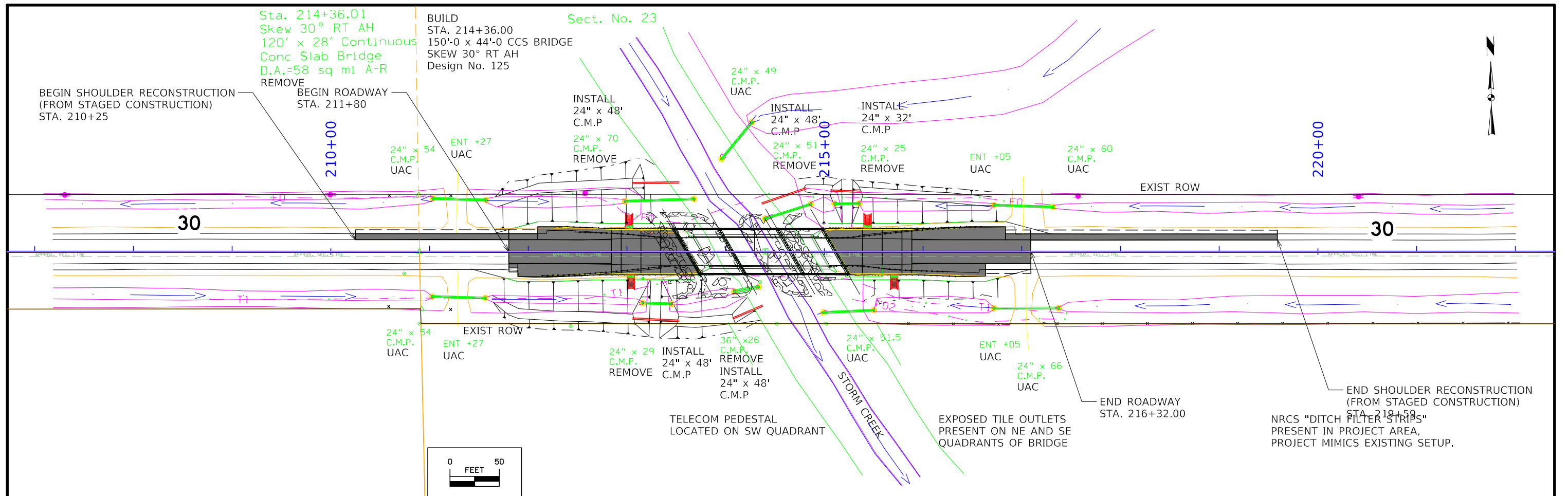
- Reference Point
- Station
- Survey Line
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- Pavement Removal
- Clearing & Grubbing Area

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
- Access Control
- Property Line

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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



Survey Information

Carroll County
BRF-030-2(172)--38-14
Location: Storm Creek 2.5 mi W of CO Rd N41
Type of Work: Bridge-Unspecified
Project Directory: 1403001020
PIN: 20-14-030-010
Sap-0967

Party Personnel

Clayton Henningsen- Survey Party Chief
Jason Arn- Survey Party Chief

Date(s) of Survey

Begin Date 01/29/2021
End Date 02/18/2021

General Information

Measurement units for this survey are US survey feet. This survey is for proposed bridge reconstruction on US 30 2.5 miles east of Co Rd N41. This is a full field survey.

Vertical Control

Vertical datum for this survey is NAVD88 (Computed using Geoid12b). GRS80 Ellipsoidal Height was computed at project Pts. GSVS 033, GSVS 034, and W 89 by completing concurrent 6 hour static observations. The project control is relative to nearby Iowa RTN Base Stations.

This survey observed 3 NGS GPS control with published NAVD88 heights to compare to local ground control:

NGS mark designated W 89 (PID NL0186) has a published Elev. of 1200.92
Survey Elev. = 1200.843

NGS mark designated GSVS 033 (PID DP4487) has a published Elev. of 1201.45
Survey Elev. = 1201.439

NGS mark designated GSVS 034 (PID DP4488) has a published Elev. of 1206.62
Survey Elev. = 1206.600

Horizontal Control

The project coordinate system for this survey is Iowa RCS Zone 7 Carroll-Atlantic (U.S. Survey Feet). This survey control is relative to laRTN reference stations. laRTN Reference Station coordinates are relative to the National Reference Station network datum: NAD83 (2011) for Epoch 2010.00. Coordinates were determined by conducting concurrent 6 hour static observations on Project Pts. GSVS 033, GSVS 034, and W 89.

Alignment Information

The horizontal alignment for this survey is a retrace of PCC Paving Plans No.611A. Survey stationing was equated to the plan PI at Sta. 184+38.0 and run ahead without equation throughout the survey.

Survey stationing relates to as built plan stationing as follows:

PI Sta. 184+38.0 Paving Plans Project No. 611A
Survey PI Sta. 184+38.0

PI Sta. 210+87.9 Paving Plans Project No. 611A
Survey PI Sta. 210+89.88

PI Sta. 237+27.7 Paving Plans Project No. 611A
Survey PI Sta. 237+29.26

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

1a. Regional Coordinate System Zone 7

Coordinate listing from next sheet will be used with 1aRTN 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

1a. Regional Coordinate System Zone 7
Project Control Marks are Bench Marks

Point Name	Y	X	Z	Feature Definition-Description
GSVS_033	7460904.974	17461985.9	1201.439	CP GSVS_033 FROM THE JUNCTION OF NORTH GRANT ROAD AND US 30 ON THE EAST SIDE OF CARROLL GO EAST ON US 30 FOR 4.42 MI TO THE MARK ON THE RIGHT THE GEODETIC CONTROL MARK IS FOUND ABOUT 35 FT SOUTH OF BRIDGE OVER STORM CREEK 69 FT WEST OF EXPANSION JOINT IN SOUTHWEST CORNER OF BRIDGE 66 FT SOUTHWEST OF EXPANSION JOINT IN NORTHWEST CORNER OF BRIDGE 43 FT NORTHWEST OF A T-POST ENCASED IN ORANGE TUBING AT A SUB DRAINAGE OUTLET 28 FT SOUTH OF THE CENTERLINE OF US 30 4 FT SOUTH OF A FIBERGLASS WITNESS POST AND SET IN THE TOP OF A 1 FT DIAMETER BY 4 FT DEEP BELLOWED OUT CONCRETE MONUMENT SURROUNDED BY A 2 FT DIAMETER BY 0.5 FT DEEP CONCRETE COLLAR CONSTRUCTED TO SUPPORT GRAVITY MEASURING EQUIPMENT
GSVS_034	7460862.126	17467064.14	1206.6	CP GSVS_034 FROM THE INTERSECTION OF NORTH GRANT ROAD AND US 30 ON THE EAST SIDE OF CARROLL GO EAST ON US 30 FOR 5.38 MI TO THE MARK ON THE RIGHT THE GEODETIC CONTROL MARK IS FOUND 56 FT SOUTH OF THE CENTERLINE OF US 30 51 FT WEST OF A T-POST ENCASED IN ORANGE TUBING AT A SUB DRAINAGE OUTLET 47 FT EAST OF BRACED WOODEN FENCE POST 5.8 FT NORTH OF A CORNER FENCE POST 5 FT NORTH OF A FIBERGLASS WITNESS POST AND SET IN THE TOP OF A 1 FT DIAMETER BY 4 FT DEEP BELLOWED OUT CONCRETE MONUMENT SURROUNDED BY A 2 FT DIAMETER BY 0.5 FT DEEP CONCRETE COLLAR CONSTRUCTED TO SUPPORT GRAVITY MEASURING EQUIPMENT
W 89	7457922.391	17459164.64	1200.843	CP W 89 THE STATION IS LOCATED ABOUT 4.05 MI EAST OF CARROLL AT THE JUNCTION OF COUNTY ROAD N 38 AND THE CHICAGO AND NORTHWESTERN RAILROAD TO REACH THE STATION FROM THE JUNCTION OF US HIGHWAY 30 AND MAIN STREET AT THE NORTHWEST CORNER OF THE COURTHOUSE SQUARE IN CARROLL GO EAST ON STATE HIGHWAY 30 FOR 3.35 MI TO THE JUNCTION OF COUNTY ROAD N 38 TURN RIGHT SOUTH ON COUNTY ROAD N 38 FOR 0.60 MI TO A RAILROAD CROSSING AND THE STATION IS ON THE LEFT THE STATION IS A CGS BENCHMARK DISK LOCATED 45.3 FT NORTH OF THE NORTH RAIL OF THE TRACKS 34.4 FT EAST OF AND 6.6 FT LOWER THAN THE CENTER OF COUNTY ROAD N 38 2.3 FT SOUTHEAST OF A SQUARE FENCEPOST AT A FIELD ENTRANCE AND 0.7 FT WEST OF A FIBERGLASS WITNESS POST

NOTE:

The first two digits in the control point name refer to the county number.
 The next 3 digits refer to the highway number.
 The next 3 digits refer to the highway milepost.
 The last digit refers to the distance from the referenced milepost to the nearest tenth of a mile.

NO ACCESS RIGHTS ARE TO BE ACQUIRED ON THIS PROJECT.



SEC 23-84-34
SE 1/4 SW 1/4

SEC 23-84-34
SW 1/4 SE 1/4

NE 1/4 NW 1/4
SEC 26-84-34

NW 1/4 NE 1/4
SEC 26-84-34

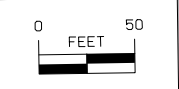
JEFF WENCK FARMS INC

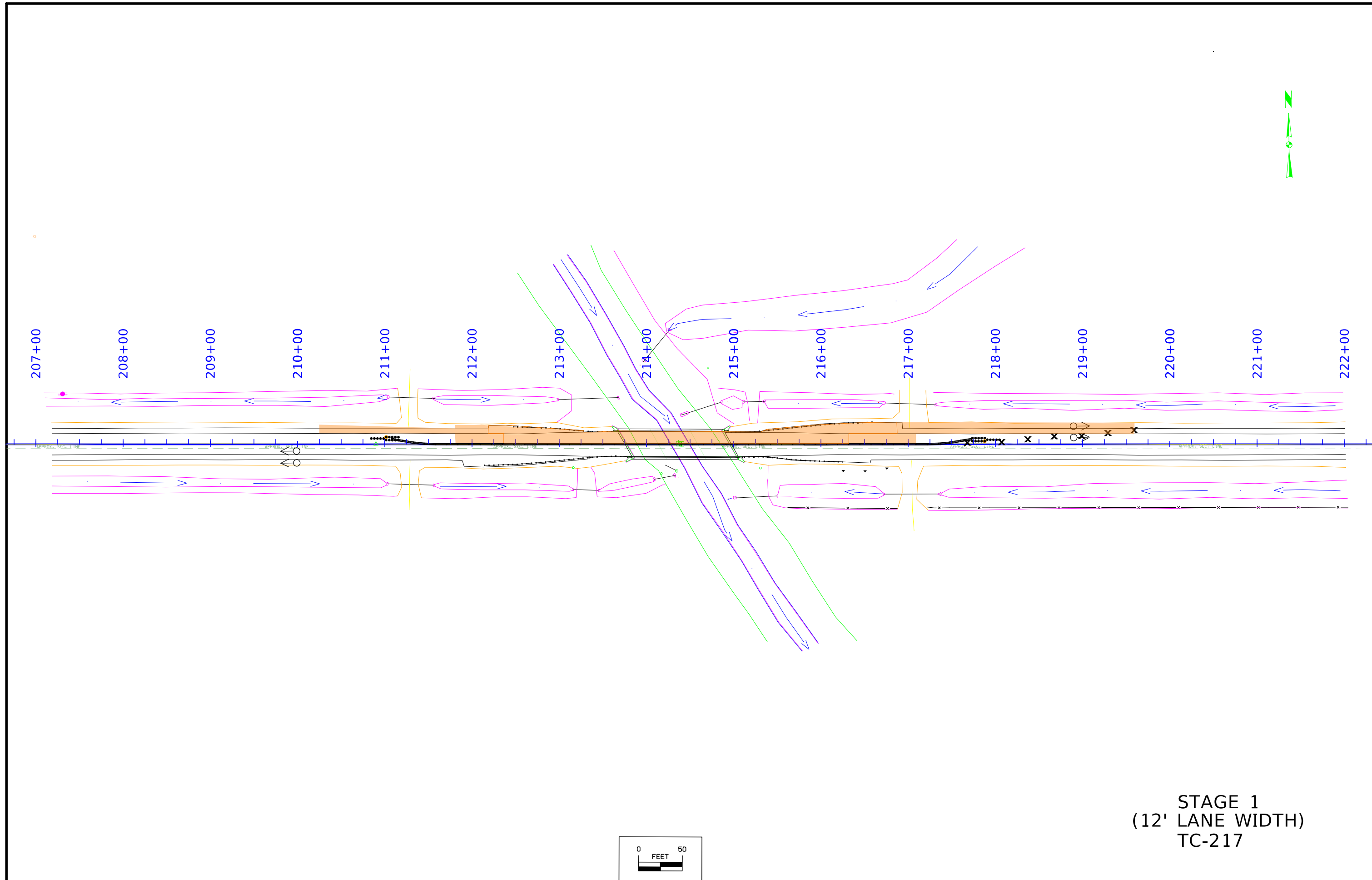
GLORIA J WENCK
2004 TRUST

Drainage Ditch #23

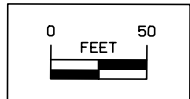
Drainage Ditch #23

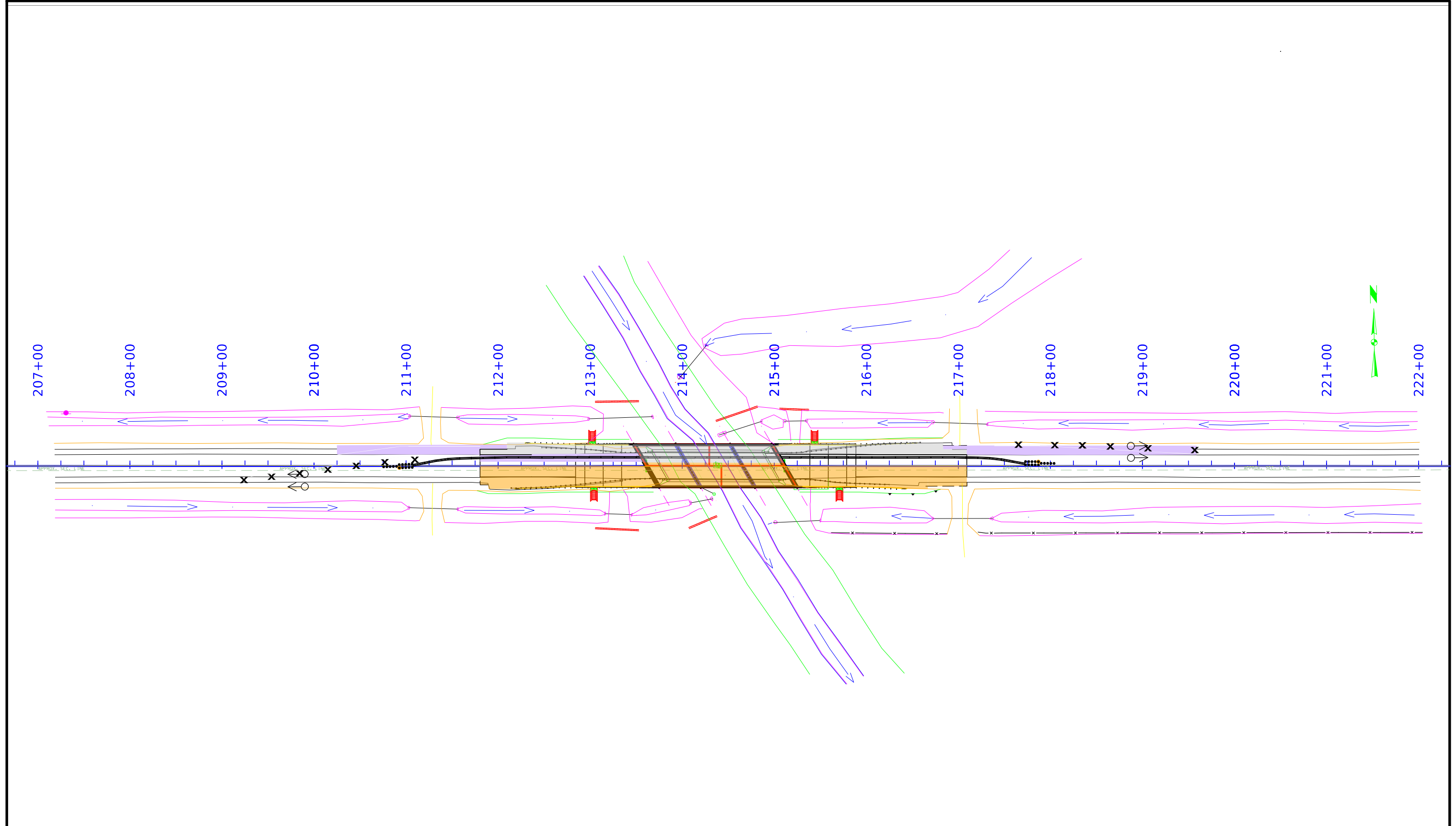
Right of Way Design Information	
THIS SHEET INCLUDED FOR INFORMATION ONLY	
ROW Team: ATINKEN/JLARSON	
ROW #: NHSN-030-2(173)--2R-14	
Plan Date: 11-22-22	
Color Legend:	
	Property Lines
	Temporary Easement
	Permanent Acquisition



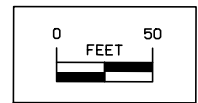


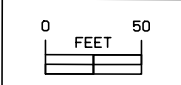
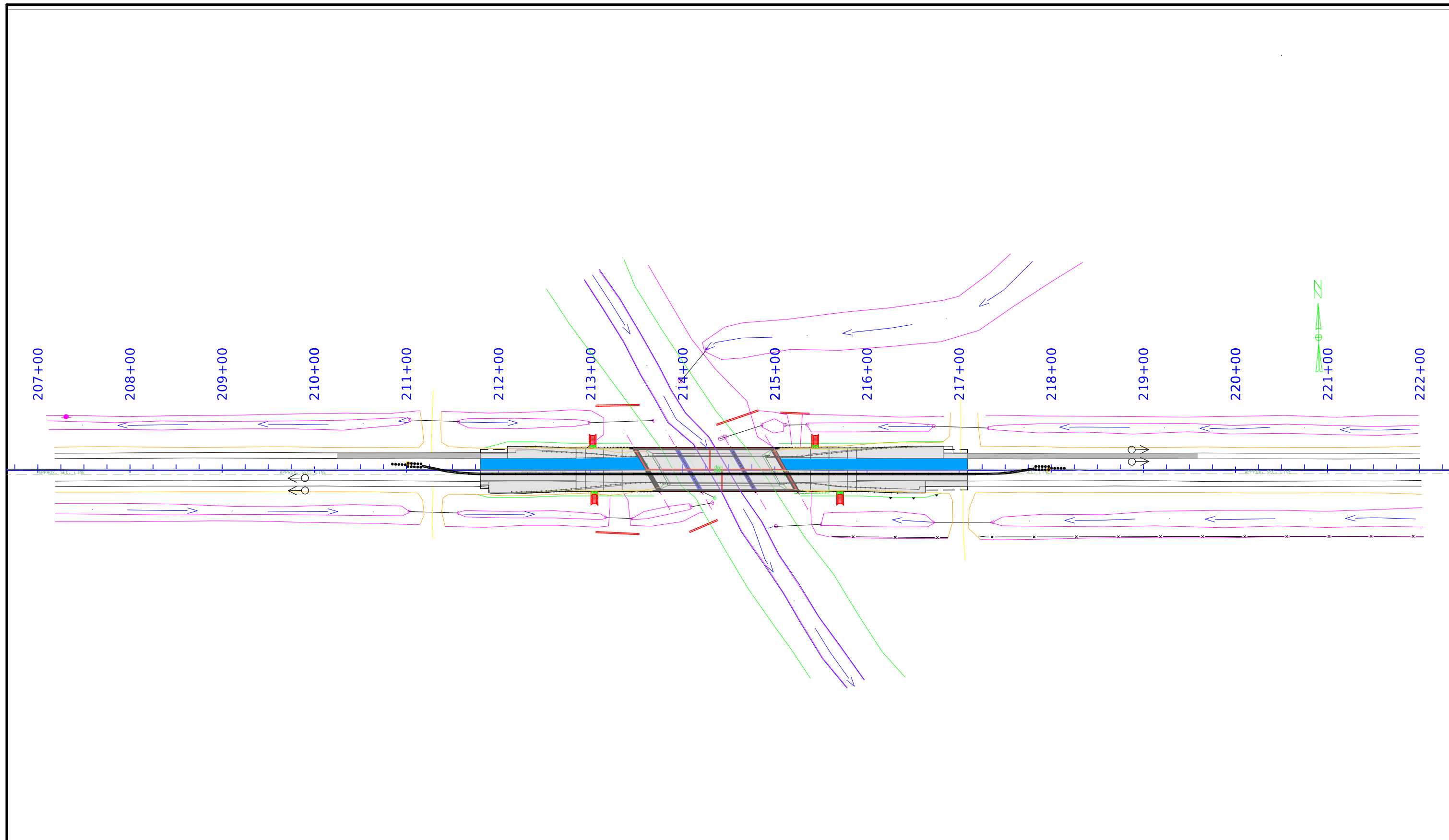
STAGE 1
 (12' LANE WIDTH)
 TC-217





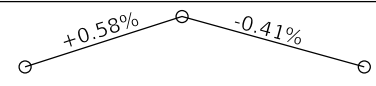
STAGE 2
 (12' LANE WIDTH)
 TC-217





STAGE 3
 (14' LANE WIDTH)
 TC-217

Control Point: NGS MARK DESIGNATED GSVS 033 (PID DP4487) HAS A PUBLISHED ELEV. OF 1201.45, SURVEY ELEV. = 1201.439



VPI Sta. = 214+31.02 LVC = 250'
VPI Elev. = 1203.06

Proposed Profile Grade US 30

Hydraulic Data

Drainage Area = 56.1 Sq. Mi.
Stream Slope = 7.1 Ft./Mi.
Avg. Low Water Stage = 1181.6

Q₂₅ = 3,960 CFS
Stage = 1196.7

Q₅₀ = 4,890 CFS
Stage = 1197.2
Regulatory Low Beam = 1200.28
Backwater = 0.1 FT.
Avg. Bridge Velocity = 5.7 FPS

Q₁₀₀ = 5,920 CFS
Stage = 1198.7
Operational Low Beam = 1200.08
Backwater = 0.1 Ft.
Avg. Bridge Velocity = 7.9 FPS

Q₂₀₀ = 7,040 CFS
Stage = 1199.5
Calculated Design Scour = 1178.6

Q₅₀₀ = 8,360 CFS
Stage = 1201.5
Avg. Bridge Velocity = 10.5 FPS
Calculated Check Scour = 1176.0

Roadway Overtop 1197.90
Sta. 200+40

Utilities Legend:

- Power Pole
- F0 --- Fiber Optic Line
- F02 --- Fiber Optic Line
- T1 --- Telephone Line

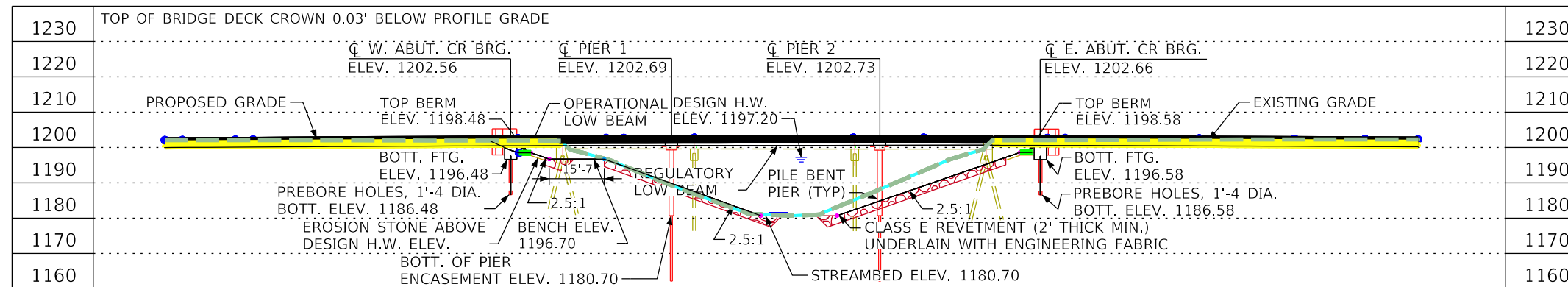
Utilities shown on this sheet are for information only, see road design sheets for final utility information.

Location

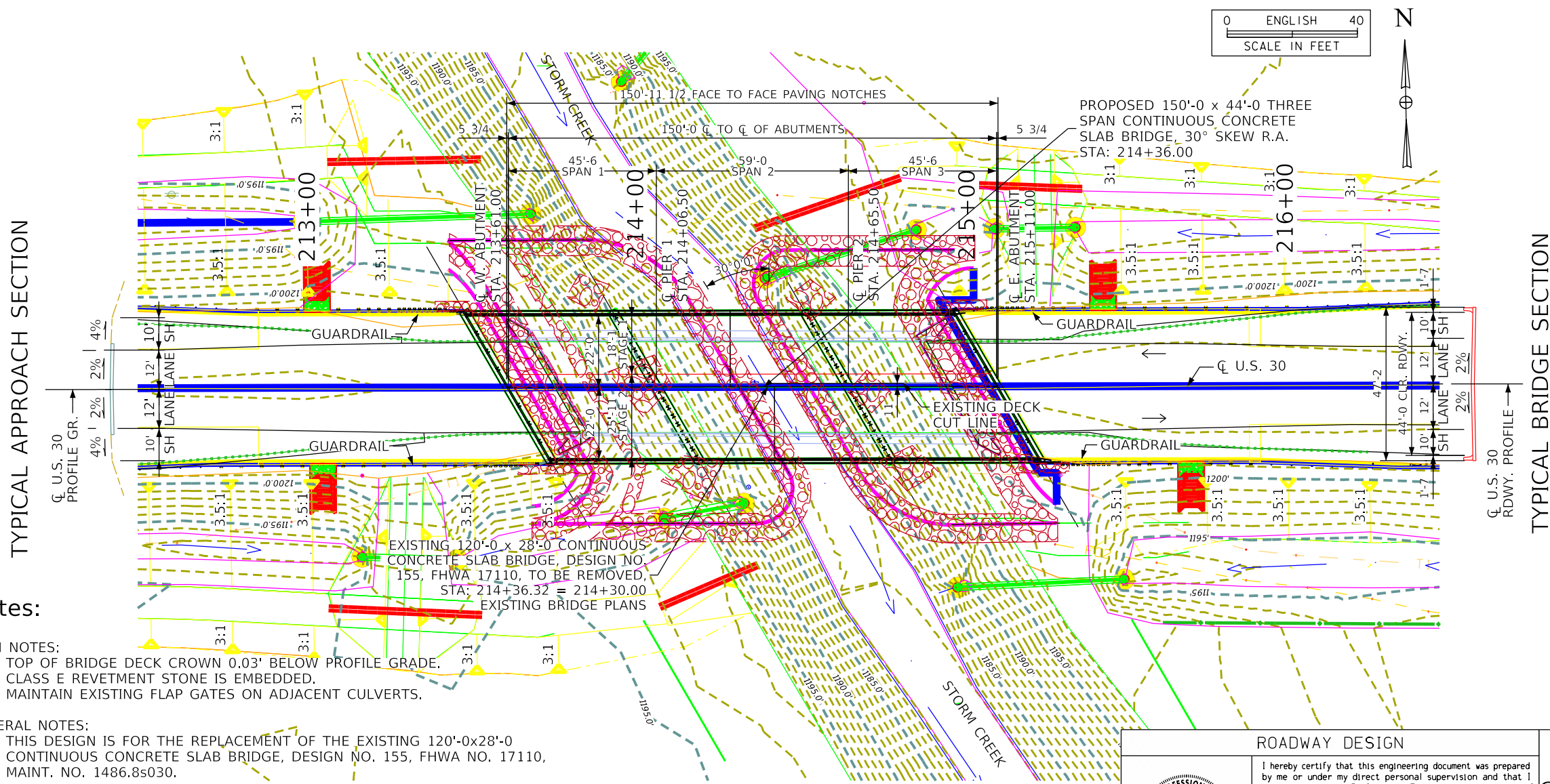
US 30 over Storm Creek
T-84N R-34W Section 23/26 Grant Township Carroll County
FHWA No. 17111
Bridge Maint. No. 1486.8S030
Latitude 42.063764°
Longitude -94.772858°

Traffic Estimate

2025 AADT	7,600	V.P.D.
2045 AADT	8,700	V.P.D.
2045 DHV	900	V.P.H.
Trucks	9	%
Total		
Design ESALs		



LONGITUDINAL SECTION ALONG CL CULVERT



SITUATION PLAN

TYPICAL APPROACH SECTION

TYPICAL BRIDGE SECTION

Notes:

- PLAN NOTES:**
- TOP OF BRIDGE DECK CROWN 0.03' BELOW PROFILE GRADE.
 - CLASS E REVETMENT STONE IS EMBEDDED.
 - MAINTAIN EXISTING FLAP GATES ON ADJACENT CULVERTS.
- GENERAL NOTES:**
- THIS DESIGN IS FOR THE REPLACEMENT OF THE EXISTING 120'-0x28'-0 CONTINUOUS CONCRETE SLAB BRIDGE, DESIGN NO. 155, FHWA NO. 17110, MAINT. NO. 1486.8S030.
- DESIGN NOTES:**
- TL-4 BRIDGE RAILING PROPOSED.
 - J44-14 CONTINUOUS CONCRETE SLAB BRIDGE (STAINLESS STEEL).
 - FULLY ENCASED PILE BENT PIERS.
 - USE STAINLESS STEEL REINFORCING BARS IN THE DECK WITH THE 3'-0" GAP BETWEEN REMOVAL LINE AND STAGE 1 CONSTRUCTED DECK.
 - STAGE 1 SLAB CONSTRUCTION SHALL REMAIN SHORED DURING STAGE 2 CONSTRUCTION.

ROADWAY 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.

Signature: _____ Date: _____

Printed or Typed Name: _____

My license renewal date is December 31, 2023

Pages or sheets covered by this seal: V.1, V.2, & V.3

Design For 30° Skew RA

150'-0 x 44'-0 THREE SPAN CONTINUOUS CONCRETE SLAB BRIDGE

45'-6 End Spans 59'-0 Interior Span

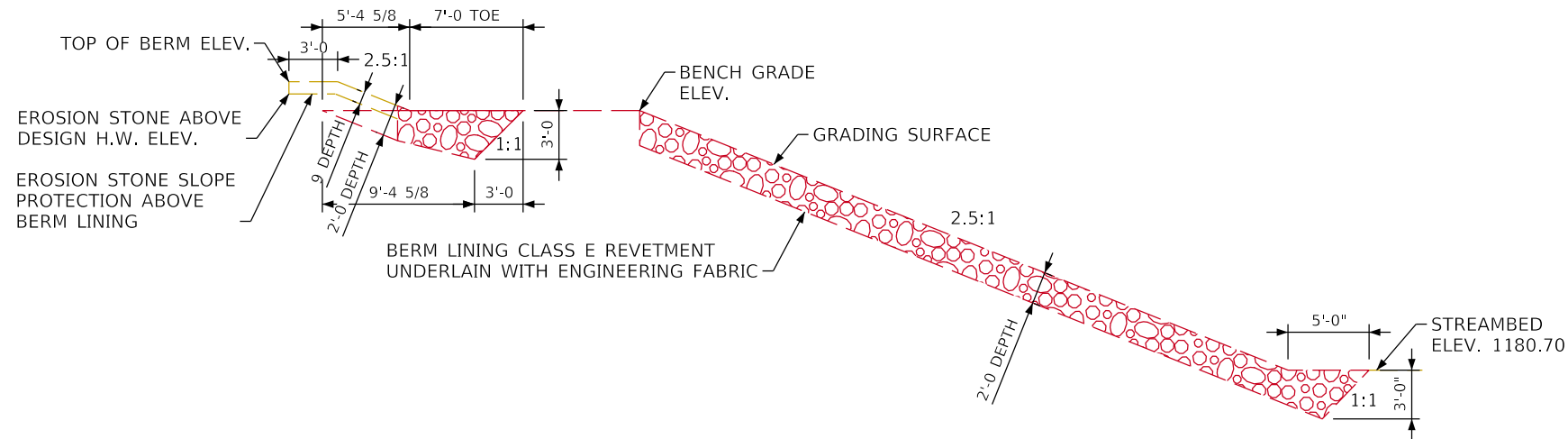
SITUATION PLAN

STA. 214+36.00 (U.S. 30) August 2022

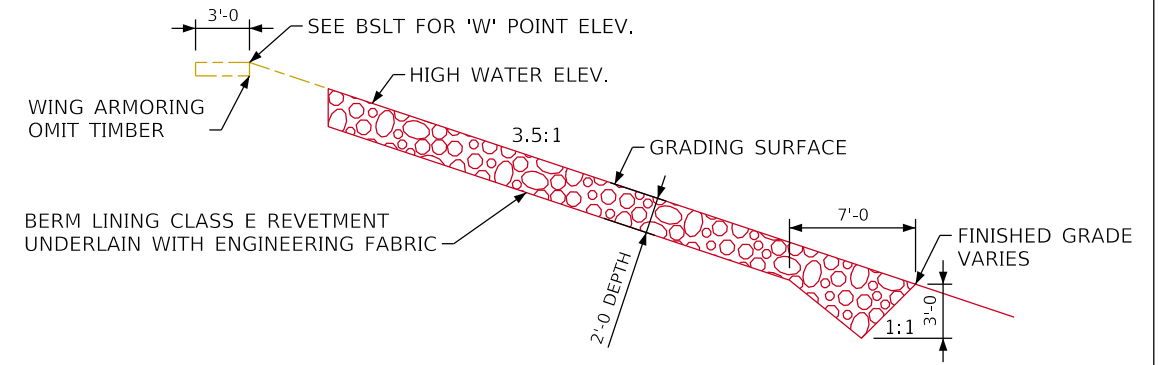
Carroll County

IOWA DEPARTMENT OF TRANSPORTATION

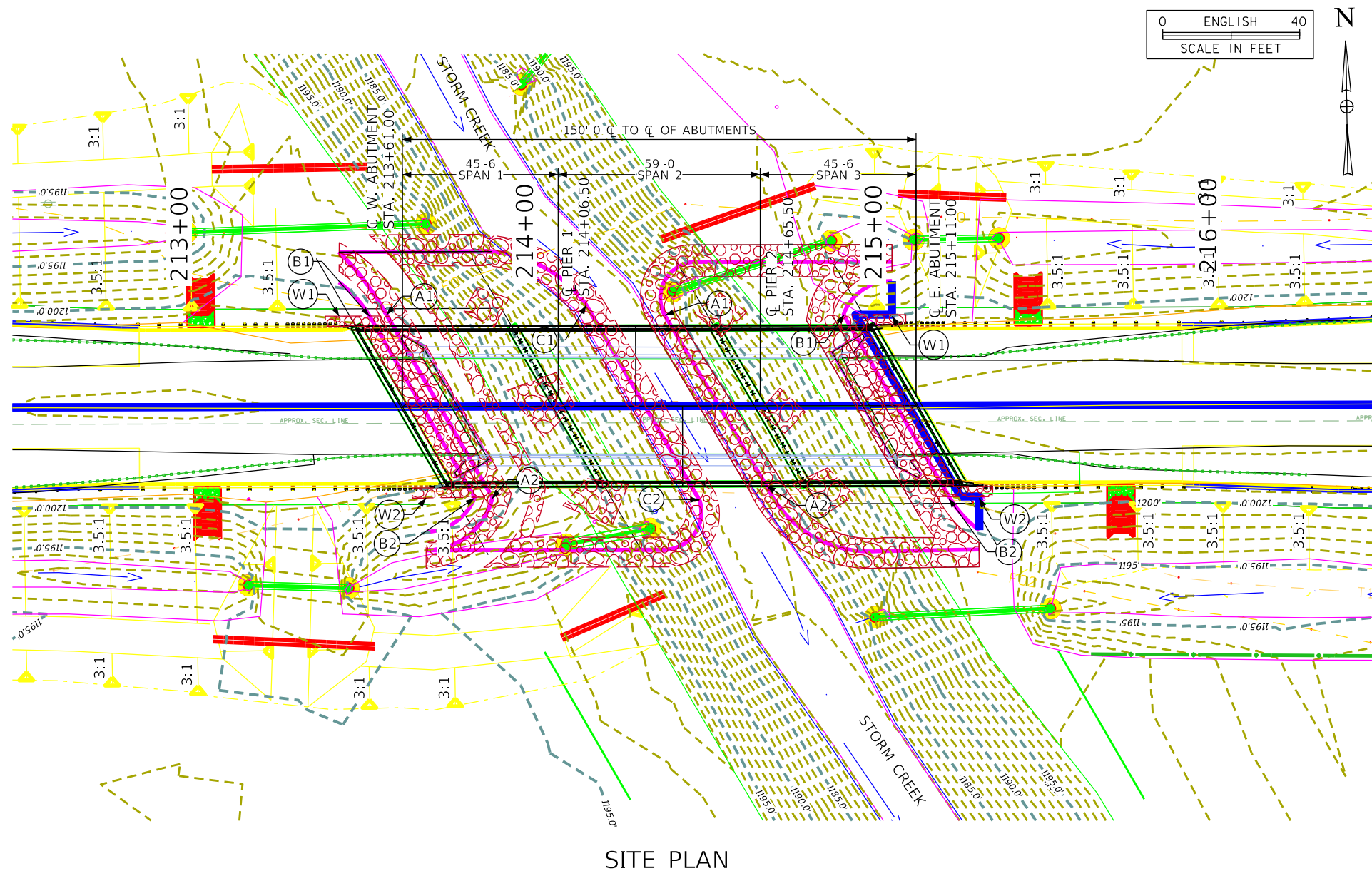
Design No. 0125 Design Sheet No. 001 of 003 FHWA/Asset 17111



SECTION THROUGH EMBEDDED REVETMENT BERM



SECTION THROUGH EMBEDDED REVETMENT NORMAL TO BRIDGE WING AT 'W' POINT



SITE PLAN

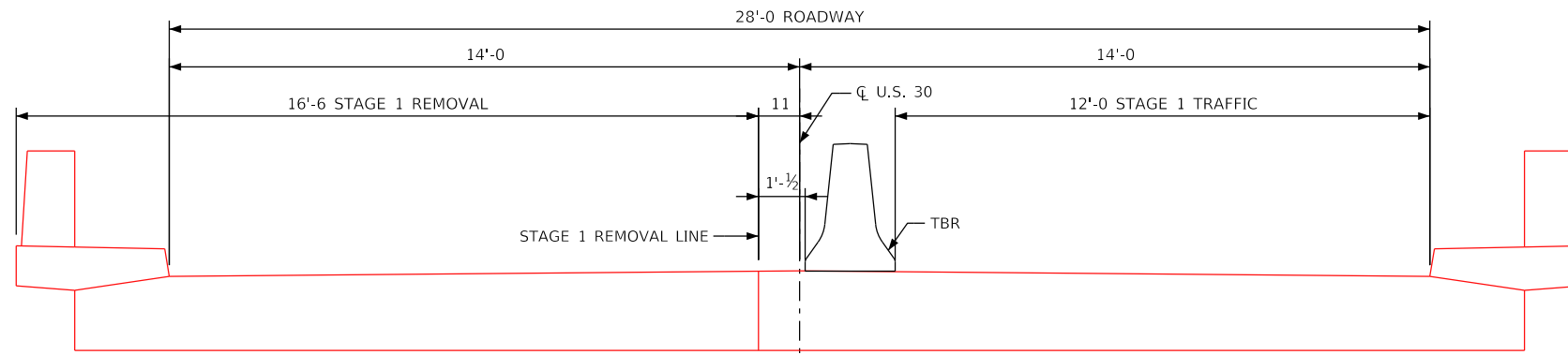
Points	West Abutment			East Abutment		
	Station	Offset	Elev.	Station	Offset	Elev.
A1	213+56.35	26.58' LT	1196.70	214+37.65	26.49' LT	1180.70
A2	213+87.23	26.58' RT	1196.70	214+66.95	23.32' RT	1180.70
B1	213+51.40	26.58' LT	1198.48	214+89.97	26.58' LT	1198.58
B2	213+78.63	26.58' RT	1198.48	215+24.00	26.58' RT	1198.58
C1	214+14.74	28.98' LT	1180.70	-	-	-
C2	214+47.73	27.43' RT	1180.70	-	-	-
W1	213+42.55	26.58' LT	1201.73	215+04.04	26.58' LT	1201.92
W2	213+68.00	26.58' RT	1201.83	215+29.43	26.58' RT	1201.85

Berm slope elevations reflect the grading surface.

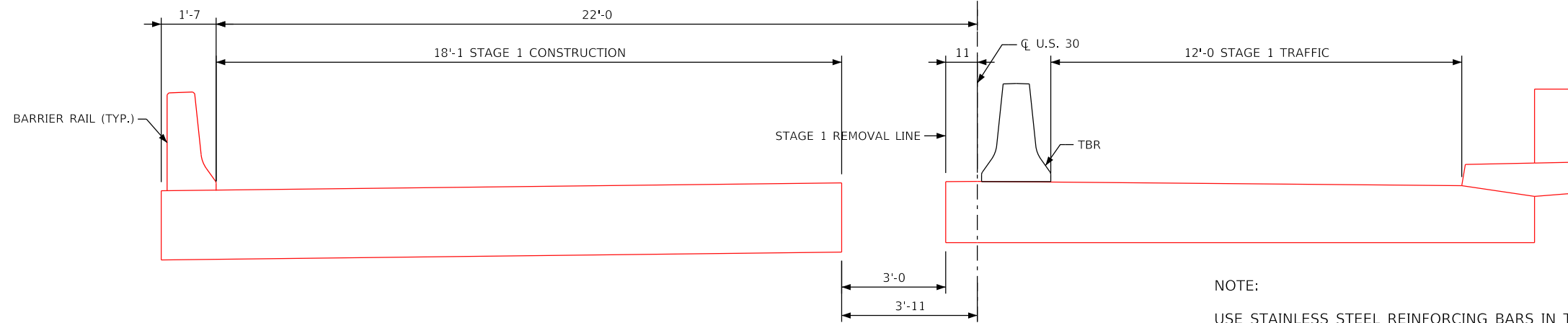
Location	Revetment CL. E (Ton)	Erosion Stone (Ton)	Engineering Fabric (SY)	Excavation (CY)
Berm Lining - West Abutment	798.4	22.5	839.1	512.9
Berm Lining - East Abutment	686.8	23.4	717.6	443.7
Totals	1485.2	45.9	1556.7	956.6

Excavation quantity calculated from grading surface.

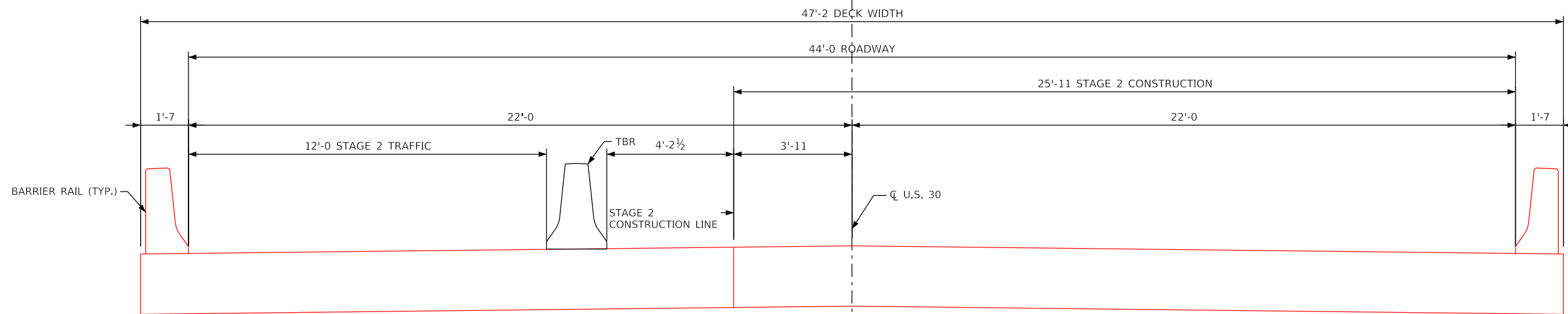
Design For 30° Skew RA
150'-0 x 44'-0 THREE SPAN
CONTINUOUS CONCRETE SLAB BRIDGE
 45'-6 End Spans 59'-0 Interior Span
SITUATION PLAN - SITE
 STA. 214+36.00 (U.S. 30) August 2022
Carroll County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 0125 Design Sheet No. 002 of 003 FHWA/Asset 17111



STAGE 1 REMOVAL



STAGE 1 CONSTRUCTION



STAGE 2 CONSTRUCTION

Design For 30° Skew RA
150'-0 x 44'-0 THREE SPAN
CONTINUOUS CONCRETE SLAB BRIDGE
 45'-6 End Spans 59'-0 Interior Span
STAGE PLAN
 STA. 214+36.00 (U.S. 30) August 2022
Carroll County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. 0125 Design Sheet No. 003 of 003 FHWA/Asset 17111

CROSS SECTION VIEW COLOR LEGEND

Design Color No.	Feature	Design Color No.	Feature
Aggregate			
(64)	Choke Stone	(112)	Noise Wall
(42)	Engineering Fabric	(112)	Noise Wall Footing
(8)	Flooded Backfill	(112)	Retaining Wall Back
(92)	Macadam Stone	(112)	Retaining Wall Back Excavate
(20)	Modified	(112)	Retaining Wall Face
(12)	Plowing Shaping	(112)	Retaining Wall Front Excavate
(14)	Porous Backfill	(112)	Retaining Wall Front Footing
(8)	Revetment Class A	(112)	Retaining Wall MSE Gutter
(6)	Revetment Class B	(112)	Retaining Wall Reinforced Earth
(62)	Revetment Class C	Grading	
(188)	Revetment Class D	(8)	Behind Curb Cut
(28)	Revetment Class E	(6)	Granular
(12)	Shoulder Special Backfill	(13)	Granular Back Fill
(12)	Special Backfill	(48)	Rock Undercut
(20)	Subbase	(8)	Shoulder Earth Fill
(20)	Subbase Lower	(2)	Side Slopes
(20)	Subbase Upper	(226)	Side Slopes Dressing
(118)	Subgrade Treatment	Substrata	
Asphalt			
(207)	HMA Base Course	(128)	Boulder Substrata
(207)	HMA Interim Course	(48)	Broken Weathered Substrata
(207)	HMA Surface Course	(3)	Core Out Substrata
Concrete			
(0)	Barrier Concrete	(203)	Existing Pavement Substrata
(0)	Barrier Concrete Footing	(6)	Loam Substrata
(0)	Curb Gutter	(80)	Rock Substrata
(48)	Flowable Mortar	(4)	Select Sand Substrata
(0)	Median Concrete	(3)	Shale Substrata
(0)	PCC Pavement	(10)	Topsoil Substrata
(0)	Sidewalk	Unsuitable / Waste	
Shoulder			
(209)	Shoulder HMA	(3)	Unsuitable Type A
(0)	Shoulder PCC	(13)	Unsuitable Type B
(6)	Shoulder Granular	(11)	Unsuitable Type C
(3)		(3)	Waste
Existing			
(0)	Existing Pavement		

NOTES:

Text

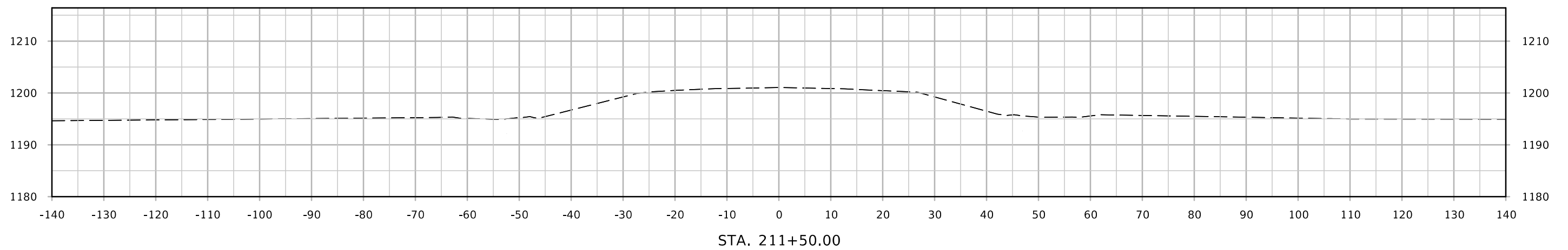
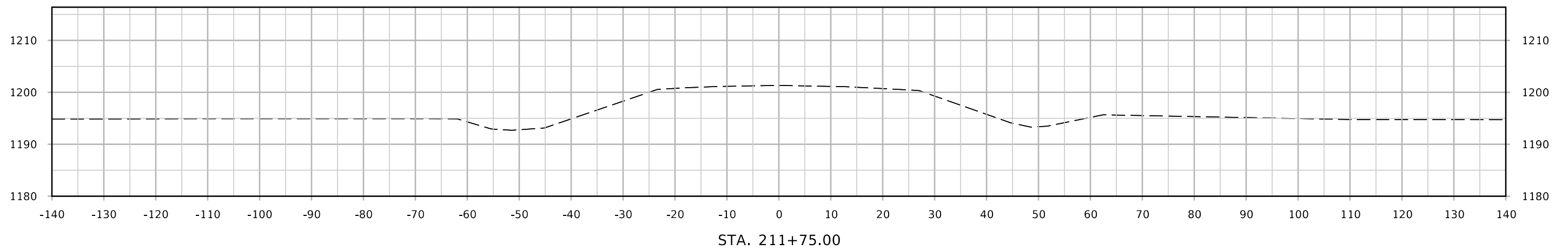
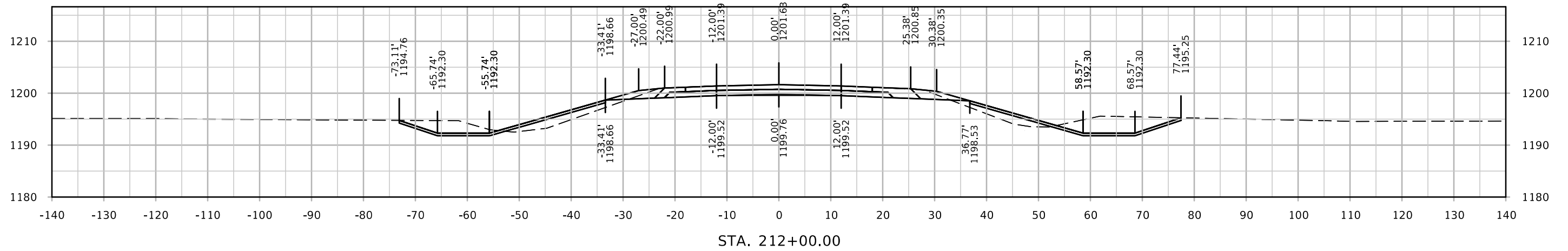
NOTES:

Text

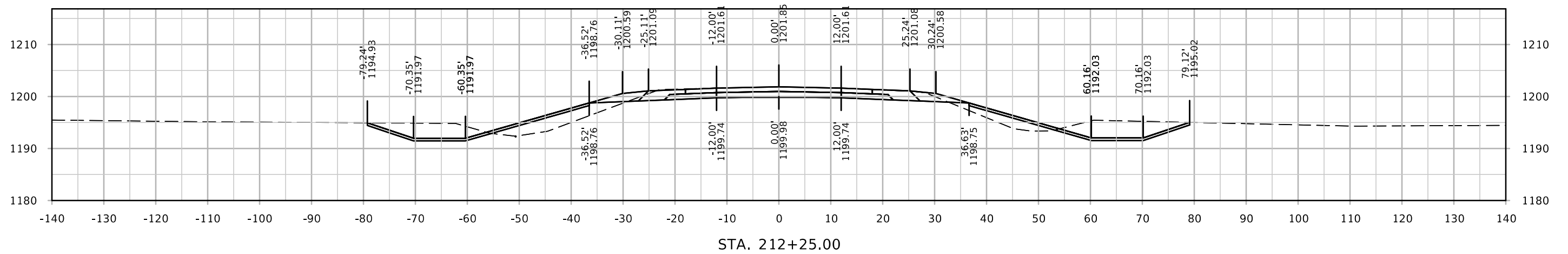
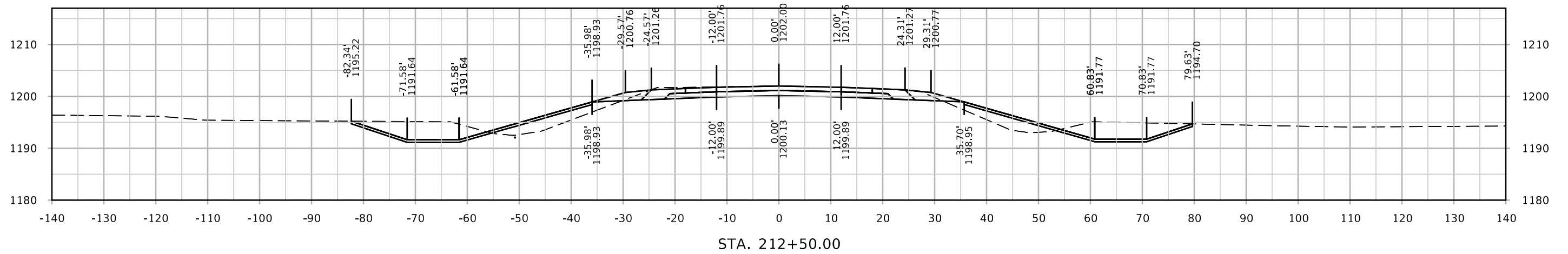
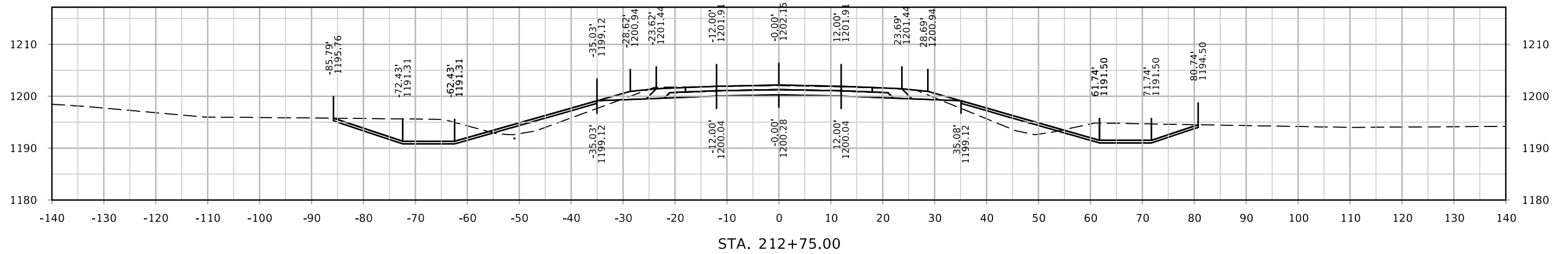
CROSS SECTIONS LEGEND AND INFORMATION SHEET

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

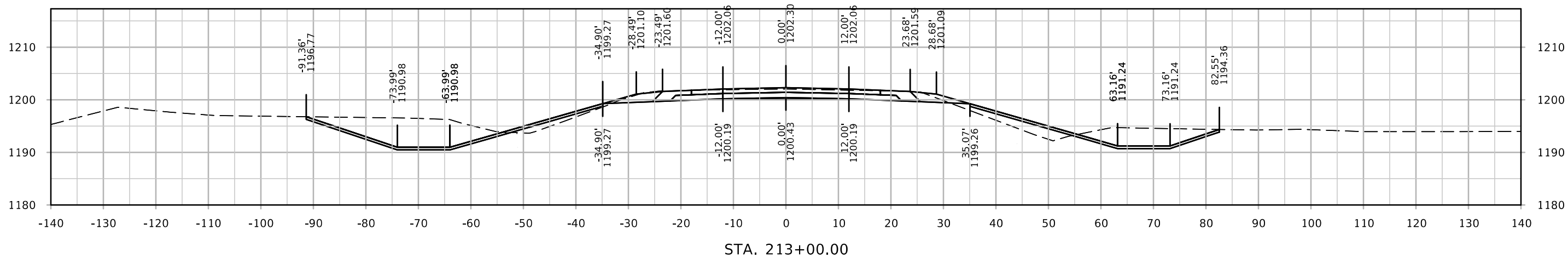
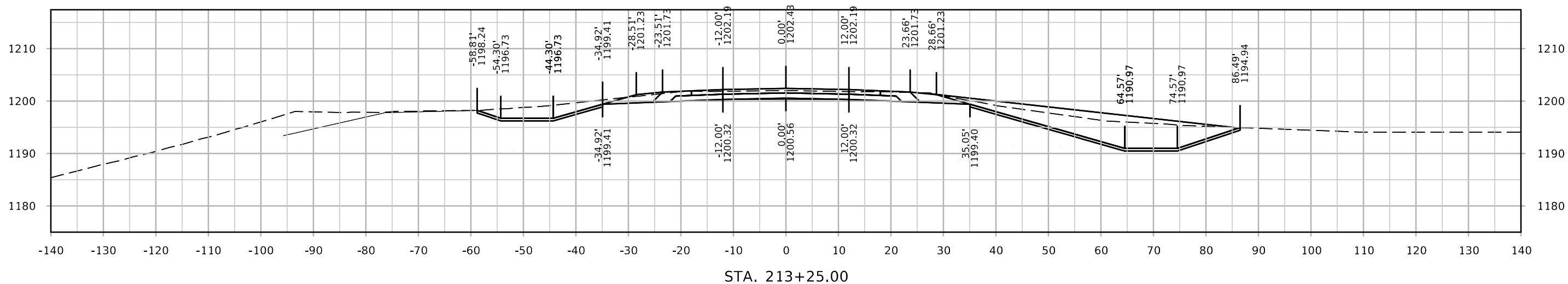
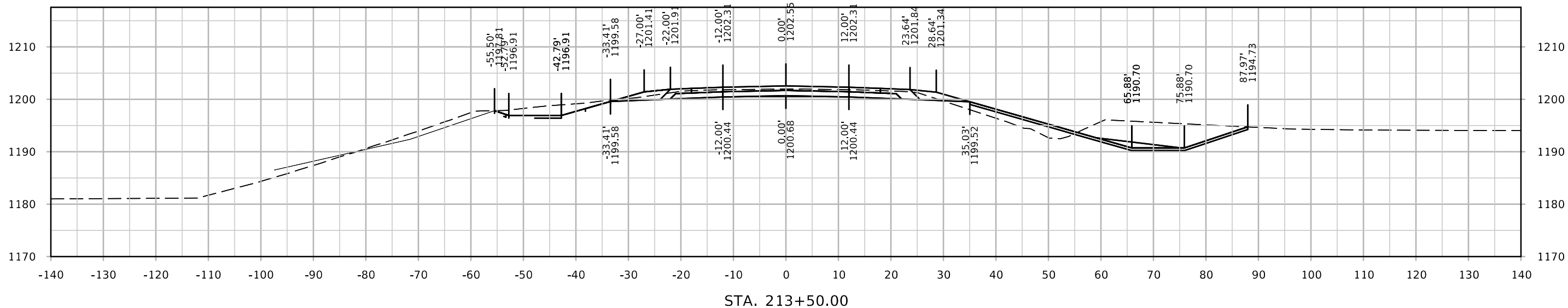
US 30



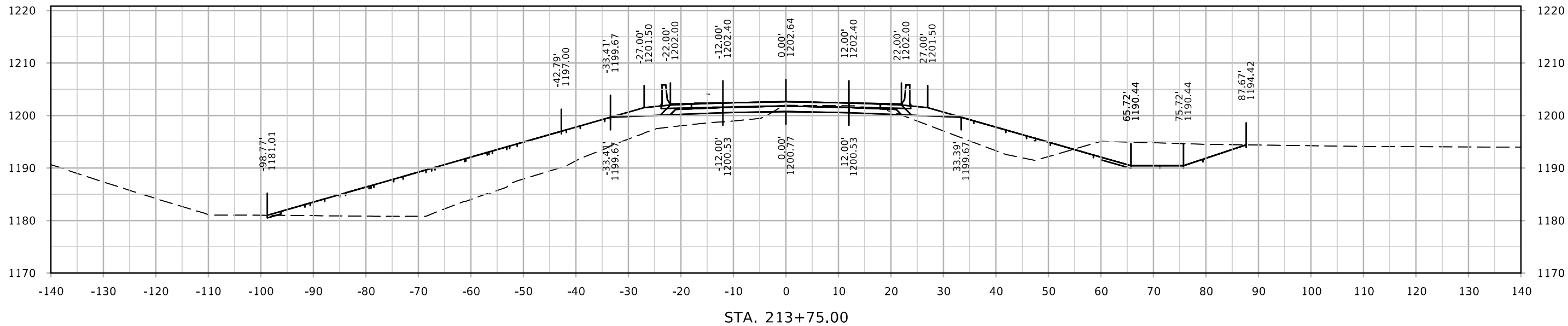
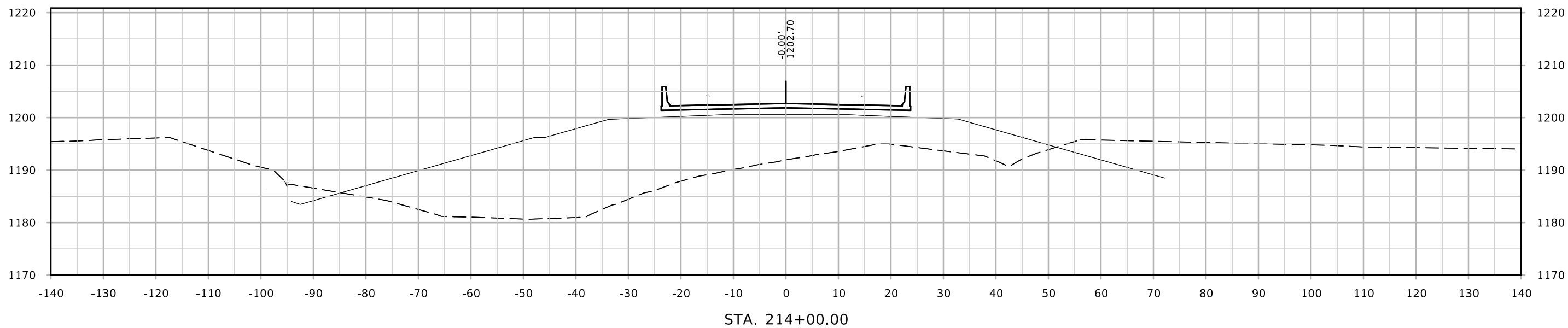
US 30



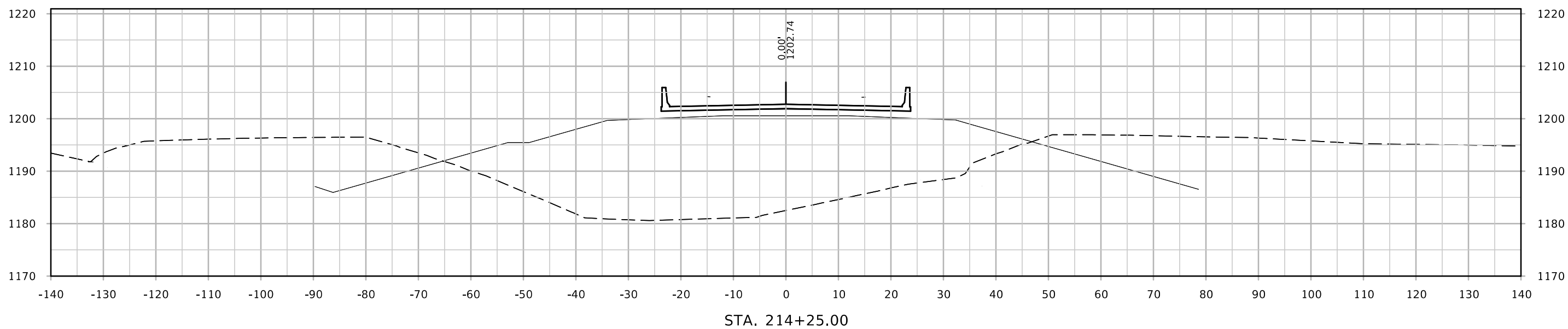
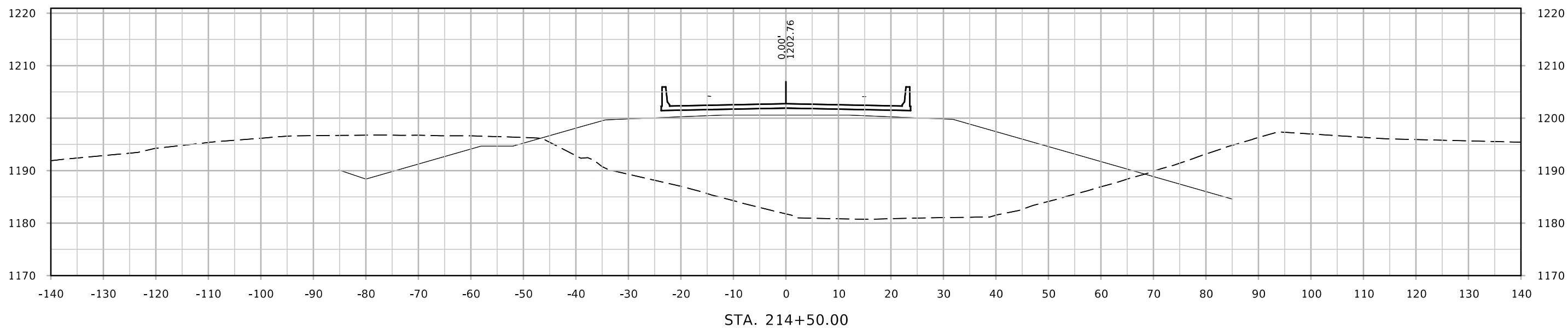
US 30



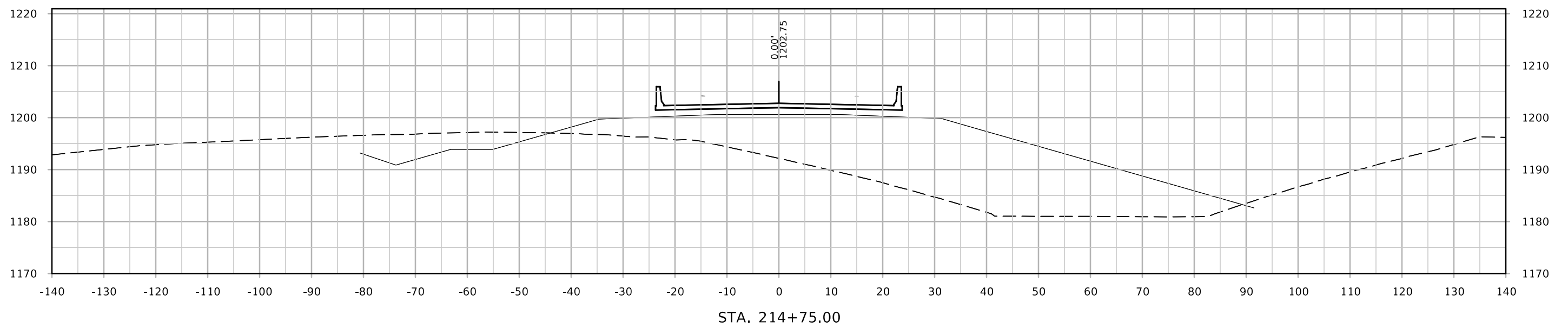
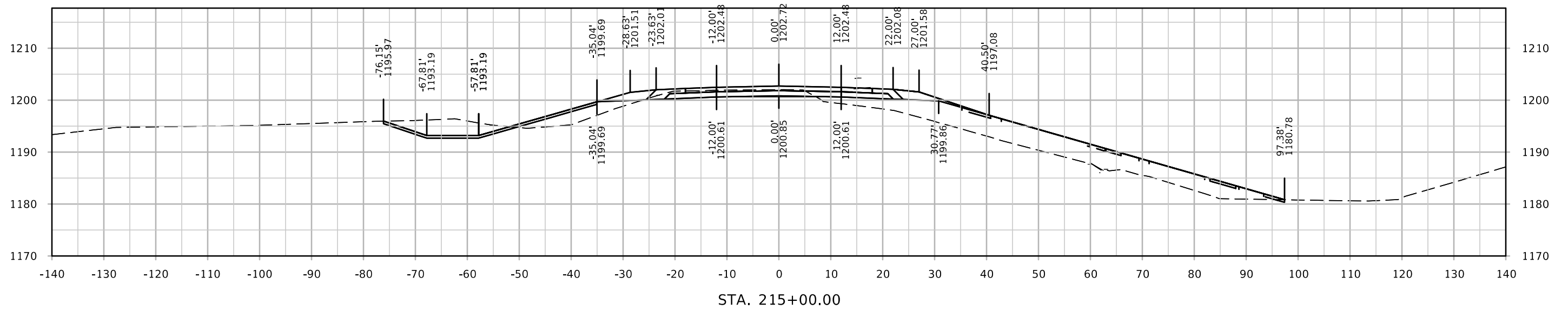
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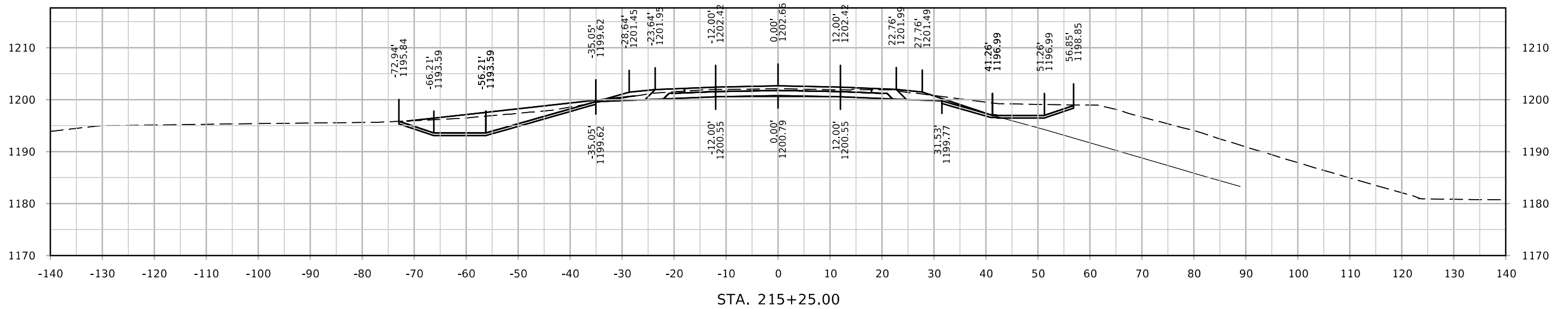
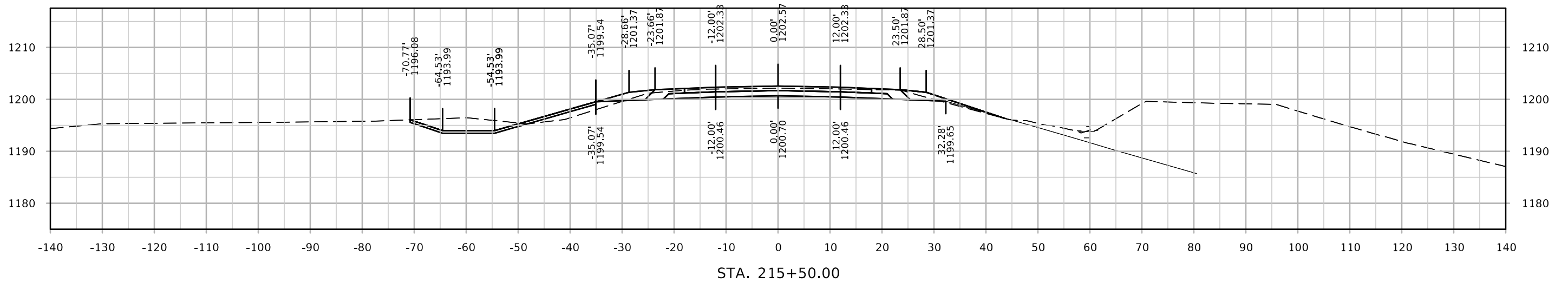
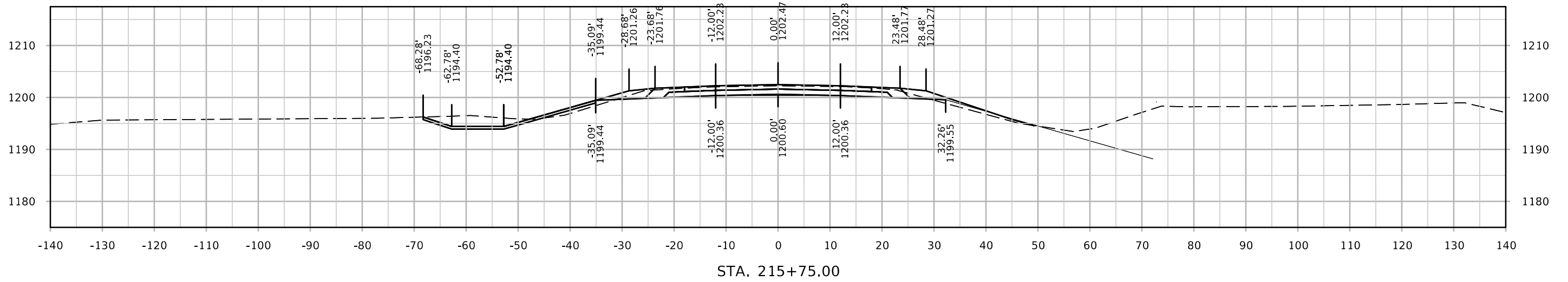
US 30



US 30



US 30



US 30

