

JEFFERSON COUNTY

SLIDE REPAIR
NHSN-034-8(159)--2R-51

LETTING DATE
01-18-2023



Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM
JEFFERSON COUNTY

SLIDE REPAIR

0.3 mi E of Bus 34 Interchange to 0.4 mi E of Umber Ave (5 Locations)

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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



REVISIONS

TOTAL

17

PROJECT IDENTIFICATION NUMBER

21-51-034-010

PROJECT NUMBER

NHSN-034-8(159)--2R-51

R.O.W. PROJECT NUMBER

NHSN-034-8(159)--2R-51

INDEX OF SHEETS

No.	DESCRIPTION
A Sheets	Title Sheets
A.1	Title Sheet
A.2	Location Map Sheet
A.3 - 6	Concept
D Sheets	Mainline Plan and Profile Sheets
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2 - 6	US 34
G Sheets	Survey Sheets
G.1 - 3	Reference Ties and Bench Marks
G.4	Horizontal Control Tab. & Super for all Alignments
J Sheets	Traffic Control and Staging Sheets
J.1	Traffic Control Plan
J.1	511 Travel Restrictions
	* Color Plan Sheets

SCHEDULE

D5 - 08-13-2021
DM5 - 09-27-2022
D6 - 11-01-2022

PRELIMINARY PLANS

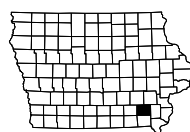
Subject to change by final design.

D2 PLAN - Date: 08-05-2021

DESIGN DATA RURAL			
2016	AADT	6900	V.P.D.
20 --	AADT	--	V.P.D.
20 --	DHV	--	V.P.H.
	TRUCKS	20.7	%
	Total		
	Design ESALs	--	

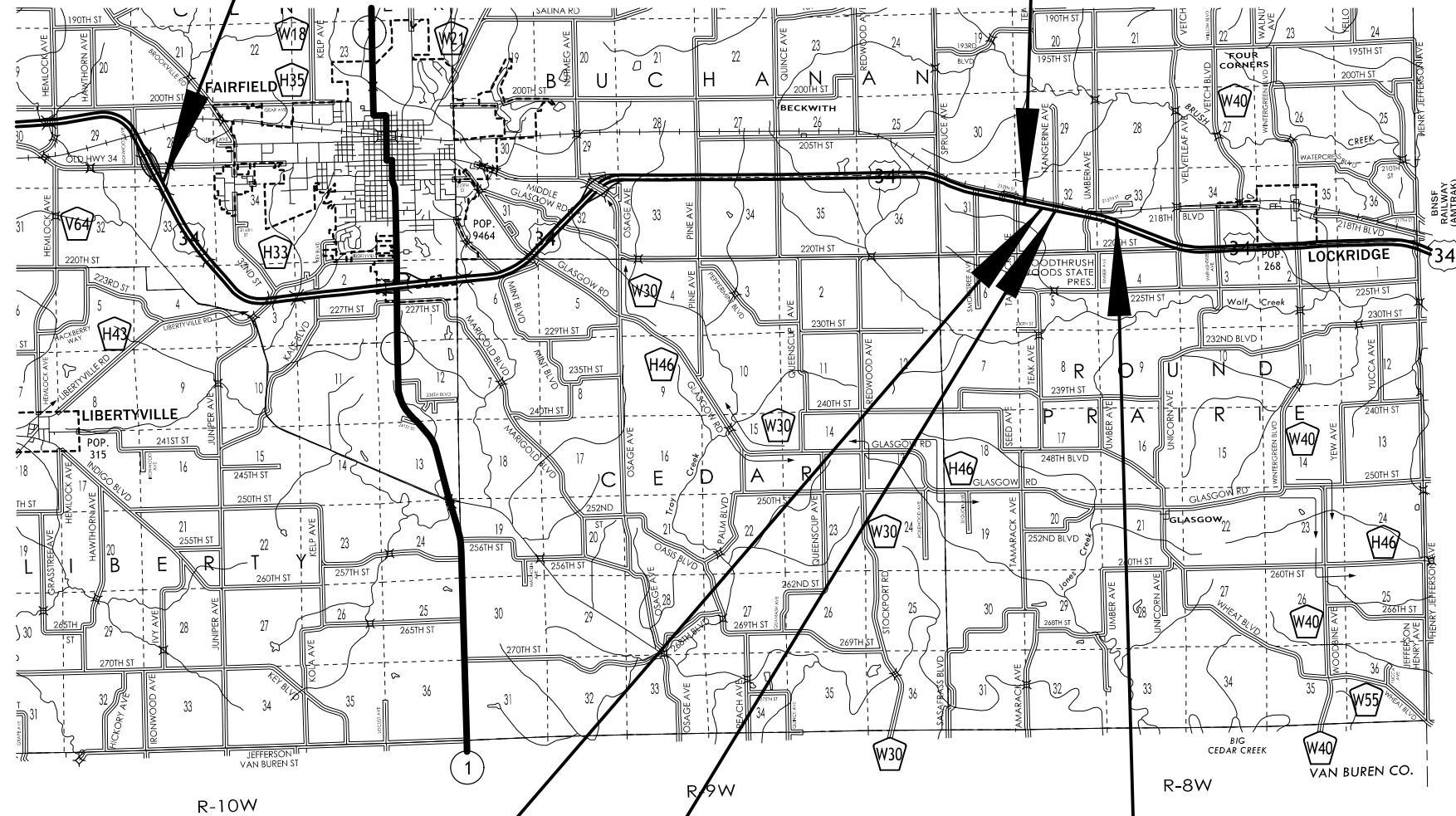
INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.1	X	Primary Signature Block
X	X	X

See Sheet A.2 for Project Map



PROJECT LOCATION
 LOCATION 1
 REFERENCE LOCATION 210.4 (East Side)
 STA. 70+07

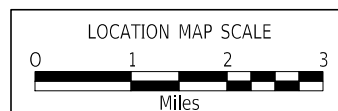
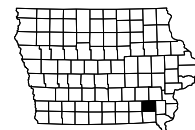
PROJECT LOCATION
 LOCATION 2
 REFERENCE LOCATION 219.33 (South Side)
 STA. 173+68.63



PROJECT LOCATION
 LOCATION 3
 REFERENCE LOCATION 219.51 (South Side)
 STA. 177+11.90

PROJECT LOCATION
 LOCATION 4
 REFERENCE LOCATION 219.54 (South Side)
 STA. 177+57.62

PROJECT LOCATION
 LOCATION 5
 REFERENCE LOCATION 220.6 (North Side)
 STA. 193+87.4





Jefferson County
 NHSN-034-8(159)--2R-51
 PIN: 21-51-034-010
 Page 2

TO OFFICE: District 5
ATTENTION: James V. Armstrong
FROM: Anthony J. Klein
OFFICE: District 5 Design
SUBJECT: FY 2023 – Slide Repair Project Concept

DATE: January 26th, 2021
PROJECT: Jefferson County
 NHSN-034-8(159)--2R-51
 PIN: 21-51-034-010

SITE #2 - EASTBOUND US 34, RIGHT (South) FORESLOPE, Approx. MP 219.33 and STA. 173+68.63

Observations/Notes:

The overall area of the foreslope instability has a longitudinal length of about 85 feet (25.9 meters), starting near Station 173+68.63 and extending to about Station 173+94.54. The foreslope was estimated in the field to have a maximum height of about 30 to 35 feet and an estimated 2.5:1 slope or slightly flatter. Slough material was observed to be present near the toe of slope. At its highest point on the foreslope, the scarp was about 35 feet away from the outside edge of the gravel shoulder. Based on the as-built road plans, the Right of Way (ROW) is shown to be located at an offset of about 218 to 230 feet from roadway centerline. There was a slide repaired in this area back in 2011 under the contract ER-034-8(154)--28-51.

Link to ER plan sheets:

Link to pictures: [IMG_0313.JPG](#)

Link to relevant as-built roadway plan sheets: [as-built road plan, US 34, MM 219.33.pdf](#)

Recommendations:

Bench and rebuild the foreslope to pre-existing conditions starting near Station 173+62.53 and then extending east to about Station 174+00.64. It is recommended that the backfill material consist of cohesive furnished embankment and that a subdrain system be installed to more efficiently move water away from the rebuilt foreslope. The repair shall start at the toe of the existing foreslope and then extend up-slope to within about 30 feet from the outside edge of the gravel shoulder. The rebuilt slope shall be covered with an 8-inch thick layer of furnished topsoil. Regrade the roadside ditch to allow for proper drainage. A typical section would be sufficient for plan insertion. Therefore, field survey will not be needed.

It appears that ROW will not be needed to complete this repair.

ESTIMATE:

Description	Unit	Quantity	Unit Price	Price
EXCAVATION, CLASS 10, WASTE	CY	782	\$21.00	\$16,422.00
EMBANKMENT-IN-PLACE, CONTRACTOR FURNISHED	CY	469	\$33.00	\$15,477.00
TOPSOIL, FURNISH AND SPREAD	CY	214	\$44.00	\$9,416.00
GRANULAR MATERIAL FOR BLANKET AND SUBDRAIN	CY	89	\$38.00	\$3,382.00
SUBDRAIN, LONGITUDINAL, (BACKSLOPE), 4 IN DIA	LF	308	\$15.00	\$4,620.00
SUBDRAIN OUTLET (DR-306)	EA	2	\$2,500.00	\$5,000.00
MOBILIZATION, CONTIGENCY & TRAFFIC CONTROL (50%)	L SUM		\$27,158.50	\$27,158.50
			TOTAL =	\$81,475.50

PROJECT LOCATION MAP: Page 7 or [Click Here](#)

BACKGROUND:

SITE #1 - Jefferson County, US 34 - MM 210.4 (East Side)

Observations/Notes:

The overall area of the channel bank instability starts near the edge of the existing bridge end slope rock armoring at the north bridge abutment (approximate Station 70+07, offset 44 meters left of roadway centerline) and then extends up channel for about 60 lineal feet (approximate Station 70+22, offset 35 meters left roadway centerline). The channel bank was estimated in the field to have a maximum height of about 20 feet and a 2.5:1 or flatter slope. Slough material was observed to be present at the toe of slope.

Link to pictures: [IMG_0392.JPG](#)

Link to relevant as-built roadway plan sheets: [as-built road plan, US 34, MM 210.4.pdf](#)

Link to relevant as-built bridge plan sheets: [as-built bridge plan, US 34, MM 210.4.pdf](#)

RECOMMENDATIONS:

Bench and rebuild about 80 feet of channel bank to pre-existing conditions starting near Station 70+03, offset 46 meters left of roadway centerline, and then extending to about Station 70+24, offset 33 meters left of roadway centerline. It is recommended that the backfill material consist of cohesive furnished embankment. The repair shall start at the toe of the existing channel bank then extend up-slope to the top of slope. Armor the bottom half of the rebuilt channel bank using Class E Revetment underlain with Engineering Fabric. Spread 8 inches of furnished topsoil material on the remaining area of the foreslope not armored with Class E Revetment. A typical section would be sufficient for plan insertion. Therefore, field survey will not be needed.

It appears that ROW will not be needed to complete this repair.

ESTIMATE:

Description	Unit	Quantity	Unit Price	Price
EXCAVATION, CLASS 10, WASTE	CY	380	\$16.00	\$6,080.00
EMBANKMENT-IN-PLACE, CONTRACTOR FURNISHED	CY	235	\$30.00	\$7,050.00
TOPSOIL, FURNISH AND SPREAD	CY	51	\$55.00	\$2,805.00
REVTMENT, CLASS E	TON	244	\$50.00	\$12,200.00
ENGINEERING FABRIC	LF	270	\$4.00	\$1,080.00
MOBILIZATION, CONTIGENCY & TRAFFIC CONTROL (50%)	L SUM		\$14,607.50	\$14,607.50
			TOTAL =	\$43,822.50

SITE #3 - EASTBOUND US 34, RIGHT (South) FORESLOPE, APPROX. MP 219.51 and STA. 177+11.90

Observations/Notes:

The overall area of the foreslope instability has a longitudinal length of about 110 feet (33.5 meters), starting near Station 177+11.90 and extending to about Station 177+45.43. The foreslope was estimated in the field to have a maximum height of about 25 to 30 feet and a 2.5:1 slope or flatter. An existing median culvert is located about 15 feet east of the foreslope instability at Station 177+50. Slough material was observed to be present near the toe of slope. It does not appear that surface drainage at the toe of slope has been impeded by the slough material. At its highest point on the foreslope, the scarp is about 30 feet away from the outside edge of the gravel shoulder. Based on the as-built road plans, the Right of Way (ROW) is shown to be located at an offset of about 179 to 190 feet from roadway centerline.

Link to pictures: [IMG_0314.JPG](#)

Link to relevant as-built roadway plan sheets: [as-built road plan, US 34, MM 219.51 and MM 219.54.pdf](#)

Recommendations:

Bench and rebuild the foreslope to pre-existing conditions starting near Station 177+05.8 and then extending east to about Station 177+51.53. It is recommended that the backfill material consist of suitable cohesive furnished embankment and that a subdrain system be installed to more efficiently move water away from the rebuilt foreslope. The repair shall start at the toe of the existing foreslope and then extend up-slope to within about 25 feet from the outside edge of the gravel shoulder. The rebuilt slope shall be covered with an 8-inch thick layer of furnished topsoil. Regrade the roadside ditch to allow for proper drainage. A typical section would be sufficient for plan insertion. Therefore, field survey will not be needed.

It appears that ROW will not be needed to complete this repair.

ESTIMATE:

Description	Unit	Quantity	Unit Price	Price
EXCAVATION, CLASS 10, WASTE	CY	1167	\$21.00	\$24,507.00
EMBANKMENT-IN-PLACE, CONTRACTOR FURNISHED	CY	755	\$33.00	\$24,915.00
TOPSOIL, FURNISH AND SPREAD	CY	306	\$44.00	\$13,464.00
GRANULAR MATERIAL FOR BLANKET AND SUBDRAIN	CY	106	\$38.00	\$4,028.00
SUBDRAIN, LONGITUDINAL, (BACKSLOPE), 4 IN DIA	LF	360	\$15.00	\$5,400.00
SUBDRAIN OUTLET (DR-306)	EA	2	\$2,500.00	\$5,000.00
MOBILIZATION, CONTIGENCY & TRAFFIC CONTROL (50%)	L SUM		\$38,657.00	\$38,657.00
			TOTAL =	\$115,971.00

Site #4 - Eastbound 34, Right (South) Foreslope, Approximate MP 219.54 and Station 177+57.62

Observations/Notes:

The overall area of the foreslope instability has a longitudinal length of about 85 feet (25.9 meters), starting near Station 177+57.62 and extending to about Station 177+82.53. The foreslope was estimated in the field to have a maximum height of about 25 to 30 feet and a 2.5:1 slope or flatter. An existing median culvert is located about 25 feet west of the foreslope instability at Station 177+50. Slough material was observed to be present near the toe of slope. It does not appear that surface drainage at the toe of slope has been impeded by the slough material. At its highest point on the foreslope, the scarp was about 30 feet away from the outside edge of the gravel shoulder. Based on the as-built road plans, the Right of Way (ROW) is shown to be located at an offset of about 193 to 201 feet from roadway centerline.

Link to pictures: [IMG_0314.JPG](#)

Link to relevant as-built roadway plan sheets: [as-built road plan, US 34, MM 219.51 and MM 219.54.pdf](#)

Link to relevant as-built ER previous slide repair roadway plan sheets: [ER-034-8\(154\)--28-51.pdf](#)

Recommendations:

Bench and rebuild the foreslope to pre-existing conditions starting near Station 177+51.52 and then extending east to about Station 177+89.63. It is recommended that the backfill material consist of suitable cohesive furnished embankment and that a subdrain system be installed to more efficiently move water away from the rebuilt foreslope. The repair shall start at the toe of the existing foreslope and then extend up-slope to within about 25 feet from the outside edge of the gravel shoulder. The rebuilt slope shall be covered with an 8-inch thick layer of furnished topsoil. Regrade the roadside ditch to allow for proper drainage. A typical section would be sufficient for plan insertion. Therefore, field survey will not be needed.

It appears that ROW will not be needed to complete this repair.

ESTIMATE:

Description	Unit	Quantity	Unit Price	Price
EXCAVATION, CLASS 10, WASTE	CY	973	\$21.00	\$20,433.00
EMBANKMENT-IN-PLACE, CONTRACTOR FURNISHED	CY	631	\$33.00	\$20,823.00
TOPSOIL, FURNISH AND SPREAD	CY	254	\$44.00	\$11,176.00
GRANULAR MATERIAL FOR BLANKET AND SUBDRAIN	CY	88	\$38.00	\$3,344.00
SUBDRAIN, LONGITUDINAL, (BACKSLOPE), 4 IN DIA	LF	310	\$15.00	\$4,650.00
SUBDRAIN OUTLET (DR-306)	EA	2	\$2,500.00	\$5,000.00
MOBILIZATION, CONTIGENCY & TRAFFIC CONTROL (50%)	L SUM		\$32,713.00	\$32,713.00
			TOTAL =	\$98,139.00

Site #5 - WB US 34, Right (North) Foreslope, Approximate MP 220.6 and Station 193+87.4

Observations/Notes:

The overall area of the foreslope instability has a longitudinal length of about 75 feet (22.9 meters), starting near Station 193+87.4 and extending to about Station 194+10.3. The foreslope was estimated in the field to have a maximum height of about 30 to 35 feet and a 2.5:1 or slightly steeper slope. At its highest point on the foreslope, the scarp was about 15 feet away from the outside edge of the gravel shoulder. An existing 1359 mm (4.43 feet) RCP culvert (RF-1) is located immediately east of the foreslope instability at Station 194+19. This RCP culvert is skewed so that the outlet is located at about Station 194+10. The outlet flange section of the RCP culvert has separated and dropped slight away from the culvert. Scour has occurred at the outlet of RCP culvert. Based on the as-built road plans, a previous 4' x 4' RCB culvert located at Station 194+10.2 was filled and abandoned. Slough material was observed to be present at the toe of slope. Roadside ditch degradation has occurred to the east of the RCP culvert for approximately 30 feet (9.1 meters), stopping near Station 194+19.1. The Right of Way (ROW) is shown on the as-built road plans to be located at an offset of 188 feet from roadway centerline.

Link to pictures: [IMG_0344.JPG](#)

Link to relevant as-built roadway plan sheets: [as-built road plan, US 34, MM 220.6.pdf](#)

Recommendations:

Bench and rebuild the foreslope to pre-existing conditions starting near Station 193+81.3 and then extending east to about Station 194+16.4. It is recommended that the backfill material consist of cohesive furnished embankment and that a subdrain system be installed to more efficiently move water away from the rebuilt foreslope. The repair shall start at the toe of the existing foreslope and then extend up-slope to within about 10 feet from the outside edge of the gravel shoulder. The rebuilt slope shall be covered with an 8-inch thick layer of furnished topsoil. Fill the scour hole located at the outlet end of the culvert with Class E Revetment underlain with Engineering Fabric. Some relatively small amount of Clearing and Grubbing will be necessary in the area around the culvert outlet. Regrade/backfill the roadside ditch within the limits of degradation with suitable cohesive furnished embankment. After regrading/backfilling the roadside ditch, install a rock-lined ditch within the limits of previous degradation. Construct the rock-lined ditch with Class E Revetment underlain with Engineering Fabric. The existing 1350 mm RCP culvert barrel appears to be in good shape under the roadway. The flared end section has separated and

erosion has occurred around the outlet. The end section needs reset and regraded to match the original conditions.



Recommend obtaining field survey for the preparation of plans.

It appears that temporary ROW maybe be needed to complete this repair.

The following quantities are associated with the foreslope repair. This estimate does not include costs associated with temporary ROW.

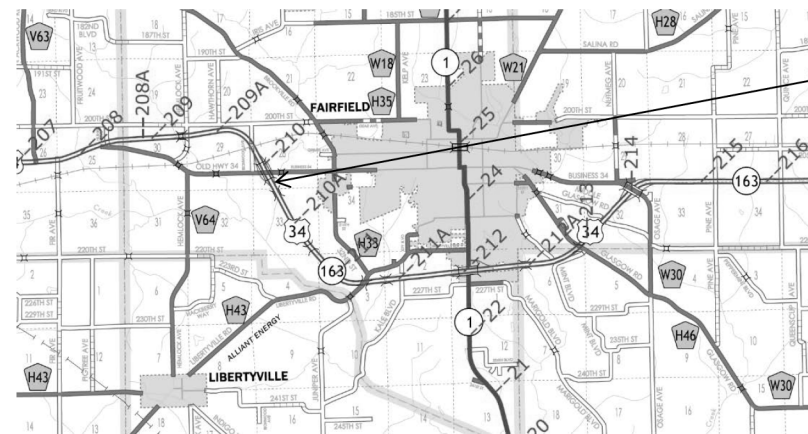
ESTIMATE:

Description	Unit	Quantity	Unit Price	Price
EXCAVATION, CLASS 10, WASTE	CY	1079	\$15.00	\$16,185.00
EMBANKMENT-IN-PLACE, CONTRACTOR FURNISHED	CY	733	\$20.00	\$14,660.00
EMBANKMENT-IN-PLACE	CY	68	\$39.00	\$2,652.00
TOPSOIL, FURNISH AND SPREAD	CY	264	\$38.00	\$10,032.00
GRANULAR MATERIAL FOR BLANKET AND SUBDRAIN	CY	82	\$38.00	\$3,116.00
SUBDRAIN, STANDARD, PERFORATED, 4 INCH	LF	290	\$15.00	\$4,350.00
SUBDRAIN OUTLET (DR-306)	EA	2	\$2,500.00	\$5,000.00
REVTMENT, CLASS E	TON	96	\$56.00	\$5,376.00
ENGINEERING FABRIC	SY	80	\$5.00	\$400.00
REMOVE AND REINSTALL CONCRETE PIPE APRONS GREATER THAN 36 IN.	EA	1	\$14,000.00	\$14,000.00
MOBILIZATION, CONTIGENCY & TRAFFIC CONTROL (50%)	L SUM		\$30,885.50	\$30,885.50
			TOTAL =	\$106,656.50

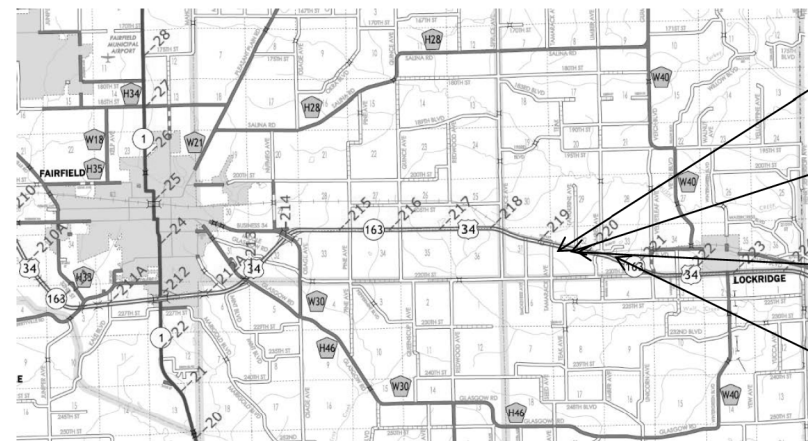
FUNDS PROGRAMMED:

It has been identified by the District 5 office for construction in FY 2023. A schedule of events for plan development will be determined following approval of the Project Concept.

LOCATION MAP:



US 34 - MM 210.0
 (East) - #1



US 34 - MM
 219.33 (South) -
 #2

US 34 - MM
 219.51 (South) -
 #3

US 34 - MM
 219.54 (South) -
 #4

US 34 - MM 220.6
 (North) - #5

cc:

- | | | |
|-------------------|----------------|------------------|
| C. Purcell | M. J. Kennerly | K. D. Nicholson |
| S. J. Megivern | J. S. Nelson | B. Walls |
| M. Nop | M. A. Swenson | R. A. Younie |
| S. Majors | K. Brink | D. L. Newell |
| J. W. Laaser-Webb | W. A. Sorenson | D. E. Sprengeler |
| E. C. Wright | M. E. Ross | A. A. Welch |
| N. M. Miller | C. C. Poole | B. Hofer |
| B. E. Azeltine | T. D. Crouch | S. J. Gent |
| S. Anderson | D. Stokes | J. Selmer |
| K. K. Patel | S. Godbold | J. Vortherms |
| M. Van Dyke | J. R. Webb | B. Beavers |
| B. Lauderman | J. R. Phillips | J. Garton |
| J. Woodcock | B. M. Clancy | D. Upton |
| H. Torres-Cacho | D. Mulholland | FHWA |

SURVEY SYMBOLS

- BL, Topo Breakline
- BL, Topo Breakline
- CON, Concrete or A/C Slab
- CON, Concrete or A/C Slab
- CP, Control Point
- D, Centerline Draw or Stream -Down
- D, Centerline Draw or Stream -Down
- DU, Centerline Draw or Stream -Up
- DU, Centerline Draw or Stream -Up
- Existing Contours
- FENO, FENO Monument
- GR, Ground Shot
- OUT, Tile Outlet
- PIP, Pipe Culvert
- PIP, Pipe Culvert
- PLG, Location of General Photo
- REF, Reference Tie Point
- SNP, Unpaved Shoulder
- SNP, Unpaved Shoulder
- SOP, Size of Pipe or Culvert
- TIL, Tile Line
- TIL, Tile Line
- TILE

UTILITY LEGEND

- Utility Owners Reported
"Clear" or located outside
of project boundary

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

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

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

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

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

RIGHT-OF-WAY LEGEND

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

**PLAN AND PROFILE
LEGEND AND SYMBOL
INFORMATION SHEET**

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

Center TWP.
T-72N R-10W
SEC. 28

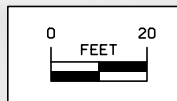
Sect. No. 33

Sta. 228+15.65 (Survey)
Skew 21° LT AH
54"x432' RCP
D.A.=11.5 Ac-H (Plan)
U.A.C.

Location 1

US 34

US 34



For Information Only

US 34

Lockridge TWP.
T-72N R-8W
SEC. 32



126+00

127+00

128+00

129+00

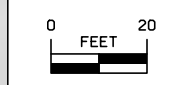
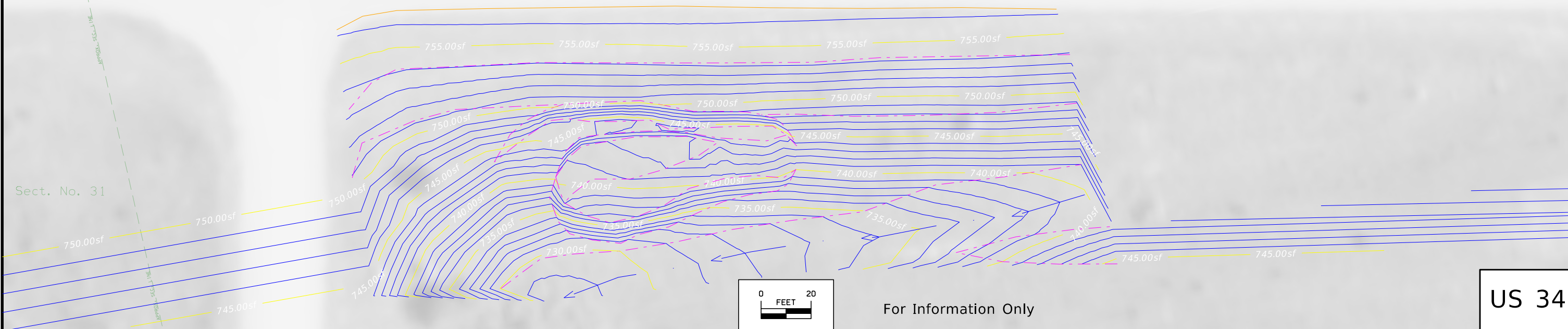
130+00

131+00

US 34

US 34

Location 2



For Information Only

US 34

Lockridge TWP.
T-72N R-8W
SEC. 32



Location 3

137+00

138+00

139+00

140+00

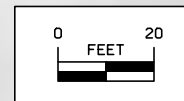
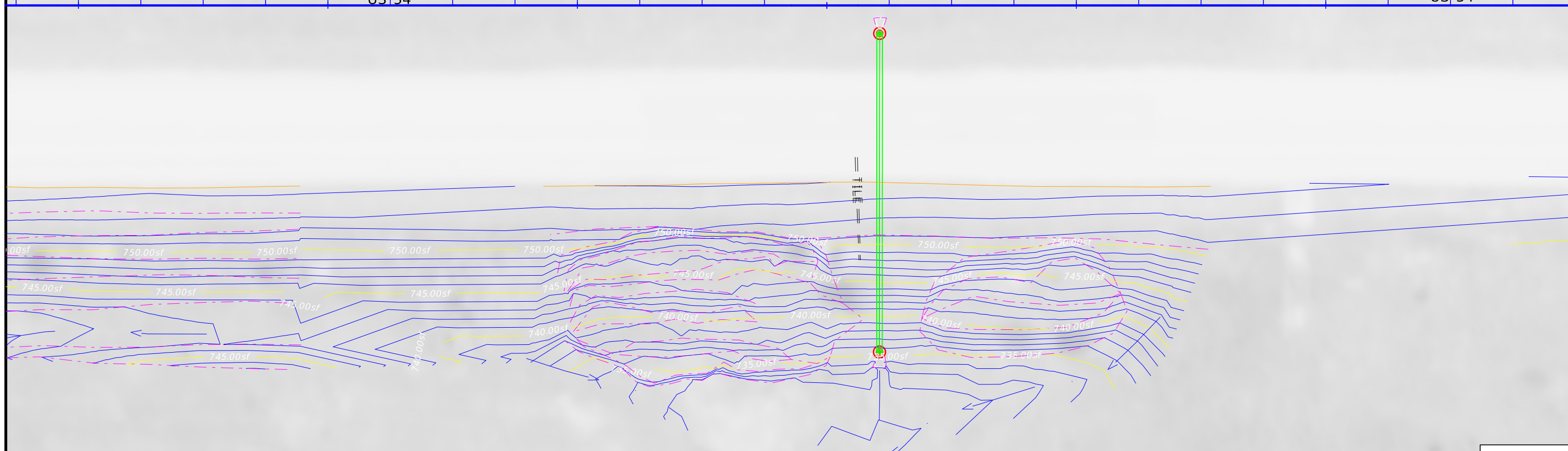
141+00

142+00

US 34

US 34

24"x128.5'
Conc. Pipe
U.A.C.



For Information Only

US 34

Lockridge TWP.
T-72N R-8W
SEC. 32



Location 4

138+00

139+00

140+00

141+00

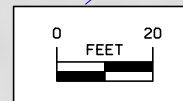
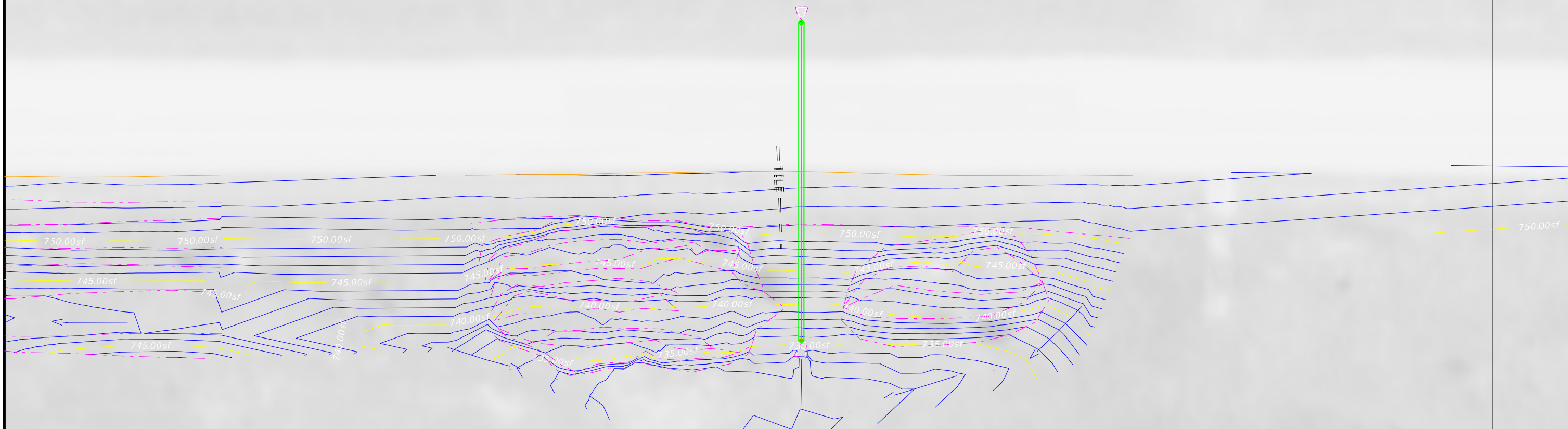
142+00

143+00

US 34

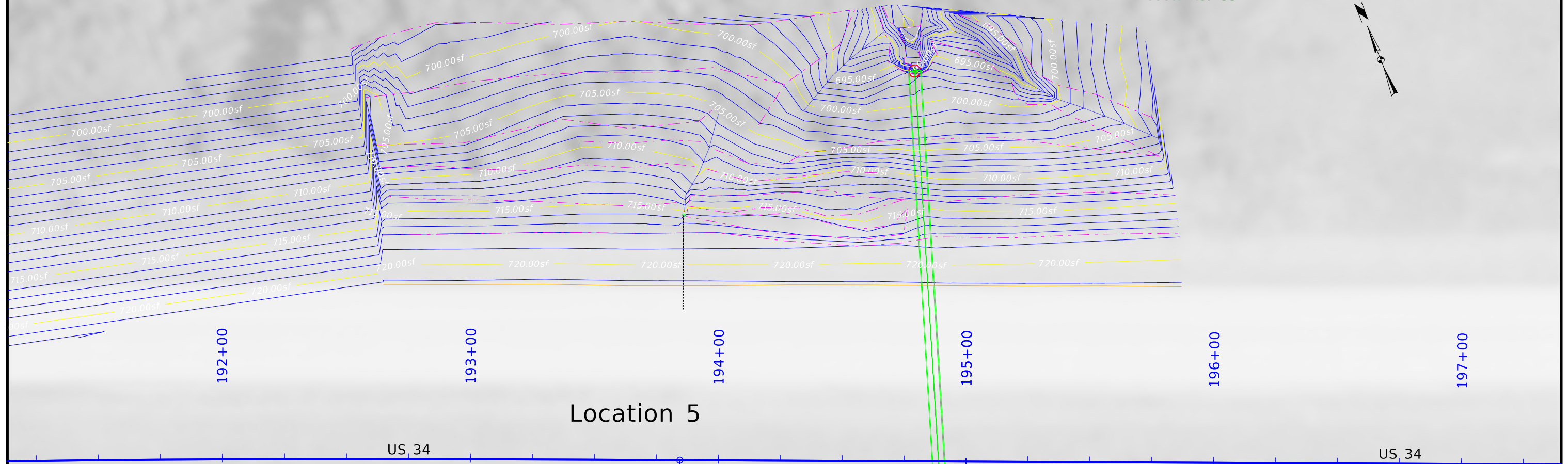
US 34

24"x128.5'
Conc. Pipe
U.A.C.



For Information Only

US 34

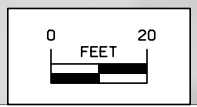


Location 5

PI = 191+83.30
 Ls = 301.84
 Ys = 5.14
 Xs = 301.78
 LT = 201.23
 ST = 100.62

ST 193+84.52

Sta. 414+91.93 (Survey)
 Skew 9° RT AH
 54"x289' RCP
 D.A.=19.15 Ac-R (Plan)
 U.A.C.



For Information Only

US 34

Survey Information

SURVEY INDEX

County: Jefferson
PIN: 21-51-034-010

Project Number: NHSN-034-8(159)--2R-51

Location: 0.3 mi E of Bus 34 Interchange to 0.4 mi E of Umber Ave (5 Locations)

Type of Work: Slide Repair
Project Directory: 5103401021

Survey Personnel

Nels Sutherland – Survey Party Chief
Myron Fox – Assistant Survey Party Chief

Date(s) of Survey

Begin Date 07/14/2021
End Date 08/03/2021

General Information

Measurement units for this survey are US survey feet. This survey is for US Hwy 34 Slide Repair at locations 0.3 mi E of Bus US Hwy 34 Interchange to 0.4 mi E of Umber Ave (5 Locations).

Project Control

Primary geodetic style three-dimensional project control monuments are found or placed at approximate ½ to 1 mile intervals throughout this project. Datum was accessed via GNSS static survey observations using Iowa Real Time Network reference stations in the area. Other legacy datum monuments in the area were surveyed comparing legacy coordinates to validate the results of the local project network adjustment. Comparisons validate results. For additional details of the control survey see the control survey report in the CONTROL file folder of the PrelimSurvey project directory.

PROJECT DATUM: NAD83(2011) EPOCH 2010.00

VERTICAL DATUM: NAVD88

COORDINATE SYSTEM: IOWA REGIONAL COORDINATE SYSTEM ZONE 13

Alignments Information

Alignment for the four slides East of Fairfield created by District 5 (Fairfield) office. Alignment for the slide West of Fairfield was a retrace of metric As-built Plan NHSX-34-8(93)--3H-51 converted to standard measurement.

Survey stationing relates to As-built plan stationing as follows:

POT Sta. 65+32.657m = 214+33.26ft Plan
= Survey POT Sta. 214+33.26ft

PC Sta. 76+23.945 = 250+12.94ft Plan
= Survey PC Sta. 250+12.77ft

Utility Information

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

CONTROL POINT VICINITY MAP

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



HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

1a. Regional Coordinate System Zone 13

Coordinate listing from next sheet will be used with 1aRTN for monument
recovery. No other reference ties are given.

HORIZONTAL AND VERTICAL PROJECT CONTROL COORDINATE LISTING

HORIZ. DATUM: NAD83(2011) EPOCH 2010.00

VERT. DATUM: NAVD88

Ia. Regional Coordinate System Zone 13

Project Control Marks are Bench Marks

Point Name	North	East	Height	Code Description
CP1	6675512.092	23472057.764	685.556	FENO1 IDOT Brass disk from the intersection of Hwy34 and Hwy34 Business proceed East 1066ft along Hwy34 business point is 30ft South of center of road 4in below surface
517	6687482.062	23474004.082	772.028	CP Jefferson Co Mon from the intersection of 185th St and Meadow CIR proceed East 36ft along 185th St and South 27ft from center of road 2.5in disc in PVC W/access cover
522	6669247.429	23538845.569	727.811	CP Jefferson Co Mon from the intersection of Hwy34 and Velvet Ave proceed West along Hwy34 64ft and North 170ft from the North edge of pavement of the WBL 2.5in disc in PVC W/access cover
523	6670671.404	23523070.398	772.468	CP Jefferson Co Mon from the intersection of Hwy34 and Spruce Ave proceed South along Sruce Ave 3175ft point will be 32ft West of centerline of Spruce Ave 2.5in disc in PVC W/access cover
527	6668955.293	23460643.345	725.351	CP Jefferson Co Mon from the intersection of V64 and 220th St proceed West along 220th St 3945ft point will be 27ft South of centerline of 220th St 2.5in disc in PVC W/access cover
510342111	6675383.546	23470544.903	740.203	FENO2 IDOT Brass disk from the intersection of Hwy34 and Hwy34 Business proceed West 508ft point will be 394ft South of Hwy34 business and 111ft West of the SB exit ramp of Hwy34 4in below surface
510342228	6671264.415	23533056.626	739.628	FENO3 IDOT Brass disk from the intersection of Hwy34 and Umber Ave proceed North 123ft point will be West 37ft from the center of gravel road 4in below surface
510342235	6669696.532	23536580.638	726.041	FENO4 IDOT Brass disk from the intersection of Hwy34 and Velvetleaf Ave proceed West 2629ft along Hwy34 point will be SW 150ft from center of EBL Hwy34 and 2.5ft N of fence corner post 4in below surface
NGS_T124	6672205.115	23529102.810	757.557	CP NGS_FBN from the intersection of Hwy34 and Tamarack Ave proceed East 688ft the point is North 102ft the WB edge of pavement of Hwy34 a standard CGS Benchmark disk flush with the ground

NOTE:

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

ALIGNMENT COORDINATES

Name	Location	Point on Tangent			Begin Spiral			Begin Curve			Simple Curve PI or Master PI of SCS			End Curve			End Spiral		
		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates		Station	Coordinates	
			Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)		Y (Northing)	X (Easting)
1	ML034_LOC1	214+33.26 R1	6675535.90	23471050.18															
1	ML034	96+46.90	6672885.57	23525426.18															
2	ML034				181+30.24	6670985.80	23533694.07												
3	ML034							184+32.08	6670915.71	23533987.64	183+31.47	6670940.74	23533890.19						
4	ML034				190+82.68	6670719.51	23534607.61				187+57.71	6670834.70	23534303.04	190+82.68	6670719.51	23534607.61	184+32.08	6670915.71	23533987.64
											191+83.30	6670683.91	23534701.73				193+84.52	6670607.94	23534888.07

SPIRAL OR CIRCULAR CURVE DATA

Name	Location	ΔSCS	Horizontal Alignment Data													Remarks
			Spiral Data							Curve Data						
			θS	Ls	Ts	Es	Xc	Yc	L.T.	S.T.	ΔC	T	L	R	E	
C1	ML034	09°14'26.39"	01°27'51.21"	301.84	628.22	19.90	301.82	2.57	201.23	100.62	06°18'43.97"	325.63	650.60	5905.51	8.97	

108-23A
08-01-08

TRAFFIC CONTROL PLAN

Traffic on US 34 shall be maintained at all times.

Lane Closures on US 34:

- Lane closures shall be limited to delivery and removal of equipment and materials.

108-25
10-21-14

511 TRAVEL RESTRICTIONS

Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
US 34			No Travel Restrictions Expected									