

Index of Sheets	
No.	Description
Sheets	Bridge Plan
A.1	Title Sheet
A.2	Location Map Sheet
V.1	Estimated Quantities - Design 0327 Cast in Place Alt.
V.2 - V.4	Design 0327 Cast in Place Alternate
V.5	Estimated Quantities - Design 0327 Precast Alternate
V.6 - V.7	Design 0327 Precast Alternate
SPS Sheets	Bridge Plan Soils Sheet
SPS.1	Bridge Plan Soils Sheet
Road Sheets	Road Plan
B.1 - W.4	Road Plans
C.1 - C.2	Estimated Quantities - Road
C.5	Standard Plans - Road
RC.1 - RC.3	Estimated Quantities - Erosion Control

IOWA | DOT

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

JASPER COUNTY

RCB Culvert Replacement - Single Box

IA 224 over East Burr Oak Creek

0.1 mi S of N 75th Ave E

Refer to the Plan Sheets for list of applicable specifications.

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



Revisions

	TOTAL
	46
PROJECT IDENTIFICATION NUMBER	
26-50-224-010	
PROJECT NUMBER	
STPN-224-1(020)--2J-50	
R.O.W. PROJECT NUMBER	
PROJECT DIRECTORY NUMBER	
5022401026	

English Culvert Standards		
Standard	Issued	Revised
RCB G2-20	7-20	
RCB G3-20	7-20	
RCB 16-12-20	7-20	
PWH 0-1-20	7-20	
PWH 0-2-20	7-20	
PWH 0-3-20	7-20	
PWH 0-4-20	7-20	
PWH 0-5-20	7-20	
PRCB G1-20	12-20	
PRCB G2-20	12-20	1-23
PRCB 16-20	12-20	10-21
PES 3-20-T1	12-20	10-21
PES 4-20-T1	12-20	1-23
PES 3-20-T3	12-20	10-21
PES 4-20-T3	12-20	1-23
PES 10-20-T3	12-20	10-21
PES 11-20	12-20	
PEP 12-20	12-20	

Standard Road Plans

Standard Road Plans are listed on Sheet Number C.5

Design Data Rural		
2024 AADT	660	V.P.D.
20-- AADT	--	V.P.D.
20-- DHV	--	V.P.H.
TRUCKS	18	%
Total Design ESALs	--	

Index of Seals		
Sheet No.	Name	Type
A.1	Chad W. Meyer	Structural Design
V.3 & V.7	Chad W. Meyer	Hydraulic Design
SPS.1 & CS.1	Zachary A. Bonzer	Geotechnical Design
A.1	Colton D. Hoffmann	Roadway Design

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 **Colton D. Hoffmann** Date **07-29-2026**
Printed or Typed Name
My license renewal date is December 31, 2027

Pages or sheets covered by this seal: B.1, C.1 - C.12, D.1 - D.2, G.1 - G.4, H.1, J.1 - J.3, RC.1 - RC.3, RR.1, T.1, W.1 - W.4

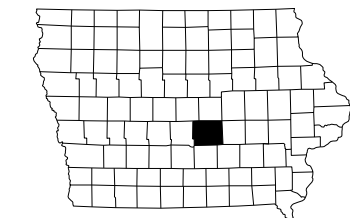
Structural Design

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 **Chad W. Meyer** Date **07-29-2026**
Printed or Typed Name
My license renewal date is December 31, 2026

Pages or sheets covered by this seal: A.1 - A.2, V.1 - V.7

Design No. 0327
Asset ID No. 900905



Jasper County Location Map

Not To Scale



INTERSTATE HIGHWAY
PRIMARY HIGHWAY-DIVIDED
PRIMARY HIGHWAY
PORTLAND CEMENT CONCRETE ROAD
ASPHALT ROAD
BITUMINOUS ROAD
GRAVEL ROAD
EARTHEN ROAD

INTERSTATE HIGHWAY
UNITED STATES HIGHWAY
STATE HIGHWAY
COUNTY HIGHWAY

RAILROAD
PIPELINE
AIRPORT
HYDROLOGY
BRIDGE

STATE BOUNDARY
COUNTY BOUNDARY
CORPORATE BOUNDARY
TOWNSHIP LINE
SECTION LINE
ROAD NAMES
UNINCORPORATED PLACE

STATE PARKS

STATE INSTITUTIONS

FEDERAL LAND

Estimated Culvert Quantities and Reference Notes					
Item No.	Item Code	Item	Unit	Quantities Estimated	Estimate Reference Notes
1	2401-6745650	REMOVAL OF EXISTING STRUCTURES	LS	1	Includes all costs associated with removing the existing 10' x 7' and 10' x 9' RCB culvert as needed to facilitate construction of the new RCB culvert.
2	2402-2720000	EXCAVATION, CLASS 20	CY	3,890	Includes filling and compacting low areas around proposed culvert. Includes excavation necessary to place 1'-0" working blanket.
3	2402-3825025	GRANULAR MATERIAL FOR BLANKET	CY	132	Granular material shall be in accordance with Section 4118 of the Standard Specifications. Includes 132 CY for a working blanket. The working blanket may be deleted if determined to be unnecessary at the time of construction.
4	2403-0100020	STRUCTURAL CONCRETE (RCB CULVERT)	CY	346.9	Includes all resilient joint filler required.
5	2404-7775000	REINFORCING STEEL	LB	68,218	---
6	2533-4980005	MOBILIZATION	LS	1	---

Summary of Reinforcing Steel		
Location	Quantity	Total
Headwalls 0° Skew	2 @ 6,664	13,328
11'-0" Barrel Sections	2 @ 5,367	10,734
30'-0" Barrel Sections	3 @ 14,636	43,908
5r1 Bars **	4 @ 62	248
Total (LB)		68,218

****** One set of 5r1 Bars, 17-5r1 x 3'-6" = 62 lbs.

Concrete Placement Quantities				
Location	Footing	Walls	Slab	Total
Headwalls 0° Skew	2 @ 32.9	2 @ 13.0	* 2 @ 1.9	95.6
11'-0" Barrel Sections	2 @ 10.0	2 @ 6.5	2 @ 8.2	49.4
30'-0" Barrel Sections	3 @ 27.2	3 @ 17.8	3 @ 22.3	201.9
Total (CY)	167.4	92.4	87.1	346.9

***** Includes parapet and top of wingwall.

Roadway Quantities shown elsewhere in these plans.

Design History at this Site	
(Includes this Design)	
Des. No.	Type of Work
Unknown	Original Design
2358	Culvert Extension
0327	RCB Culvert Replacement (This Design)

Design For 5 Degree LA

Single 16' x 10' x 112' Cast-In-Place Reinforced Concrete Box Culvert

Estimate Quantity

STA. 273+28.05 (IA 224)Turn-in Date: Sept 2026

Jasper County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0327Design Sheet No. 1 of 4FHWA/Asset 900905

General Notes:

It is the intent of this design to construct a 16' x 10' x 112'-0" cast-in-place reinforced concrete box culvert skewed 5° left ahead at station 273+28.05.

Electronic copies of original design plans are available to the Contractor as part of the E-files supplied with the contract documents.

Faint lines on plans indicate existing structure.

Utility companies and municipalities whose facilities are shown on the plans or known to be within the construction limits shall be notified by the Contractor of the construction starting date.

The R.C.B. Culvert sections are designed for HL-93 live load and earth fills of 13 feet.

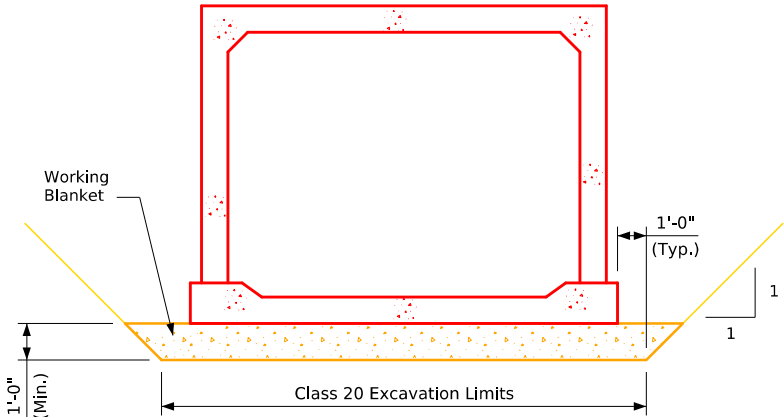
All reinforcing bars and bars notes as dowels supplied for this structure shall be deformed reinforcement unless otherwise noted or shown.

Excess Class 20 Excavation material suitable for backfilling shall be stockpiled at the construction site, as directed by the Engineer.

Class 20 Excavation material unsuitable for backfilling shall be disposed of in a manner that will leave the site in a neat condition.

All reinforcing bars and bars noted as dowels supplied for this structure shall be deformed reinforcement unless otherwise noted or shown.

Standards: For details and notes not shown refer to the following Iowa D.O.T. - Highway Standards:		
Standard	Issued	Revised
RCB G2-20	7-20	
RCB G3-20	7-20	
RCB 16-10-20	7-20	
PWH 0-1-20	7-20	
PWH 0-2-20	7-20	
PWH 0-3-20	7-20	
PWH 0-4-20	7-20	
PWH 0-5-20	7-20	



Working Blanket Detail

Working Blanket shall terminate 3'-0" short of the curtain wall.

Traffic Control Plan

The roadway will be closed to thru traffic. Refer to the Traffic Control Plan shown elsewhere in these plans.

Design For 5 Degree LA

Single 16' x 10' x 112' Cast-In-Place Reinforced Concrete Box Culvert

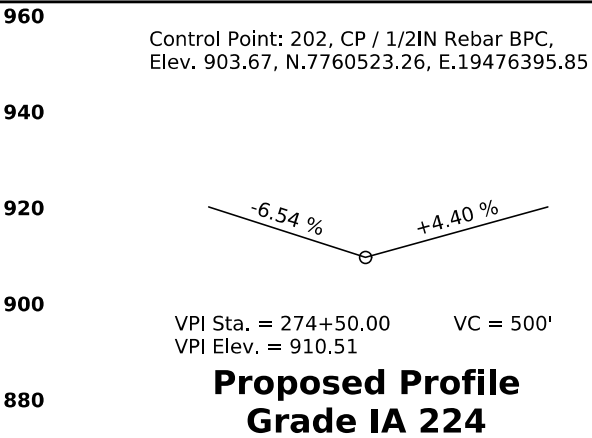
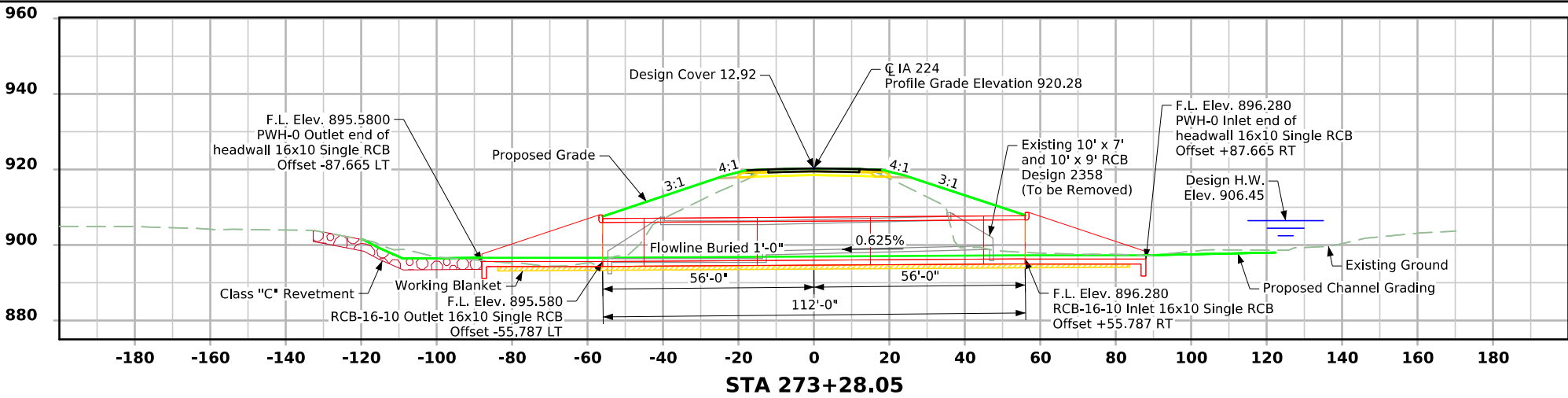
General Notes

STA. 273+28.05 (IA 224) Turn-in Date: Sept 2026

Jasper County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0327 Design Sheet No. 2 of 4 FHWA/Asset 900905



Utilities Note:

Utilities shown on this sheet are for information only. See Road Design sheets for utility information.

General Utility Symbols:

- E - Electric Line
G - Gas Line
SAN. - Sanitary Sewer
TV - Telephone Line
W - Water Line
- FO - Fiber Optic Line
GHP - Gas High Pressure
ST S - Storm Sewer
TV - TV
- Power Poles

Hydraulic Data

RIDB: Not Applicable
Drainage Area = 2.42 Acres
Stream Slope = 20.06 Ft./Mi.
Q₅₀ = 1,120 cfs
HW Elev. = 906.45
Exit Velocity = 9.8 fps

Q₁₀₀ = 1,359 cfs
HW Elev. = 907.85
Exit Velocity = 11.0 fps

Traffic Estimate

2024 AADT 660 V.P.D.
20-- AADT -- V.P.D.
20-- DHV -- V.P.H.
TRUCKS 18 %
Total --
Design ESALS --

Notes:
All units are in feet unless noted otherwise.
Class "C" revetment stone is embedded.
This design is for the replacement of the existing 10'x7' and 10'x9' RCB, Jasper Design No. 2358, Asset ID. No. 900905.
Class "C" revetment has been provided at the culvert outlet to mitigate high stream velocities.
Culvert flowlines have been lowered 1'-0" to promote natural siltation.

Hydraulic Design

CHAD W. MEYER
17394
IOWA

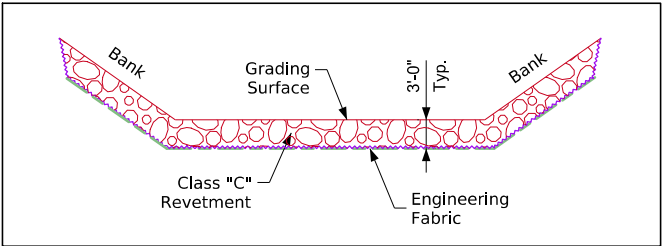
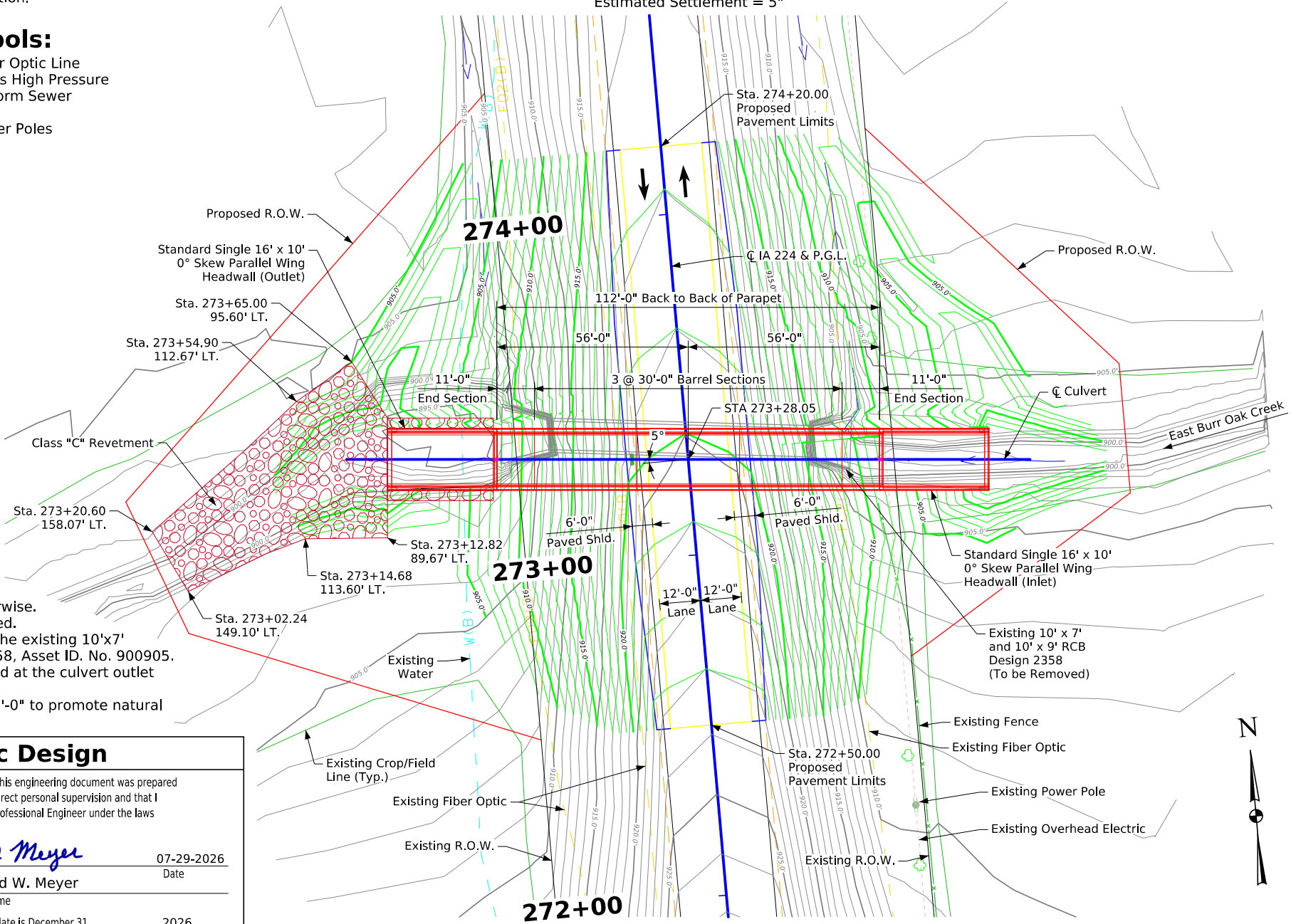
I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Chad W. Meyer
Signature 07-29-2026
Date

Chad W. Meyer
Printed or Typed Name

My license renewal date is December 31, 2026

Pages or sheets covered by this seal: V.3 Hydraulic Data



Typical Channel Protection

**Estimated Revetment Quantities
Included With Road Plans**

Location	Revetment Class "C" (Ton)	Engineering Fabric (SY)	CL. 10 Channel Excavation (CY)
Inlet	0	0	0
Outlet	459	287	287
Totals	459	287	287

Excavation quantity calculated from grading surface. Excavation quantity is for embedded revetment core out only, and does not include excavation to the grading surface. Excavation quantity to the grading surface is determined by Road Design and included in the Road Plans. Quantities shown for information only. See Road Sheets. Revetment estimated at 1.6 Tons/CY.

Location

IA 224 over East Burr Oak Creek
T-81N R-18W
Section 35/36
Mariposa Township
Jasper County
Bridge Maint. No. 5007.4B224
Asset ID No. 900905
Latitude 41.788485°
Longitude -92.902714°

Sta. 273+28.05
Build 16' x 10' x 112' RCB
Skew 5° LT Ahead
Length LT 56'
Length RT 56'
F.L. LT 895.58
F.L. RT 896.28
DA 2.42 Acres
DES # 0327

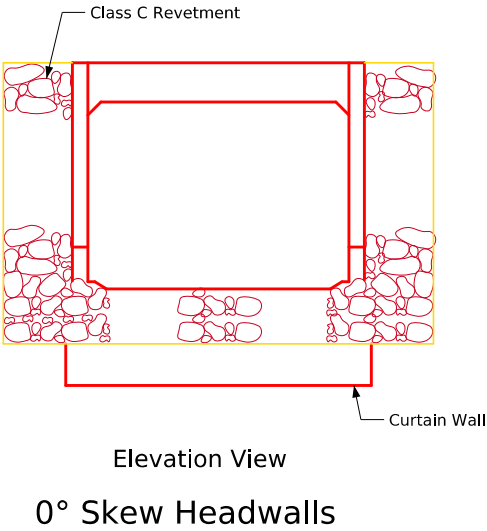
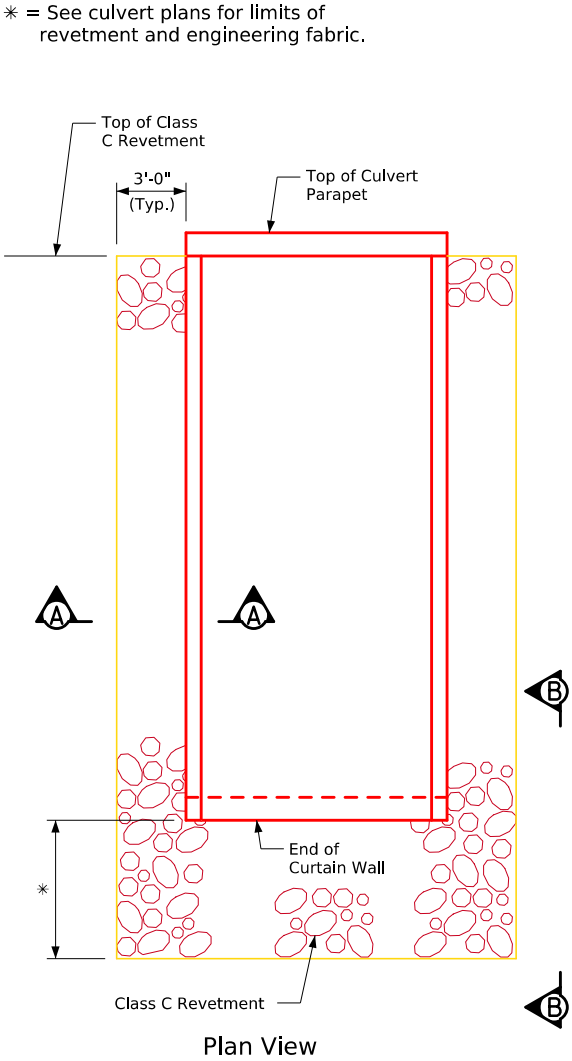
**Single 16' x 10' x 112' Cast-In-Place
Reinforced Concrete Box Culvert**

Situation Plan

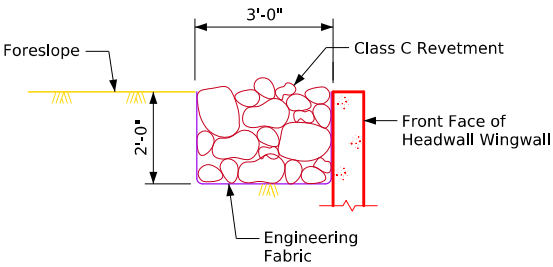
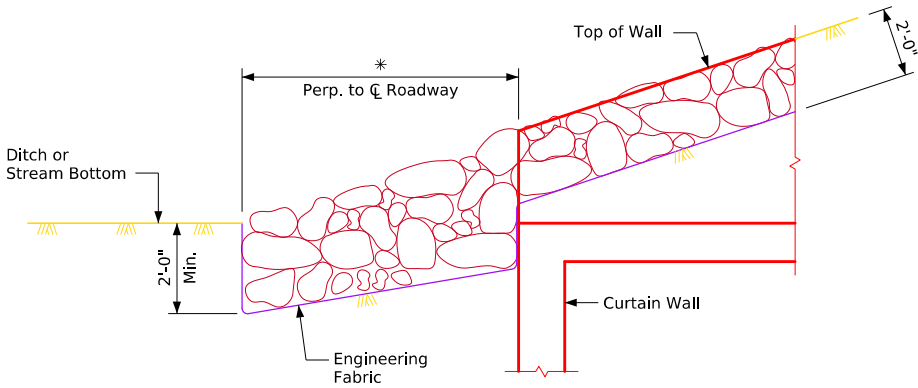
STA. 273+28.05 (IA 224) Turn-in Date: Sept 2026

Jasper County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 0327 Design Sheet No. 3 of 4 FHWA/Asset 900905

REVISED 1-2016 - ADDED NOTE "SEE CULVERT PLANS FOR LIMITS OF REVETMENT AND ENGINEERING FABRIC."
REVISED 02-2017 - ADDED SECTION DIRECTORS "A-A" TO ZERO SKEW PLAN VIEW DETAIL.
REVISION 01-2021 - CHANGED DESIGN SPECIFICATIONS TO AASHTO LRFD 8TH ED.
ENGLISHSINGLECULVERTS.DGN - 1092 - THIS SHEET ISSUED 04-12.



* = See culvert plans for limits of
revetment and engineering fabric.



Typical Details

Construction Notes:

Class C Revetment shall be used and placed according to Article 2507.03, of the Standard Specifications. The engineering fabric shall meet the material requirements in accordance with Article 4196.01,B,3, of the Standard Specifications.

Design For 5 Degree LA
**Single 16' x 10' x 112' Cast-In-Place
Reinforced Concrete Box Culvert**

Revetment Protection Details

STA. 273+28.05 (IA 224)

Turn-in Date: Sept 2026

Jasper County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0327

Design Sheet No. 4 of 4

FHWA/Asset 900905

Estimated Culvert Quantities and Reference Notes					
Item No.	Item Code	Item	Unit	Quantities Estimated	Estimate Reference Notes
1	2401-6745650	REMOVAL OF EXISTING STRUCTURES	LS	1	Includes all costs associated with removing the existing 10' x 7' and 10' x 9' RCB culvert as needed to facilitate construction of the new RCB culvert.
2	2402-2720000	EXCAVATION, CLASS 20	CY	3,440	Includes filling and compacting low areas around proposed culvert. Includes excavation necessary to place 6" granular material and 1'-0" working blanket.
3	2402-3825025	GRANULAR MATERIAL FOR BLANKET	CY	200	Granular material shall be in accordance with Section 4118 of the Standard Specifications. Includes 129.9 CY for a working blanket. The working blanket may be deleted if determined to be unnecessary at the time of construction.
4	2415-2111610	PRECAST CONCRETE BOX CULVERT, 16 FT. X 10 FT.	LF	121	Includes material and labor associated with providing and installing the culvert ties, lifting hole plugs, engineering fabric, granular leveling material, joint material, and grout as required.
5	2415-2201610	PRECAST CONCRETE BOX CULVERT STRAIGHT END SECTION, 16 FT. X 10 FT.	EACH	2	Includes material and labor associated with providing and installing the culvert ties, lifting hole plugs, engineering fabric, granular leveling material, joint material, and grout as required. Includes 0 degree Skew 2 precast end sections, 2 precast lintel beams, and 2 precast curtain walls.
6	2533-4980005	MOBILIZATION	LS	1	---

Roadway Quantities shown elsewhere in these plans.

Design History at this Site (Includes this Design)	
Des. No.	Type of Work
Unknown	Original Design
2358	Culvert Extension
0327	RCB Culvert Replacement (This Design)

Design For 5 Degree LA

Single 16' x 10' x 121' Precast Reinforced Concrete Box Culvert

Estimate Quantity

STA. 273+28.05 (IA 224)Turn-in Date: Sept 2026

Jasper County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0327Design Sheet No. 1 of 3FHWA/Asset 900905

General Notes:

It is the intent of this design to construct a 16' x 10' x 121'-0" precast reinforced concrete box culvert skewed 5° left ahead at station 273+28.05.

Electronic copies of original design plans are available to the Contractor as part of the E-files supplied with the contract documents.

Faint lines on plans indicate existing structure.

Utility companies and municipalities whose facilities are shown on the plans or known to be within the construction limits shall be notified by the Contractor of the construction starting date.

The precast R.C.B. Culvert sections are designed for HL-93 live load and earth fills of 13 feet.

The precast R.C.B. barrel and end sections shall conform to Iowa D.O.T. Single Precast R.C.B. Culvert Standards. At the Contractor's option, precast barrel sections may conform to ASTM C1577.

Excess Class 20 Excavation material suitable for backfilling shall be stockpiled at the construction site, as directed by the Engineer.

Class 20 Excavation material unsuitable for backfilling shall be disposed of in a manner that will leave the site in a neat condition.

When de-watering presents a problem for placing the curtain walls as detailed, alternate methods such as steel sheet pile may be approved but at no additional cost. See Standard Sheet PES 11-20 for details.

The length in linear feet of precast reinforced concrete box culvert will be based on the plan quantity. For the number of linear feet given on the plan, the Contractor will be paid the contract unit price per linear foot. The payment shall be full compensation for furnishing all material, labor and equipment necessary to complete the work except for bid items "Precast Concrete Box Culvert Straight End Section", "Class 20 Excavation", "Class C Revetment", and "Granular Material for Blanket".

For each precast concrete box culvert straight end section installed the Contractor will be paid the contract price per each. The payment shall be full compensation for furnishing all material (including lintel beams and curtain walls), labor and equipment necessary to complete the work except for bid items "Precast Concrete Box Culvert", "Class 20 Excavation", "Class C Revetment", and "Granular Material for Blanket".

The curtain wall and the Type 3 lintel beam or Type 1 parapet shall be precast.

The Contractor shall furnish and install culvert ties for all joints. The main section joints will have one tie on each side of the barrel and the last barrel section will be attached to the end sections with two ties per side. The end section joints will have two ties per side.

Culvert ties shall be included in the cost for precast concrete box culvert. Tie rods will be 1 inch diameter steel and shall meet requirements of ASTM A709 Grade 36 or equal. See Standard Sheet G2-20 for details.

Culvert tie assemblies shall be galvanized after fabrication.

The limits for excavation for the precast concrete box culvert shall be as shown on the "Granular Leveling Material and Working Blanket Detail".

A minimum of 6" of Granular Leveling Material and 1'-0" of Working Blanket shall be used as bedding for the precast box culvert. The bedding shall be shaped to a flat base using a template. All costs including material and labor associated with providing and installing the Granular Leveling Material and Working Blanket shall be included in the bid item "Granular Material for Blanket".

The Granular Leveling Material shall meet the requirements of Section 4117 of the Standard Specifications.

The precast box culvert shall be built to the dimensions and specifications shown in these plans.

The Contractor shall submit details (i.e. Shop Drawings) of the proposed precast concrete box sections for this project. The details shall include the following information as found on Standard Sheet 1089P:

- A. A Situation Plan drawing showing the back to back parapet dimension for the line of the culvert sections.
- B. Dimension the number of precast sections and section lengths.
- C. A detail of the precast barrel sections showing a cross section view of the section, steel locations, dimensions, etc.
- D. A detail of the precast concrete culvert end section showing a cross section view of the sections, steel locations, dimensions, etc. similar to the end section details shown in the Iowa D.O.T. Standards.

The Contractor shall provide all information shown on Standard Sheet 1089P.

The Contractor shall allow 30 working days for the Engineer's Shop Drawing review.

Since precast concrete box culvert end sections have the foreslope located at the bottom of the parapet instead of the top (as in the case of cast in place RCB culverts) the main barrel section has been lengthened.

All reinforcing bars and bars noted as dowels supplied for this structure shall be deformed reinforcement unless otherwise noted or shown.

Installation Notes:

Precast concrete box culvert sections shall be laid with the groove end of each section up-grade, and the sections shall be tightly joined. Concrete ties to be used only to hold box sections together, not for pulling sections tight. Joint openings between sections should be as tight as practicable and limited to a maximum of ¾ inch openings. The joint on the bottom of the culvert shall be sealed with a flexible water tight 1 inch butyl rope gasket as per Materials I.M. 491.09.

Butyl rope gasket shall be installed in accordance with the recommendations of the Manufacturer and shall extend vertically 6 inches above the bottom fillet. All joints shall be trimmed clean on the inside after sealing.

Burr threads of Concrete Box Ties without damaging galvanizing to prevent nut rotation after tightening is complete.

The Contractor shall place a 2 foot wide piece of engineering fabric around the top and sides of each precast joint. The fabric shall be centered with 1 foot on each side of the joint, the fabric shall be attached to the walls and top of each section to prevent the fabric from slipping off the joint during backfilling operations. Attachment methods shall be approved by the Engineer.

The Granular Leveling Material shall be installed in accordance with Article 2402.03, H, 4, of the Standard Specifications. If larger granular material is to be installed below the Granular Leveling Material, the Contractor shall place engineering fabric below the Granular Leveling Material to separate the layers. The fabric shall be oversized by a minimum of 1 foot on all edges to contain the Granular Leveling Material.

All costs including material and labor associated with providing and installing the engineering fabric as described above for the joints and underlayment of the Granular Leveling Material shall be included in the bid items "Precast Concrete Box Culvert" and "Precast Box Culvert Straight End Section". The engineering fabric shall be in accordance with Article 4196.01, B, 3, of the Standard Specifications.

Class E revetment will be placed around both precast concrete box culvert end sections, as shown in these plans.

During backfilling the compaction adjacent to the bottom corner radii or chamfer shall be accomplished with a mechanical hand compactor.

The Contractor shall furnish and install lifting hole plugs for each section. Lifting holes shall be plugged with a precast concrete plug or plastic plug approved by the Engineer, sealed and covered with a 2'-0" x 2'-0" piece of engineering fabric centered over the hole and attached to the section to prevent the fabric from slipping.

Standards: For details and notes not shown refer to the following Iowa D.O.T. - Highway Standards:		
Standard	Issued	Revised
PRCB G1-20	12-20	
PRCB G2-20	12-20	1-23
PRCB 16-20	12-20	10-21
PES 3-20-T1	12-20	10-21
PES 4-20-T1	12-20	1-23
PES 3-20-T3	12-20	10-21
PES 4-20-T3	12-20	1-23
PES 10-20-T3	12-20	10-21
PES 11-20	12-20	
PEP 12-20	12-20	

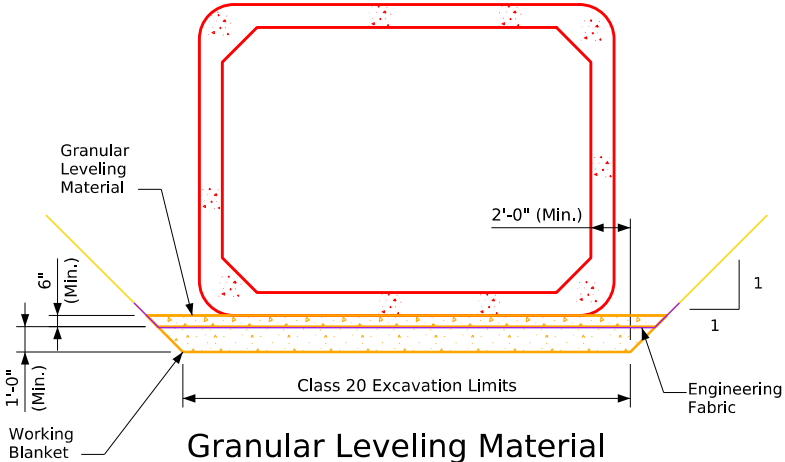
Specifications:

Design:
AASHTO LRFD Bridge Design Specifications, 8th Ed., Series of 2017.

Construction:
Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, current series, plus applicable General Supplemental Specifications, Developmental Specifications, Supplemental Specifications and Special Provisions

Design Stresses:

Design stresses for the following materials are in accordance with the AASHTO LRFD Bridge Design Specifications, 8th Ed., Series of 2017: Reinforcing steel in accordance with AASHTO LRFD Section 5, Grade 60. Concrete in accordance with AASHTO LRFD Section 5, f'c for barrel sections as noted on Culvert Barrel Detail Standards, for End Section Design f'c = 5.0 ksi.



Granular Leveling Material and Working Blanket Detail

Granular Leveling Material and Working Blanket shall terminate 3'-0" short of the precast curtain wall.

Traffic Control Plan
The roadway will be closed to thru traffic. Refer to the Traffic Control Plan shown elsewhere in these plans.

Design For 5 Degree LA

Single 16' x 10' x 121' Precast Reinforced Concrete Box Culvert

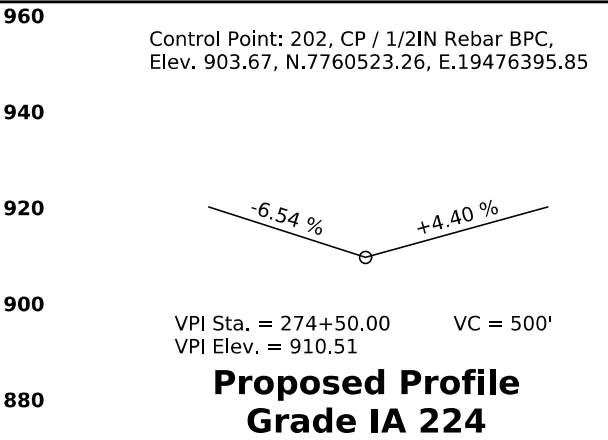
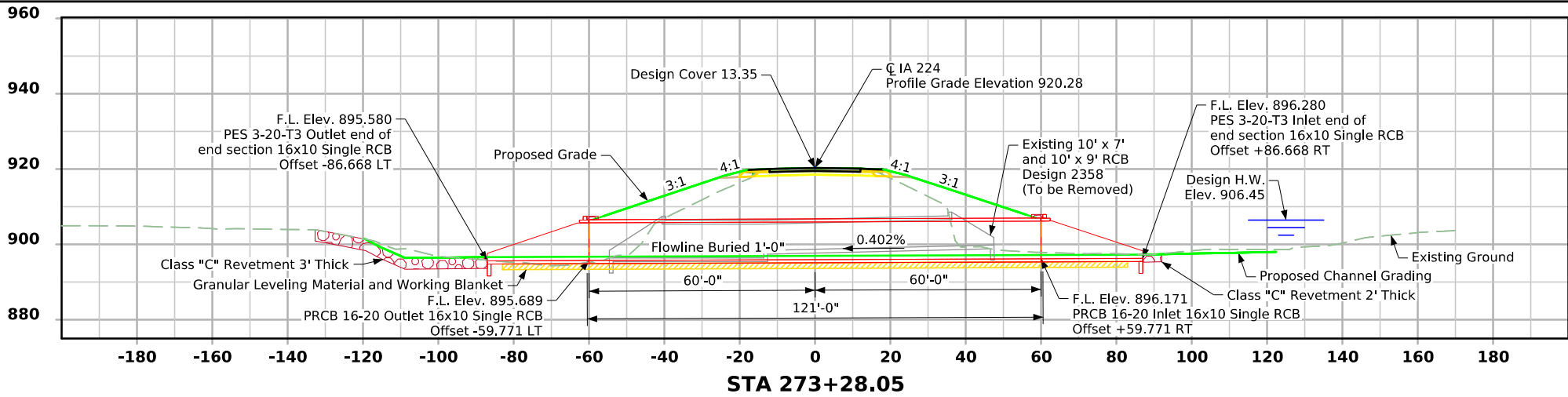
General Notes

STA. 273+28.05 (IA 224)Turn-in Date: Sept 2026

Jasper County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. 0327Design Sheet No. 2 of 3FHWA/Asset 900905



Utilities Note:

Utilities shown on this sheet are for information only. See Road Design sheets for utility information.

General Utility Symbols:

E - Electric Line
G - Gas Line
SAN. - Sanitary Sewer
TV - Telephone Line
W - Water Line
FO - Fiber Optic Line
GHP - Gas High Pressure
ST S - Storm Sewer
TV - TV
- Power Poles

Hydraulic Data

RIDB: Not Applicable
Drainage Area = 2.42 Acres
Stream Slope = 20.06 Ft./Mi.
Q₅₀ = 1,120 cfs
HW Elev. = 906.45
Exit Velocity = 9.8 fps

Q₁₀₀ = 1,359 cfs
HW Elev. = 907.85
Exit Velocity = 11.0 fps

Traffic Estimate

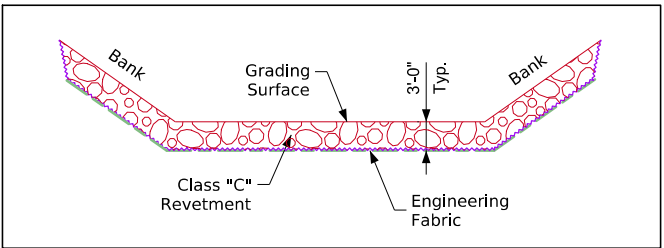
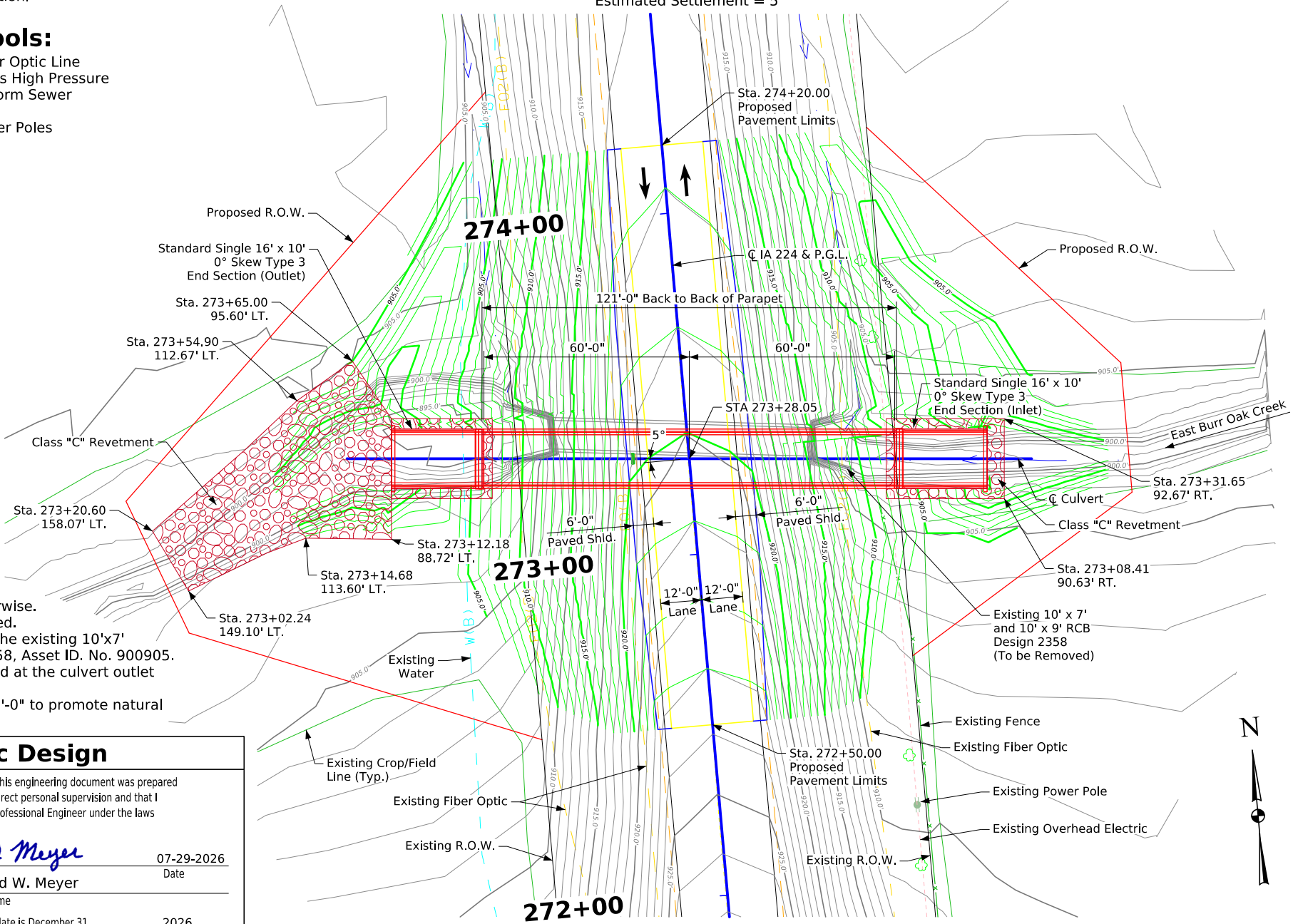
2024 AADT	660 V.P.D.
20-- AADT	-- V.P.D.
20-- DHV	-- V.P.H.
TRUCKS	18 %
Total	--
Design ESALS	--

Notes:

All units are in feet unless noted otherwise.
Class "C" revetment stone is embedded.
This design is for the replacement of the existing 10'x7' and 10'x9' RCB, Jasper Design No. 2358, Asset ID. No. 900905.
Class "C" revetment has been provided at the culvert outlet to mitigate high stream velocities.
Culvert flowlines have been lowered 1'-0" to promote natural siltation.

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.	
		07-29-2026
	Signature	Date
	Printed or Typed Name Chad W. Meyer	
My license renewal date is December 31, 2026		
Pages or sheets covered by this seal: V.7 Hydraulic Data		



Typical Channel Protection

Estimated Revetment Quantities Included With Road Plans

Location	Revetment Class "C" (Ton)	Engineering Fabric (SY)	CL. 10 Channel Excavation (CY)
Inlet	42	38	26
Outlet	464	300	290
Totals	506	338	316

Excavation quantity calculated from grading surface. Excavation quantity is for embedded revetment core out only, and does not include excavation to the grading surface. Excavation quantity to the grading surface is determined by Road Design and included in the Road Plans. Quantities shown for information only. See Road Sheets. Revetment estimated at 1.6 Tons/CY.

Location

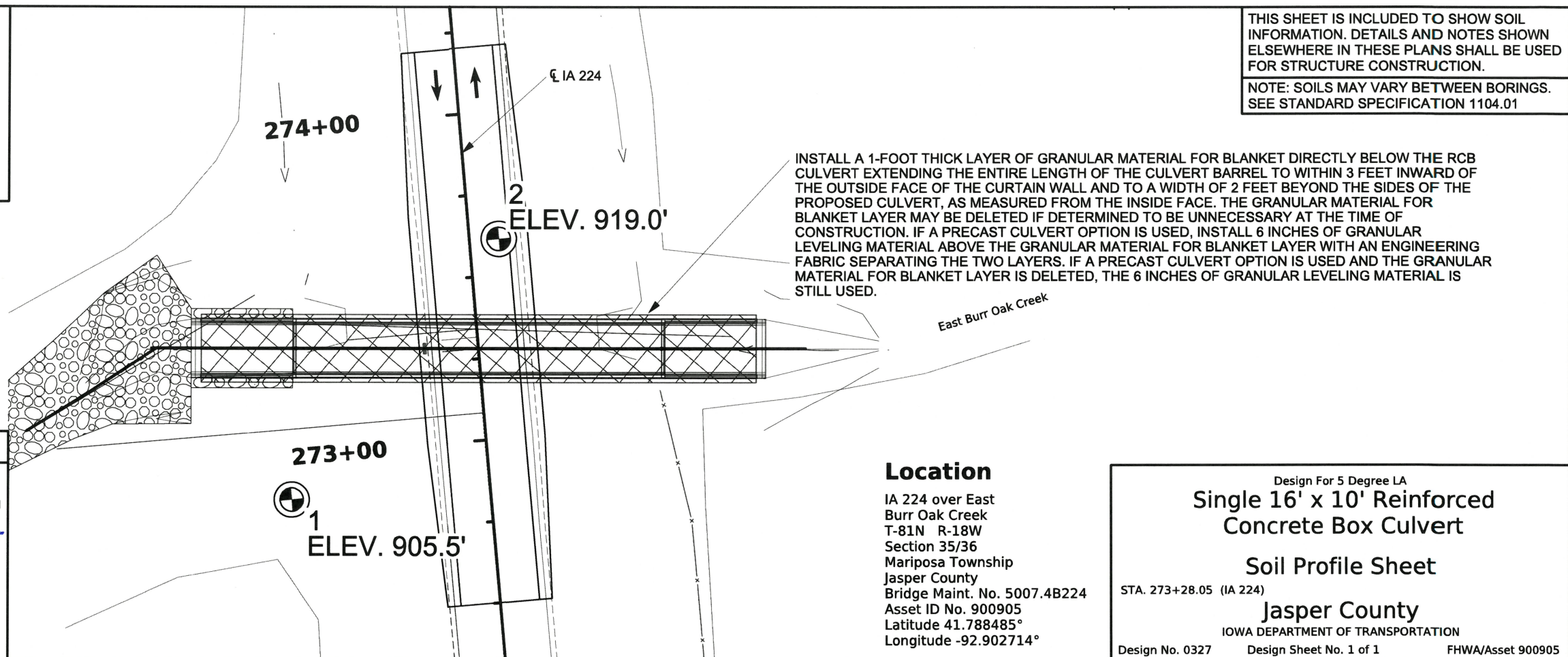
IA 224 over East Burr Oak Creek T-81N R-18W Section 35/36 Mariposa Township Jasper County Bridge Maint. No. 5007.4B224 Asset ID No. 900905 Latitude 41.788485° Longitude -92.902714°	Sta. 273+28.05 Build 16' x 10' x 121' RCB Skew 5° LT Ahead Length LT 60' Length RT 60' F.L. LT 895.58 F.L. RT 896.28 DA 2.42 Acres DES # 0327
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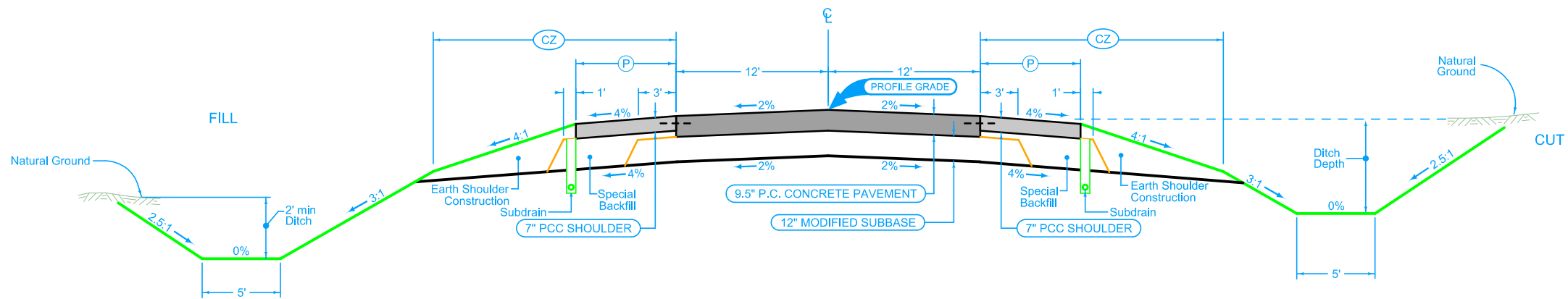
Single 16' x 10' x 121' Precast Reinforced Concrete Box Culvert

Situation Plan

STA. 273+28.05 (IA 224) Turn-in Date: Sept 2026

Jasper County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. 0327 Design Sheet No. 3 of 3 FHWA/Asset 900905





LOCATION			DIMENSIONS	
ROAD IDENTIFICATION	STATION TO STATION		(P)	(CZ)
			Inches	Feet
IA 224	272+50.00	273+00.00	4'-6"	4'-12'
IA 224	273+00.00	273+70.00	6'	12'
IA 224	273+70.00	274+20.00	6'-4'	12'-4'

Mainline Jointing:
 Transverse joints: CD at 17' spacing
 Longitudinal joint: L-2
 PCC Shoulder Jointing:
 Longitudinal joint: BT-1 or BT-5
 Transverse joints: C at 17' spacing

ESTIMATED PROJECT QUANTITIES AND REFERENCE NOTES

Roadway Items : Roadway Items

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadway Items	
1	2102-0425070	SPECIAL BACKFILL	TON	118.6	REFER TO TYPICAL SECTIONS AND TAB 112-09.
2	2102-2625000	EMBANKMENT-IN-PLACE	CY	2,235	REFER TO T-SHEETS. CONTRACTOR SHALL PROVIDE BORROW MATERIAL ACCORDING TO SECTION 2102 OF THE STANDARD SPECIFICATIONS.
3	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CY	401	REFER TO T-SHEETS.
4	2102-2712015	EXCAVATION, CLASS 12, BOULDERS OR ROCK FRAGMENTS	CY	10	REFER TO TAB 103-07. DISPOSE OF EXCESS MATERIAL ACCORDING TO ARTICLE 1106.07 OF THE CURRENT SPECIFICATIONS.
5	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	CY	439	THIS ITEM IS INCLUDED FOR CHANNEL SHAPING AT THE INELT AND OUTLET OF THE PROPOSED CULVERT AND FOR EMBEDDING THE REVETMENT. QUANTITY INCLUDES 152 CY OF CUT FOR CHANNEL GRADING AND 287 CY OF CUT FOR REVETMENT EMBEDDING.
6	2105-8425015	TOPSOIL, STRIP, SALVAGE AND SPREAD	CY	463	REFER TO T-SHEETS. TOPSOIL SHALL BE STRIPPED AT A DEPTH OF 9 INCHES AND PLACED TO A COMPACTED DEPTH OF 6 INCHES ON FINAL GRADE.
7	2107-0425020	COMPACTING BACKFILL ADJACENT TO BRIDGES, CULVERTS OR STRUCTURES	CY	128.2	REFER TO TAB 104-04 AND STANDARD ROAD PLAN DR-111 FOR DETAILS.
8	2107-0875100	COMPACTION WITH MOISTURE CONTROL	CY	2,027	REFER TO TAB 103-6. CUBIC YARDS SHOWN ON THE CONTRACT DOCUMENTS AS DETERMINED BY THE FILL VOLUME MINUS COMPACTION. SHRINKAGE WILL NOT BE INCLUDED IN THE MOISTURE CONTROL QUANTITY.
9	2115-0100000	MODIFIED SUBBASE	CY	188.9	REFER TO TYPICAL SECTION AND TAB 100-24.
10	2122-5190007	PAVED SHOULDER, P.C. CONCRETE, 7 IN.	SY	204.6	REFER TO TYPICAL SECTIONS AND TAB 112-09.
11	2123-7450000	SHOULDER CONSTRUCTION, EARTH	STA	3.4	REFER TO TYPICAL SECTIONS AND TAB 112-09.
12	2301-1033095	STANDARD OR SLIP FORM PORTLAND CEMENT CONCRETE PAVEMENT, CLASS C, CLASS 3 DURABILITY, 9.5 IN.	SY	453.3	REFER TO TYPICAL SECTION AND TAB 100-24.
13	2402-0425040	FLOODED BACKFILL	CY	285.4	REFER TO TAB 104-04 AND STANDARD ROAD PLAN DR-111 FOR DETAILS. CUBIC YARDS SHOWN ON THE CONTRACT DOCUMENTS AS DETERMINED BY THE TEMPLATE FILL VOLUME. SHRINKAGE WILL NOT BE INCLUDED IN THE MOISTURE CONTROL QUANTITY.

Item no.	Item Code	Item	Unit	Quantities	Estimate Reference Notes
				Estimated	
				Roadway Items	
14	2402-0875150	COMPACTION WITH MOISTURE CONTROL (STRUCTURES)	CY	2,412.2	REFER TO TAB 104-04 AND STANDARD ROAD PLAN DR-111 FOR DETAILS.
15	2418-0000010	TEMPORARY STREAM DIVERSION	EACH	1	REFER TO STANDARD ROAD PLAN EW-402.
16	2502-8212034	SUBDRAIN, LONGITUDINAL, (SHOULDER) 4 IN. DIA.	LF	460	REFER TO TYPICAL SECTION AND TAB 104-09A.
17	2502-8221306	SUBDRAIN OUTLET, DR-306	EACH	4	REFER TO TYPICAL SECTION AND TAB 104-09A.
18	2507-3250005	ENGINEERING FABRIC	SY	286.5	FABRIC TO BE PLACED UNDER REVETMENT. REFER TO V.3 SHEET FOR DETAILS.
19	2507-6800032	REVETMENT, CLASS C	TON	459	REFER TO V.3 FOR DETAILS ON PLACEMENT.
20	2510-6745850	REMOVAL OF PAVEMENT	SY	532.1	REFER TO TAB 110-1.
21	2526-8285040	CONSTRUCTION SURVEY, LOCATION SURVEY	LS	1	--
22	2527-9263209	PAINTED PAVEMENT MARKINGS, WATERBORNE OR SOLVENT-BASED	STA	5.5	REFER TO TAB 108-22.
23	2528-2518000	SAFETY CLOSURE	EACH	2	REFER TO TAB 108-13A.
24	2528-8445110	TRAFFIC CONTROL	LS	1	REFER TO TRAFFIC CONTROL PLAN ON SHEET J.1.
25	2528-9290050	PORTABLE DYNAMIC MESSAGE SIGN (PDMS)	CDAY	14	PORTABLE DYNAMIC MESSAGE SIGNS (PDMS) SHALL BE INSTALLED 7 DAYS PRIOR TO CLOSURE OF IA 224 FOR BOTH NORTHBOUND AND SOUTHBOUND TRAFFIC. REFER TO STANDARD ROAD PLAN TC-252 FOR ADDITIONAL INFORMATION.
26	2548-0000320	MILLED CENTERLINE RUMBLE STRIPS, PCC SURFACE	STA	1.7	REFER TO TAB 112-10 AND STANDARD ROAD PLAN PV-13.
27	2602-0000020	SILT FENCE	LF	425	REFER TO TAB 100-17 AND STANDARD ROAD PLAN EC-201 FOR DETAILS. VERFIY THE SPECIFIC LOCATIONS WITH THE ENGINEER PRIOR TO PLACEMENT.
28	2602-0000030	SILT FENCE FOR DITCH CHECKS	LF	189	REFER TO TAB 100-17 AND 100-18 AND STANDARD ROAD PLAN EC-201 FOR DETAILS. VERFIY THE SPECIFIC LOCATIONS WITH THE ENGINEER PRIOR TO PLACEMENT.
29	2602-0000071	REMOVAL OF SILT FENCE OR SILT FENCE FOR DITCH CHECKS	LF	307	REFER TO TAB 100-17 AND 100-18 AND STANDARD ROAD PLAN EC-201 FOR DETAILS.
30	2602-0000101	MAINTENANCE OF SILT FENCE OR SILT FENCE FOR DITCH CHECK	LF	62	REFER TO TAB 100-17 AND 100-18 AND STANDARD ROAD PLAN EC-201 FOR DETAILS.

INDEX OF TABULATIONS			111_25 4/21/26
Tabulation	Tabulation Title	Sheet No.	
100_01D	PROJECT DESCRIPTION	C.4	
100_24	PCC PAVEMENT	C.6	
104_04	ROADWAY ITEMS FOR DRAINAGE STRUCTURES INSTALLED BY CULVERT CONTRACTOR	C.7	
105_04	STANDARD ROAD PLANS	C.5	
108_13A	SAFETY CLOSURES	C.8	
108_22	PAVEMENT MARKING LINE TYPES	C.9	
110_01	REMOVAL OF PAVEMENT	C.10	
111_25	INDEX OF TABULATIONS	C.3	
112_09	SHOULDERS	C.11	
112_10	MILLED RUMBLE STRIPS	C.12	
103_06	EMBANKMENT WITH MOISTURE CONTROL	CS.2	
103_07	SHRINKAGE DATA	CS.3	
104_09A	LONGITUDINAL SUBDRAIN SHOULDER	CS.4	
108_23A	TRAFFIC CONTROL PLAN	J.1	
111_01	COORDINATED OPERATIONS	J.2	
100_17	TABULATION OF SILT FENCES	RC.1	
100_18	SILT FENCES FOR DITCH CHECKS	RC.2	
232_03A	EROSION CONTROL (RURAL SEEDING)	RC.3	
232_11	EROSION CONTROL (STABILIZING CROP SEEDING)	RC.3	
281_01	SECTION 404 PERMIT AND CONDITIONS	RC.3	

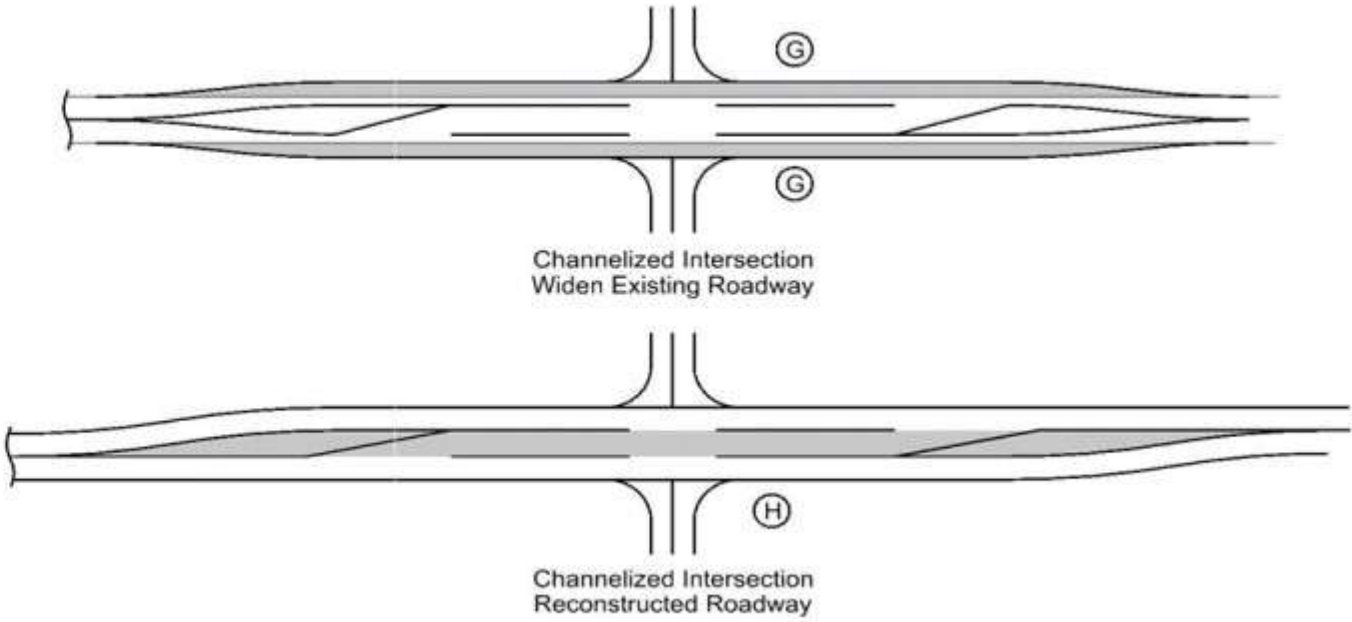
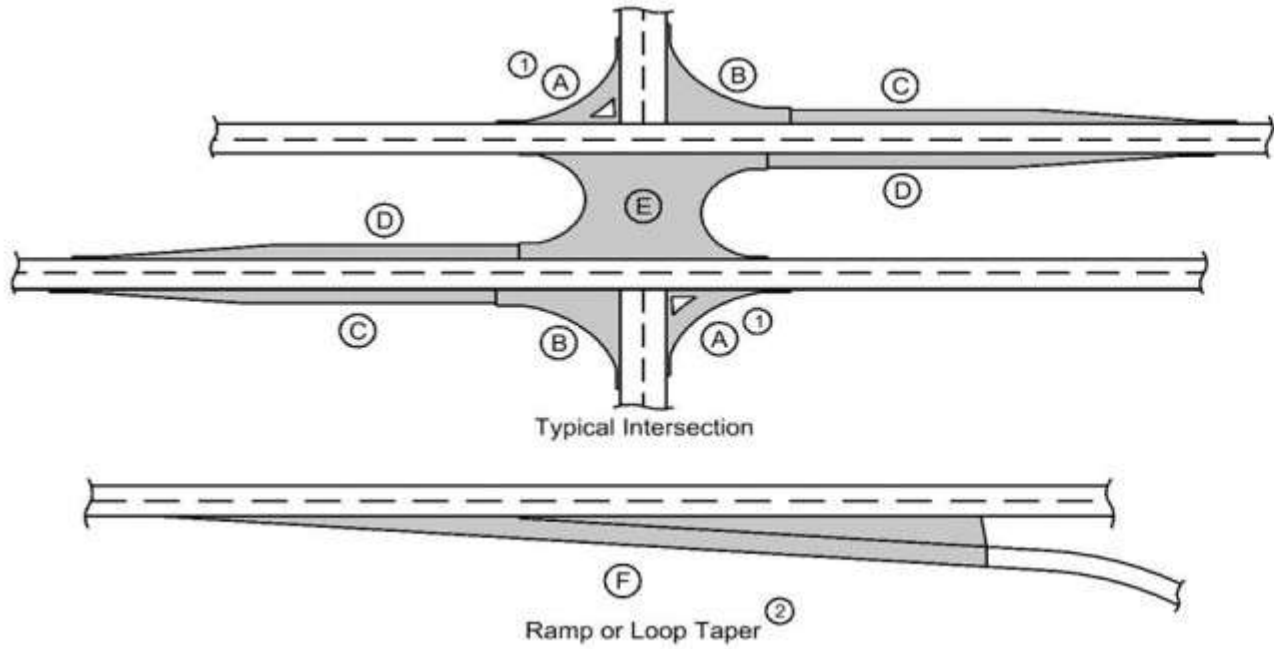
100_01D
8/15/22

PROJECT DESCRIPTION

This project involves the replacement of an existing 10' x 7' culvert with a single 16' x 10' reinforced concrete box culvert under IA 224 over East Burr Oak Creek.

105_04 4/21/26 STANDARDS The following Standards apply to construction work on this project.		
Number	Date	Title
DR-111	04-17-18	Box Culvert (Backfill)
DR-303	10-17-17	Subdrains (Longitudinal)
EC-201	04-20-21	Silt Fence
EW-402	04-18-17	Temporary Stream Diversion
PM-110	10-15-24	Line Types
PV-13	04-16-24	Milled Centerline Rumble Strips
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-252	10-21-25	Routes Closed to Traffic

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 224	Both	272+50.00	274+20.00	24.0	170.00	453.30									9.5	453.3			188.90		
Total:							170	453.3												188.9		

104_04

8/15/22

ROADWAY ITEMS FOR DRAINAGE STRUCTURES INSTALLED BY CULVERT CONTRACTOR

* Not a Bid Item

(1) Backfill according to DR-111

Location	Design No.	Size	Kind	Dike Lt.	Dike Rt.	Dike Station	Dike Top Elevation	Dike Type	Compacting Backfill Adjacent (CY)	Compaction w/ Moisture Control (CY)	Compaction w/ Moisture and Density (CY)	Floodable Backfill* (A) (CY)	Porous Backfill* (B) (CY)	Flooded Backfill (1) (A+B) (CY)	Excavation Type	Excavation Quantity (CY)	Revetment Type	Revetment Quantity (TONS)	Engineering Fabric (SY)	Remarks
273+28.05	327	16' x 10'	RCB						128.2	2412.2		281.6	3.8	285.4			Class C	459.000	287.0	

108_13A 3/27/25 SAFETY CLOSURES Refer to Section 2528 of the Standard Specifications			
Station	Road Closure Qty.	Hazard Closure Qty.	Remarks
272+00.00	1		
274+20.00	1		

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

CBW6: Crosswalk Bar (White) @ 10.00

CLW6: Crosswalk Line (White) @ 2.00

DLW4: Dotted Line (White) @ 0.22

ELW6: Edge Line Right (White) @ 1.00

MNY6: Median Nose (Yellow) @ 1.00

RLY4: Ramp Edge Line Left (Yellow) @ 0.67

SPW4: Sloped Curb 4" (White) @ 2.16

STY6: Standard Curb 6" (Yellow) @ 2.03

BCY6: Broken Centerline (Yellow) @ 0.25

CHW8: Channelizing Line (White) @ 1.33

DCY4: Double Centerline (Yellow) @ 1.34

DLW6: Dotted Line (White) @ 0.33

ELY4: Edge Line Left (Yellow) @ 0.67

NPY4: No Passing Zone Line (Yellow) @ 0.84

RLY6: Ramp Edge Line Left (Yellow) @ 1.00

SPW6: Sloped Curb 6" (White) @ 2.28

YLW2: Yield Line (White) @ 1.15

BLC6: Broken Line Contrast (White/Black) @ 0.50

CHW10: Channelizing Line (White) @ 1.67

DCY6: Double Centerline (Yellow) @ 2.00

DLY4: Dotted Line (Yellow) @ 0.22

ELY6: Edge Line Left (Yellow) @ 1.00

NPY6: No Passing Zone Line (Yellow) @ 1.25

SLW2: Stop Line (White) @ 4.00

SPY4: Sloped Curb 4" (Yellow) @ 2.16

BLW4: Broken Lane Line (White) @ 0.17

CHY8: Channelizing Line (Yellow) @ 1.33

DDY4: Double Dotted Line (Yellow) @ 0.44

DLY6: Dotted Line (Yellow) @ 0.33

LDW8: Lane Drop (White) @ 0.33

RLW4: Ramp Edge Line Right (White) @ 0.67

SLW4: Solid Lane Line (White) @ 0.67

SPY6: Sloped Curb 6" (Yellow) @ 2.28

BLW6: Broken Lane Line (White) @ 0.25

CHY10: Channelizing Line (Yellow) @ 1.67

DDY6: Double Dotted Line (Yellow) @ 0.67

ELW4: Edge Line Right (White) @ 0.67

LDW10: Lane Drop (White) @ 0.42

RLW6: Ramp Edge Line Right (White) @ 1.00

SLW6: Solid Lane Line (White) @ 1.00

STW6: Standard Curb 6" (Yellow) @ 2.03

Line No.	Road ID	Station From	Station To	Lane	Marking Type	Left	Center	Right	Groove Marking Needed?	Groove Qty. (STA)	ELW6 (STA)	ELW6 Factored (STA)	NPY6** (STA)	NPY6** Factored (STA)	Remarks
1.0	IA 224	272+50.00	274+20.00	NB	Waterborne/Solvent Paint			X	No		1.70	1.70			
2.0	IA 224	272+50.00	274+20.00	Both	Waterborne/Solvent Paint		X		No				1.70	2.13	
3.0	IA 224	272+50.00	274+20.00	SB	Waterborne/Solvent Paint			X	No		1.70	1.70			

Totals (Factored)
Painted Pavement Markings, Waterborne or Solvent-Based: 5.5 STA

REMOVAL OF PAVEMENT Refer to Tabulation 102-5.							110_01 4/5/24
* Not a bid item.							
Line No.	Station From	Station To	Side	Pavement Type	Area (SY)	Saw Cut* (LF)	Remarks
1.0	272+50.00	274+20.00		HMA	532.1	56.0	

SHOULDERS																												112_09 4/21/26
(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)	Shoulder at Grd rail (5)(7)	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)	Pavement Scarification (SY)	Polymer Grid (SY)	Subbase (3) (8) (CY)	Granular Shoulder (3) (TON)	Granular Shoulder (TON/STA)	Shoulder Const. Alt (3) (STA)	Shoulder Const. Alt HMA (6) (CY)	Shoulder Const. Alt PCC (6) (CY)	Remarks
IA 224	NB	272+50.00	273+00.00	Right	4' - 6'			50.00					27.8					15.700							0.50		10.50	
IA 224	NB	273+00.00	273+70.00	Right	6'			70.00					46.7					27.900							0.70		14.70	
IA 224	NB	273+70.00	274+20.00	Right	6' - 4'			50.00					27.8					15.700							0.50		10.50	
IA 224	SB	272+50.00	273+00.00	Left	4' - 6'			50.00					27.8					15.700							0.50		10.50	
IA 224	SB	273+00.00	273+70.00	Left	6'			70.00					46.7					27.900							0.70		14.70	
IA 224	SB	273+70.00	274+20.00	Left	6' - 4'			50.00					27.8					15.700							0.50		10.50	
Total:								340					204.6					118.6							3.4		71.4	

112_10

4/15/25

MILLED RUMBLE STRIPS

* Calculated at 18" width for Shoulder.

** For use with penetrating Engineered Fog Seal. Calculated at 2" wider than rumble strips.

Line No.	Road Identification	Station From	Station To	Shoulder Pavement Type	Rumble Strip Lane	Rumble Strip Type	Fog Seal Type	L (IN)	PCC Length (STA)	HMA Length (STA)	Fog Seal* Shoulder (GAL)	Fog Seal (SY)**	Effective Shoulder Width PCC (FT)	Effective Shoulder Width HMA (FT)	Effective Shoulder Width Granular\Earth (FT)	Remarks
1.0	IA 224	272+50.00	274+20.00		Centerline	Milled			1.70							
Total:									1.7							

GEOTECHNICAL DESIGN																	
	I hereby certify that this plan was prepared under my supervision and that engineering decisions with regard to the design were made by me or by other duly licensed Professional Engineers under the laws of the State of Iowa. <table><tr><td><i>Zachary A. Bonzer</i></td><td><i>12-12-2025</i></td></tr><tr><td>Signature</td><td>Date</td></tr><tr><td colspan="2"><i>Zachary A. Bonzer</i></td></tr><tr><td colspan="2">Printed or Typed Name</td></tr><tr><td colspan="2">My license renewal date is</td></tr><tr><td colspan="2">Pages or sheets covered by this seal: <u>CS.1 - CS.4</u></td></tr><tr><td colspan="2"> </td></tr><tr><td colspan="2"> </td></tr></table>	<i>Zachary A. Bonzer</i>	<i>12-12-2025</i>	Signature	Date	<i>Zachary A. Bonzer</i>		Printed or Typed Name		My license renewal date is		Pages or sheets covered by this seal: <u>CS.1 - CS.4</u>		 		 	
<i>Zachary A. Bonzer</i>	<i>12-12-2025</i>																
Signature	Date																
<i>Zachary A. Bonzer</i>																	
Printed or Typed Name																	
My license renewal date is																	
Pages or sheets covered by this seal: <u>CS.1 - CS.4</u>																	

103_06
8/15/22

EMBANKMENT WITH MOISTURE CONTROL

Moisture Control is required for all Class 10 fill placed in all locations and depths. Topsoil will not require Moisture Control.

103_07
8/15/22

SHRINKAGE DATA

Material	%	Remarks
Class 10	30.0	
Topsoil	40.0	
Estimated Boulder Quantity	0.0	10 CY Class 12 Excavation

LONGITUDINAL SUBDRAIN SHOULDER											104_09A 5/6/24
* Not a bid item.											
Line No.	Road or Lane Identification	Station From	Station To	Side	Depth (IN) (D)	Subdrain Size (IN)	Length (FT)	Outlet Station	Outlet Type	Porous Backfill* (CY)	Remarks
1.0	IA 224	272+50.00	274+20.00	Left	42.0	4.0	200.0	272+50.00	DR-306	18.5	Note 1, 2, 3
1.1							30.0	274+20.00	DR-306	0.3	
2.0	IA 224	272+50.00	274+20.00	Right	42.0	4.0	200.0	272+50.00	DR-306	18.5	Note 1, 2, 3
2.1							30.0	274+20.00	DR-306	0.3	

- Notes:
- 1. Subdrains may be adjusted both vertically and horizontally in the field as necessary.
 - 2. All longitudinal subdrains are Type 7 with PCC or Type 8 with HMA (ACC).
 - 3. Any existing longitudinal subdrains encountered during construction that are not removed shall remain functioning.

SURVEY SYMBOLS

	Interstate Highway Symbol		Septic Tank
	U.S. Highway Symbol		Cistern
	Iowa Highway Symbol		L.P. Gas Tank (No Footing)
	County Road Highway Symbol		Underground Storage Tank
	Evergreen Tree		Latrine
	Deciduous Tree		Satellite TV Dish
	Fruit Tree		Water Hook Up
	Shrub (Bushes)		Radio Tower
	Timber		Tower Anchor
	Hedge		Guardrail (Beam or Cable)
	Stump		Guard Post (one or two)
	Swamp		Guard Post (over two)
	Rock Outcrop		Filler Pipe
	Broken Concrete		Gas Valve
	Revetment (Rip Rap)		Water Valve
	Cemetery		Speed Limit Sign
	Grave		Mile Marker Post
	Cave		Sign
	Sink Hole		Traffic Signal Control Box
	Board Fence		Rail Road Signal Control Box
	Chain Link or Security Fence		Telephone Switch Box
	Wire Fence		Electric Box
	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)		

UTILITY LEGEND

	(ASW) ALLIANT ENERGY Company Name: ALLIANT ENERGY Design Contact: Alliant Energy Field Engineer Phone: (800) 255-4268 Email: locate_IPL@alliantenergy.com
	(CIW) IOWA REGIONAL UTILITY ASSOC Company Name: IOWA REGIONAL UTILITY ASSOC Design Contact: Kimberlin Annis Phone: (641) 792-7011 Email: locates@irua.net
	(IMC) IMON COMMUNICATIONS, LLC Company Name: IMON COMMUNICATIONS, LLC Design Contact: Engineering Phone: (319) 200-7804 Email: imonengineering@imon.net
	(MW1) PARTNER COMMUNICATIONS Company Name: PARTNER COMMUNICATIONS Design Contact: Tracy Decker Phone: (641) 498-7701 Email: tdecker@pcpartner.net

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.		Transparency
Pink, Dark	(13)		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
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
Red	(3)		Proposed Structure Shading
Red	(3)		Delineates Restricted Areas

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK	Design Color No.		
Green	(10)		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

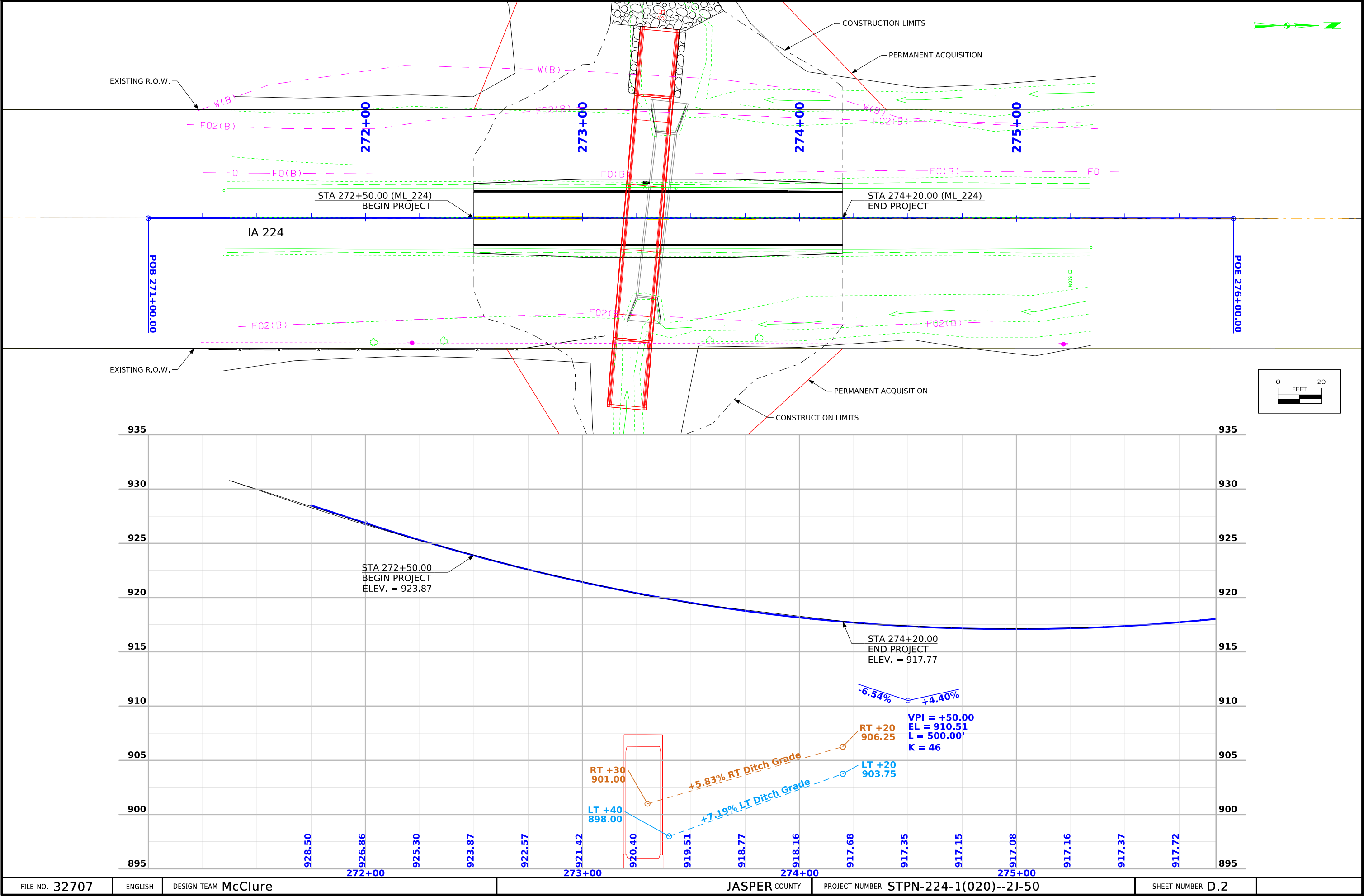
	Reference Point		
	Station		Survey Line
	Section Corner		Ground Line Intercept
	Saw Cut		Guardrail
	Trench Drain		HighTension Cable Guardrail
	Sheet Pile		Pavement Removal
	Clearing & Grubbing Area		

RIGHT-OF-WAY LEGEND

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

PLAN AND PROFILE
LEGEND AND SYMBOL
INFORMATION SHEET

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



Survey Information

SURVEY INDEX

County: Jasper
PIN: 26-50-224-010
Project Number: STPN-224-1(020)—2J-50
Location: 0.15 mi S of N 75th Avenue
Type of Work: Box Culvert Replacement
Project Directory: 5022401026

Survey Personnel

Patrick Shelquist – Survey Project Manager
Will Riordan – Survey Party Chief
Steve Kaiser – Engineering Technician

Date(s) of Survey

Begin Date 10/08/2025
End Date 11/26/2025

General Information

This survey is for IA Hwy 224 Box Culvert over East Burr Oak Creek 0.15 mi S of N 75th Avenue. This survey request was for the IA Hwy 224 corridor and approximately 600’ of creek to the west. This project is a Full Field DTM survey.

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

Nearby Iowa Real Time Network reference stations were utilized to obtain horizontal and vertical control on primary project control points. Control points were measured using standard control observation of 180 seconds. Points were then tightened through a resection using a total station.

PROJECT DATUM: NAD83(2011) for EPOCH 2010.00 (IaRTN 2019 ADJUSTMENT)
COORDINATE SYSTEM: IOWA REGIONAL COORDINATE SYSTEM ZONE 9
(U.S. SURVEY FOOT)
VERTICAL DATUM: NAVD88
GEOID MODEL: 2018 (Conus)

Alignment Information

The horizontal alignment for Iowa Highway 224 used for this survey is a retracement of the alignment shown on the Farm To Market System Jasper County Project Number 273 approved on March 22, 1960. Survey stationing was equated to the plan PI at Sta. 281+47.7 and carried back without equation throughout the survey.

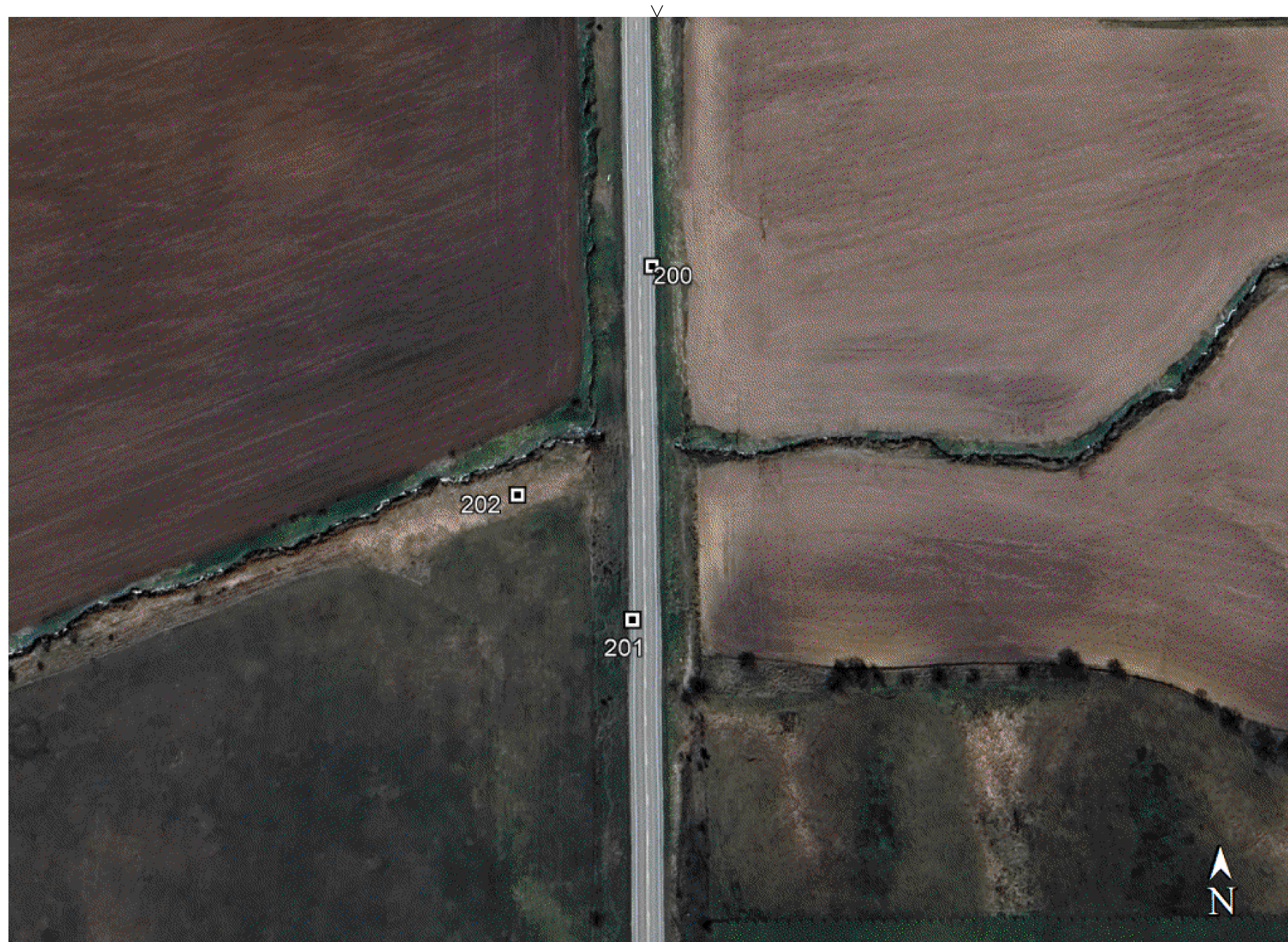
Survey stationing relates to plan stationing as follows:

PI Sta. 281+47.7 Plans Project No. 273
Survey PI Sta. 281+47.7

PI Sta. 255+00.8 Plans Project No. 273
Survey PI Sta. 255+04.82

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 9 (U.S. Survey Foot)

VERT. DATUM: NAVD88 - Geoid Model: 2018 (Conus)

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 9 (U.S. Survey Foot)
VERT. DATUM: NAVD88
Geoid Model: 2018 (Conus)

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
200	7760781.06	19476546.51	916.95	CP / MAG NAIL
201	7760381.47	19476519.85	930.46	CP / MAG NAIL
202	7760523.26	19476395.85	903.67	CP / 1/2IN REBAR BPC

ALIGNMENT COORDINATES																		101-16	
																		10-20-09	
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)
IA224_1		271+00.00	7760346.622	19476532.582															
IA224_2		276+00.00	7760846.621	19476533.149															

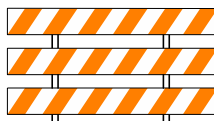
108_23A
8/15/22

TRAFFIC CONTROL PLAN

IA 224

- ROUTE WILL BE CLOSED DURING CONSTRUCTION
- OFFSITE DETOUR SHALL BE INSTALLED AND MAINTAINED AS SHOWN

111_01 10/14/22 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
NHSN-006-4(200)--2R-50	Culvert Replacement
NHSX-014-4(073)--3H-50	PCC Pavement - Grade and Replace



TYPE III BARRICADE

(A)

ROAD CLOSED TO THRU TRAFFIC

R11-4
60" x 30"

(B)

ROAD CLOSED

R11-2
48" x 30"

(C)

DETOUR

M4-10R
48" x 18"

(D)

DETOUR

M4-10L
48" x 18"

(E)

ROAD CLOSED AHEAD

W20-3
48" x 48"

(F)

DETOUR AHEAD

W20-2
48" x 48"

(G)

DETOUR

224

M4-8 24" x 12"
M1-5 30" x 24"
M6-1L 21" x 15"

(H)

DETOUR

224

M4-8 24" x 12"
M1-5 30" x 24"
M6-1R 21" x 15"

(I)

DETOUR

224

M4-8 24" x 12"
M1-5 30" x 24"
M5-1L 21" x 15"

(J)

DETOUR

224

M4-8 24" x 12"
M1-5 30" x 24"
M5-1R 21" x 15"

(K)

DETOUR

224

M4-8 24" x 12"
M1-5 30" x 24"
M5-1 21" x 15"

(L)

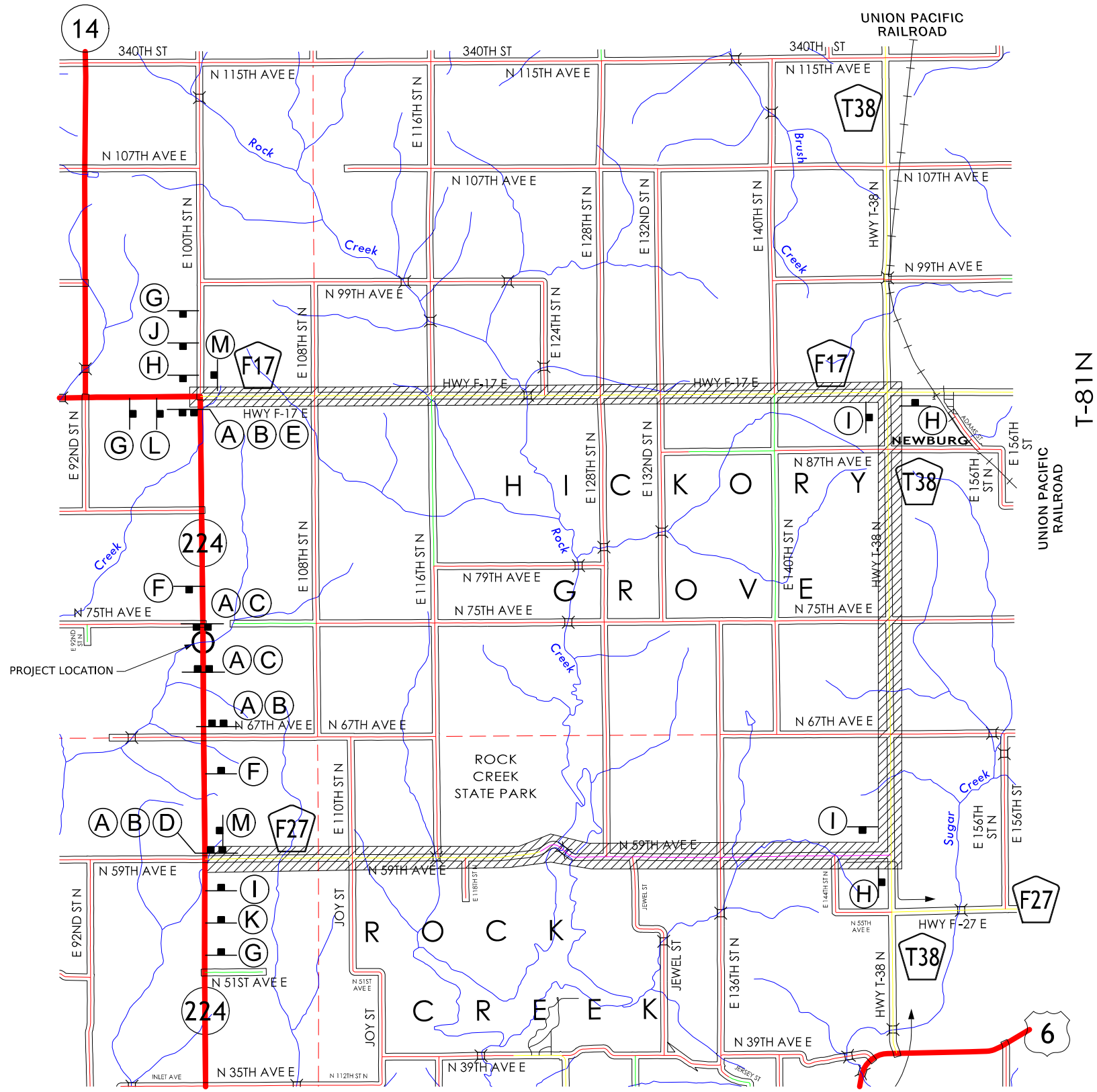
END DETOUR

M4-8A 24" x 18"

(M)



DETOUR ROUTE



TABULATION OF SILT FENCES Refer to EC-201					100_17 8/15/22
Station From	Station To	Side	Length (FT)	Remarks	
272+50.00	274+20.00	Right	170.00		
272+50.00	274+20.00	Right	170.00		
Total:			340		

100_18
8/15/22

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: $[0.5 \times \text{Spacing} \times (0.5 \times H^2 \times FS + DW \times H + 0.5 \times H^2 \times BS)]$

Line No.	Basin No.	Type	Station	Side	Installation (LF)	Maintenance (LF)	Removal (LF)	Foreslope (FS:1)	Backslope (BS:1)	Ditch Width (FT)	Avg. % Slope Ditch Grade	Volume (CF)	Remarks
1.0	1		273+40.00	Right	18.0	1.8	9.0	4.0	2.5	5.0			
2.0	2		273+57.00	Left	18.0	1.8	9.0	4.0	2.5	5.0			
3.0	1		273+63.00	Right	18.0	1.8	9.0	4.0	2.5	5.0			
4.0	2		273+80.00	Left	18.0	1.8	9.0	4.0	2.5	5.0			
5.0	1		273+83.00	Right	18.0	1.8	9.0	4.0	2.5	5.0			
6.0	2		274+03.00	Left	18.0	1.8	9.0	4.0	2.5	5.0			
7.0	1		274+06.00	Right	18.0	1.8	9.0	4.0	2.5	5.0			
Total:					126	12.6	63						

FILE NO.32707ENGLISHDESIGN TEAMMcClure

JASPER COUNTYPROJECT NUMBERSTPN-224-1(020)--2J-50

SHEET NUMBERRC.2

2/20/2026 11:33:15 AM

JONAH.HEER@IOWAID

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.

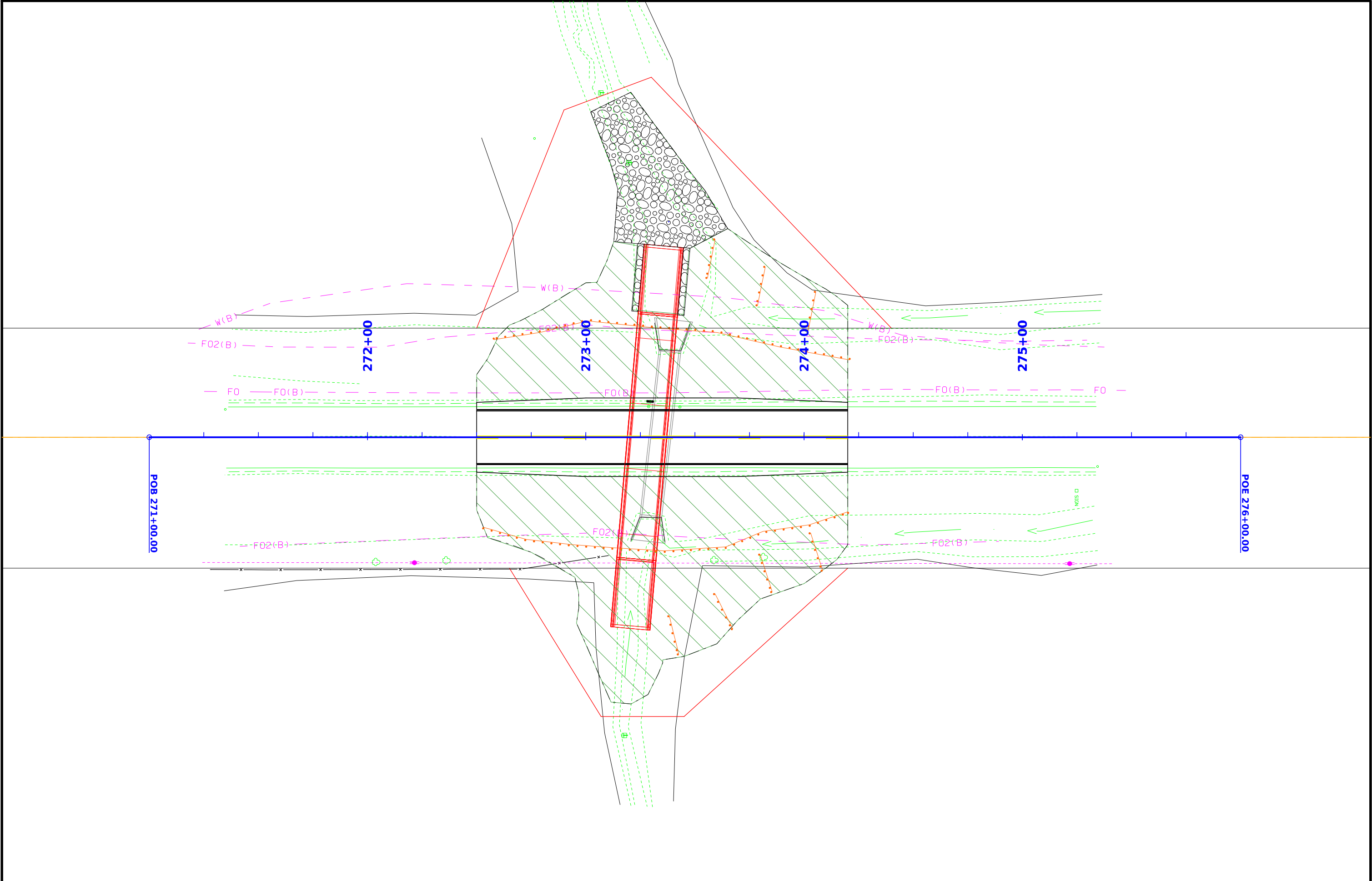
Place mulch according to the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

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

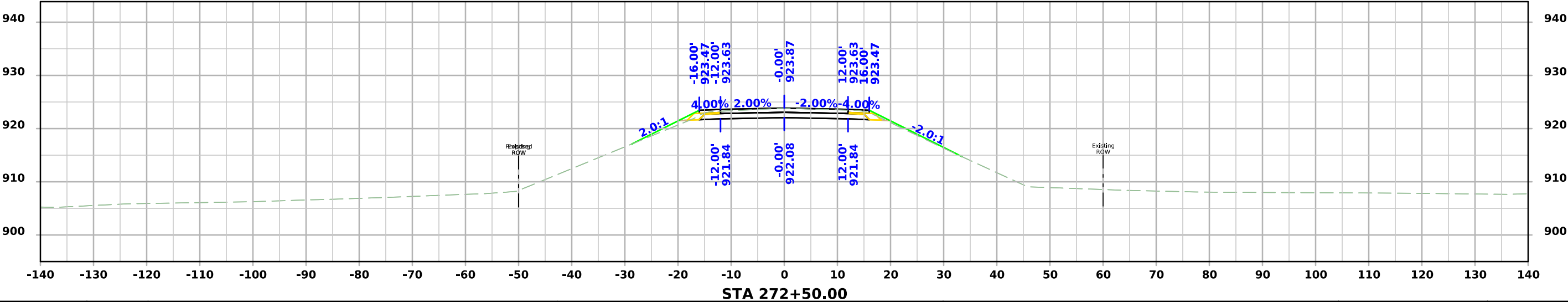
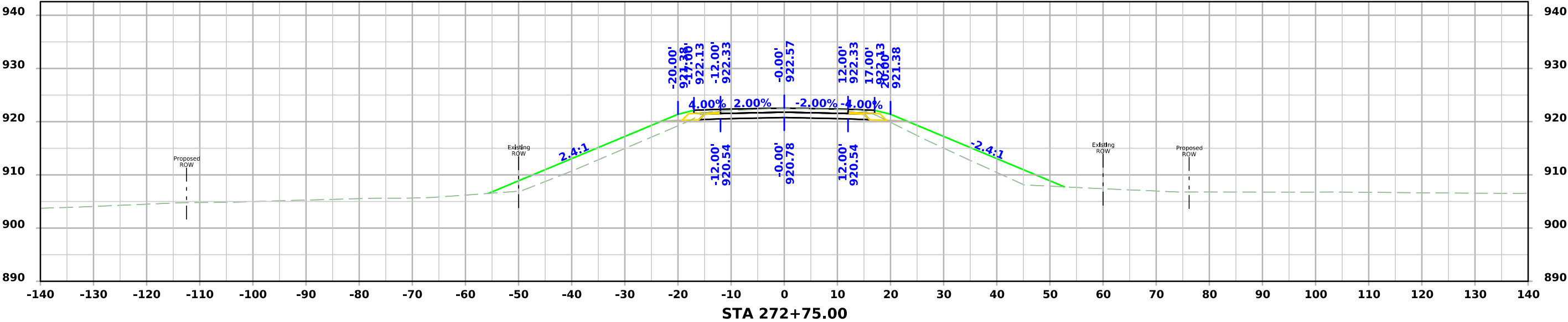
281_01
9/28/22

SECTION 404 PERMIT AND CONDITIONS

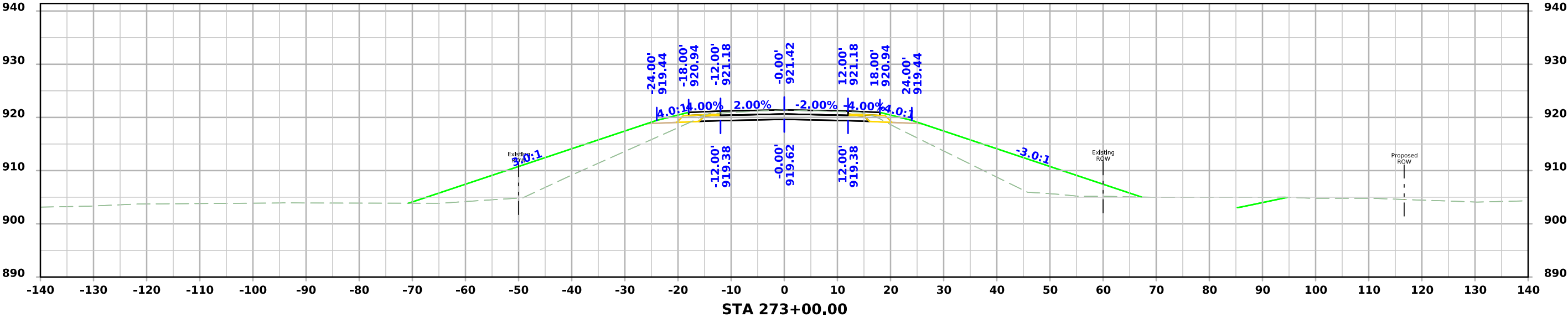
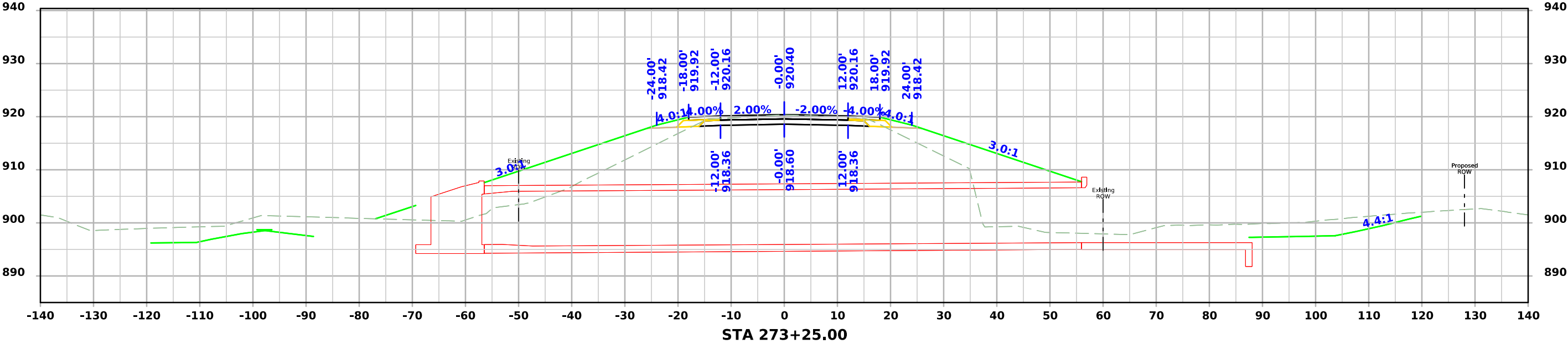
Construct this project according to the requirements of U.S. Army Corps of Engineers Nationwide, Permit No. 3. A copy of this permit is available from the Iowa DOT website (<http://www.envpermits.iowadot.gov/>). The U.S. Army Corps of Engineers reserves the right to visit the site without prior notice.



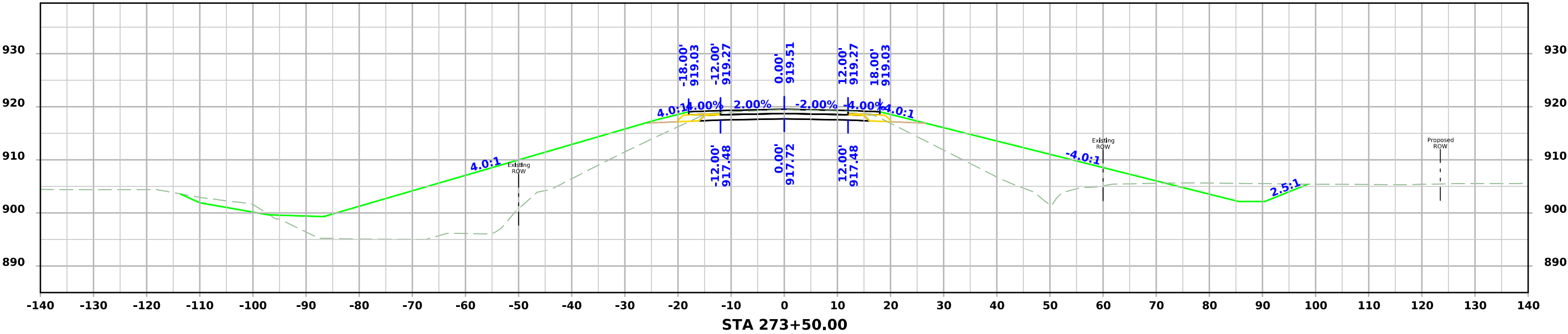
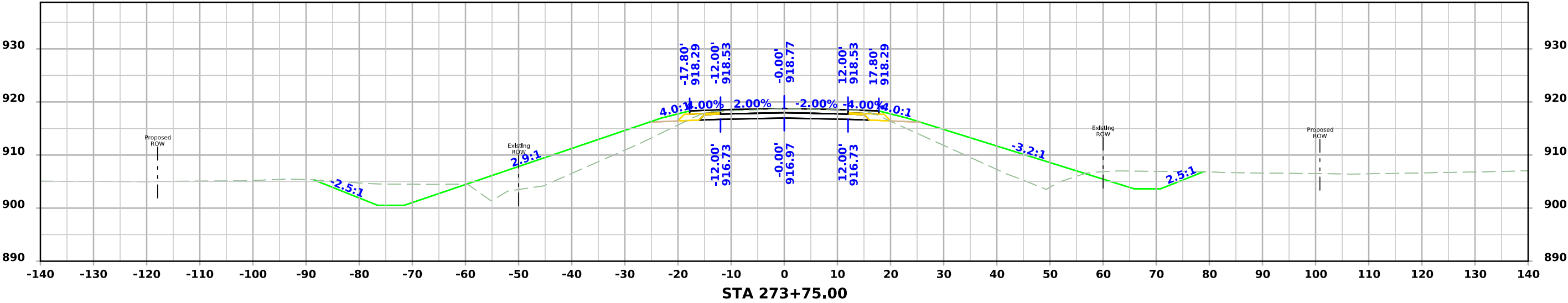
ML - IA224



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