

Index of Sheets	
No.	Description
Sheets	Bridge Plan
A.1	Title Sheet
B.1	Typical Cross Sections
C.1 - C.2	Estimated Quantities and Estimate Reference
C.3 - C.6	Roadway Tabulations
C.3	Standard Road Plans
D.1	Plan View Legend
D.2	IA 92 Plan and Profile
G.1	Survey Information
G.2 - G.3	Control Point Information
H.1	Proposed ROW Information
J.1	Traffic Control Plan
J.2 - J.4	Detour Information
RC.1 - RC.2	Erosion Control Tabulations
RR.1	Erosion Control Legend
RR.2	Erosion Control Plan
T.1	Earthwork Tabulations
VW.1	Pipe Cross Sections
W.1	Cross Section Legend
W.2-W.6	IA 92 Cross Sections



# PLANS OF PROPOSED IMPROVEMENT ON THE PRIMARY ROAD SYSTEM KEOKUK COUNTY PIPE CULVERTS

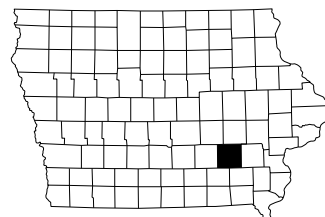
## IA 92 Over Drainage Ditches 0.9 Mi. and 1.0 Mi. E of IA 21

Refer to the Plan Sheets for list of applicable specifications.

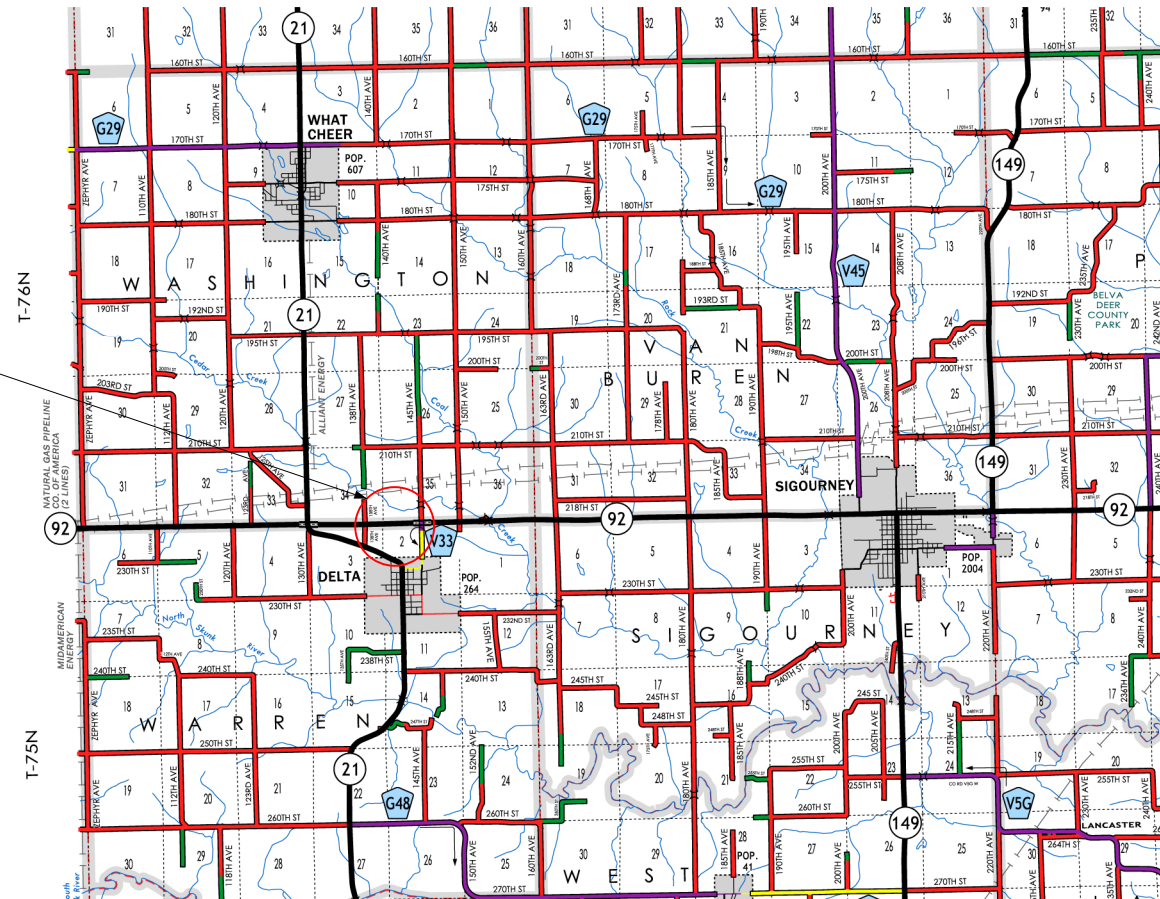
Value Engineering Saves. Refer to Article 1105.14 of the Specifications.



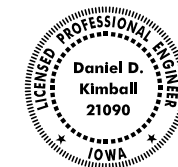
	TOTAL
	30
PROJECT IDENTIFICATION NUMBER	
24-54-092-020	
CONTRACT ID NUMBER	
PROJECT NUMBER	
NHSN-092-8(044)--2R-54	
R.O.W. PROJECT NUMBER	
NHSN-092-8(045)--2R-54	
PROJECT DIRECTORY NUMBER	
5409202024	



PROJECT LOCATION:  
STATION 203+54.22 &  
STATION 210+17.08

**Design Data Rural**

2023 AADT	2,150 V.P.D.
2022 AADT	2,110 V.P.D.
TRUCKS	13.55 %

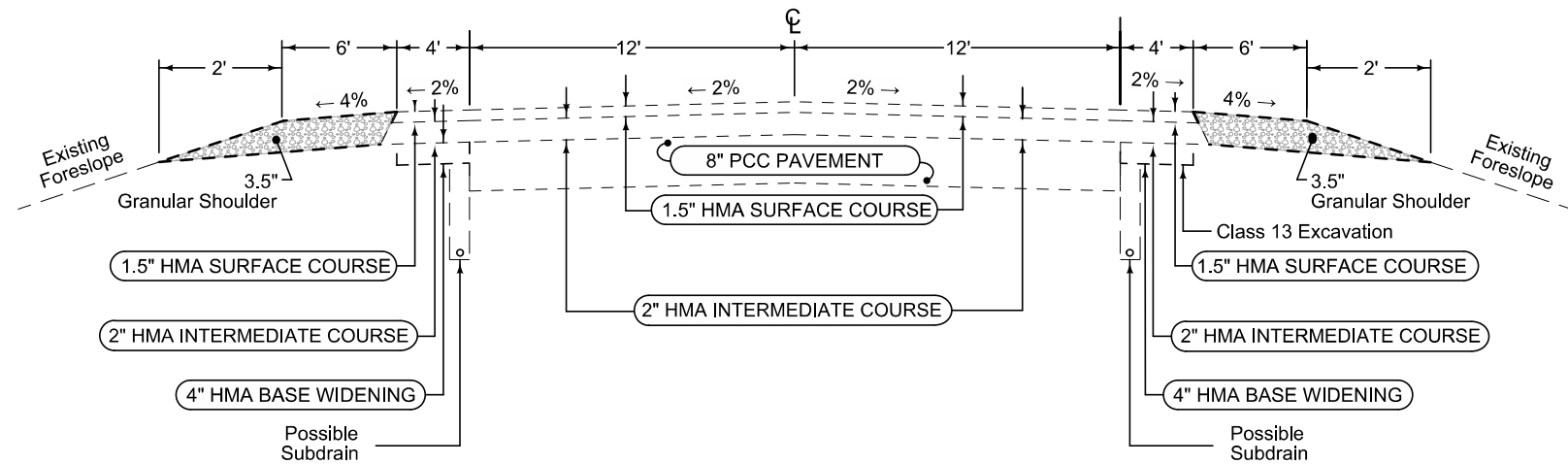


I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

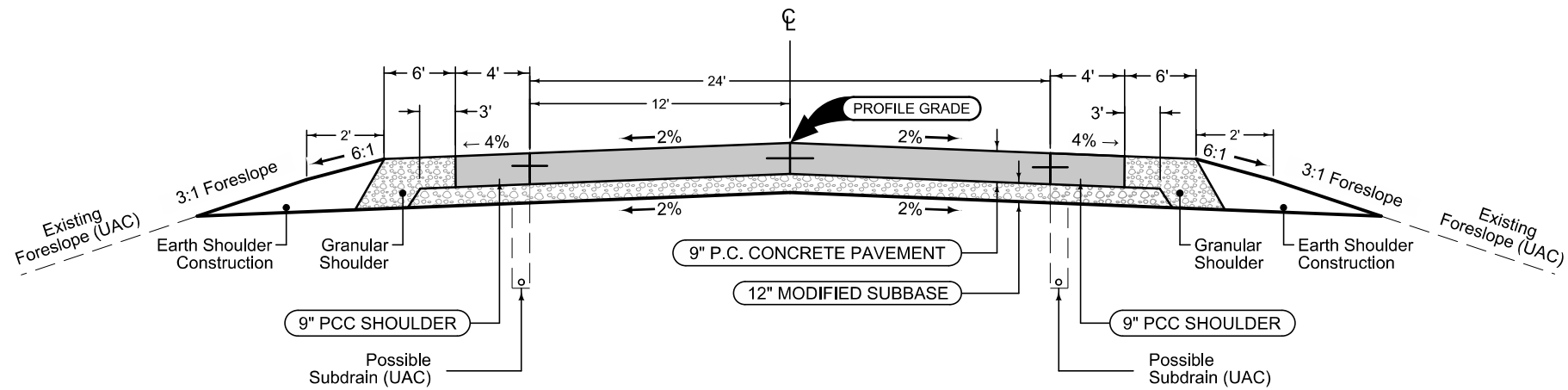
Signature Don Nicholl Date 5-5-26

Printed or Typed Name

Pages or sheets covered by this seal:	All Sheets
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**Existing Typical Section**



**Proposed Typical Section**

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

2P_ 04-21-20	
STATION TO STATION	
203+10.00	204+31.00
209+77.00	210+53.00



ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Roadway Items : Roadway Items

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadway Items	
1	2101-0850001	CLEARING AND GRUBBING	ACRE	0.2	Refer to the D-Sheets for approximate locations. All material generated as a result of Clearing and Grubbing shall become the property of the contractor and must be disposed off-site. All wood material must be disposed of according to Iowa Department of Agriculture and Land Stewardship Emerald Ash Borer Quarantine Order. For more information see <a href="http://www.iowatreepests.com">www.iowatreepests.com</a> .
2	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	411	Refer to Tab. 107-28 in the T-Sheets. All excess material shall become property of the contractor after being used for fill material in the roadway and channel grading.
3	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	CY	60	Quantity for excavation involved in channel grading around the culvert inlets and outlets. See D-Sheets and cross sections for approximate locations and details.
4	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	CY	143	Refer to the T Sheets for locations and details.  Quantity will be computed on the basis of a uniform 12 inch cut. Sufficient field measurements will be taken to assure reasonable conformity with the required depth of cut.
5	2107-0875100	COMPACTION WITH MOISTURE CONTROL	CY	6,253.1	Cubic yards shown on the contract documents as determined by the culvert template fill volume. Shrinkage will not be included in the moisture control quantity.
6	2115-0100000	MODIFIED SUBBASE	CY	277.4	Refer to Typical in the B-Sheets. Refer to Tab. 100-24, 110-9, and the D-Sheets for locations and details.
7	2121-7425010	GRANULAR SHOULDERS, TYPE A	TON	220.64	Refer to B-Sheets, D-Sheets and Tab. 112-9 for locations and details.
8	2122-5190009	PAVED SHOULDER, P.C. CONCRETE, 9 IN.	SY	175.2	Refer to B-Sheets, D-Sheets and Tab. 112-9 for locations and details.
9	2123-7450000	SHOULDER CONSTRUCTION, EARTH	STA	3.94	Includes 3.94 Sta. of shoulders on mainline. Refer to B-Sheets, D-Sheets, and Tab 112-9 for locations and details.
10	2301-1033090	STANDARD OR SLIP FORM PORTLAND CEMENT CONCRETE PAVEMENT, CLASS C, CLASS 3 DURABILITY, 9 IN.	SY	525.4	See the B-Sheets, D-Sheets, and Tab. 100-24 for locations and details.
11	2401-6745650	REMOVAL OF EXISTING STRUCTURES	LS	1	Refer to Tab 110-2. This item shall consist of removal of the existing RCB culverts and drop structures as listed. All removed structures shall become the property of the Contractor.  Measurement: Lump Sum  Payment: The Contractor shall be paid the lump sum contract price for all existing structures listed in Tab. 110-2. This payment shall be full compensation for furnishing all material, equipment, and labor for the performance of all work necessary for removal of all drainage structures from the project.
12	2402-0425040	FLOODED BACKFILL	CY	836.2	Refer to Tab. 104-3 in the C-Sheets and Standard Road Plan DR-101.
13	2402-2720100	EXCAVATION, CLASS 20, FOR ROADWAY PIPE CULVERT	CY	6,253.1	Refer to Tab. 104-3 in the C-Sheets and Standard Road Plan DR-101.
14	2416-0100048	APRONS, CONCRETE, 48 IN. DIA.	EACH	6	See Tab. 104-3, the D-Sheets, and the VW-Sheets for locations and details.
15	2416-1180048	CULVERT, CONCRETE ROADWAY PIPE, 48 IN. DIA.	LF	172	

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadway Items	
16	2416-1240048	CULVERT, 3000D CONCRETE ROADWAY PIPE, 48 IN. DIA.	LF	392	
17	2507-6800061	REVETMENT, CLASS E	TON	89.548	Refer to Tab. 100-23.  Refer to details in EC-301 and locations in the RR-Sheets. Estimated at 1.5 Ton/CY.
18	2510-6745850	REMOVAL OF PAVEMENT	SY	700.4	Refer to Tabs. 110-1 and 102-5 in the C-Sheets.
19	2519-4200010	REMOVAL AND REINSTALLATION OF FENCE, BARBED WIRE	LF	160	Quantity for removal and reinstallation of fence for outlet construction and grading. See D-Sheets for locations and details.
20	2520-0005010	POP-UP NETWORK DEVICE	EACH	1	-
21	2526-8285030	CONSTRUCTION SURVEY, RIGHT OF WAY	LS	1	
22	2526-8285040	CONSTRUCTION SURVEY, LOCATION SURVEY	LS	1	Refer to TC-283 for traffic control layout.  Prior to construction, perform a survey to lay out the proposed grading design per Section 2526.01. The GPS Machine Control Grading data files as listed in the current standard specifications will be made available at contractor's request. No additional files or formats will be provided. After finished grading and prior to seeding, the Contractor shall prepare a topographic survey, using the established baselines to show conformance to the proposed grades. The survey shall indicate the established baselines and the finished grades shown in 0.5 foot contours. Survey all grading areas. The Contractor shall provide the Engineer and the Office of Location and Environment with the electronic surface files in LandXML format. Provide electronic data and survey copies to: Alan Beddow, Mitigation Construction Engineer Iowa Department of Transportation, 800 Lincoln Way, Ames, Iowa, 50010, phone number {515}956-7203, Alan.Beddow@iowadot.us.
23	2527-9263209	PAINTED PAVEMENT MARKINGS, WATERBORNE OR SOLVENT-BASED	STA	4.43	See Tab. 108-22.
24	2528-2518000	SAFETY CLOSURE	EACH	2	Refer to Tab. 108-13A and Standard Road Plan TC-252.
25	2528-8445110	TRAFFIC CONTROL	LS	1	Refer to Traffic Control Plan on Sheet J.1.
26	2533-4980005	MOBILIZATION	LS	1	--
27	2601-2638352	SLOPE PROTECTION, WOOD EXCELSIOR MAT	SQ	45	Refer to Tab. 100-22 for locations. Refer to Standard Road Plan EC-103.  Prepare seedbed according to Article 2601.03, B, 4, of the Standard Specifications prior to seeding and fertilizing under the slope protection.  Use material meeting Article 4169.10, C of the Standard Specifications.
28	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA.	LF	1,380	Refer to Tab. 100-19. The tabulation includes estimated locations for placement of "Perimeter and Slope Sediment Control Device, 20 in. dia." to address erosion to be encountered during construction. Verify the specific locations with the Engineer prior to beginning placement. Bid item includes 25% additional quantity for field adjustments and replacements.
29	2602-0000351	REMOVAL OF PERIMETER AND SLOPE OR DITCH CHECK SEDIMENT CONTROL DEVICE	LF	1,380	Refer to Tab. 100-19.

100\_01D  
8/15/22

PROJECT DESCRIPTION

The project includes the replacement of two RCB culverts along IA 92, approximately 1 mile east of IA 21. The culverts are being replaced with RCP pipe culverts. This project also includes removal and replacement of roadway pavement surface and shoulders, and additional grading for new pipes.

105 04  
10/21/25

STANDARDS		
The following Standards apply to construction work on this project.		
Number	Date	Title
DR-101	04-18-17	Pipe Culvert (Bedding and Backfill)
DR-102	04-21-15	Pipe Culvert (Cover and Camber)
DR-103	04-21-15	Pipe Culvert (Installation Details)
DR-104	04-19-16	Depth of Cover Tables for Concrete and Corrugated Pipe
DR-121	04-18-23	Connected Pipe Joints
DR-141	04-18-17	Pipe Bends and Half Pipe
DR-201	10-17-23	Concrete Aprons
DR-611	04-18-17	Reinforced Concrete Pipe Culvert Letdown Structure
EC-103	04-21-15	Wood Excelsior Mat for Slope Protection
EC-204	10-19-21	Perimeter, Slope and Ditch Check Sediment Control Devices
EC-301	10-18-22	Rock Erosion Control (REC)
EC-303	10-19-21	Stabilized Construction Entrance
EC-502	04-21-15	Seeding in Rural Areas
EW-101	10-17-17	Embankment and Rebuilding Embankments
MI-103	10-20-15	Deer Fence and Field Fence Construction
PM-110	10-15-24	Line Types
PV-101	10-21-25	Joints
TC-1	10-15-19	Work Not Affecting Traffic (Two-Lane or Multi-Lane)
TC-202	04-18-23	Work Within 15 ft of Traveled Way
TC-283	04-18-23	Surveying Operations
TC-252	10-21-25	Routes Closed to Traffic

111_25 4/30/25			INDEX OF TABULATIONS		
Tabulation	Tabulation Title				Sheet No.
100_01D	PROJECT DESCRIPTION				C.3
100_19	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE				RC.2
100_22	ROLLED EROSION CONTROL				RC.2
100_23	ROCK EROSION CONTROL				RC.2
100_24	PCC PAVEMENT				C.4
102_05	EXISTING PAVEMENT				C.3
104_03	DRAINAGE STRUCTURE BY ROAD CONTRACTOR				C.4
105_04	STANDARD ROAD PLANS				C.3
108_13A	SAFETY CLOSURES				J.1
108_22	PAVEMENT MARKING LINE TYPES				C.5
108_23A	TRAFFIC CONTROL PLAN				J.1
108_25	511 TRAVEL RESTRICTIONS				J.1
108_26A	STAGING NOTES				J.1
110_01	REMOVAL OF PAVEMENT				C.6
110_02	REMOVAL OF EXISTING STRUCTURES				C.6
111_01	COORDINATED OPERATIONS				J.1
111_25	INDEX OF TABULATIONS				C.3
112_09	SHOULDERS				C.5
232_03A	EROSION CONTROL (RURAL SEEDING)				RC.1
232_03C	EROSION CONTROL (NATIVE GRASS SEEDING)				RC.1
232_11	EROSION CONTROL (STABILIZING CROP SEEDING)				RC.1
262_06	UTILITIES (NOT A POINT 25 PROJECT)				C.3

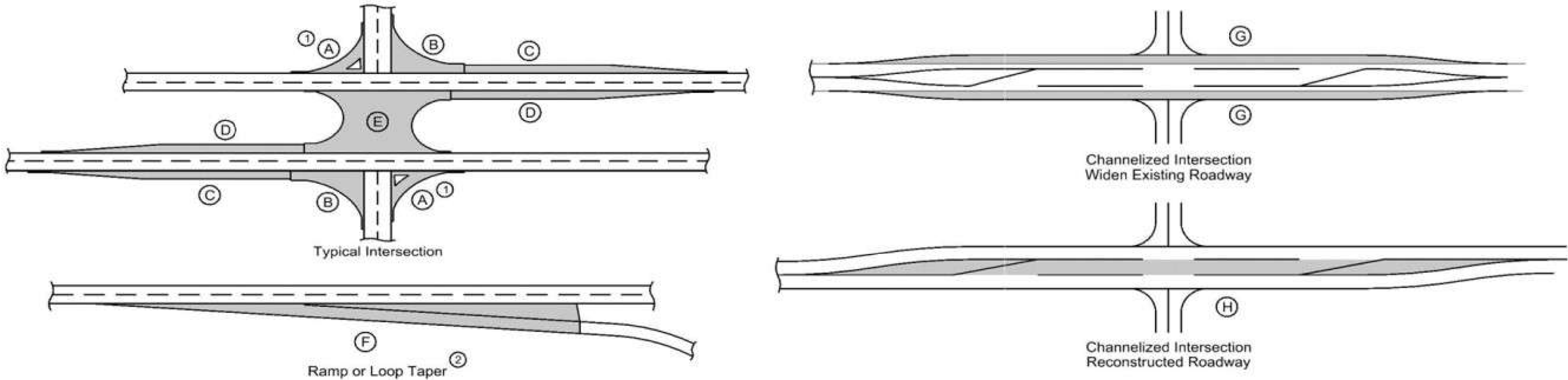
262\_06  
9/28/22

UTILITIES (NOT A POINT 25 PROJECT)

This is NOT a POINT 25 project and is not subject to the provisions of IAC 761-115.25.

102_05 9/29/23																					
EXISTING PAVEMENT																					
Line No.	County	Route	Direction of Travel	Begin Ref. Location Sign	End Ref. Location Sign	Year	Type	Project Number	Surface Type	Surface Depth (IN)	Base Type	Base Depth (IN)	Subbase Type	Subbase Depth (IN)	Removal Type	Removal Depth (IN)	Coarse Aggregate Source	Coarse Aggregate Type	Course Aggregate Durability Class	Reinforce ment Type	Remarks
1.0	Keokuk	IA 92	Both	MP 196 98	MP 197 83	2023	S	NHSX-092-8(043)--3H-54	HMA	1.5	HMA	2.0									
2.0	Keokuk	IA 92	Both	MP 196 98	MP 197 83	1964		F-34(5)*	PCC	10.0							LANGSTRATT	C.LST.			

PCC PAVEMENT



(1) Does not include raised island area or curb. Refer to tabulation 112-4 for quantities.  
(2) Refer to PV-410, PV-411, PV-412, and PV-414.  
(3) Quantity includes Pavement Header.

Line No.	Road Identification	Direction of Travel	Station From	Station To	Width (FT)	Length (FT)	Area (SY)	Area A(1) (SY)(3)	Area B (SY)(3)	Area C (SY)(3)	Area D (SY)(3)	Area E (SY)(3)	Area F(2) (SY)(3)	Area G (SY)(3)	Area H (SY)(3)	Area by Thickness - Thickness(IN)	Area by Thickness - Area (SY)	Polymer Grid (SY)	Special Backfill (TON)	Modified Subbase (CY)	Granular Subbase (SY)	Remarks
1.0	IA 92	Both	203+10.00	204+31.00	24.0	121.00	322.70									9.0	322.7			107.60		
2.0	IA 92	Both	209+77.00	210+53.00	24.0	76.00	202.70									9.0	202.7			67.60		
Total:																	525.4			175.2		

DRAINAGE STRUCTURE BY ROAD CONTRACTOR

Length of unclassified pipe calculated is based on using Reinforced Concrete Pipe.  
\* Not a bid item  
(1) Diameter or equivalent diameter  
(2) UNCL = Unclassified Pipe    CMP = Corrugated Metal Pipe    RCP = Reinforced Concrete Pipe    LCP = Arch or Elliptical Low Clearance Pipe    SARC = Steel Arch Pipe  
(3) Backfill according to DR-101

Drainage Area (ACRE)	Location	Type	Size (IN) (1)	Pipe Classification	Kind of Pipe (2)	Length New Const. (LF)	Length of total that is Trenchless	Bedding Class	Design Cover (H) (FT)	Camber* (DR-102) (FT)	Apron No. (IN)	Apron No. (OUT)	Apron Guard* (DR-213) (No.)	Elbow* (DR-141) (No.)	Diaphragm* (DR-501) (No.)	Tee Section* (DR-142) (No.)	"D" Section* (DR-141) (No.)	Reducer* (No.)	Type 'C' Conn.* (DR-122)	Type 'C' Conn.* (No.)	Connected Pipe Joint* (DR-121)	4" Perforated Subdrain* (FT)	Flow Line Elevation LT.	Flow Line Elevation RT.	Flow Line Elevation Other	Flow Line Elevation Other	Dimensions Lineal Feet Total (Left)	Dimensions Lineal Feet Total (Right)	Dimensions Lineal Feet Extensions	Dimensions Lineal Feet Extensions	Skew Ahead Degrees (Left)	Skew Ahead Degrees (Right)	Dike Location	Dike Station	Dike Elevation	Dike Type	Class 20 (CY)	Flowable Mortar	Floodable Backfill* (A)	Porous Backfill* (B)	Flooded Backfill(A+B)	Remarks
144	203+54.22	DR-601	48.0	3000D	RCP	196.0		B	19.20		2	2								Type 2			718.64	725.50			127.20	68.80			12.0						4386.8		671.2	14.3	685.5	Twin 48"
34	210+17.08	DR-611	48.0	2000D	RCP	172.0		B	13.40		1	1								Type 2			721.49	735.98	721.76		131.70	40.30			15.0						1866.3		144.8	5.9	150.7	DR-611
Total:											3	3																									6253.1				836.2	

108\_22  
11/25/25

PAVEMENT MARKING LINE TYPES

Line factors based on 6-inch wide continuous line.  
\*BCY4 - Place on the same side of the roadway to match existing markings near the project.  
\*\*NPY4 - Estimating purposes only. No Passing Zone Lines will be located in the field.  
\*\*\*MNY6 - Factor of 1.00 includes number of 6-inch passes to cover median nose area.  
BCY4: Broken Centerline (Yellow) @ 0.17      BCY6: Broken Centerline (Yellow) @ 0.25      BLC6: Broken Line Contrast (White/Black) @ 0.50      BLW4: Broken Lane Line (White) @ 0.17      BLW6: Broken Lane Line (White) @ 0.25  
CBW6: Crosswalk Bar (White) @ 10.00      CHW8: Channelizing Line (White) @ 1.33      CHW10: Channelizing Line (White) @ 1.67      CHY8: Channelizing Line (Yellow) @ 1.33      CHY10: Channelizing Line (Yellow) @ 1.67  
CLW6: Crosswalk Line (White) @ 2.00      DCY4: Double Centerline (Yellow) @ 1.34      DCY6: Double Centerline (Yellow) @ 2.00      DDY4: Double Dotted Line (Yellow) @ 0.44      DDY6: Double Dotted Line (Yellow) @ 0.67  
DLW4: Dotted Line (White) @ 0.22      DLW6: Dotted Line (White) @ 0.33      DLY4: Dotted Line (Yellow) @ 0.22      DLY6: Dotted Line (Yellow) @ 0.33      ELW4: Edge Line Right (White) @ 0.67  
ELW6: Edge Line Right (White) @ 1.00      ELY4: Edge Line Left (Yellow) @ 0.67      ELY6: Edge Line Left (Yellow) @ 1.00      LDW8: Lane Drop (White) @ 0.33      LDW10: Lane Drop (White) @ 0.42  
MNY6: Median Nose (Yellow) @ 1.00      NPY4: No Passing Zone Line (Yellow) @ 0.84      NPY6: No Passing Zone Line (Yellow) @ 1.25      RLW4: Ramp Edge Line Right (White) @ 0.67      RLW6: Ramp Edge Line Right (White) @ 1.00  
RLY4: Ramp Edge Line Left (Yellow) @ 0.67      RLY6: Ramp Edge Line Left (Yellow) @ 1.00      SLW2: Stop Line (White) @ 4.00      SLW4: Solid Lane Line (White) @ 0.67      SLW6: Solid Lane Line (White) @ 1.00  
SPW4: Sloped Curb 4" (White) @ 2.16      SPW6: Sloped Curb 6" (White) @ 2.28      SPY4: Sloped Curb 4" (Yellow) @ 2.16      SPY6: Sloped Curb 6" (Yellow) @ 2.28      STW6: Standard Curb 6" (Yellow) @ 2.03  
STY6: Standard Curb 6" (Yellow) @ 2.03      YLW2: Yield Line (White) @ 1.15

Line No.	Road ID	Station From	Station To	Lane	Marking Type	Left	Center	Right	Groove Marking Needed?	Groove Qty. (STA)	BCY4* Factored (STA)	BCY6 Factored (STA)	BLW4 Factored (STA)	DCY4 Factored (STA)	ELW6 Factored (STA)	ELY4 Factored (STA)	Remarks	
1.0	IA 92	203+10.00	204+31.00	Both	Waterborne/Solvent Paint		X		No			0.30						
2.0	IA 92	203+10.00	204+31.00	EB	Waterborne/Solvent Paint			X	No						1.21			
3.0	IA 92	203+10.00	204+31.00	WB	Waterborne/Solvent Paint			X	No						1.21			
4.0	IA 92	209+77.00	210+53.00	Both	Waterborne/Solvent Paint		X		No			0.19						
5.0	IA 92	209+77.00	210+53.00	EB	Waterborne/Solvent Paint			X	No						0.76			
6.0	IA 92	209+77.00	210+53.00	WB	Waterborne/Solvent Paint			X	No						0.76			
Total:												0.49		3.94				

Bid Item Totals:

Waterborne/Solvent Paint - 4.43 Sta.

112\_09  
10/15/24

SHOULDERS

(1) Lane(s) to which the shoulder is adjacent.  
(2) See Typ. 7156, 7157, or 7158.  
(3) Bid Item.  
(4) Applies only for Paved Shoulders constructed on project with existing granular shoulders.  
(5) Bid Item. Typ. 7156, 7157, or 7158.  
(6) Does not include shrink.  
(7) Paved shoulder thickness specified in Remarks.  
(8) Subbase type specified in Remarks.

Roadway Identification	Direction of Travel (1)	Station From	Station To	Side	P Width (FT)	P SG Width (2) (FT)	G Width (FT)	L Length (FT)	Class 13 Excavation (CY) (3)(4)	HMA (TON)	HMA (TON/STA)	Binder (TONS)	Paved Shoulder (3) (SY)	Paved Shoulder at Grd rail (5)(7)(SY)	Reinforced Paved Shoulder(3) (SY)	Special Backfill HMA Alt. (3) (TON)	Special Backfill HMA Alt. (TON/STA)	Special Backfill PCC Alt. (3) (TON)	Special Backfill PCC Alt. (TON/STA)	Polym er Grid (SY)	Subbase (3) (8) (CY)	Granular Shoulder (3) (TON)	Granular Shoulder (TON/STA)	Shoulder Const. Alt (3) (STA)	Remarks
IA 92	EB	203+10.00	204+31.00	Right	4		6	121.00					53.8								31.40	67.760	56.000	1.21	(9)
IA 92	WB	203+10.00	204+31.00	Left	4		6	121.00					53.8								31.40	67.760	56.000	1.21	(9)
IA 92	EB	209+77.00	210+53.00	Right	4		6	76.00					33.8								19.70	42.560	56.000	0.76	(9)
IA 92	WB	209+77.00	210+53.00	Left	4		6	76.00					33.8								19.70	42.560	56.000	0.76	(9)
Total:														175.2						102.2		220.64		3.94	

(9) Modified Subbase

FILE NO. -

ENGLISH

DESIGN TEAM **AECOM**

KEOKUK COUNTY

PROJECT NUMBER **NHSN-092-8(044)--2R-54**

SHEET NUMBER **C.5**

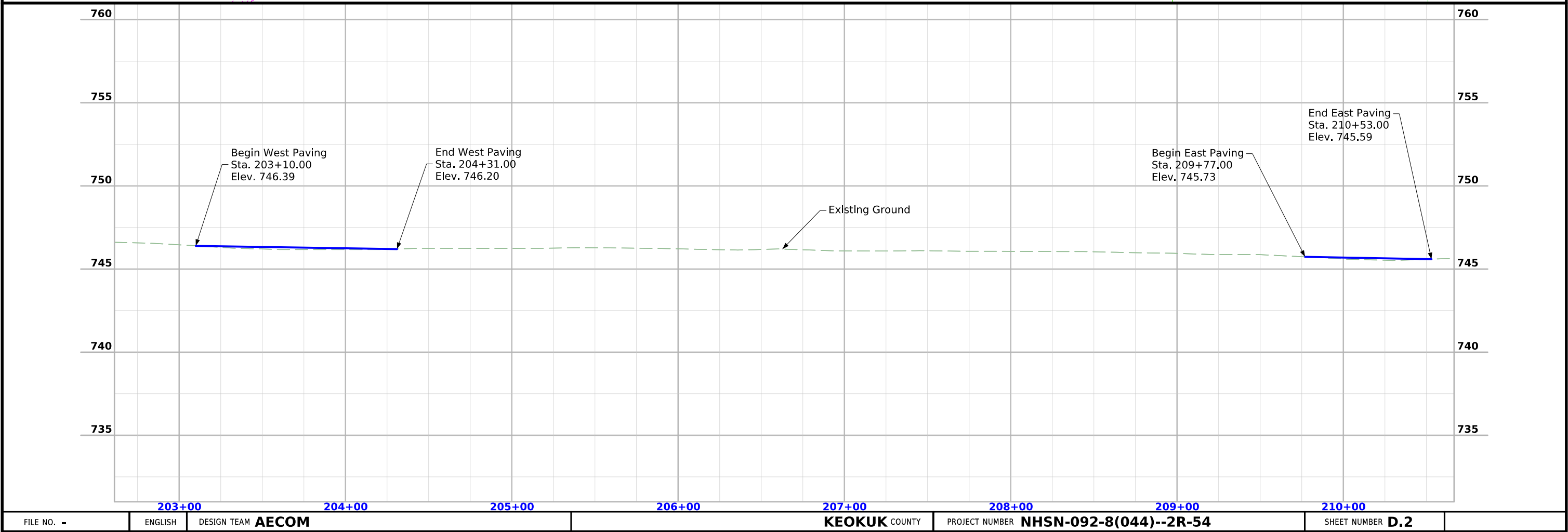
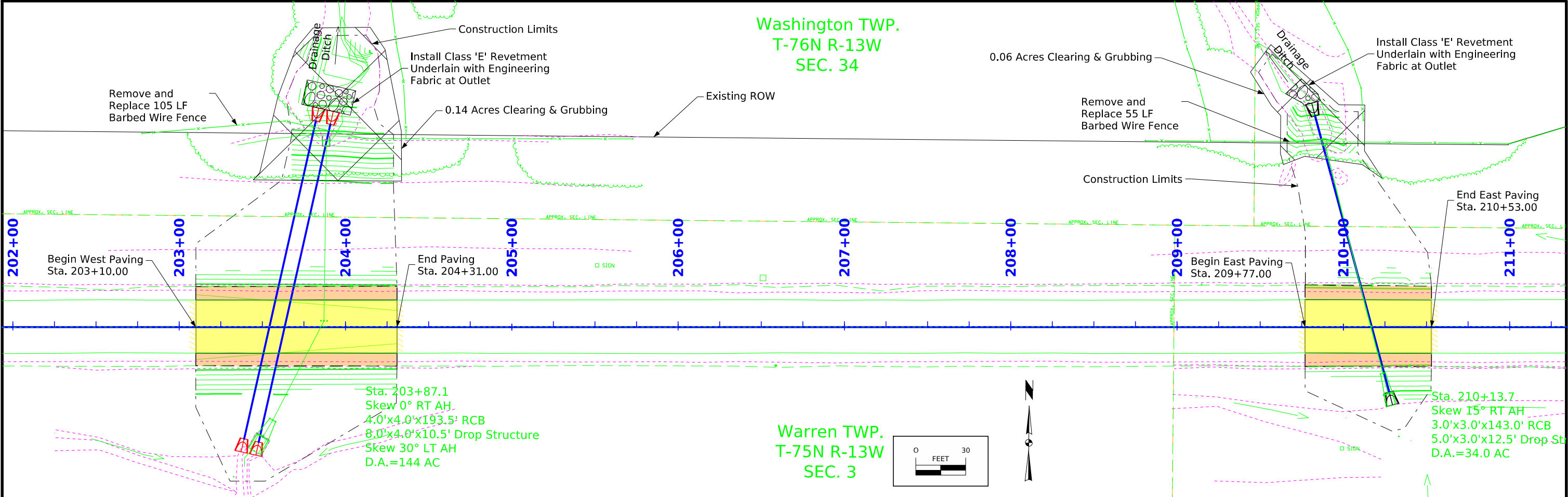
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REMOVAL OF PAVEMENT							110_01 4/5/24
Refer to Tabulation 102-5.							
* Not a bid item.							
Line No.	Station From	Station To	Side	Pavement Type	Area (SY)	Saw Cut* (LF)	Remarks
1.0	203+10.00	204+31.00	Both	PCC w/ HMA Overlay	430.2	64.0	
2.0	209+77.00	210+53.00	Both	PCC w/ HMA Overlay	270.2	64.0	
Total:					700.4	128	

REMOVAL OF EXISTING STRUCTURES				110_02 8/15/22
Line No.	Location	Description	Remarks	
1.0	203+87.1	4'x4' RCB and 8'x4' Drop Structure	193.5' Culvert Length	
2.0	210+13.7	3'x3' RCB and 5'x3' Drop Structure	143' Culvert Length	





Survey Information

SURVEY INDEX

County : Keokuk  
Project Code : 24-54-092-020  
Phase Number : NHSN-092-8(044)--2R-54  
Location : 0.9 mi and 1.0 mi E of IA 21  
Work Code : 3121-RCB Culvert Replacement - Single Box  
Project Directory : 5409202024

Survey Personnel

Aaron Mueller – Professional Land Surveyor  
Ethan Nicholas – Survey Party Chief  
Joel Peters– Assistant Survey Party Chief

Date(s) of Survey

Begin Date 12/04/2025  
End Date 01/10/2025

General Information

This project involves replacement of two existing Single Barrel Reinforced Concrete Box (RCB) Culverts along Highway 92 in Keokuk County, IA. Culvert 1 is a 4'x4' RCB located approximately 0.9 miles east of IA 21 and Culvert 2 is a 3'x3' RCB located approximately 1.0 miles east of IA 21.

Utility Information

For logging data and other utility details see Utility Survey and Ownership Report in the Utility folder of the PrelimSurvey project directory.

Project Control

Primary Control: Three 1 Meter FENO monuments were set along Iowa Highway 92, Points 10, 20, and 30. Each point had four six-minute observations using the Iowa RTN, One observation on January 7, 2025 and three observations on January 10, 2025

PROJECT DATUM: NAD83(2011) for EPOCH 2010.00 (IaRTN 2019 ADJUSTMENT)  
COORDINATE SYSTEM: IOWA REGIONAL COORDINATE SYSTEM ZONE 13  
(U.S. SURVEY FOOT)  
VERTICAL DATUM: NAVD88  
GEOID MODEL: 2018

Alignment Information

The horizontal alignment for U.S. Hwy 92 this survey is a retrace of As-built Plans No. F-34(5). Survey stationing was equated to the plan crossing culvert at Sta. 203+87.10 Design No. 2362 and carried back and ahead with/without equation throughout the survey.

Survey stationing relates to as built plan stationing as follows:

POT Sta. 203+87.10 As-built Plans Project No. F-34(5)  
Survey POT Sta. 203+87.10



## 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) for EPOCH 2010.00 (IaRTN 2019 Adjustment) - Iowa RCS Zone 13 (U.S. Survey Foot)

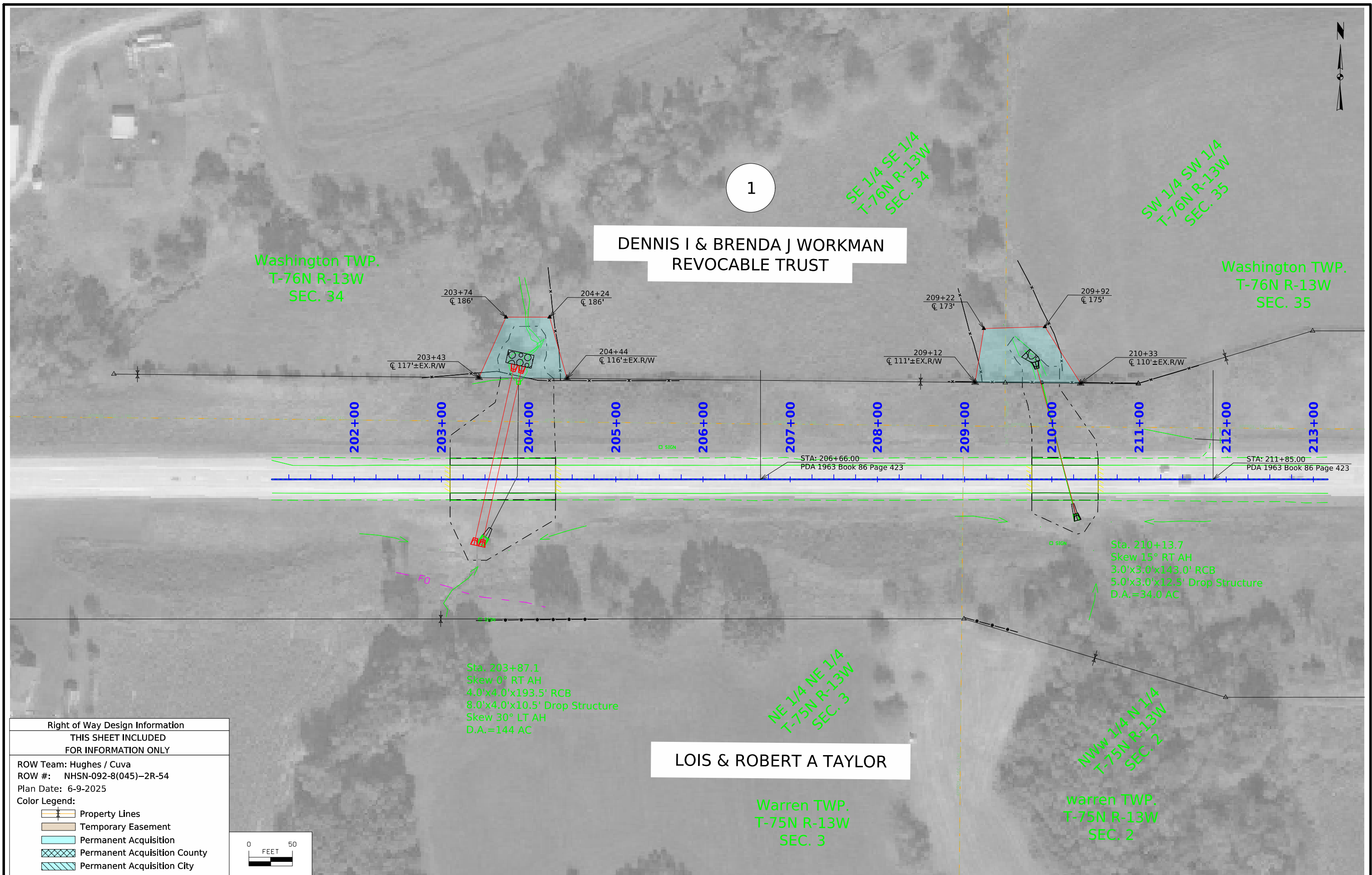
VERT. DATUM: NAVD88 - Geoid Model: 2018u3

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) for EPOCH 2010.00 (IaRTN 2019 Adjustment)  
Ia. Regional Coordinate System Zone 13 (U.S. Survey Foot)  
VERT. DATUM: NAVD88  
Geoid Model: 2018u3

Point Name	Northing	Easting	Elevation	Code-Description
10	6796061.00	23385365.09	744.04	FENO 1 METER FENO MONUMENT WITH BRASS DISK
20	6796057.04	23384842.43	744.09	FENO 1 METER FENO MONUMENT WITH BRASS DISK
30	6795988.86	23383872.82	752.87	FENO 1 METER FENO MONUMENT WITH BRASS DISK



511 TRAVEL RESTRICTIONS													108_25 3/28/24
Line No.	Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No. or Structure ID or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
	IA-92		Keokuk	No Travel Restrictions Expected on Offsite Detour				None					

108_23A 8/15/22	TRAFFIC CONTROL PLAN
<p>This project is not considered a Traffic Critical Project. No travel restrictions are expected on the offsite detour shown in these plans.</p> <p>While the culvert construction is being completed, IA-92 traffic shall be maintained via an off-site detour detailed in these plans. Detour signs are to be furnished, maintained and removed by the contractor. Refer to TC-252 for road closure and advanced signing details. Full road closure shall not last longer than 30 calendar days. If additional work is required outside of the roadway beyond the 30 calendar days, contractor shall utilize Standard Road Plan TC-202 for work within 15 feet of the traveled way.</p> <p>Contractor will furnish, install, maintain and remove detour signs. Detour sign layout and quantities shown in these plans are for reference only and exact location shall be determined in the field. All existing signs that conflict with the detour shall be covered. All material, equipment and labor shall be included in the Traffic Control bid item.</p>	

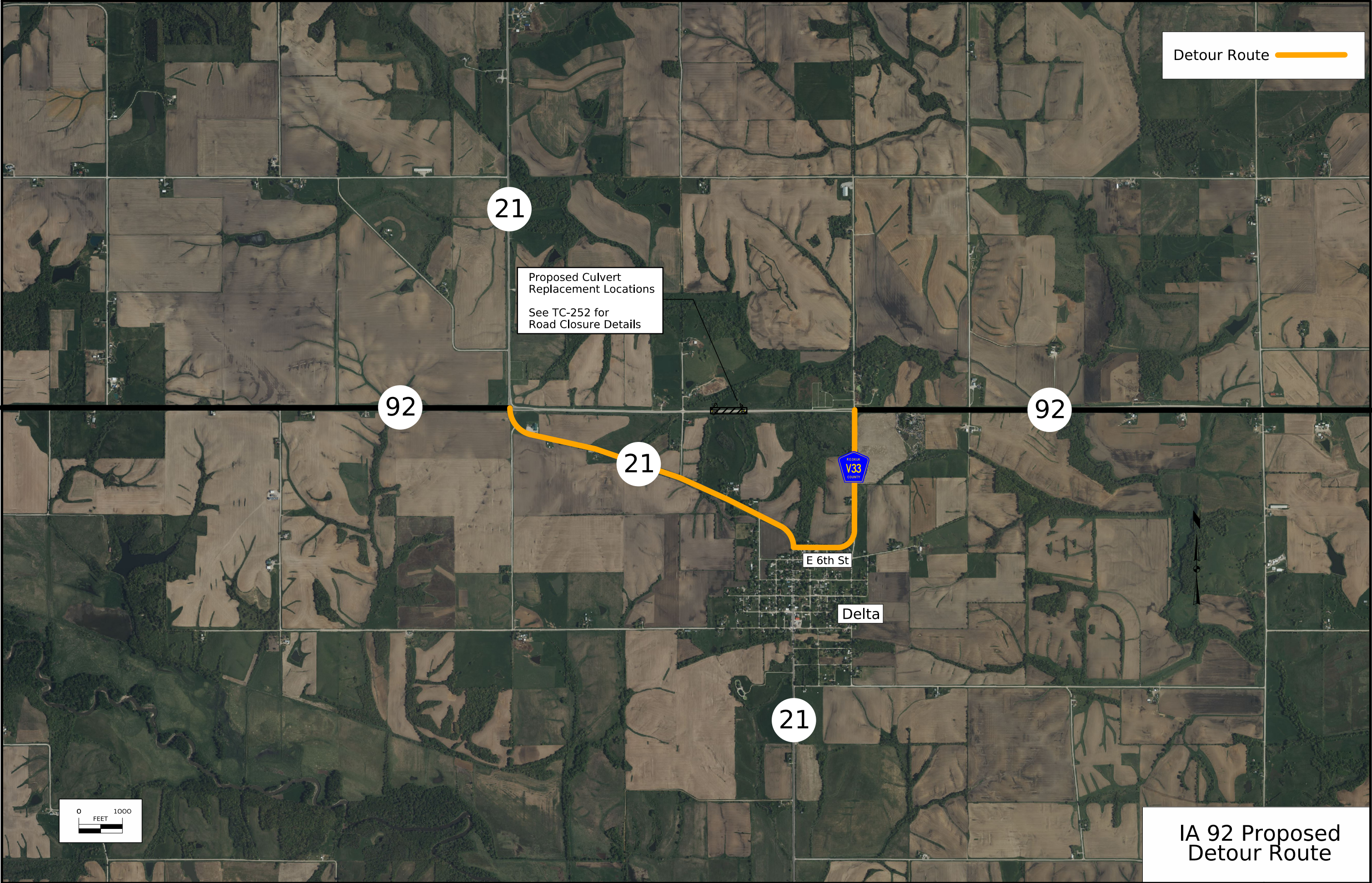
111_01 10/14/22	COORDINATED OPERATIONS
<p>Other work in progress during the same period of time will include the construction of the projects listed. Coordinate operations with those of other contractors working within the same area.</p>	
Project	Type of Work
BRF-021-1(46)--38-54	Bridge Replacement

108_26A 8/15/22	STAGING NOTES
<p>Stage 1</p> <p>Install off-site detour signage on detour route before traffic begins use of the detour route.</p> <p>With traffic using detour, perform the culvert construction work. Off-site detour and road closure shall be limited to 30 calendar days.</p> <p>Stage 2</p> <p>Remove off-site signage.</p> <p>Reopen IA-92 to normal traffic pattern.</p>	

108 13A  
3/27/25

SAFETY CLOSURES			
Refer to Section 2528 of the Standard Specifications			
Station	Road Closure Qty.	Hazard Closure Qty.	Remarks
202+00.00	1		Beginning of Project
211+00.00	1		End of Project
Total:		2	





Detour Route

Proposed Culvert  
Replacement Locations  
See TC-252 for  
Road Closure Details

V33  
COUNTY

E 6th St

Delta

IA 92 Proposed  
Detour Route



**A**

M4-8  
M3-2  
M1-5  
M5-1R

**B**

M4-8  
M3-2  
M1-5  
M5-1L

**C**

M4-8  
M3-2  
M1-5  
M6-1R

**D**

M4-8  
M3-2  
M1-5  
M6-1L

**E**

M4-8  
M3-2  
M1-5  
M6-3

**F**

M4-8  
M3-2  
M1-5

**G**

W20-2

**H**

M4-8a  
M3-2  
M1-5

**I**

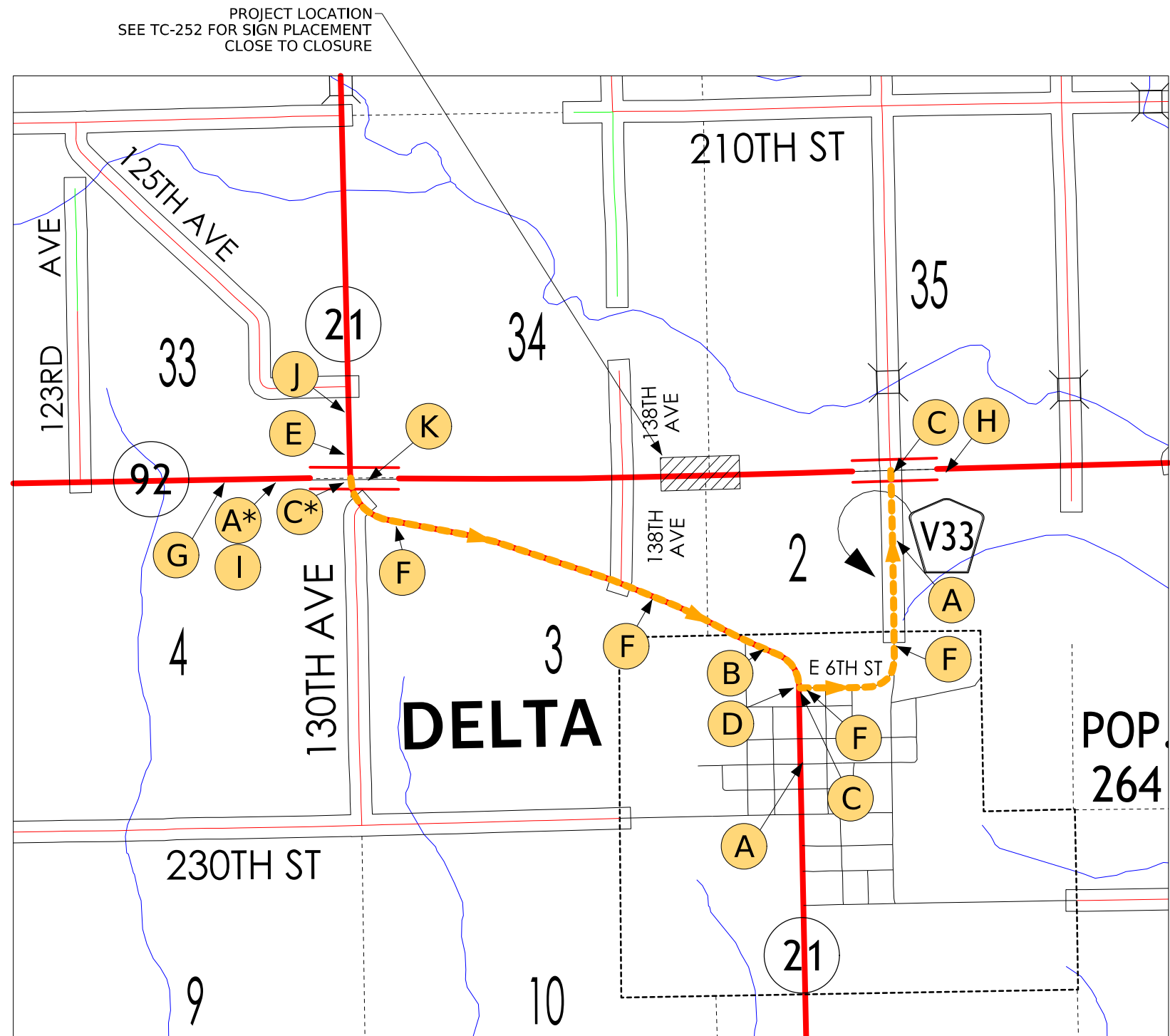
**I**

Cover/Overlay Destination Sign

**J**

**J**

Cover/Overlay Destination Sign



\* = Cover Existing Route Signs In Conflict With Detour

**K**

**K**

R11-3a  
M4-10

NOT TO SCALE

Note: Quantities and locations of detour signs are for guidance and estimating purposes only.  
Placement of detour signage, if modifications are needed, will be determined in the field by the Project Engineer.

Eastbound Detour  
Signing Layout



**A**

DEOF

WEST

92

→

M4-8  
M3-2  
M1-5  
M5-1R

**B**

DEOF

WEST

92

←

M4-8  
M3-2  
M1-5  
M5-1L

**C**

DEOF

WEST

92

→

M4-8  
M3-2  
M1-5  
M6-1R

**D**

DEOF

WEST

92

←

M4-8  
M3-2  
M1-5  
M6-1L

**E**

DEOF

WEST

92

M4-8  
M3-2  
M1-5

**F**

END  
DETOUR

WEST

92

M4-8a  
M3-2  
M1-5

**G**

DETOUR  
AHEAD

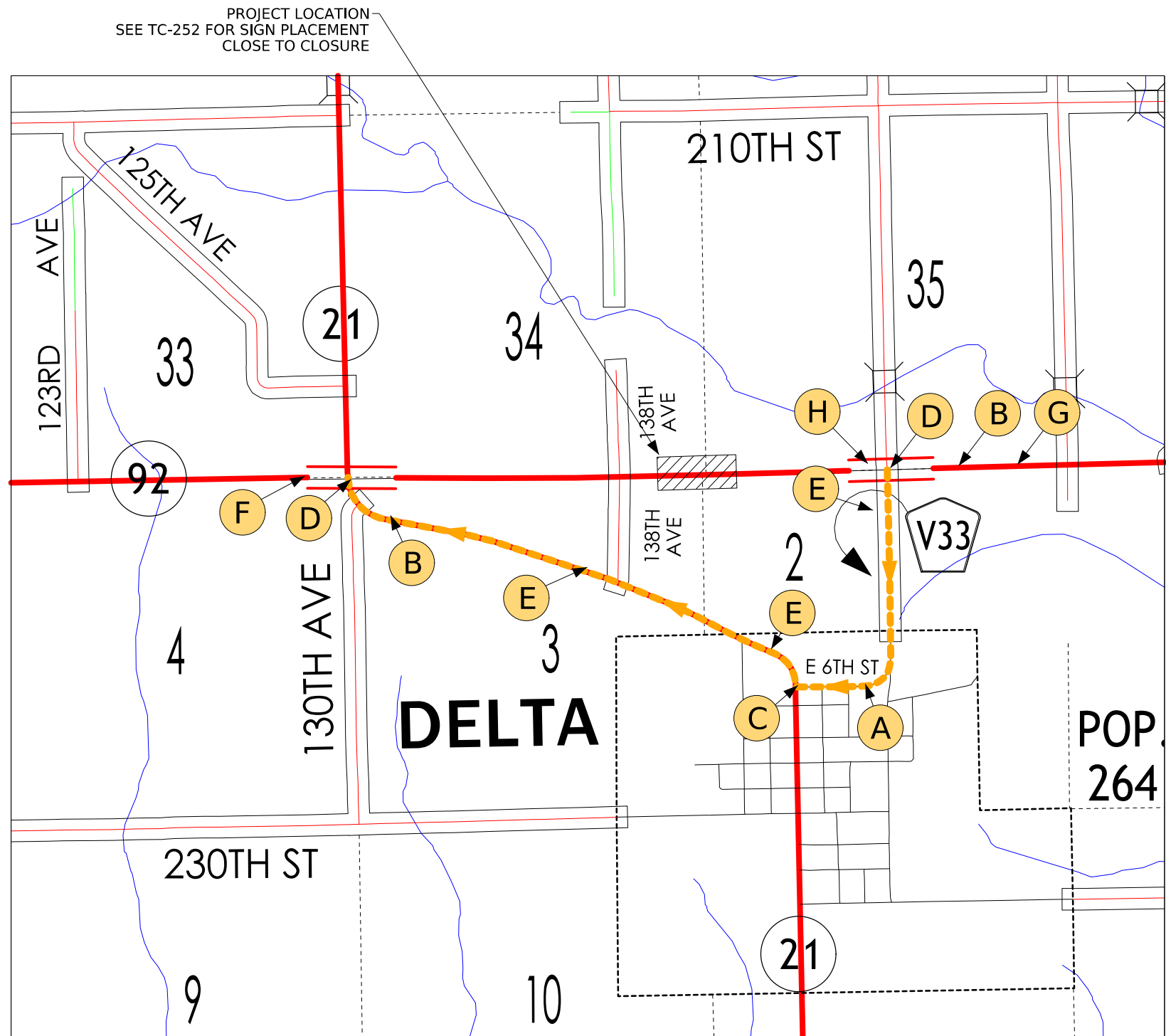
W20-2

**H**

ROAD CLOSED  
½ MILES AHEAD  
LOCAL TRAFFIC ONLY

DETOUR

R11-3a  
M4-10



Note: Quantities and locations of detour signs are for guidance and estimating purposes only.  
Placement of detour signage, if modifications are needed, will be determined in the field by the Project Engineer.

Westbound Detour  
Signing Layout

232\_03A  
9/28/22

EROSION CONTROL (RURAL SEEDING)

Area to be seeded is estimated to be less than 1 acre. If the contractor determines the area exceeds 2 acres, notify the Engineer. Approved quantity in excess of 2 acres will be paid for as extra work according to Article 1109.03,B of the Standard Specifications.

Following the completion of work in a disturbed area and according to the seeding dates in Section 2601 of the Standard Specifications, place seed, fertilizer, and mulch on the disturbed area lying 8 feet adjacent to shoulder and median as follows:

Place seed and fertilize according to the requirements of Article 2601.03,C,3 and Section 4169 of the Standard Specifications.

Place mulch according to the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

Preparing the seedbed, furnishing and applying seed, fertilizer, and mulch are all incidental to mobilization and will not be paid for separately.

232\_11  
6/21/23

EROSION CONTROL (STABILIZING CROP SEEDING)

Area to be seeded is estimated to be less than 1 acre. If the contractor determines the area exceeds 2 acres, notify the Engineer. Approved quantity in excess of 2 acres will be paid for as extra work according to Article 1109.03,B of the Standard Specifications.

If outside of permanent seeding dates in Section 2601 of the Standard Specifications, or if required by a storm water permit, place stabilizing crop, fertilizer, and mulch on the disturbed area as follows:

Place seed and fertilize according to the requirements of Article 2601.03,C,1 and Section 4169 of the Standard Specifications.

Place mulch according to the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

Preparing the seedbed, furnishing and applying seed, fertilizer, and mulch are incidental to mobilization and will will not be paid for separately.

232\_03C  
8/28/24

EROSION CONTROL (NATIVE GRASS SEEDING)

Area to be seeded is estimated to be less than 1 acre. If the Contractor determines the area exceeds 2 acres, notify the Engineer. Approved quantity in excess of 2 acres will be paid for as extra work according to Article 1109.03,B of the Standard Specifications.

Following the completion of work in a disturbed area and according to the seeding dates in Section 2601 of the Standard Specifications, place seed and mulch on the disturbed area lying 8 feet or more beyond the shoulder as follows:

SEED MIX:

Big bluestem (Andropogon geradii)	6 lbs. PLS/Acre (7.0 kg/ha)
Indiangrass (Sorghastrum nutans)	6 lbs. PLS/Acre (7.0 kg/ha)
Little bluestem (Schizachyrium scoparium)	6 lbs. PLS/Acre (7.0 kg/ha)
Partridge Pea (Chamaecrista fasciculata)	4 lbs. PLS/Acre (4.5 kg/ha)
Sideoats grama (Bouteloua curtipendula)	4 lbs. PLS/Acre (4.5 kg/ha)
Canada wildrye (Elymus canadensis)	2 lbs. PLS/Acre (2.2 kg/ha)
Switchgrass (Panicum virgatum)	1 lbs. PLS/Acre (1.1 kg/ha)
Oats (Avena sativa)	32 lbs./Acre (36.0 kg/ha)

Furnish Big bluestem, Indiangrass, Canada wildrye and Little bluestem that is debarbed or equal to facilitate the application of seed.

Furnish seed certified as Source Identified Class (Yellow Tag) Source G0-Iowa. Oats are excluded from this requirement. Place seed according to the requirements of Article 4169.02 of the Standard Specifications.

Place mulch according to the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

Preparing the seedbed, furnishing and applying seed and mulch are incidental to mobilization and will not be paid for separately.

100\_19  
10/15/24

PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE

Possible Standards: EC-204

Station From	Station To	Side	Sediment Control Device Type	Diameter Size	Length (LF)	Remarks
203+05.00	204+36.00	Left	Perimeter and Slope	20 inch	380.00	
203+05.00	204+36.00	Right	Perimeter and Slope	20 inch	230.00	
209+72.00	210+58.00	Left	Perimeter and Slope	20 inch	350.00	
209+70.00	210+58.00	Right	Perimeter and Slope	20 inch	140.00	
203+05.00	210+58.00		Perimeter and Slope	20 inch	280.00	Additional 25%

Total:1380

100\_22  
8/15/22

ROLLED EROSION CONTROL

Refer to EC-101, EC-103 and EC-104.

Line No.	Road Identification	Station From	Station To	Side	Length (FT)	Width (FT)	TRM Type (EC-104)	TRM Quantity (Squares)	Slope Protection (EC-103) (Squares)	Special Ditch Control (EC-101) (Squares)	Remarks
1.0	IA 92	203+68.00	204+28.00	Left	60.0	45.0			27.0		Re-establish Slope
2.0	IA 92	203+05.00	204+75.00	Left	30.0	30.0			8.0		Channel Slope Grading
3.0	IA 92	209+70.00	210+10.00	Left	40.0	30.0			10.0		Channel Slope Grading

Total:45

100\_23  
8/15/22

ROCK EROSION CONTROL

Refer to EC-301 and Detail 570-8

Line No.	Road Identification	Station From	Station To	Side	Length (FT)	Width (FT)	Rock Erosion Control Type	Engineering Fabric (SY)	Class E Revetment (TON)	Erosion Stone (TON)	Remarks
1.0	IA 92	203+75.00	204+05.00	Left	30.00	20.0	Type 4 - Rock Splash Basin	90.7	66.667		
2.0	IA 92	209+75.00	209+85.00	Left	10.00	20.0	Type 4 - Rock Splash Basin	37.3	22.881		

Total:12889.548










LINE STYLE LEGEND OF LANDSCAPE SHEETS	
LINESTYLE	Design Element
-----	Living Snow Fence Single Row
-----	Living Snow Fence Double Row
-----	Mechanical Edge

CELL LEGEND OF LANDSCAPE SHEETS		
CELL	Design Element	Plant Diameter
⊕	Clearing	
⊙	Proposed Shrub	6 FT
⊙	Proposed Understory Tree	12 FT
⊙	Proposed Conifer Tree	18 FT
⊙	Proposed Overstory Tree	30 FT

PATTERN LEGEND OF LANDSCAPE SHEETS	
	Brush Clearing
	Clearing & Grubbing
	Spray Area

LINE STYLE LEGEND OF EROSION CONTROL SHEETS	
LINESTYLE	Design Element
	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
	Rock Check and Rock Check Dam
	Sheet Flow

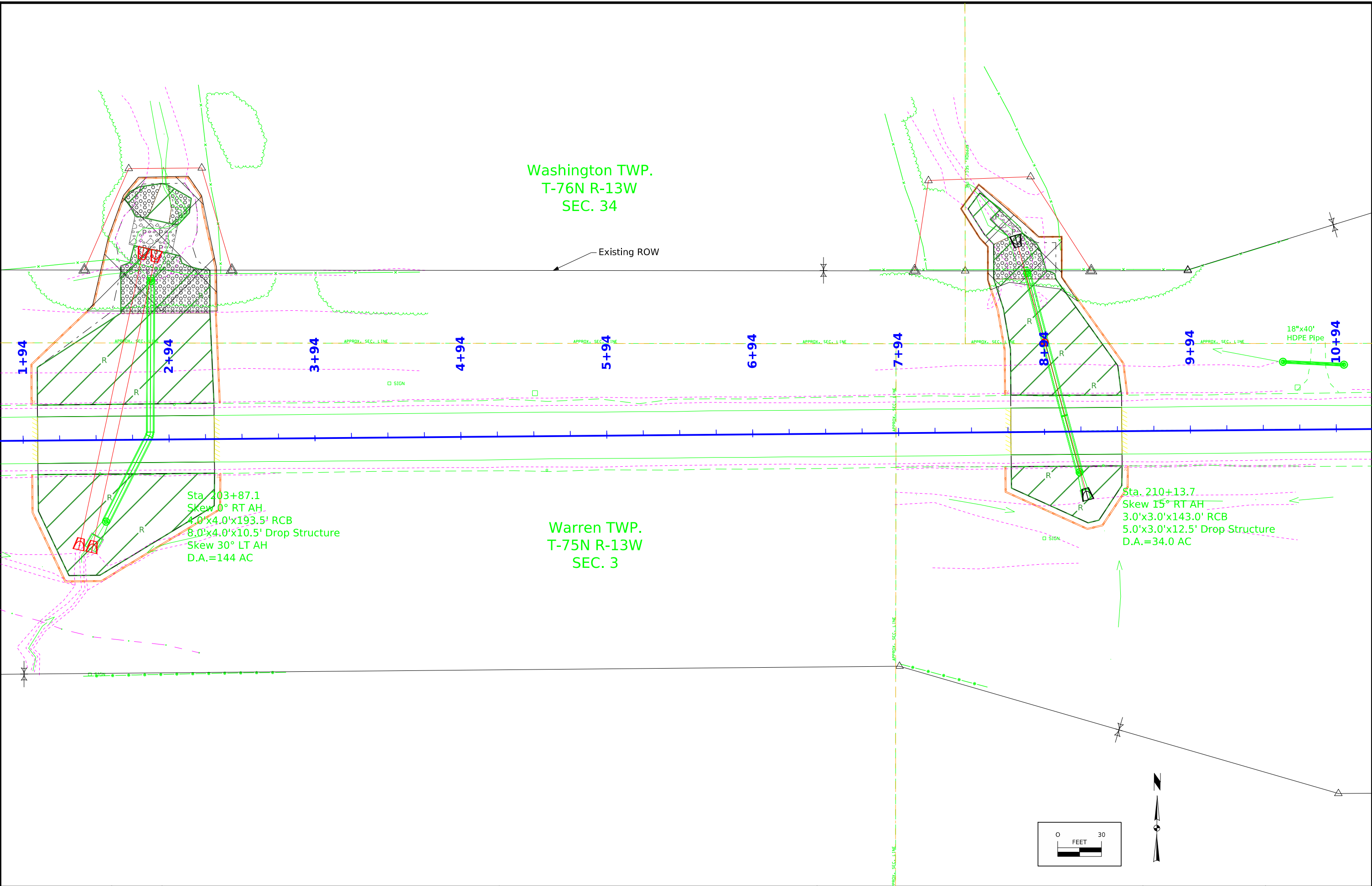
CELL LEGEND OF EROSION CONTROL SHEETS	
CELL	Design Element
	Temporary Sediment Control basin
	Erosion Control for Circular Intake or Manhole Well
	Erosion Control for Rectangular Intake or Manhole Well
	Grate Intake Sediment Filter Bag
	Silt Basin
	Silt Fence Tail
	Stormwater Drainage Basin Discharge 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%
Grass Green	(233)		8FT Mow Strip	50%
Red	(3)		Delineates Restricted Areas	0%

PATTERN LEGEND OF EROSION CONTROL SHEETS	
	Seeding and Fertilizing
	Seeding and Fertilizing (Rural)
	Seeding and Fertilizing (Urban)
	Native Grass Seeding
	Salt Tolerant Seeding
	Wetland Grass Seeding
	Wildflower Seeding
	Sodding
	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

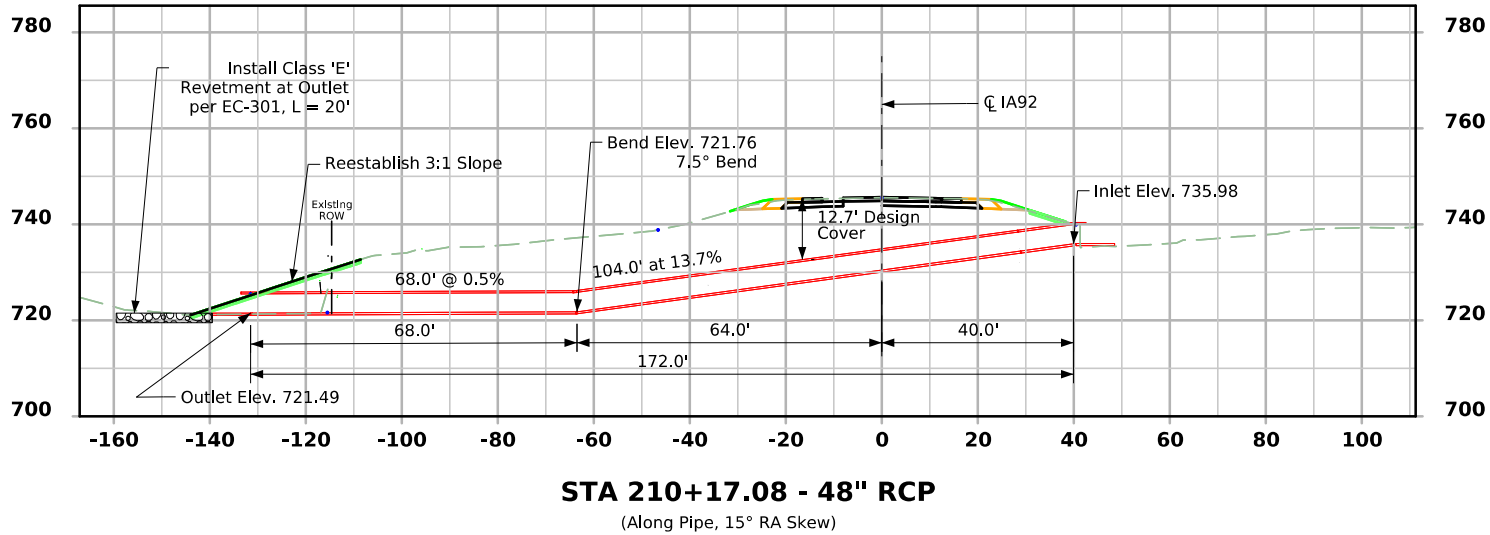
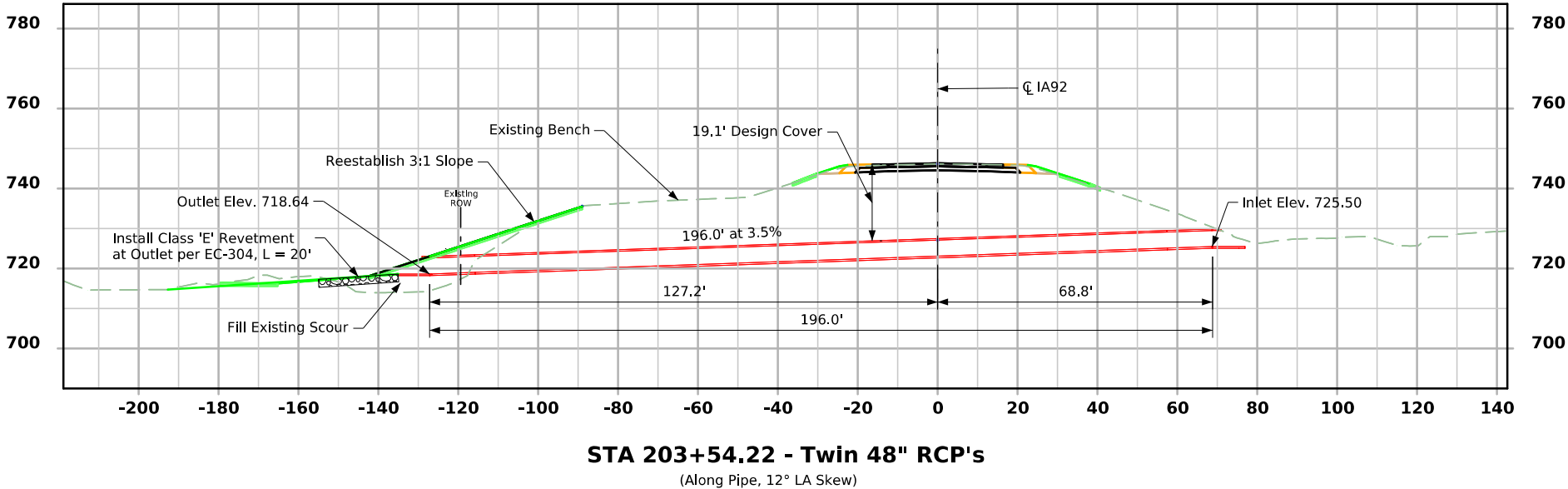
EROSION CONTROL  
LEGEND AND SYMBOL  
INFORMATION SHEET

(COVERS SHEET SERIES R)









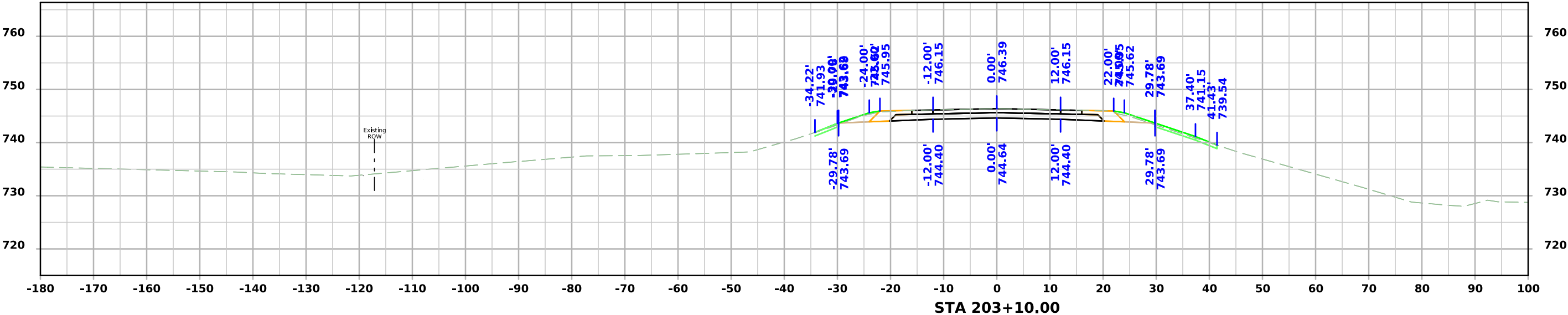
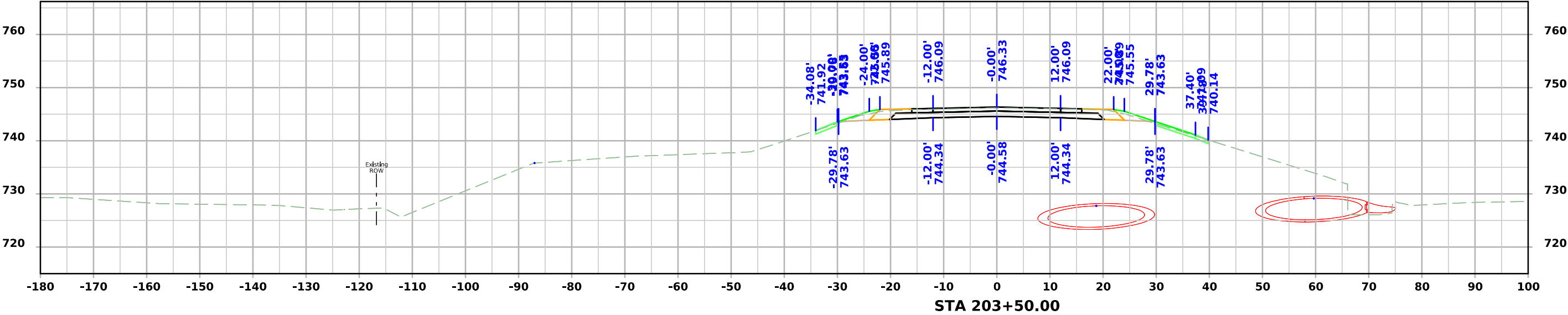
CROSS SECTION VIEW COLOR LEGEND			
Design Color No.	Feature	Design Color No.	Feature
Aggregate		Grading	
(64)	Choke Stone	(8)	Behind Curb Cut
(42)	Engineering Fabric	(6)	Granular
(8)	Flooded Backfill	(13)	Granular Back Fill
(92)	Macadam Stone	(48)	Rock Undercut
(20)	Modified	(8)	Shoulder Earth Fill
(12)	Plowing Shaping	(2)	Side Slopes
(14)	Porous Backfill	(226)	Side Slopes Dressing
(8)	Revetment Class A	Substrata	
(6)	Revetment Class B	(128)	Boulder
(62)	Revetment Class C	(209)	Boulder Removed
(188)	Revetment Class D	(48)	Broken Weathered
(28)	Revetment Class E	(210)	Broken Weathered Removed
(12)	Shoulder Special Backfill	(3)	Core Out
(12)	Special Backfill	(115)	Core Out Remove Only
(20)	Subbase	(195)	Core Out Remove and Replace
(20)	Subbase Lower	(203)	Existing Pavement
(20)	Subbase Upper	(184)	Existing Pavement Remove Only
(118)	Subgrade Treatment	(200)	Existing Pavement Remove and Replace
Asphalt		(6)	Loam
(207)	HMA Base Course	(211)	Loam Removed
(207)	HMA Interim Course	(80)	Rock
(207)	HMA Surface Course	(212)	Rock Removed
Bridge		(4)	Select Sand
(0)	Bridge	(214)	Select Sand Removed
Concrete		(3)	Shale
(0)	Barrier Concrete	(215)	Shale Removed
(0)	Barrier Concrete Footing	(10)	Topsoil
(0)	Curb Gutter	(2)	Topsoil Remove Only
(48)	Flowable Mortar	(4)	Topsoil Remove and Replace
(0)	Median Concrete	Unsuitable / Waste	
(0)	PCC Pavement	(3)	Unsuitable Type A
(0)	Sidewalk	(216)	Unsuitable Type A Removed
Existing		(13)	Unsuitable Type B
(0)	Existing Pavement	(217)	Unsuitable Type B Removed
Shoulder		(11)	Unsuitable Type C
(209)	Shoulder HMA	(218)	Unsuitable Type C Removed
(0)	Shoulder PCC	(3)	Waste
(6)	Shoulder Granular	(219)	Waste Removed
Structural			
(112)	Noise Wall		
(112)	Noise Wall Footing		
(112)	Retaining Wall Back		
(112)	Retaining Wall Back Excavate		
(112)	Retaining Wall Face		
(112)	Retaining Wall Front Excavate		
(112)	Retaining Wall Front Footing		
(112)	Retaining Wall MSE Gutter		
(112)	Retaining Wall Reinforced Earth		

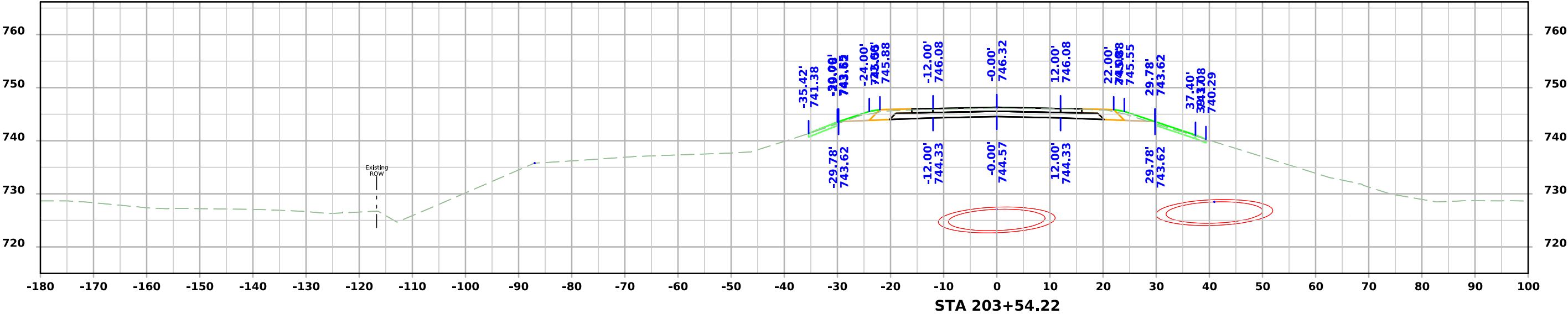
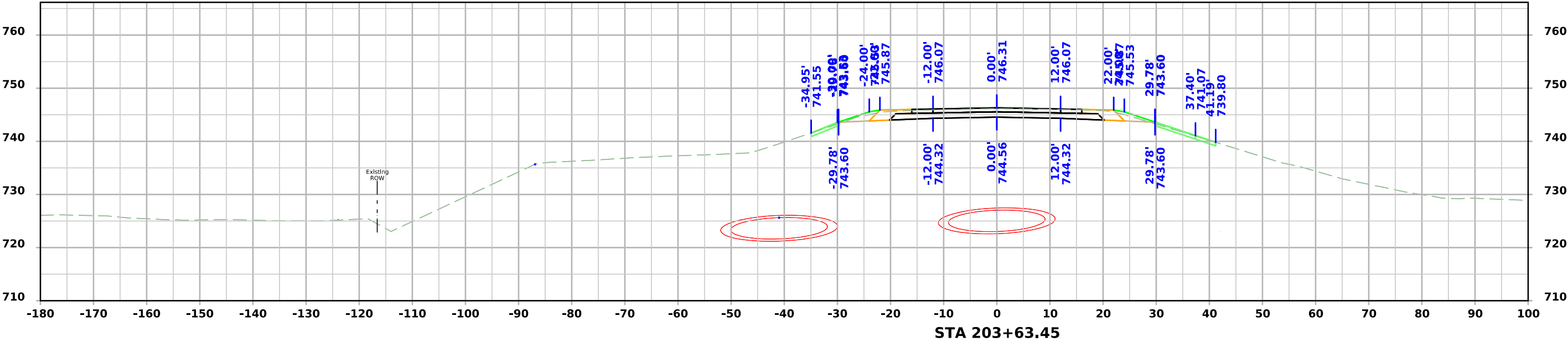
NOTES:

NOTES:

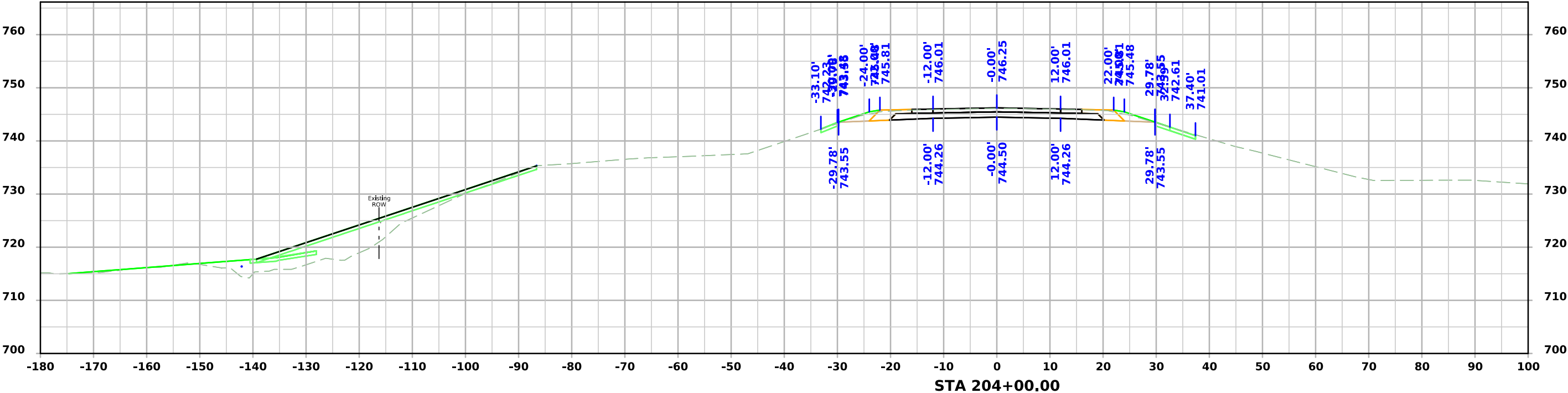
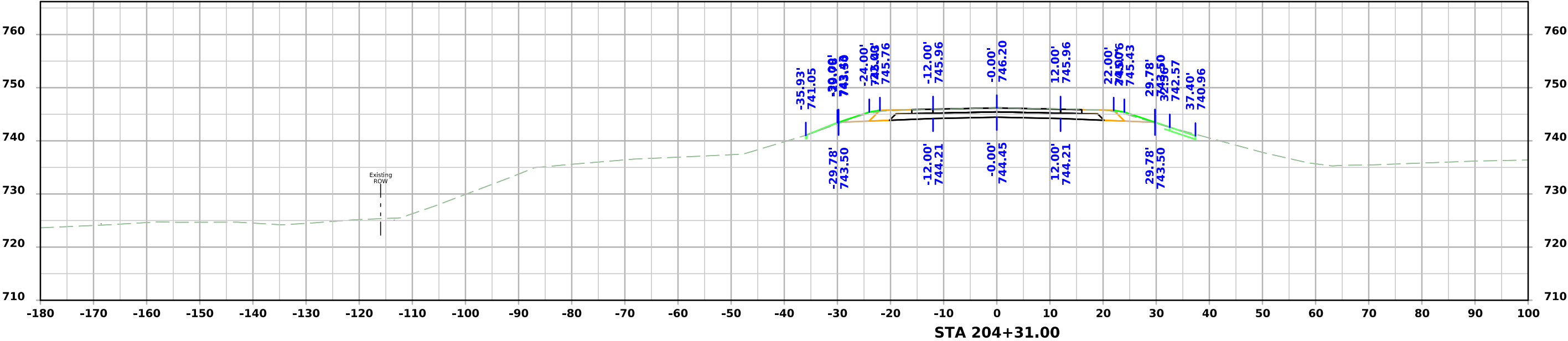
CROSS SECTIONS  
LEGEND AND INFORMATION SHEET

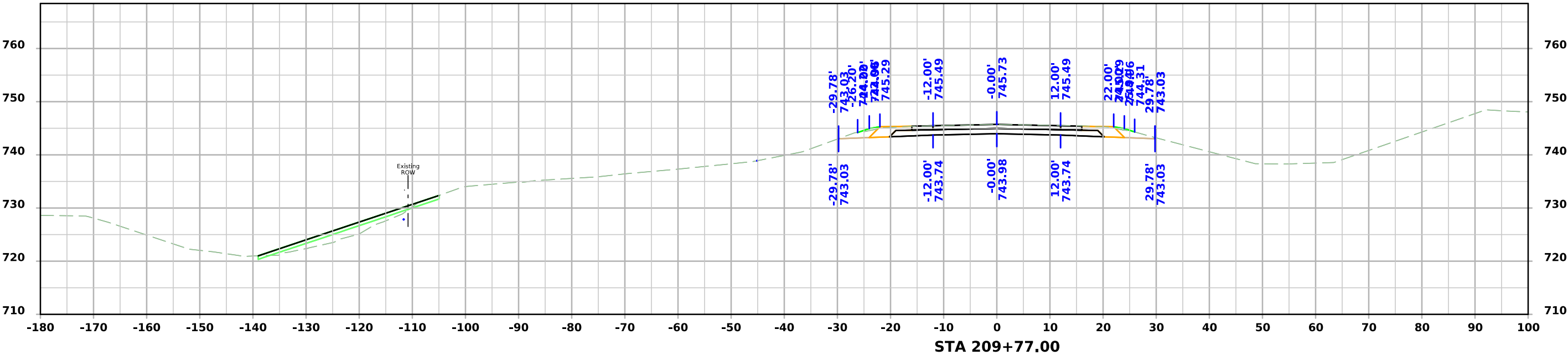
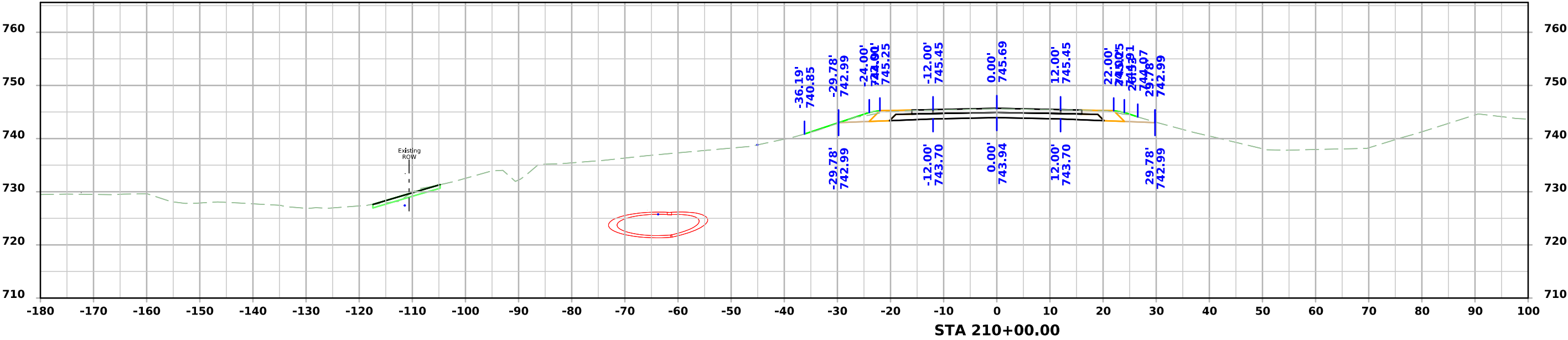
(COVERS SHEET SERIES W, X, Y, & Z)





ML - IA 92







ML - IA 92

