

POLK COUNTY

BRIDGE REPLACEMENT
BRF-069-4(128)--38-77

LETTING DATE
October 21, 2025



PLANS OF PROPOSED IMPROVEMENT ON THE
PRIMARY ROAD SYSTEM
POLK COUNTY
BRIDGE REPLACEMENT
US 69 bridge
over Des Moines River
1.4 mi S of I-235 in Des Moines
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
		--
PROJECT IDENTIFICATION NUMBER		
20-77-069-030		
PROJECT NUMBER		
BRF-069-4(128)--38-77		
R.O.W. PROJECT NUMBER		
56478		

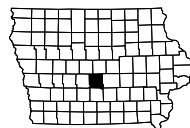
INDEX OF SHEETS	
No.	DESCRIPTION
A Sheets	Title Sheets
A.1	Title Sheet
A.2	Location Map Sheet
A.3	Field Review Notes
A.4 - A.13	D0 Project Concept Statement
B Sheets	Typical Cross Sections and Details
B.1	Typical Cross Sections and Details
D Sheets	Mainline Plan and Profile Sheets
D.1	Plan & Profile Legend & Symbol Information Sheet
D.2 - D.3	US 69 (SE 14th Street)
J Sheets	Traffic Control and Staging Sheets
J.1	Traffic Control & Staging Sheets
J.2	Detour Route Map

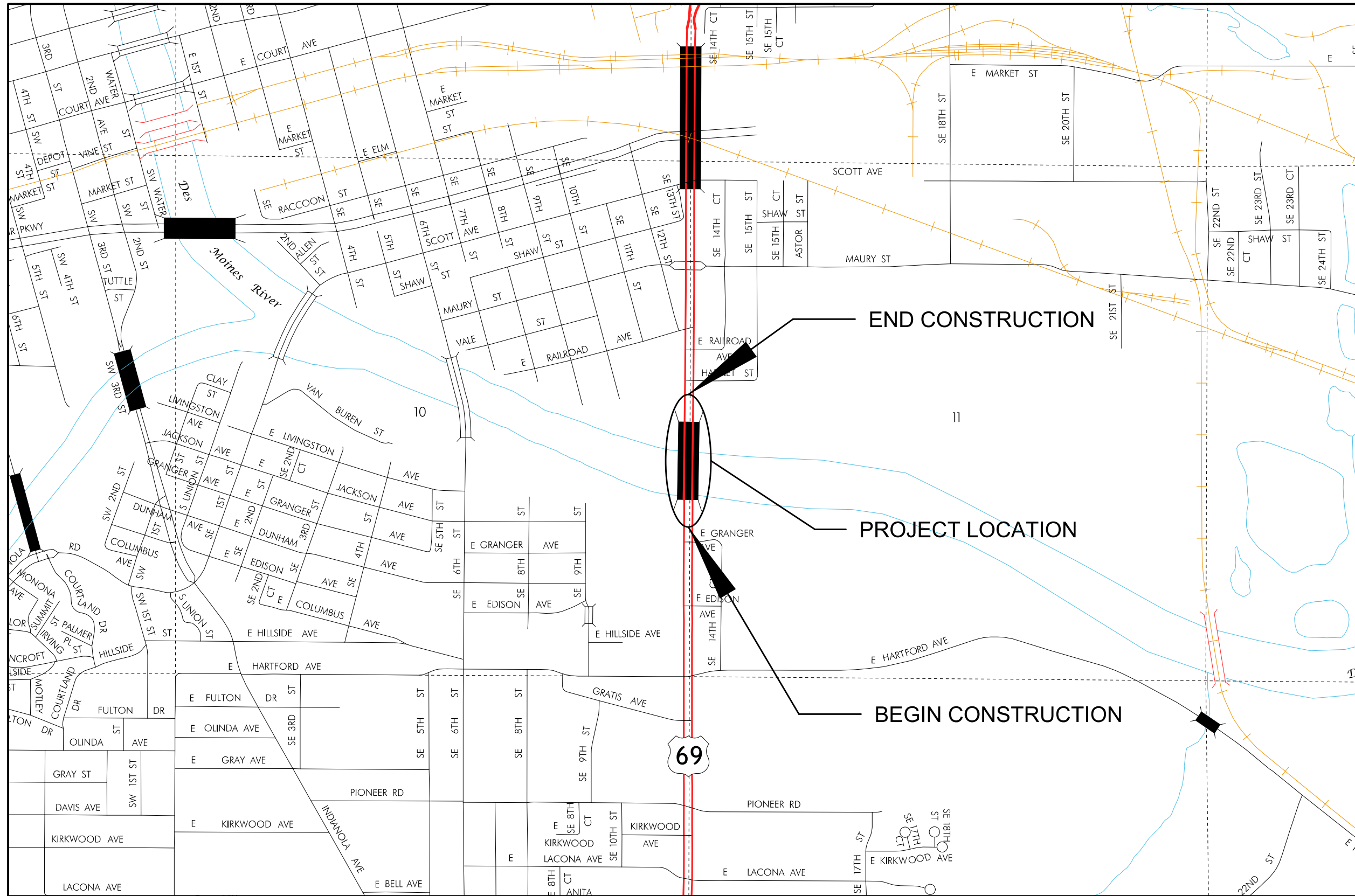
INDEX OF SEALS			
SHEET NO.	NAME	TYPE	BID QUANTITY SHEETS
A.1	X	Primary Signature Block	X
X	X	X	X

PRELIMINARY PLANS

Subject to change by final design.

D2 PLAN - Date: JULY 12, 2023



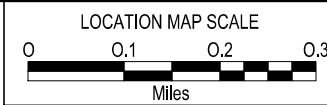


END CONSTRUCTION

PROJECT LOCATION

BEGIN CONSTRUCTION

69



FIELD REVIEW NOTES

FIELD REVIEW NOTES

IOWA DEPARTMENT OF TRANSPORTATION

JEB: mhm
Attach.
cc:

TO OFFICE: District 1
DATE: May 24, 2022
ATTENTION: Tony Gustafson
PROJECT: Polk County
BRF-069-4(128)--38-77
FROM: John E. Bartholomew
PIN: 20-77-069-030
BUREAU: Design
SUBJECT: Project Concept Statement; (Final Approval, D0)

- | | | |
|----------------|----------------|-------------------|
| C. Purcell | M. J. Kennerly | K. D. Nicholson |
| S. J. Megivern | J. S. Nelson | M. Nop |
| M. A. Swenson | R. A. Younie | D. E. Sprengeler |
| S. Majors | A. Poole | K. Brink |
| D. L. Newell | B. Bradley | J. W. Laaser-Webb |
| W. A. Sorenson | E. C. Wright | M. E. Ross |
| A. A. Welch | J. Harris | C. C. Poole |
| B. Hofer | G. Karssen | B. E. Azeltine |
| S. J. Gent | S. Anderson | D. Stokes |
| T. Jerman | K. K. Patel | S. Godbold |
| J. Vortherms | E. Geraldts | J. Hauber |
| A. Abu-Hawash | M. E. Khoda | K. Olson |
| S. Neubauer | J. Ellis | S. Seivert |
| S. Sersland | V. Brewer | A. Loonan |
| M. Donovan | J. Garton | A. Smyth |
| A. Loonan | R. Ellis | S. Nixon |
| A. Smyth | B. Hucker | S. Passick |
| M. Solberg | | |

This project involves the replacement of the US 69 bridge (Maint No. 7784.2S069) over Des Moines River 1.4 mi S of I-235 in Des Moines.

A concept review was held on February 17, 2022. Those present included Tony Gustafson, Allison Smyth, and Scott Nixon from the District 1 Office; David Claman from the Bridges and Structures Bureau; Marc Solberg from the Location and Environment Bureau; and John Bartholomew, Kevin Patel, and Max Mull from the Design Bureau.

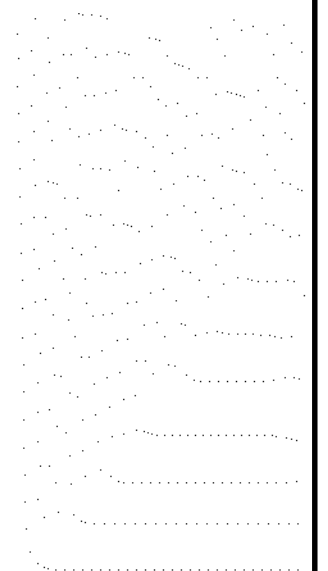
A single alternative was considered due to the complexity and high traffic volume:

1. Replace the existing bridge with 775 ft x 56 ft Continuous Welded Girder Bridge, with a 10 ft trail on west side & 5 ft sidewalk on east side. Traffic will be maintained with staged construction, while some through traffic will be alleviated with an off-site detour. The cost of this alternative is \$17,584,200.

Alternative 1 is the preferred alternative due to its lower impact on local traffic for the high traffic volume area. (see attached concept for details). Additional right of way/right of entry may be required. Traffic will be maintained by staged construction and an off-site detour.

The Draft Project Concept Statement was sent out for review and comment with concerns to be resolved by Thursday, May 19, 2022. Comments received during the review period have been considered and resolved.

This project is recommended for construction in FY 2026. The Design Bureau will coordinate plan preparation with assistance from the Bridges and Structures Bureau.



FINAL PROJECT CONCEPT STATEMENT

US 69 Bridge over Des Moines River 1.4 mi S of I-235 in Des Moines.

Polk County
BRF-069-4(128)--38-77
PIN: 20-77-069-030
Maint. No. 7784.2S069
FHWA No. 40500

Highway Division
Design Bureau

John Bartholomew, P.E.
515-239-1540

May 24, 2022

Polk County
BRF-069-4(128)--38-77
PIN: 20-77-069-030
Page 2



Facing North



Facing South

I. STUDY AREA

A. Project Description

This project involves the replacement of the US 69 bridge (Maint. No 7784.2S069) over Des Moines River, 1.4 mi S of I-235 in Des Moines.

A single alternative was considered due to the complexity and high traffic volume:

1. Replace the existing bridge with 775 ft x 56 ft Continuous Welded Girder Bridge, with a 10 ft trail on the west side & 5 ft sidewalk on the east side. Traffic will be maintained with staged construction, while some through traffic will be alleviated with an off-site detour. The cost of this alternative is \$17,584,200.

Alternative 1 is the preferred alternative due to its lower impact on local traffic for the high traffic volume area.

B. Need for Project

This is a 750 ft x 56 ft steel girder bridge that was built in 1936. The overlay has reached the end of its service life. The deck has several leaching cracks and large hollows. The superstructure has rust and minor section loss. The substructure has spalls with exposed reinforcement, leaching cracks, and deterioration around the bearings. Due to the condition of the bridge, a replacement is recommended.

C. Present Facility

The existing structure is a 750 ft x 56 ft haunched steel plate girder bridge constructed in 1936, reconstructed in 1973, and overlaid in 1998.

US 69 in the project area is 56 ft wide PCC pavement with a 4 ft raised curbed median, constructed in 1937. HMA resurfacing was accomplished in 1991 and 2007.

D. Traffic Estimates

The 2025 construction year and 2045 design year average daily traffic estimates are 31,700 ADT with 3 % trucks and 32,800 ADT with 3 % trucks, respectively.

E. Sufficiency Ratings

US 69 is classified as a Commercial and Industrial route and is a maintenance service level B roadway. The federal bridge sufficiency rating is 61.7.

F. Access Control

Access rights will not be acquired for this project.

G. Crash History

During the five-year study period from January 1, 2016, through December 31, 2020, there were 29 crashes including, 11 personal injury crashes, and 18 personal property crashes.

II. PROJECT CONCEPT

A. Feasible Alternatives

Alternative #1 - Replace with a bridge using staged construction & off-site detour

The existing 750 ft x 56 ft with two 4 ft sidewalks, haunched steel plate girder bridge will be replaced with a 4 span, 775 ft x 56 ft continuous welded girder bridge with a 10 ft trail & 5 ft sidewalk. The 10 ft trail will be located on the west side of the bridge.

The typical cross-section of the bridge approach section will consist of a 56 ft wide roadway with a 4 ft raised curbed median.

The existing grade will need to be raised a minimum of 1 ft which will be incorporated into the bridge and bridge approaches and will not require new construction beyond the bridge approach sections. New bridge approaches will be constructed. The existing guardrail will be replaced with new guardrail. Class 10 will be necessary to flatten the existing foreslopes and to construct the new guardrail blisters. Class E revetment will be placed under the bridge for slope protection. New bridge end drains will be constructed on both ends of the bridge.

Apply erosion control and urban seeding and fertilizing to all disturbed areas.

Right of way may be required for this project.

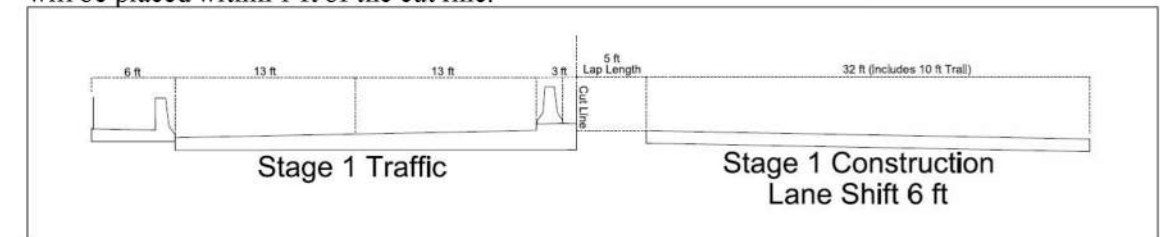
A bridge inspection has shown that the transit conduit pipe suspended across the top face on each side of each of all five piers, roughly 500 linear ft and contains 15% chrysotile asbestos. These will need to be properly removed and disposed of.

The sidewalks across the bridge and the section of the Des Moines River trail which travels under the bridge will need to be closed during construction.

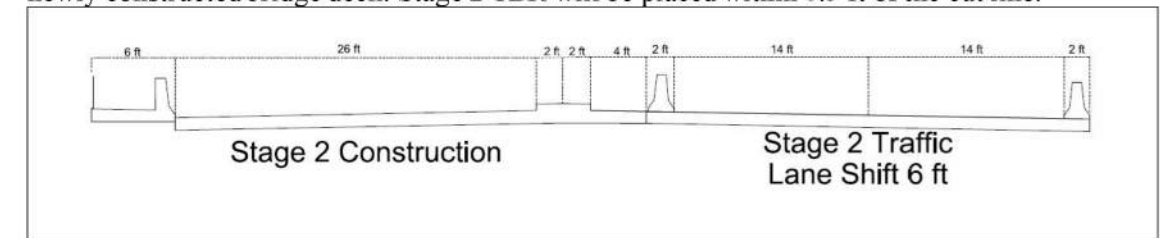
One lane of traffic in each direction will be maintained via staged construction.

Bridge construction will consist of two stages:

Stage 1 will consist of 32 ft construction on the west side of the bridge while 35 ft of the existing east side of the bridge will remain to support two 13 ft travel lanes. A 5 ft lap will exist between the cut line at the existing bridge and the new bridge construction. Temporary barrier railing will be placed during each stage. Stage 1 TBR will be placed within 1 ft of the cut line.



Stage 2 will consist of 40 ft construction on the east side of the bridge with the new western 32 ft of bridge to be used for traffic. To allow for two 14 ft travel lanes, 6 ft of temporary pavement will be needed for Stage 2 as traffic will need to be shifted on the newly constructed bridge deck. Stage 2 TBR will be placed within 0.5 ft of the cut line.



A section of the raised median on both sides of the bridge will need to be removed to allow traffic to be transitioned for over for staging. The raised median will be replaced once construction is completed. Some through traffic will be alleviated with an off-site detour.

Bridge Items	Estimated Costs
New Bridge	\$ 10,800,000
Staged Construction	1,080,000
Bridge Removal	513,400
Upgraded Pedestrian/bicycle railing	257,600
Revetment	108,000
Mobilization - 10%	1,275,900
M & C - 20%	<u>2,810,900</u>
Bridge Costs	\$ 16,863,800

Roadway Items

Bridge Approaches	\$197,400
Removal of Pavement	16,200
Temporary Pavement	11,600
Curb & Gutter	12,900
PCC Raised Median	10,200
Embankment in place, contractor furnished	2,000
Excavation Class 13 Waste	6,400
Guardrail (Includes Removal)	12,100
Class 10 for Guardrail Blisters	20,800
Asbestos Removal	25,000
Right of Way Clean Up	5,000
Seeding and Fertilizing	2,500
Right of Way	10,000
Erosion Control	50,000
Wetland Mitigation	50,000
Traffic Control - 5%	36,000
Mobilization - 5%	36,000
M & C - 30%	<u>216,300</u>
Roadway costs	\$ 720,400

Project Total \$17,584,200

B. Detour Analysis

Traffic will be maintained via staged construction with traffic reduced to two lanes of head-to-head traffic. An off-site detour will be utilized to reduce traffic congestion. It is anticipated the detour will be in place for approximately 2 years. The detour would follow IA 5 east at the junction of US 69 and IA 5 to US 65, then north on US 65 to IA 163 then west to the junction of US 69. Out of distance travel is 7.2 miles. The total distance user cost is anticipated to be \$16,544,000. Detour signing costs will be \$10,000.

Pedestrian traffic will also have to be detoured during construction. The detour will follow the Des Moines River trail west of the bridge to the SE 6th St. bridge, then north across the SE 6th St. bridge to Maury St, then east on Maury St. to US 69.

C. Recommendations

It is recommended that the present structure be replaced, as described in Alternative No. 1.

D. Construction Sequence

It is anticipated that all work on this project will be awarded to one prime contractor. The Bridges and Structures Bureau will coordinate the plan preparation with assistance from the Design Bureau.

E. ADA Accommodations

There are sidewalks adjacent to US 69; therefore, ADA accommodations are planned in conjunction with this project.

F. Special Considerations

This will not be a traffic critical project.

NEPA has completed a desktop review of this project and identified resources that are recommended to be avoided or at least minimized the impacts on. These include the Des Moines River Paddling Route, Des Moines River Trail, John Pat Dorrian Trail, Des Moines River Open Space, Turner Greenway, and Pete Crivaro Park. In addition, possible right of way clean-up may be required under and around the bridge. Sites located within the right of way may contain a variety of materials including, but not limited to, biohazards and non-hazardous garbage, general debris, waste material, temporary shelters, and other occupancy items.

The ABC Rating Score was not calculated. ABC techniques were investigated for this bridge, but due to the low clearance from the stream bottom to the existing bridge beam, it was determined that foundation work would not be possible while the existing bridge was in place. Additionally, an ABC slide would create Section 408 issues due to the construction of the temporary supports and superstructure within the levee area. Therefore, no further investigation of ABC techniques was performed at the concept stage.

A 10 ft recreational trail will be constructed on the west side and a 5 ft sidewalk for the east side will be required as part of this project.

Right of Way may be required for this project.

The Location and Environment Bureau has not reviewed this project at this time. Once their review is completed, comments will be incorporated into the D2 preliminary plans.

G. Program Status

Site data has been developed by the Design Bureau. This project is listed in the 2022-2026 Iowa Transportation Improvement Program, with \$21,000 programmed for the right of way in FY 2026, and \$22,797,000 for replacement in FY 2026. Costs for this project may be eligible for bridge replacement funds. A schedule of events will be developed following approval of the Project Concept.

JEB: mhm

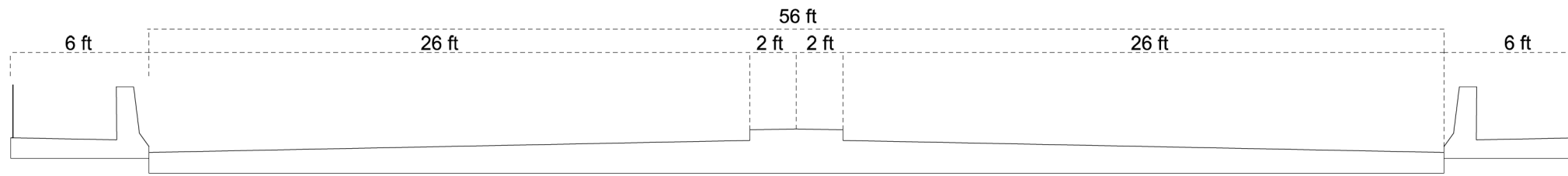


PROPOSED
775 FT X 56 FT
WITH 10 FT TRAIL & 5 FT SIDEWALK
CONTINUOUS WELDED
GIRDER BRIDGE

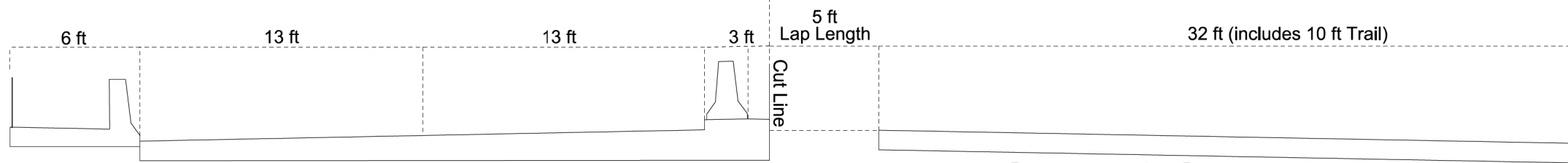
	NEW BRIDGE APPROACH
	TEMPORARY PAVEMENT
	RAISED MEDIAN

EXISTING
750 FT X 56 FT
WITH 4 FT SIDEWALKS
HAUNCHED STEEL PLATE
GIRDER BRIDGE



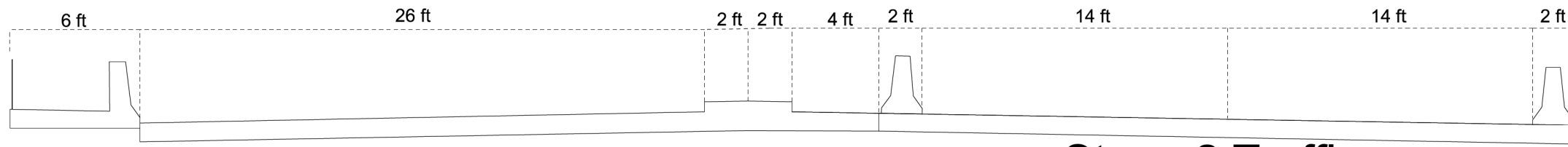


Existing Bridge
Looking South



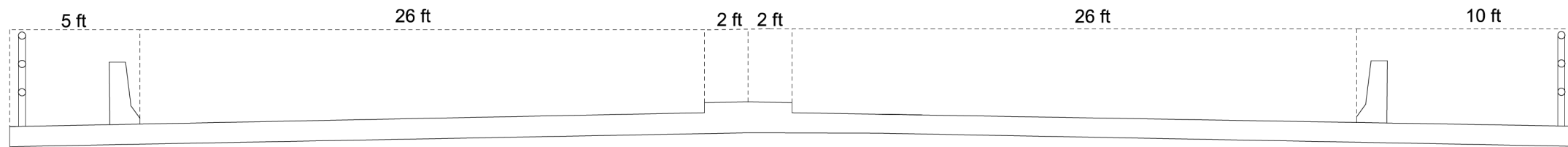
Stage 1 Traffic

Stage 1 Construction
Lane Shift 6 ft



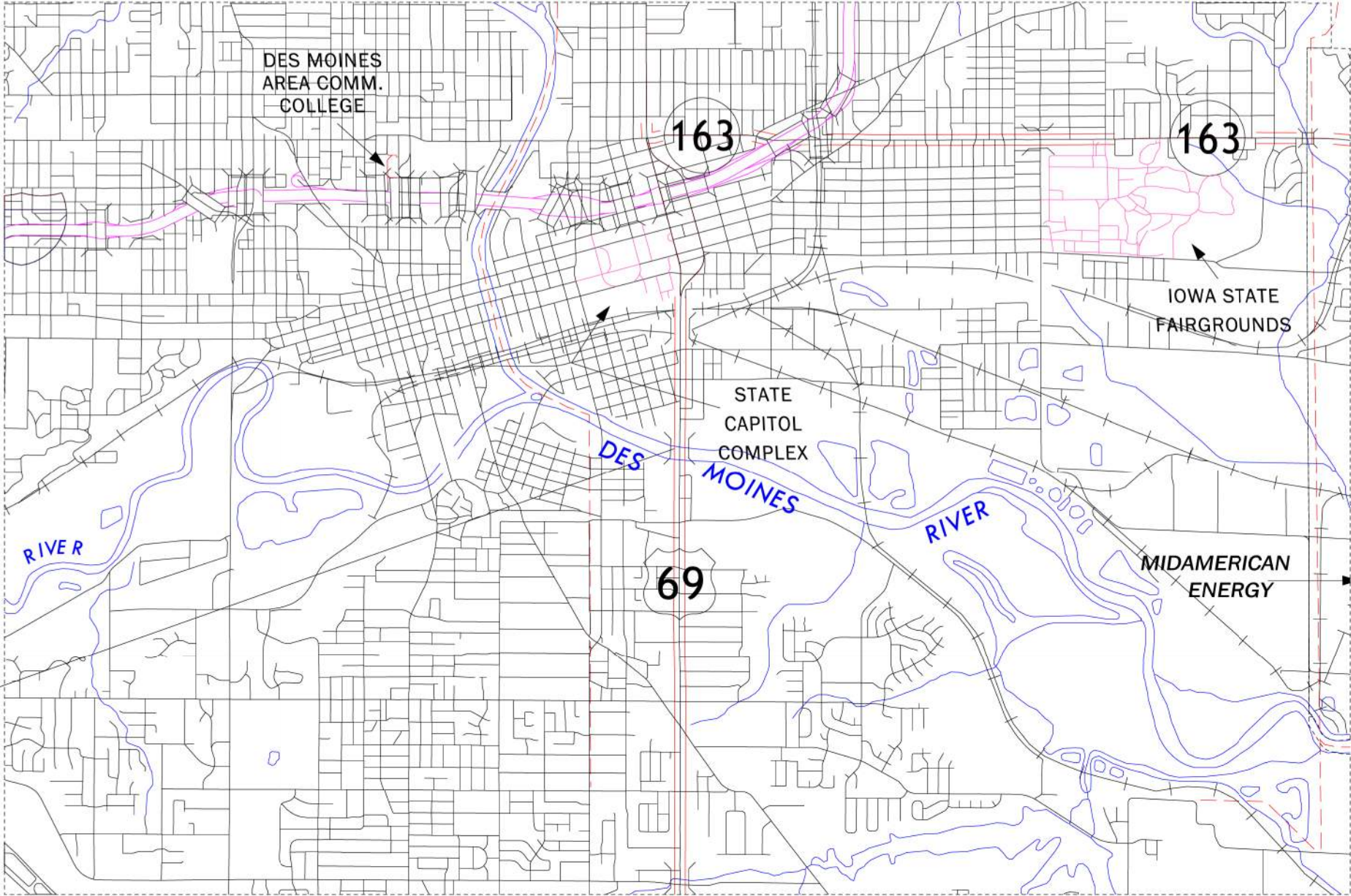
Stage 2 Construction

Stage 2 Traffic
Lane Shift 6 ft

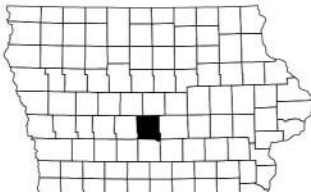


New Bridge
Looking South

POLK COUNTY



STA 81+75
FHWA 40500
MAINT. 7784.2S069
DESIGN 170



U.S. 69, Des Moines River
1.4 mi S of I-235 in Des Moines
BRF-069-4(128)-38-77
PIN: 20-77-069-030

77

Polk County
US 69, Des Moines River
1.4 mi. S of I-235 in Des Moines
BRF-069-4(128)--38-77
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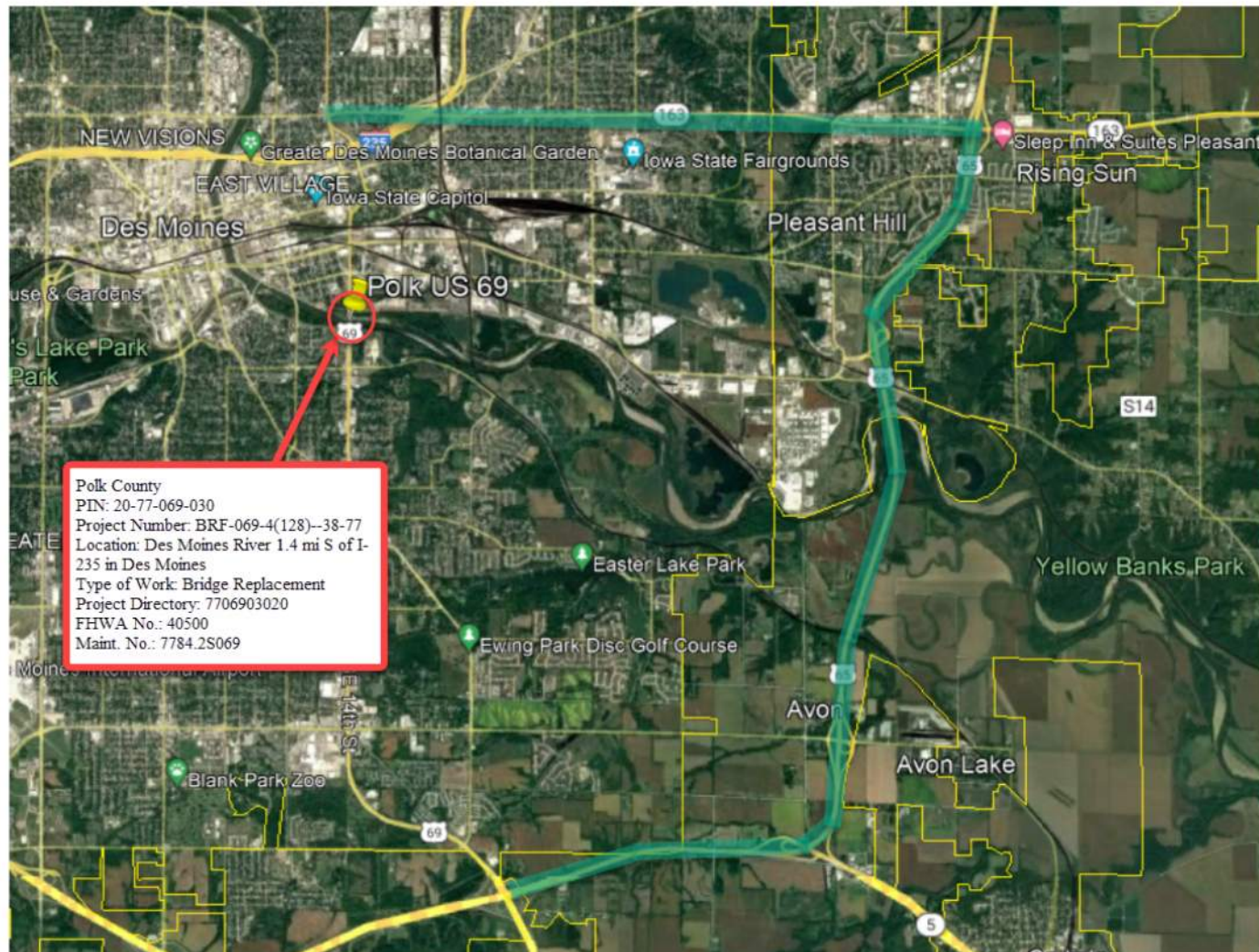


STA 81+75
FHWA 40500
Maint. No.: 77084.2S069
Design 170

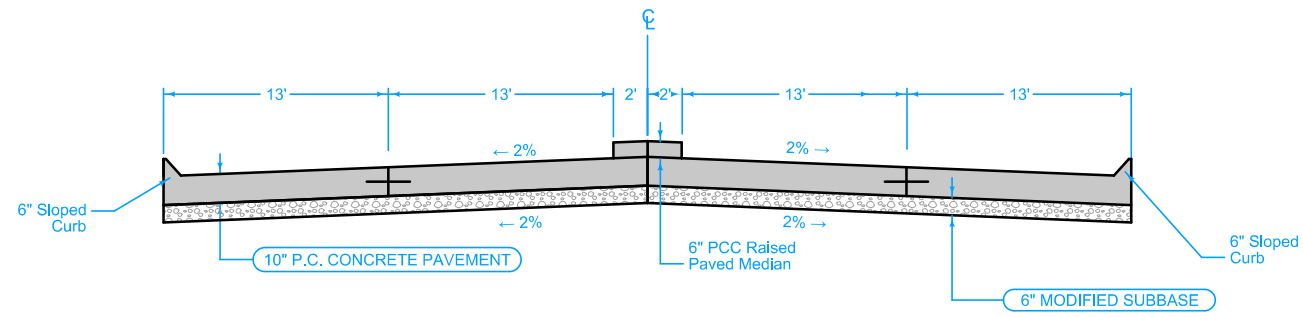
U.S. 69 Polk County

Bridges and Structures Bureau Concept Attachment:

- 1. Flood Plain permit = Yes.
- 2. Sovereign Lands permit = Yes
- 3. Record of Coordination = No
- 4. Drainage District = NO
- 5. Flood Insurance Study = Yes; (Dated 2/1/2019)
- 6. Special survey = No.
- 7. Design discharges determined = Yes (FIS)
- 8. Hydraulic analysis done = Not for Proposed Bridge
- 9. Riverine Infrastructure database = Yes
- 10. Roadway Profile Grade Raise = Yes
- 11. Special environmental criteria = No
- 12. Special construction issues = Staged
- 13. Aesthetic enhancements = Unknown
- 14. Other - Corps Section 408 Permit Required



TYPICAL SECTION - US 69 (SE 14TH STREET)



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

BEGIN STATION	END STATION

US 69 (SE 14TH STREET)

SURVEY SYMBOLS

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

UTILITY LEGEND

PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

LINEWORK		Design Color No.	
Green	(2)		Existing Topographic Features and Labels
Blue	(1)		Proposed Alignment, Stationing, Tic Marks, and Alignment Annotation
Magenta	(5)		Existing Utilities
SHADING		Design Color No.	
Lavender	(9)		Temporary Pavement Shading
Yellow	(4)		Proposed Pavement Shading
Orange	(6)		Proposed Granular Shading
Orange	(70)		Proposed Shoulder Granular Shading
Yellow	(68)		Proposed Shoulder Paved Full Depth Shading
Yellow	(132)		Proposed Shoulder Paved Partial Depth Shading
Gray, Dark	(112)		Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)		Grading Shading
Orange, Light	(134)		Proposed Granular Entrance Shading
Yellow	(220)		Proposed Paved Entrance Shading
Tan	(8)		Proposed Sidewalk Shading
Blue, Light	(230)		Proposed Sidewalk Landing Shading
Pink	(11)		Proposed Sidewalk Ramp Shading
Green, Light	(225)		Existing Pavement Shading
Red	(3)		Proposed Structure Shading
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

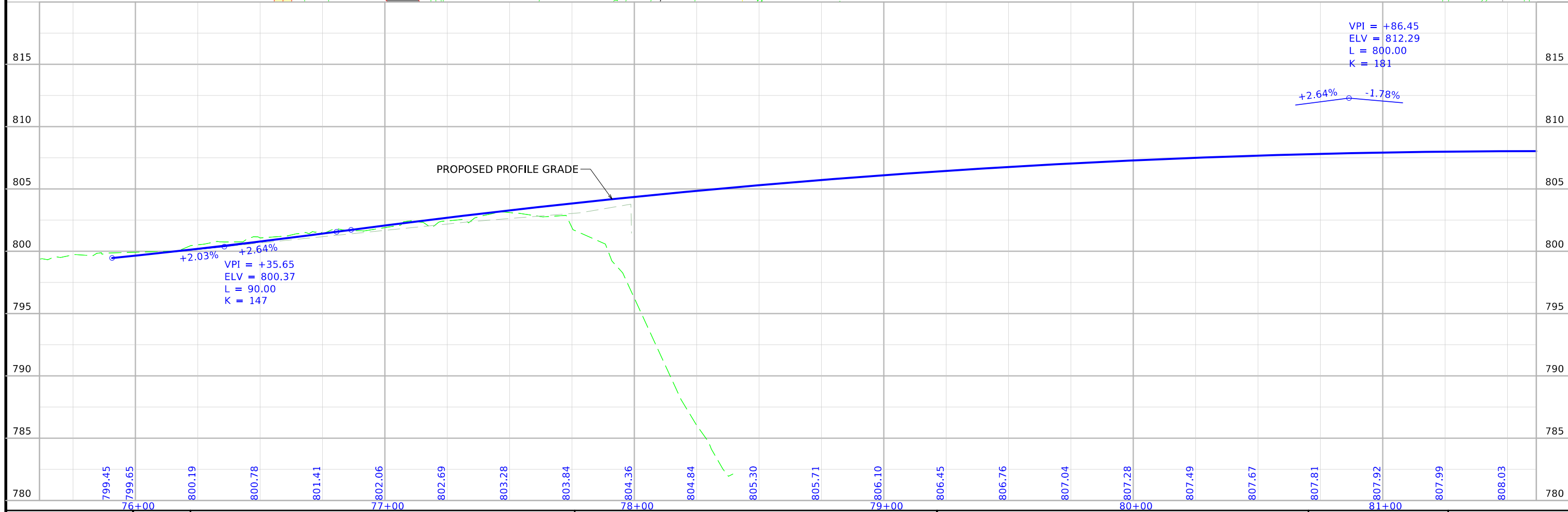
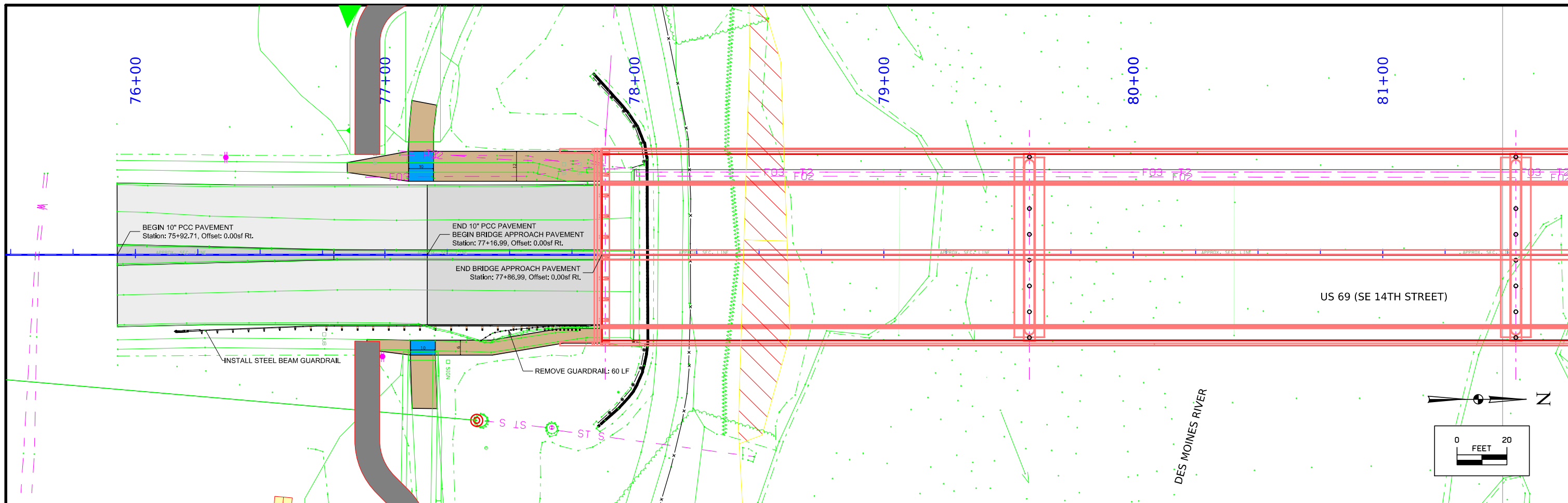
- Reference Point
- Station
- Section Corner
- Ground Line Intercept
- Saw Cut
- Guardrail
- Trench Drain
- HighTension Cable Guardrail
- Sheet Pile
- Pavement Removal
- Clearing & Grubbing Area

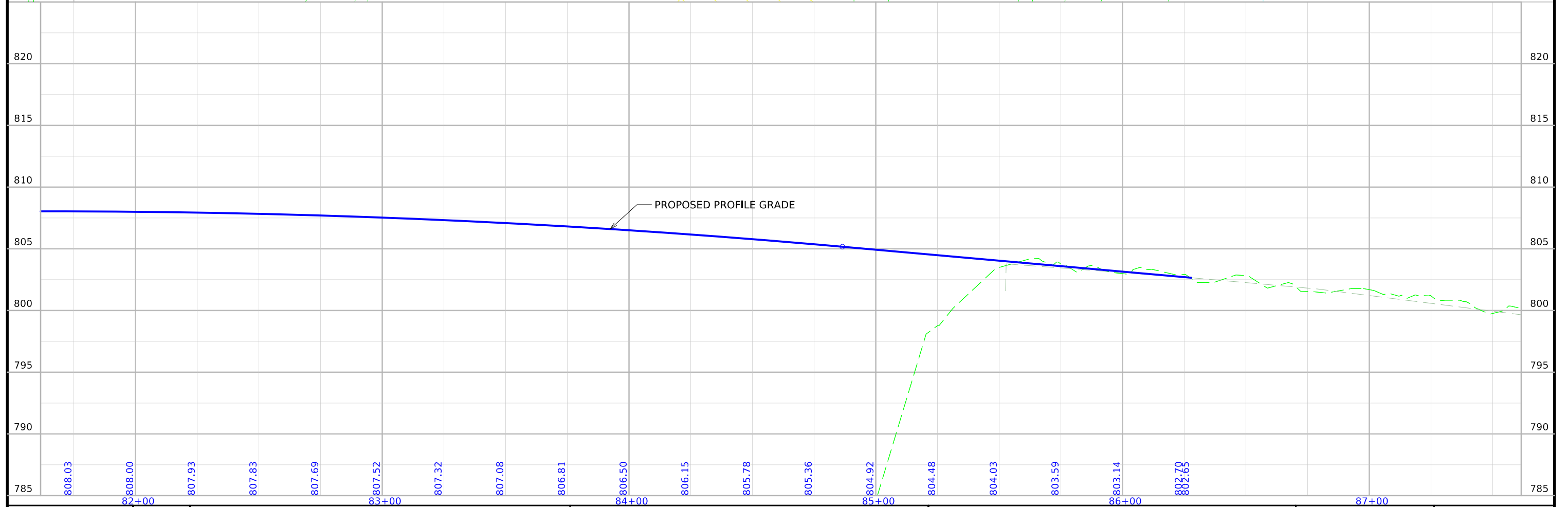
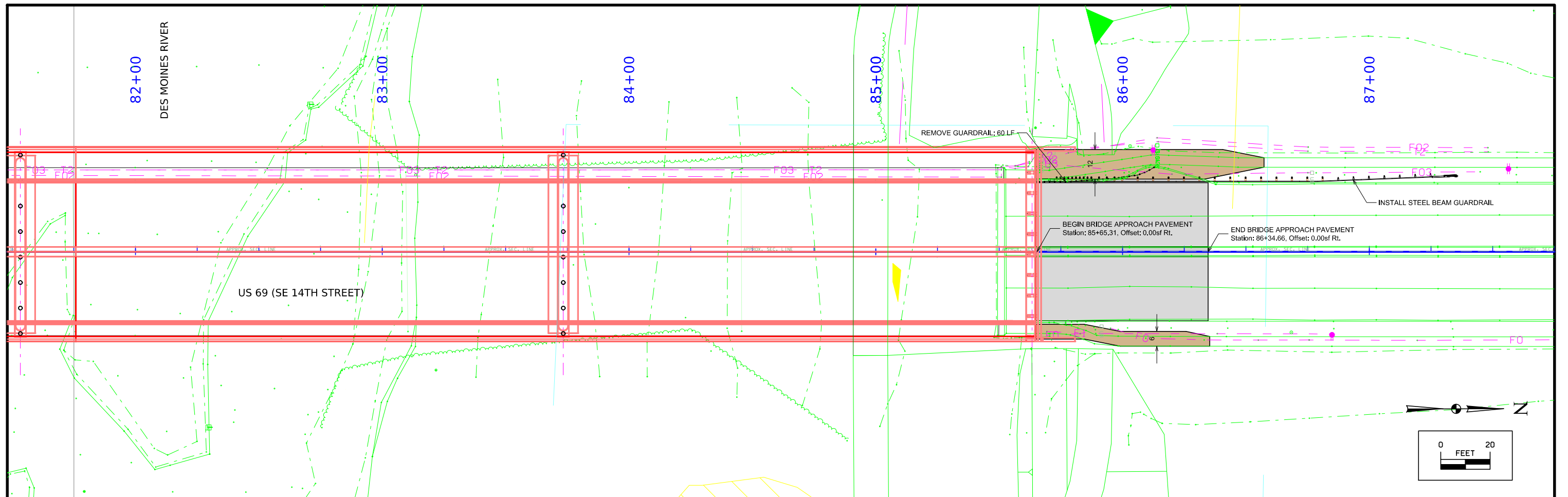
RIGHT-OF-WAY LEGEND

- 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)





TRAFFIC CONTROL PLAN

Traffic will be maintained via staged construction with traffic reduced to two lanes of head-to-head traffic. A section of the raised median on both sides of the bridge will be removed to allow traffic to be transitioned over for staging. The raised median will be replaced once construction is completed.

An off-site detour will be utilized to reduce traffic congestion. The detour would follow IA 5 east at the junction of US 69 and IA 5, then north on US 65 to IA 163, and finally west to the junction of US 69. See J.2 for proposed detour route.

Pedestrian traffic will also be detoured during construction. The detour will follow the Des Moines River trail west of the US 69 bridge to the SE 6th St. bridge, then north across the SE 6th St. bridge to Maury St, and finally east on Maury St. to US 69.

STAGING NOTES

Stage 1

Traffic Control:

Shift traffic, reduce US 69 to two lanes of head-to-head traffic on the NB lanes of the existing bridge.

Construction:

Remove west side of existing bridge and construct proposed SB lanes.

Stage 2

Traffic Control:

Shift head-to-head traffic to the newly constructed SB lanes of bridge.

Construction:

Remove east side of existing bridge and construct proposed NB lanes, including barrier, sidewalk, fence, and handrail.

Stage 3

Traffic Control:

Shift traffic to outside lanes of newly constructed bridge.

Construction:

Construct closure pour in center of bridge.

Stage 4

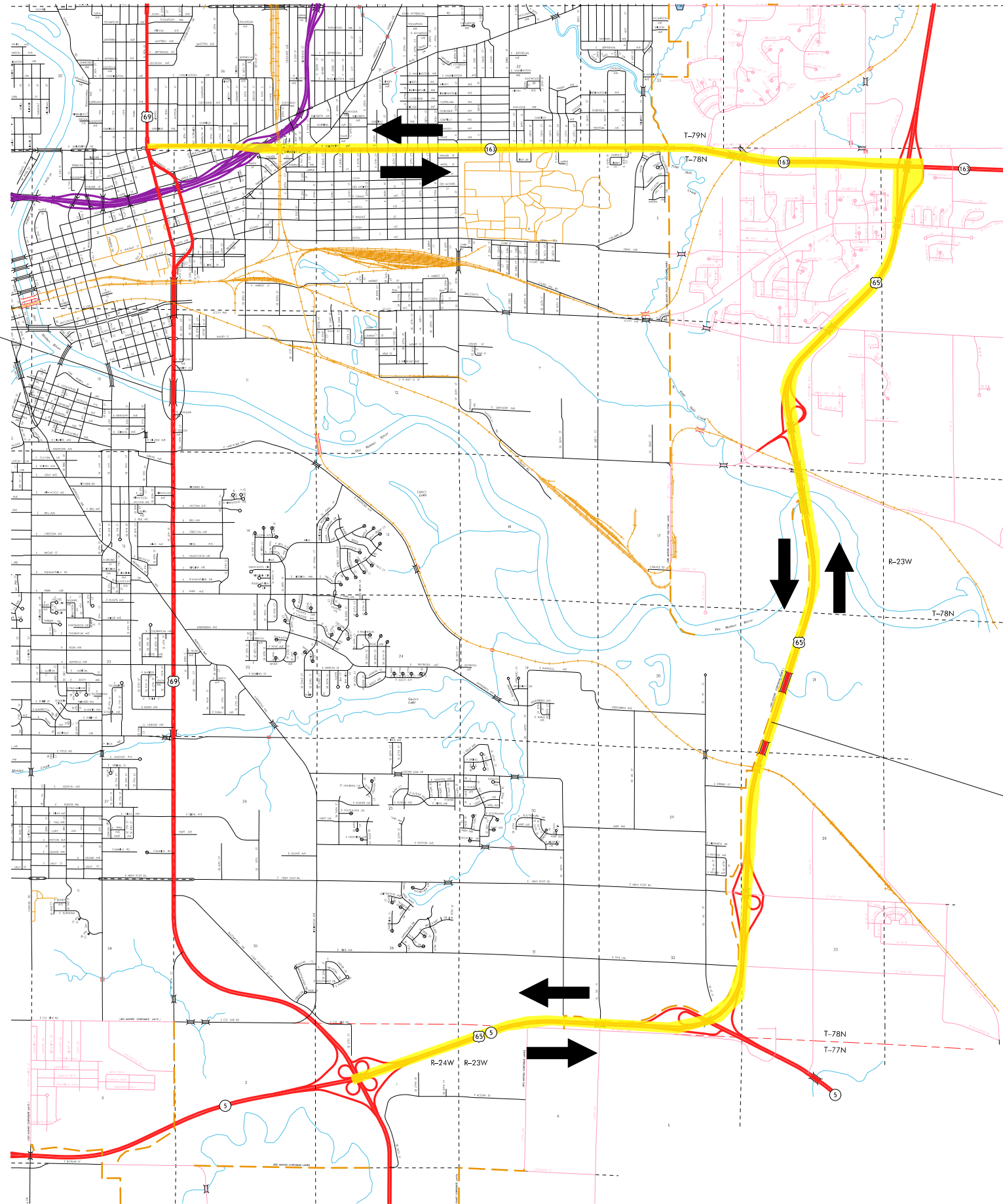
Traffic Control:

Open both lanes for NB traffic on newly constructed lanes. Shift SB traffic to the inside lane on newly constructed bridge.

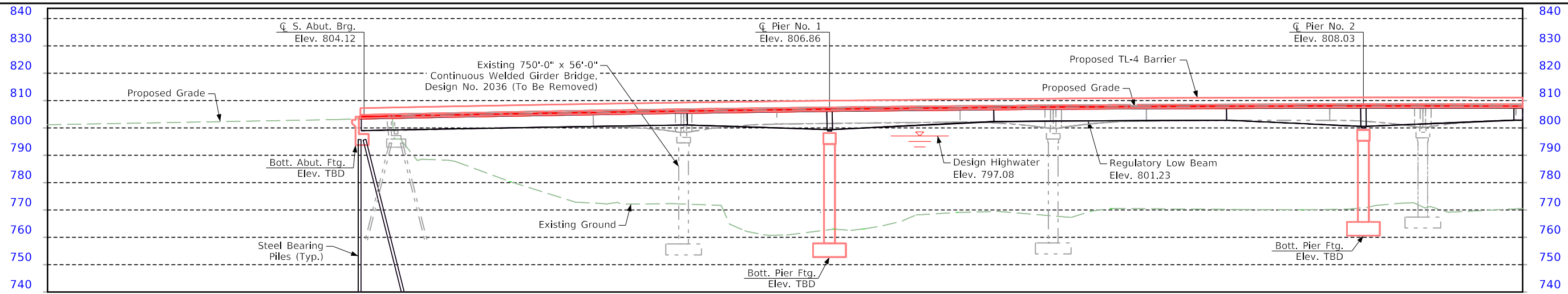
Construction:

Construct barrier, recreation trail, fence, and handrail on west side.

PROJECT LOCATION

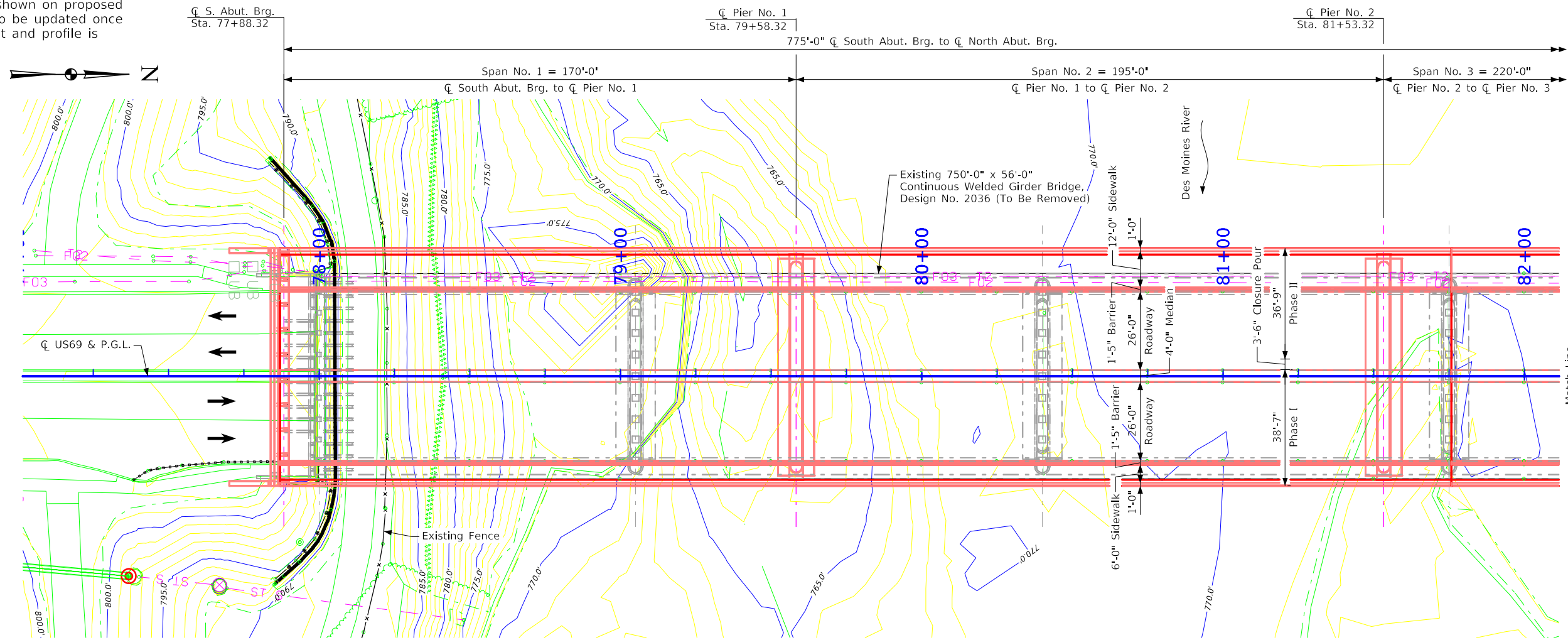


DETOUR ROUTE



Longitudinal Section along CL US69

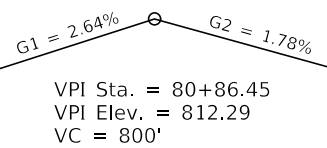
Note:
Existing bridge is shown on proposed alignment profile. To be updated once an existing alignment and profile is received.



Situation Plan

Location

US69 over Des Moines River
In the City of Des Moines
T-78N R-24W
Section 10 & 11
Lee Township
Polk County
FHWA No. ?? (if applicable)
Bridge Maint. No. ?? (if applicable)
Asset ID No. ?? (if applicable)
FRA No. (if applicable)
Latitude ??,123456°
Longitude -??,123456°



Proposed Profile
Grade US69

Notes to Designers:
Superstructure to be welded steel plate girders. Substructure to be stub abutment and wall piers.
Hydraulic data based on an assumed pier width of X'.
All barriers shall be TL-4.
Foundation type to be determined based on final geotechnical recommendation. Existing pier footings are founded on bedrock.

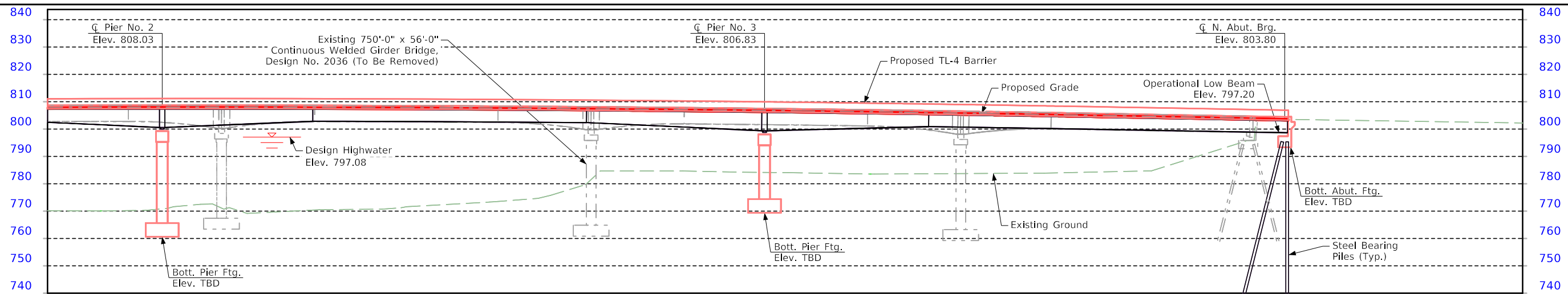
Notes:
All units are in feet unless noted otherwise.
All plan dimensions shown are measured in a horizontal plane unless noted otherwise.
For Hydraulic Data, Utilities Notes, and Traffic Estimate, see Sheet V.2.

Preliminary
Not For Construction



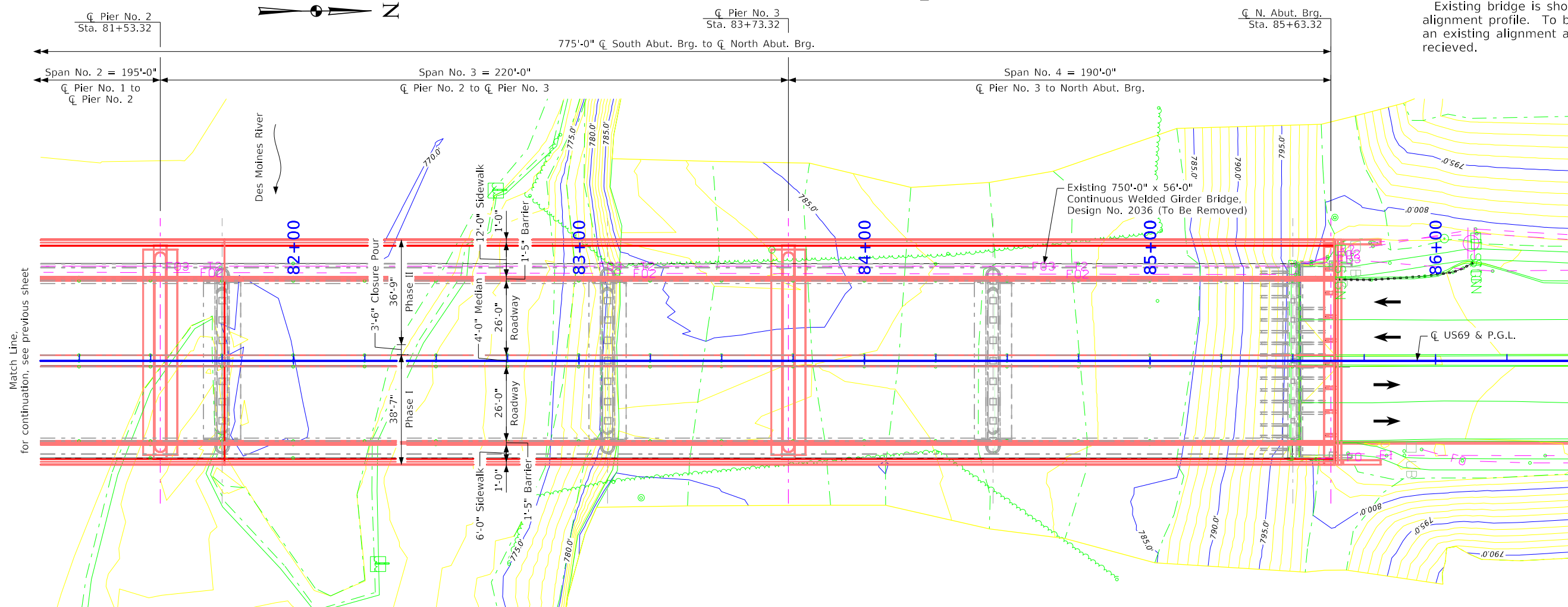
Design For 0° Skew
775'-0" x 78'-10" Continuous Welded Girder Bridge
170'-0" & 190'-0" End Spans 195'-0" & 220'-0" Interior Spans
US69 Concept Plan Sheet (1 of 2)
STA. 81+75.82 (CL US69) TBD

Polk County
IOWA DEPARTMENT OF TRANSPORTATION
Design No. TBD Design Sheet No. 1 of 2 FHWA No. TBD



Longitudinal Section along CL US69

Note:
Existing bridge is shown on proposed alignment profile. To be updated once an existing alignment and profile is received.



Des Moines River Hydraulic Data

TOS at Regulatory Low Beam = 806.98 (Sta. 80+55.82, 36.42' Rt.)
 Depth of Superstructure = 5.75'
 Regulatory Low Beam = 801.23
 $Q_{50} = 794.63$
 Freeboard = 6.60'

TOS at Operational Low Beam = 802.95 (Sta. 85+63.32, 42.42' Lt.)
 Depth of Superstructure = 5.75'
 Operational Low Beam = 797.20
 $Q_{100} = 797.08$
 Freeboard = 0.12'

Utilities Note:

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

General Utility Symbols:

- FO - Fiber Optic Line
- FO2 - Fiber Optic Line
- FO3 - Fiber Optic Line
- E1 - Electric Line
- T2 - Telephone Line
- ST S - Storm Sewer

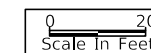
Situation Plan

Traffic Estimate

20?? AADT	???	V.P.D.
20?? AADT	???	V.P.D.
20?? DHV	???	V.P.H.
TRUCKS	??	%
Total	???	
Design ESALS	???	

Note:
For Notes & Proposed Profile Grade, see Sheet V.1

Preliminary
Not For Construction



Design For 0° Skew
775'-0" x 78'-10" Continuous Welded Girder Bridge
 170'-0" & 190'-0" End Spans 195'-0" & 220'-0" Interior Spans
US69 Concept Plan Sheet (2 of 2)
 STA. 81+75.82 (CL US69) T.B.D.
Polk County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. TBD Design Sheet No. 2 of 2 FHWA No. TBD