

DESIGN DATA RURAL				
20 23	AADT	1,910	V.P.D.	
20 29	AADT	2,150	V.P.D.	
20 29	DHV	-	V.P.H.	
TRUCKS		16.0	%	
Total				
Design ESALs		1,100,000		

INDEX OF SHEETS		105-3 10-18-05
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PLANS OF PROPOSED IMPROVEMENT ON THE
PRIMARY ROAD SYSTEM
OSCEOLA COUNTY
Bridge Replacement
IA 9 OVER POLLY CREEK, 0.9 MI W OF IA 60

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

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



NOTE: THIS PROJECT IS ANTICIPATED TO REQUIRE 1,565 CUBIC YARDS OF FURNISHED EMBANKMENT.

INDEX OF SEALS			
SHEET NO.	NAME	TYPE	BID QUANTITY SHEETS

PRELIMINARY PLANS

Subject to change by final design.

D2 PLAN - Date: 08-29-2025

REVISIONS

TOTAL

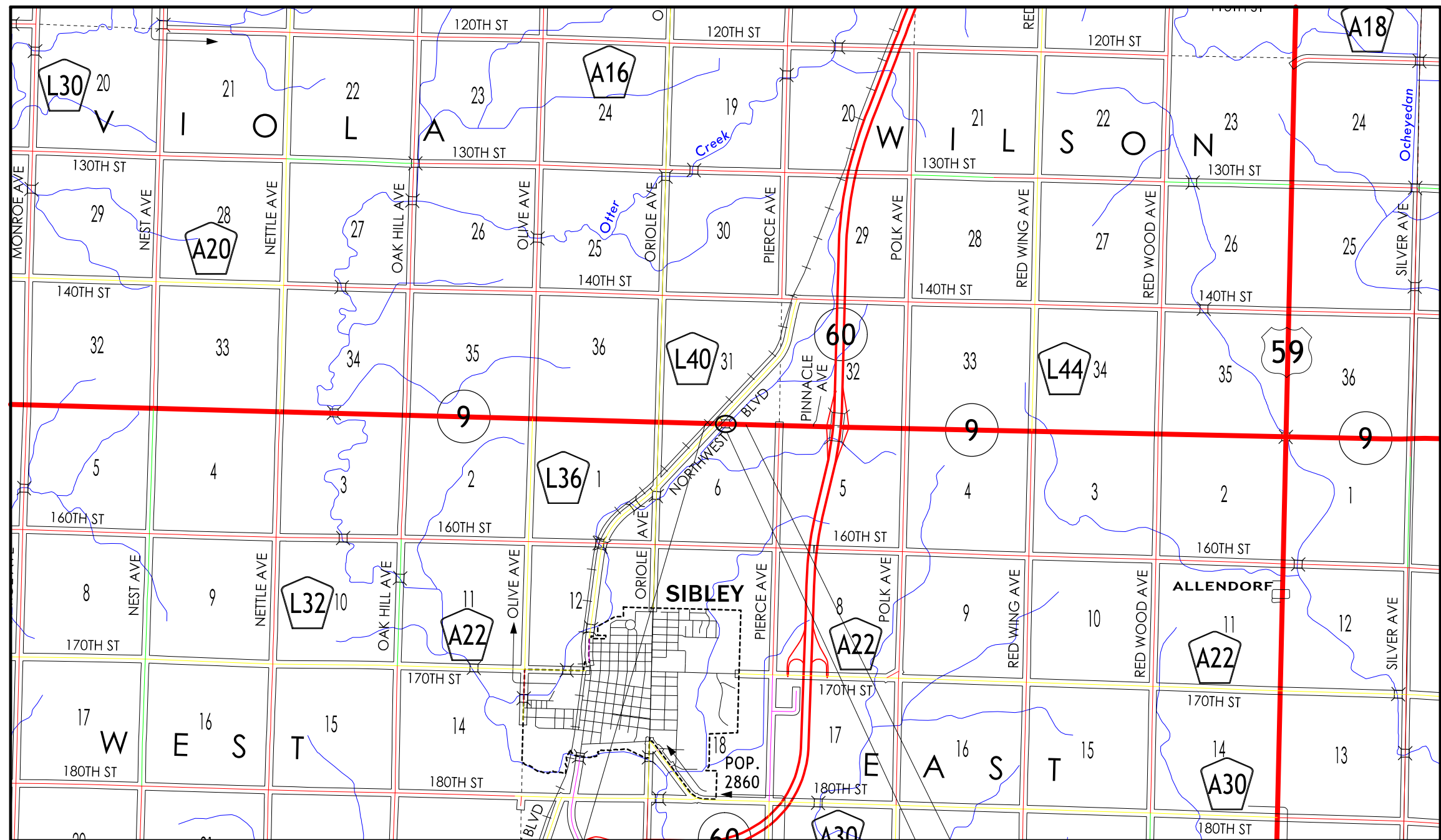
PROJECT IDENTIFICATION NUMBER

24-72-009-030

PROJECT NUMBER

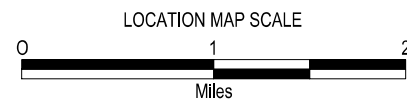
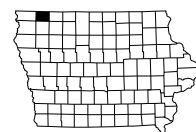
BRFN-009-2(029)--39-72

R.O.W. PROJECT NUMBER



STA 395+42.42
BEGIN PROJECT

STA 398+35.65
END PROJECT
FHWA/ASSET ID No. 38460



PROJECT LOCATION

Roadway	IA 9		
PIN Number	24-72-009-030	Submittal Date	
Project Number	BRFN-009-2(029)--39-72		Approval Date
District	District 3	Assistant District Engineer	
County	OSCEOLA	or	
Route	IA 9	Office Director	
Location	Over Polly Creek, 0.9 mi. W. of IA 60		
Work Type	Bridge Replacement		
Segment Manager			
Designer	BENESCH		

[Design Manual Section 1C-1](#)
[Last Updated: 04-29-19](#)

Rural Two-Lane Highways (Rural Arterials)

Design Element		Preferred	Acceptable	Project Values
Design speed (mph)		60	50	60
Maximum superelevation rate (Refer to Section 2A-2)		6%	8%	N/A
Design lane width (ft)		12	12	12
Full depth paved width (ft)		12	12	12
Right turn lane (ft)		12	10	N/A
Climbing Lane (ft)		12	12	N/A
Left turn lane (ft)		12	10	N/A
Pavement cross-slope (on tangent sections)	Through lanes	2%	1.5% minimum, 2% maximum	2%
	Auxiliary and turn lanes	3%	3% maximum	N/A
	Crown break at centerline	4%	4% maximum	4%
Shoulder cross-slope (on tangent sections)		4%	Shoulder cross-slope cannot be less than the adjacent lane, 6% max for paved or granular shoulders, 8% max for earth shoulders	4%
Curb type (Refer to Section 3C-2)	Design speed = 50 or 55 mph	6-inch sloped	6-inch standard	N/A
	Design speed ≥ 60 mph	4-inch sloped	6-inch sloped	N/A
Foreslope (For fill areas greater than 40 ft, contact the Soils Design Section for assistance)	Adjacent to shoulder	10:1 for 4' then 6:1	3:1	10:1 for 4' then 6:1
	Beyond standard ditch depth and design clear zone	3.5:1	3:1	3:1
	Curbed roadways	2%	not steeper than 3:1	N/A
Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.)		3:1	2.5:1	N/A
Transverse Slopes	w/ drainage structures	8:1	6:1	N/A
	w/o drainage structures	10:1	6:1	10:1
Ditches (Refer to Section 3G-1)	Outside ditch (depth x width) (ft)	5 x 10	--	N/A
Bridge width—new*	Bridge length ≤ 200 ft	design lane widths + effective shoulder widths	design lane widths + effective shoulder widths	40'
	Bridge length > 200 ft	design lane widths + effective shoulder widths	design lane width + 4' right and left of the design lane widths	N/A
Bridge width—existing*		design lane widths + no less than 2 ft left and right	design lane widths + 2 ft. offset left and right	N/A
Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks)	Over primary	16.5	16	N/A
	Over non-primary	16.5 at interchange locations, 15 at all other locations	14	N/A
	Over railroad	23.3	23.3	N/A
	Sign trusses and pedestrian bridges	17.5	17	N/A
Structural Capacity		Contact Office of Bridges and Structures	Contact Office of Bridges and Structures	
Level of Service		B	B	

*FHWA notification via email is required if acceptable criteria is not met on the NHS system (No formal design exception is required)

IA 9 DESIGN CRITERIA

Design year ADT =			3,195					
Design Manual Section 1C-1 Last Updated: 04-29-19			Effective Shoulder Width and Type for Two-Lane Highways					
Preferred (values shown in feet)			Acceptable (values shown in feet)			Project Values		
	Rural Roadways	Urban Roadways		Rural Roadways	Urban Roadways			
Turn lanes with shoulders	6	6	Turn lanes with shoulders	6	0	N/A		
Turn lanes with curbs	6	See Section 3C-2	Turn lanes with curbs	6	0	N/A		
	Effective Shoulder Width	Paved Width		Effective Shoulder Width	Paved Width			
Climbing Lanes	6	4	Climbing Lanes	4	0	N/A		
Two-Lane Highways	Effective Shoulder Width	Paved Width	Two-Lane Highways	Effective Shoulder Width	Paved Width			
Routes where bicycles are to be accommodated	10	10	Design year ADT > 2000 vpd	8	0*	8' paved		
On roadways approaching urban areas (due to increased bike traffic)	10	10						
On all curves with a superelevation rate of 7.0% or greater	10	10						
On roadways with design year ADT > 5000	10	6	Design year ADT between 400 - 2000 vpd	6	0*			
On all other NHS	10	6						
On non-NHS routes with design year ADT > 3000	10	6	Design year ADT < 400 vpd	4	0*			
On non-NHS routes with design year ADT < 3000	8	0*						
*Requires safety edge-Refer to Section 3C-6								
Curbs should be located beyond the outer edge of the effective shoulder width in rural areas								
Refer to Section 3C-2 for curb offsets in urban areas								

Notes:

[illegible]

Roadway Design Speed (mph) = 60															
Design Manual Section 1C-1 Last Updated: 04-29-19				Design Criteria for High Speed Roadways											
Design Element			Preferred Criteria						Acceptable Criteria						Project Values
			Design Speed, mph						Design Speed, mph						
			50	55	60	65	70	75	50	55	60	65	70	75	
Stopping sight distance (ft) (Refer to Section 6D-1)			425	495	570	645	730	820	425	495	570	645	730	820	570
Minimum horizontal curve radius (ft) (Refer to Sections 2A-2 and 2A-3)	Method 5 superelevation and side friction distribution	e _{max} = 6%	833	1060	1330	1660	2040	2500	833	1060	1330	1660	2040	2500	N/A
		e _{max} = 8%	--	--	--	--	--	--	758	960	1200	1480	1810	2210	N/A
Minimum vertical curve length (ft) (Refer to Section 2B-1)			150	165	180	195	210	225	150	165	180	195	210	225	238.49'
Minimum rate of vertical curvature (K) (Refer to Section 2B-1)	crest vertical curves		84	114	151	193	247	312	84	114	151	193	247	312	151
	sag vertical curves	roadways without fixed-source lighting	96	115	136	157	181	206	96	115	136	157	181	206	136
		roadways with fixed-source lighting	96	115	136	157	181	206	54	66	78	91	106	121	N/A
Minimum gradient (%)	(Refer to Section 2B-1)		0.5						0.3% with a curb, 0.0% without a curb						0.23%
Maximum gradient (%)	(Refer to Section 2B-1)	Urban roadways	4	3				7	6	6	--	--	--	1.81%	
		Rural roadways						5	5	4	4	4	4		
		Interstates						5	5	4	4	4	4		
Clear zone			See "Preferred Clear Zone" table in Section 8A-2						See "Acceptable Clear Zone" table in Section 8A-2						30'

Acceptable Clear Zone Distances (feet)
(Based on AASHTO Roadside Design Guide, 4th edition)

Preferred Clear Zone Distances (feet)
(Based on AASHTO Roadside Design Guide, 4th Edition)

design speed	design ADT	FORESLOPES			BACKSLOPES		
		6:1 or flatter	Steeper than 6:1, up to and including 4:1	Steeper than 4:1	Steeper than 4:1*	4:1 or flatter, up to 6:1	6:1 or flatter
40 mph or less	ADT < 750	7	7	**	7	7	7
	750 ≤ ADT < 1500	10	12	**	10	10	10
	1500 ≤ ADT < 6000	12	14	**	12	12	12
	ADT ≥ 6000	14	16	**	14	14	14
45 – 50 mph	ADT < 750	10	12	**	8	8	10
	750 ≤ ADT < 1500	14	16	**	10	12	14
	1500 ≤ ADT < 6000	16	20	**	12	14	16
	ADT ≥ 6000	20	24	**	14	18	20
55 mph	ADT < 750	12	14	**	8	10	10
	750 ≤ ADT < 1500	16	20	**	10	14	16
	1500 ≤ ADT < 6000	20	24	**	14	16	20
	ADT ≥ 6000	22	26	**	16	20	22
60 mph	ADT < 750	16	20	**	10	12	14
	750 ≤ ADT < 1500	20	26	**	12	16	20
	1500 ≤ ADT < 6000	26	30	**	14	18	24
	ADT ≥ 6000	30	30	**	20	24	26
65 – 70 mph	ADT < 750	18	20	**	10	14	14
	750 ≤ ADT < 1500	24	28	**	12	18	20
	1500 ≤ ADT < 6000	28	30	**	16	22	26
	ADT ≥ 6000	30	30	**	22	26	28

* Backslopes as steep as 2.5:1 can be considered as part of the clear zone, as long as they are relatively smooth and do not contain any fixed objects. Refer to Section 8A-4 of the Design Manual for information regarding backslopes steeper than 2.5:1.

** Since a vehicle traveling on a slope steeper than 4:1 is likely to be diverted to the bottom of the slope, the width of any slope steeper than 4:1 cannot be counted in the clear zone determination. Refer to Section 8A-2 of the Design Manual for information on providing clear recovery areas at the base of steep slopes.

design speed	design ADT	FORESLOPES			BACKSLOPES		
		6:1 or flatter	Steeper than 6:1, up to and including 4:1	Steeper than 4:1	Steeper than 4:1*	4:1 or flatter, up to 6:1	6:1 or flatter
40 mph or less	ADT < 750	10	10	**	10	10	10
	750 ≤ ADT < 1500	12	14	**	12	12	12
	1500 ≤ ADT < 6000	14	16	**	14	14	14
	ADT ≥ 6000	16	18	**	16	16	16
45 – 50 mph	ADT < 750	12	14	**	10	10	12
	750 ≤ ADT < 1500	16	20	**	12	14	16
	1500 ≤ ADT < 6000	18	26	**	14	16	18
	ADT ≥ 6000	22	28	**	16	20	22
55 mph	ADT < 750	14	18	**	10	12	12
	750 ≤ ADT < 1500	18	24	**	12	16	18
	1500 ≤ ADT < 6000	22	30	**	16	18	22
	ADT ≥ 6000	24	32	**	18	22	24
60 mph	ADT < 750	18	24	**	12	14	16
	750 ≤ ADT < 1500	24	32	**	14	18	22
	1500 ≤ ADT < 6000	30	40	**	18	22	26
	ADT ≥ 6000	32	44	**	22	26	28
65 – 70 mph	ADT < 750	20	26	**	12	16	16
	750 ≤ ADT < 1500	26	36	**	16	20	22
	1500 ≤ ADT < 6000	32	42	**	20	24	28
	ADT ≥ 6000	34	46	**	24	30	30

* Backslopes as steep as 2.5:1 can be considered as part of the clear zone, as long as they are relatively smooth and do not contain any fixed objects. Refer to Section 8A-4 of the Design Manual for information regarding backslopes steeper than 2.5:1.

** Since a vehicle traveling on a slope steeper than 4:1 is likely to be diverted to the bottom of the slope, the width of any slope steeper than 4:1 cannot be counted in the clear zone determination. Refer to Section 8A-2 of the Design Manual for information on providing clear recovery areas at the base of steep slopes.

IA 9

CLEAR ZONE CRITERIA

Attach.
cc:

TO OFFICE:	District 3	DATE:	January 27, 2025
ATTENTION:	Jessica Felix, PE	PROJECT:	Osceola County BRFN-009-2(029)--39-72
FROM:	Kevin Placzek (Benesch)		PIN: 24-72-009-030
BUREAU:	Design		
SUBJECT:	Project Concept Statement; (Final Approval, D0)		

This project involves the replacement of the IA 9 bridge (Maint. No. 7242.3S009) over Polly Creek, 0.9 miles west of Junction Iowa 60.

A concept review was held on December 9, 2024. Those present included Shane Tymkowicz, Todd Huju, Dylan Pryor, and Jason Klemme from the District 3 Office; Luka Arroyo from the Project Management Bureau; Jim Ellis, Tom Lovan, Mohamad Dokmak, and Christian Kennel from the Bridges and Structures Bureau; Janee Becker, Chelsea Duncan, and Brock Struecker from the Location and Environment Bureau; Nicole Cuya from the Right-of-way Bureau; and Kevin Patel, John Bartholomew and Jeremy Harris from the Design Bureau and Kevin Placzek, John Gislason, Eric Dean and Jeff Tardy from Benesch.

The three alternatives considered were:

1. A continuous concrete slab (CCS) bridge
2. A reinforced concrete box (RCB) culvert.
3. A pretensioned prestressed concrete beam (PPCB) bridge.

Alternative 2 is the preferred alternative. Traffic will be maintained by an off-site detour. The estimated cost of Alternative 2 is **\$1,074,202**.

B. Hofer
M. A. Swenson
J. S. Nelson
S. P. Anderson
M. Dell
D. T. Ta
D. Blue
S. Majors
R. Meyer
J. Felix
M. Thayer
T. Huju
T. Lovan
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B. Hucker
B. Worrel
C. Schwienebart
M. Solberg
C. Cromwell –
FHWA

CONCEPT REPORT

FINAL PROJECT CONCEPT STATEMENT
IA 9 Bridge over Polly Creek, 0.9 mi W of IA 60

Osceola County
BRFN-009-2-(029)-39-72
PIN: 24-72-009-030
Maint. No. 7242.3S009
FHWA No. 38460

Highway Division
Design Bureau

Benesch
Kevin Placzek, PE, SE
312-565-0450

January 27, 2025

I. STUDY AREA

A. Project Description

This project involves the replacement of the bridge (Maint. No. 7242.3S009) on IA 9 over Polly Creek, 0.9 miles west of IA 60.

Three alternatives were considered:

- Alternative 1 – A continuous concrete slab (CCS) bridge.
- Alternative 2 – A twin reinforced concrete box (RCB) culvert.
- Alternative 3 – A pretensioned prestressed concrete beam (PPCB) bridge.

B. Need for Project

The existing structure is a 33' x 30' single span I-beam bridge built in 1950 and overlayed in 1992. The bridge is near the end of its useful life. The existing bridge was designed for H20-44 loading.

The overlay has reached the end of its service life. The bottom of deck has delamination and leaching cracks. The substructure has leaching cracks, PC patches, scaling and delamination. The girders have pack rust. The bridge was designed for live loads below current standards. Due to the overall condition of the bridge, a replacement is recommended.

C. Present Facility

IA 9 is a two-way, two-lane HMA roadway with HMA and granular shoulders. The posted speed limit is 55 mph. Existing roadway plans are not available for this segment of IA 9.

The existing structure is a 32' x 30' single span I-beam bridge built in 1950 and overlayed in 1992.



With Route



Against Route



Left Profile



Right Profile

D. Traffic Estimates

The 2023 average daily traffic is 1,910 ADT with 16% trucks. Assuming a 2% annual growth rate, the 2029 construction year average daily traffic estimate is 2,150 ADT with 16% trucks and the 2049 design year average daily traffic estimate is 3,195 ADT with 16% trucks.

E. Sufficiency Ratings

IA 9 is not an NHS route and is a State Highway. The federal bridge sufficiency rating is 66.6.

The Bridge Condition Index is 56.2 and the Bridge Condition Rating is "Fair".

CONCEPT REPORT

F. Access Control

Access rights will not be acquired for this project.

G. Crash History

During the five-year study period from 2019-2024, there were two crashes reported near the bridge. One resulted in suspected minor injury, and one resulted in property damage only.

II. PROJECT CONCEPT

A. Feasible Alternatives

Alternative #1

Replace existing bridge with three span 120 ft x 40 ft continuous concrete slab (CCS) bridge.

The typical cross section adjacent to the bridge will consist of a 24 ft. PCC roadway with 8 ft. PCC shoulders to the new guardrail posts and 3:1 foreslopes.

This bridge will be constructed on the existing vertical and horizontal alignment. New bridge approaches will be constructed. The existing guardrail will be replaced with new guardrail and new PCC pavement and PCC shoulders will be paved 20 ft. beyond the ends of the 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.

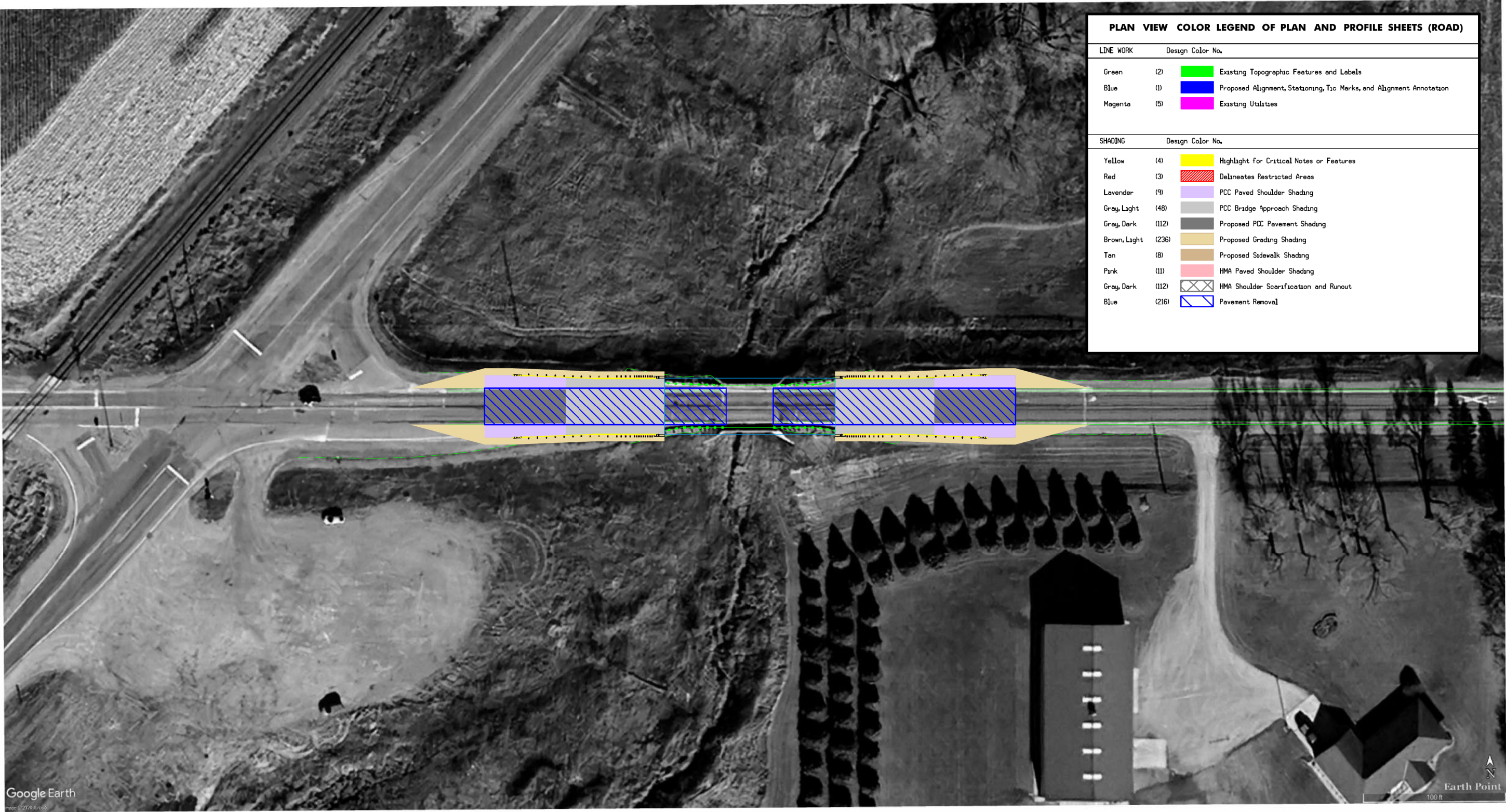
Apply erosion control and rural seeding and fertilizing to all disturbed areas.

Traffic will be maintained by an off-site detour.

BRIDGE ESTIMATE:				
Item	Quantity	Unit	Rate	Amount
Bridge - CCS slab bridge	5280	SF	\$130	\$686,400
Remove Existing Bridge	1120	SF	\$10	\$11,200
Revetment, Class E	700	TON	\$50	\$35,000
Mobilization	1	LS	10.00%	\$73,260
	Base Cost:		\$805,860	
	Contingency:		20%	\$161,172
	4 Years Inflation:		4.5%	\$186,172
	BRIDGE TOTAL:		\$1,153,204	
ROADWAY ESTIMATE:				
Item	Quantity	Unit	Rate	Amount
Embankment-in-Place, Contractor Furnished	148	CY	\$40	\$5,937
Excavation, Class 13, Waste	182	CY	\$38	\$6,933
Topsoil, Furnish and Spread	49	CY	\$75	\$3,711
Modified Subbase	122	CY	\$60	\$7,297
Paved Shoulder, PCC, 8"	242	SY	\$110	\$26,674
Shoulder Construction, Earth	7.18	STA	\$615	\$4,417
PCC Pavement	305	SY	\$160	\$48,771
Longitudinal Grooving in Concrete, Bridge Deck	533	SY	\$16	\$8,533
Removal of Steel Beam Guardrail	270	LF	\$14	\$3,780
Steel Beam Guardrail	50	LF	\$40	\$2,000
Steel Beam Guardrail Barrier Transition Section, BA-201	4	EACH	\$3,100	\$12,400
Steel Beam Guardrail End Anchor, Bolted	4	EACH	\$320	\$1,280
Steel Beam Guardrail Tangent End Terminal BA-205	4	EACH	\$3,250	\$13,000
Removal of Pavement	986	SY	\$25	\$24,650
Bridge Approach Pavement	622	SY	\$290	\$180,444
Longitudinal Grooving in Concrete, Pavement	622	SY	\$15	\$9,333
Additional Roadway Items	1	LS	\$10,000	\$10,000
Erosion Control	1	LS	1.00%	\$3,592
Detour	1	LS	5.00%	\$17,958
Mobilization	1	LS	10.00%	\$35,916
	Base Cost:		\$426,627	
	Contingency:		20%	\$85,325
	4 Years Inflation:		4.5%	\$98,560
	ROADWAY TOTAL:		\$610,512	
PROJECT TOTAL:			\$1,763,716	

CONCEPT REPORT

ALTERNATIVE 1



CONCEPT REPORT

Alternative #2

Replace existing bridge with a single, twin 10’ x 10’ x 100 ft reinforced concrete box (RCB) culvert.

The typical cross section adjacent to the bridge will consist of a 24 ft. PCC roadway with 8 ft. PCC shoulders to the new guardrail posts and 6:1 foreslopes.

The roadway will be reconstructed on the existing vertical and horizontal alignment. The flow line of the box will be buried 1 ft. below the existing flow line in the channel. This will allow the bottom of the box to silt in and provide a natural bottom for fish passage. The existing ditches will need to be relocated to meet the inlet and outlet flowlines of the new RCB. Class E revetment will be placed at the ends of the RCB.

The existing bridge and bridge approaches will be removed and new PCC pavement placed. The existing guardrail will be removed.

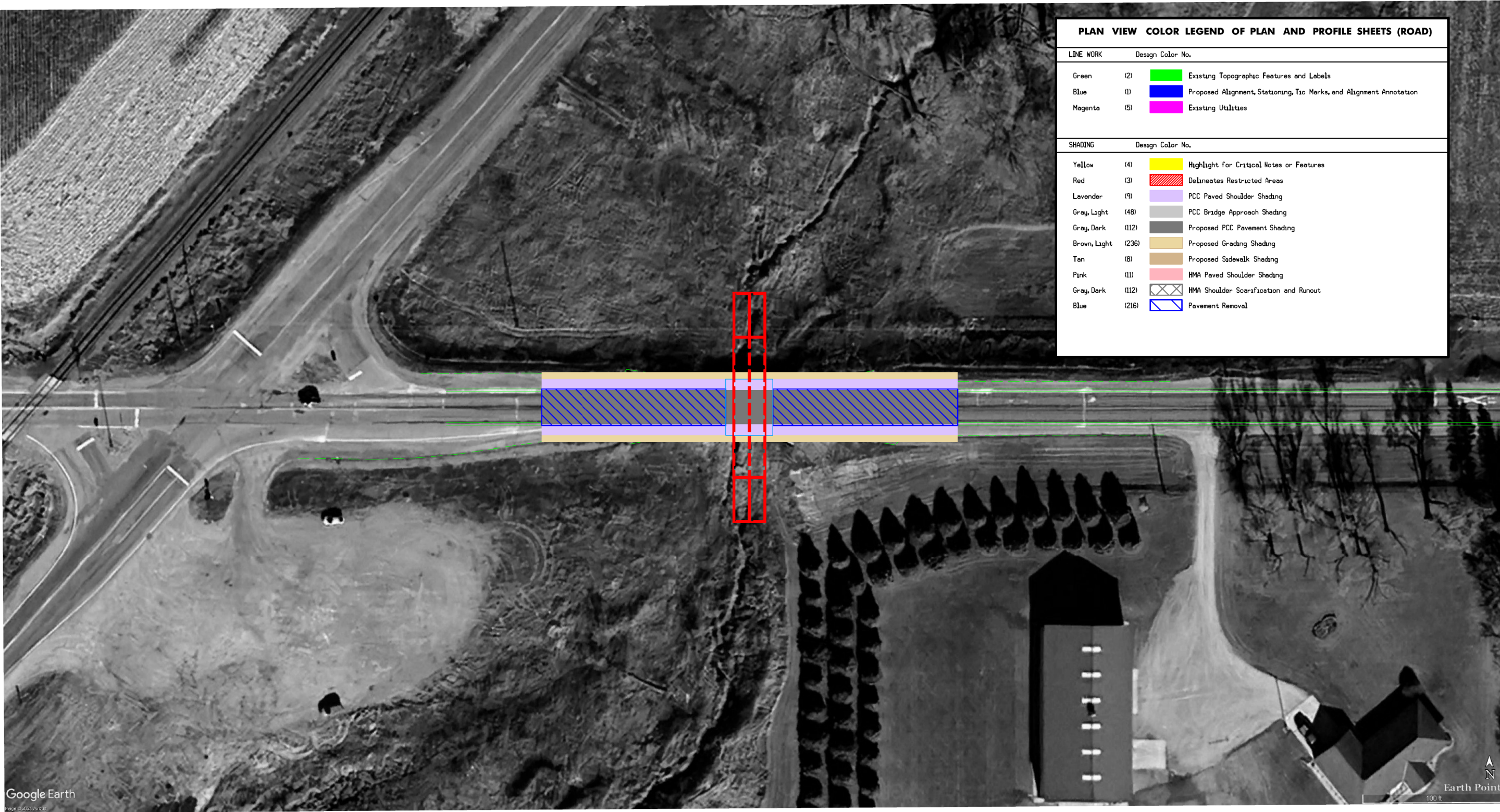
Apply erosion control and rural seeding and fertilizing to all disturbed areas.

Traffic will be maintained by an off-site detour.

BRIDGE ESTIMATE:				
Item	Quantity	Unit	Rate	Amount
Twin Box Culvert - 10' x 10' x 100'	338.9	CY	\$900	\$305,010
Remove Existing Bridge	1120	SF	\$10	\$11,200
Revetment, Class E	200	TON	\$50	\$10,000
Stream Mitigation	1	LS	\$100,000	\$100,000
Mobilization	1	LS	\$0	\$42,621
	Base Cost:		\$468,831	
	Contingency:		20%	\$93,766
	4 Years Inflation:		4.5%	\$108,310
	BRIDGE TOTAL:		\$670,908	
ROADWAY ESTIMATE:				
Item	Quantity	Unit	Rate	Amount
Embankment-in-Place, Contractor Furnished	103	CY	\$40	\$4,123
Excavation, Class 13, Waste	386	CY	\$38	\$14,650
Topsoil, Furnish and Spread	34	CY	\$75	\$2,577
Modified Subbase	290	CY	\$60	\$17,377
Paved Shoulder, PCC, 8"	521	SY	\$100	\$52,130
Shoulder Construction, Earth	5.86	STA	\$615	\$3,607
PCC Pavement	782	SY	\$150	\$117,292
Removal of Steel Beam Guardrail	270	LF	\$14	\$3,780
Removal of Pavement	752	SY	\$25	\$18,794
Additional Roadway Items	1	LS	\$10,000	\$10,000
Erosion Control	1	LS	1%	\$2,343
Detour	1	LS	5%	\$11,716
Mobilization	1	LS	10%	\$23,433
	Base Cost:		\$281,823	
	Contingency:		20%	\$56,365
	4 Years Inflation:		4.5%	\$65,107
	ROADWAY TOTAL:		\$403,295	
PROJECT TOTAL:			\$1,074,202	

CONCEPT REPORT

ALTERNATIVE 2



CONCEPT REPORT

Alternative #3

Replace existing bridge with single span 80’ x 40’ pretensioned prestressed concrete (PPCB) bridge.

The typical cross section adjacent to the bridge will consist of a 24 ft. PCC roadway with 8 ft. PCC paved shoulders to the new guardrail posts and 3:1 foreslopes.

This bridge will be constructed on the existing vertical and horizontal alignment. New bridge approaches will be constructed. The existing guardrail will be replaced with new guardrail and new PCC pavement and PCC shoulders will be paved 20 ft. beyond the ends of the 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.

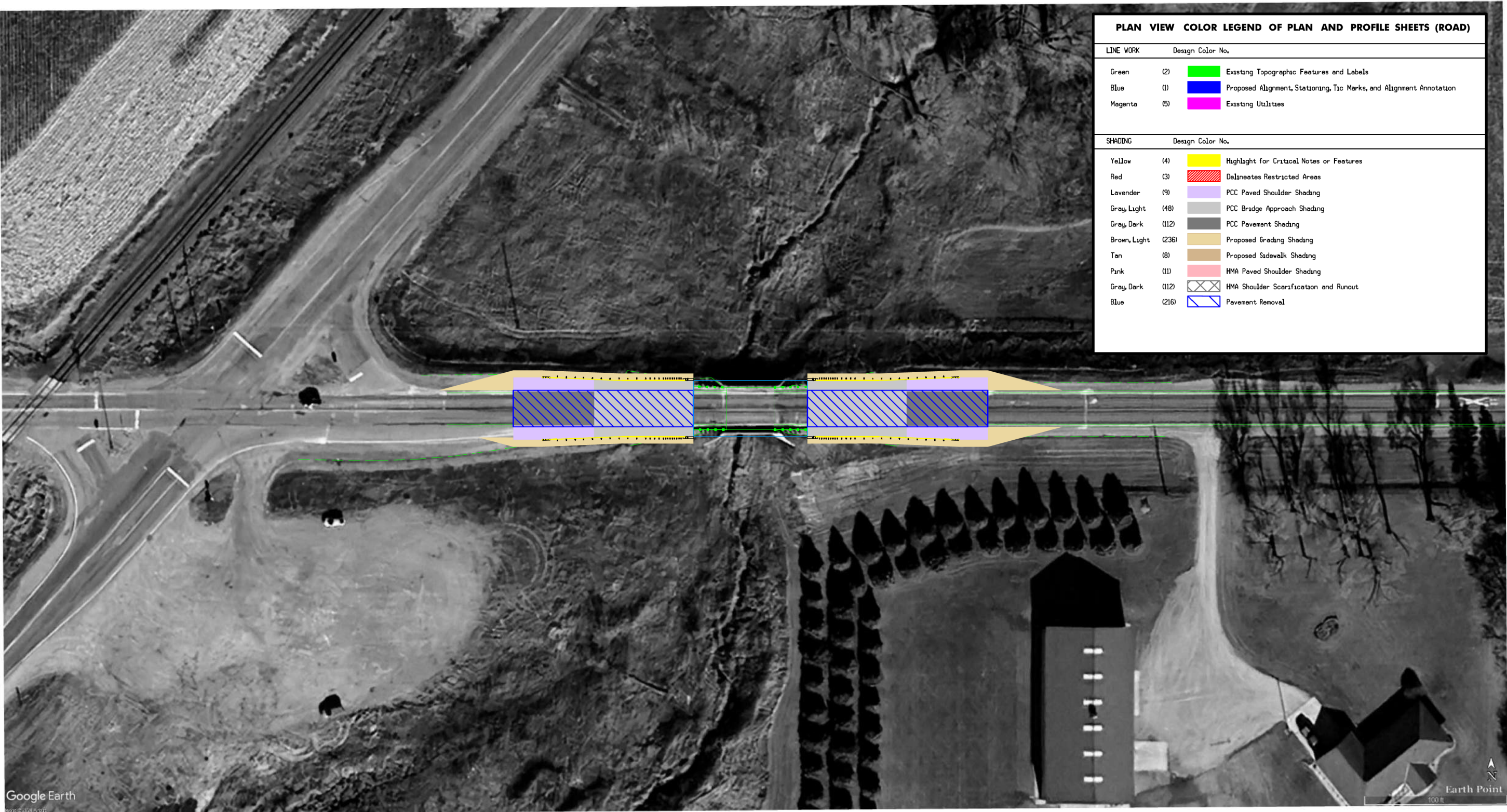
Apply erosion control and rural seeding and fertilizing to all disturbed areas.

Traffic will be maintained by an off-site detour.

BRIDGE ESTIMATE:				
Item	Quantity	Unit	Rate	Amount
Bridge - PPCB bridge	3520	SF	\$135	\$475,200
Remove Existing Bridge	1120	SF	\$10	\$11,200
Revetment, Class E	400	TON	\$50	\$20,000
Mobilization	1	LS	10.00%	\$50,640
	Base Cost:		\$557,040	
	Contingency:		20%	\$111,408
	4 Years Inflation:		4.5%	\$128,689
	BRIDGE TOTAL:		\$797,137	
ROADWAY ESTIMATE:				
Item	Quantity	Unit	Rate	Amount
Embankment-in-Place, Contractor Furnished	148	CY	\$40	\$5,937
Excavation, Class 13, Waste	182	CY	\$38	\$6,933
Topsoil, Furnish and Spread	49	CY	\$75	\$3,711
Modified Subbase	122	CY	\$60	\$7,297
Paved Shoulder, PCC, 8"	242	SY	\$110	\$26,674
Shoulder Construction, Earth	7.14	STA	\$615	\$4,392
PCC Pavement	305	SY	\$150	\$45,723
Longitudinal Grooving in Concrete, Bridge Deck	356	SY	\$16	\$5,689
Removal of Steel Beam Guardrail	270	LF	\$14	\$3,780
Steel Beam Guardrail	50	LF	\$40	\$2,000
Steel Beam Guardrail Barrier Transition Section, BA-201	4	EACH	\$3,100	\$12,400
Steel Beam Guardrail End Anchor, Bolted	4	EACH	\$320	\$1,280
Steel Beam Guardrail Tangent End Terminal BA-205	4	EACH	\$3,250	\$13,000
Removal of Pavement	734	SY	\$25	\$18,362
Bridge Approach Pavement	622	SY	\$290	\$180,444
Longitudinal Grooving in Concrete, Pavement	622	SY	\$15	\$9,333
Additional Roadway Items	1	LS	\$10,000	\$10,000
Erosion Control	1	LS	1.00%	\$3,470
Detour	1	LS	5.00%	\$17,348
Mobilization	1	LS	10.00%	\$34,696
	Base Cost:		\$412,469	
	Contingency:		20%	\$82,494
	4 Years Inflation:		4.5%	\$95,290
	ROADWAY TOTAL:		\$590,252	
PROJECT TOTAL:			\$1,387,389	

CONCEPT REPORT

ALTERNATIVE 3



CONCEPT REPORT

B. Detour Analysis

Three hard surface detour routes were analyzed and are summarized below. A map of the three options is attached to the end of this document. District 3 Traffic Tech Bethany Waltersdorf should be consulted before the final detour route is selected.

- Option 1
 - Route: Northwest Blvd. to 2nd Ave. to IA 60
 - Length: 8.6 miles
 - Advantages
 - No difficult turning movements for trucks.
 - Disadvantages
 - This route passes through the commercial area of the City of Sibley.
- Option 2
 - Route: Northwest Blvd. to 9th Ave. to 5th St. to IA 60
 - Length: 5.4 miles
 - Advantages
 - This is the shortest of the three options.
 - Disadvantages
 - This route passes through the residential area of the City of Sibley.
 - Combination trucks may have difficulty making turns at the 9th Ave./5th St. intersection.
- Option 3
 - Route: L40 (Oriole Ave.) to 100th St. to IA 60
 - Length: 12.8 miles
 - Advantages
 - This route does not pass through any population centers.
 - No difficult turning movements for trucks.
 - Disadvantages
 - 100th Street runs along the Minnesota state line. Coordination with MnDOT may be required if this option is selected.
 - This is the longest of the three options.

C. Recommendations

It is recommended that the present structure be replaced, as described in Alternative No. 2.

D. Construction Sequence

It is anticipated that all work on this project will be awarded to one prime contractor, and that work will be completed in a single stage during a detour of traffic on IA 9.

E. ADA Accommodations

There are no bike paths or sidewalks adjacent to IA 9. Therefore, no ADA accommodations are planned in conjunction with this project.

F. Special Considerations

This will not be a traffic critical project.

The ABC Rating Score of 36 is less than the first stage filter threshold of 50, therefore this bridge will be constructed using traditional methods.

Stage construction would require the use of temporary signals. Due to the proximity of Northwest Boulevard and the railroad to the west, the use of temporary signals is impractical. Therefore, it is anticipated that work will be completed during a full closure of IA 9 and detour.

Just west of the existing bridge on IA 9 there are rumble strips to alert drivers of the upcoming intersection with Northwest Boulevard. The rumble strips will be removed and replaced. It may be necessary to shift the location of the rumble strips to avoid the new approach pavement.

The intersection of IA 9 and Northwest Boulevard has an unconventional layout with slip ramps for turning movements. Wider paved shoulders may be required to tie into the existing pavement at this intersection.

No bike path or sidewalk will be required as part of this project.

The waterway is not on a state water trail or paddling route.

It appears that some Right of Way will be required for this project. Right of Way has not been programmed for this project.

G. Program Status

This project is listed in the 2025-2029 Iowa Transportation Improvement Program with \$650,000 for replacement in FY 2029.

Utilities

(OCR) Osceola County Rural Water
Douglas Westerman
Phone: 712-735-6795
Email: orwsdoug@windstream.net

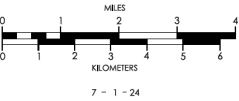
(OSE) Osceola Electric Cooperative
Tommy Storey
Phone: 712-754-2519
Email: tstorey@osceolaelectric.com

(PR9) Premier Communications
Tim Dykshorn
Phone: 712-722-3451
Email: timd@mypremieronline.com

HIGHWAY AND TRANSPORTATION MAP
OSCEOLA COUNTY
IOWA

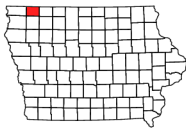
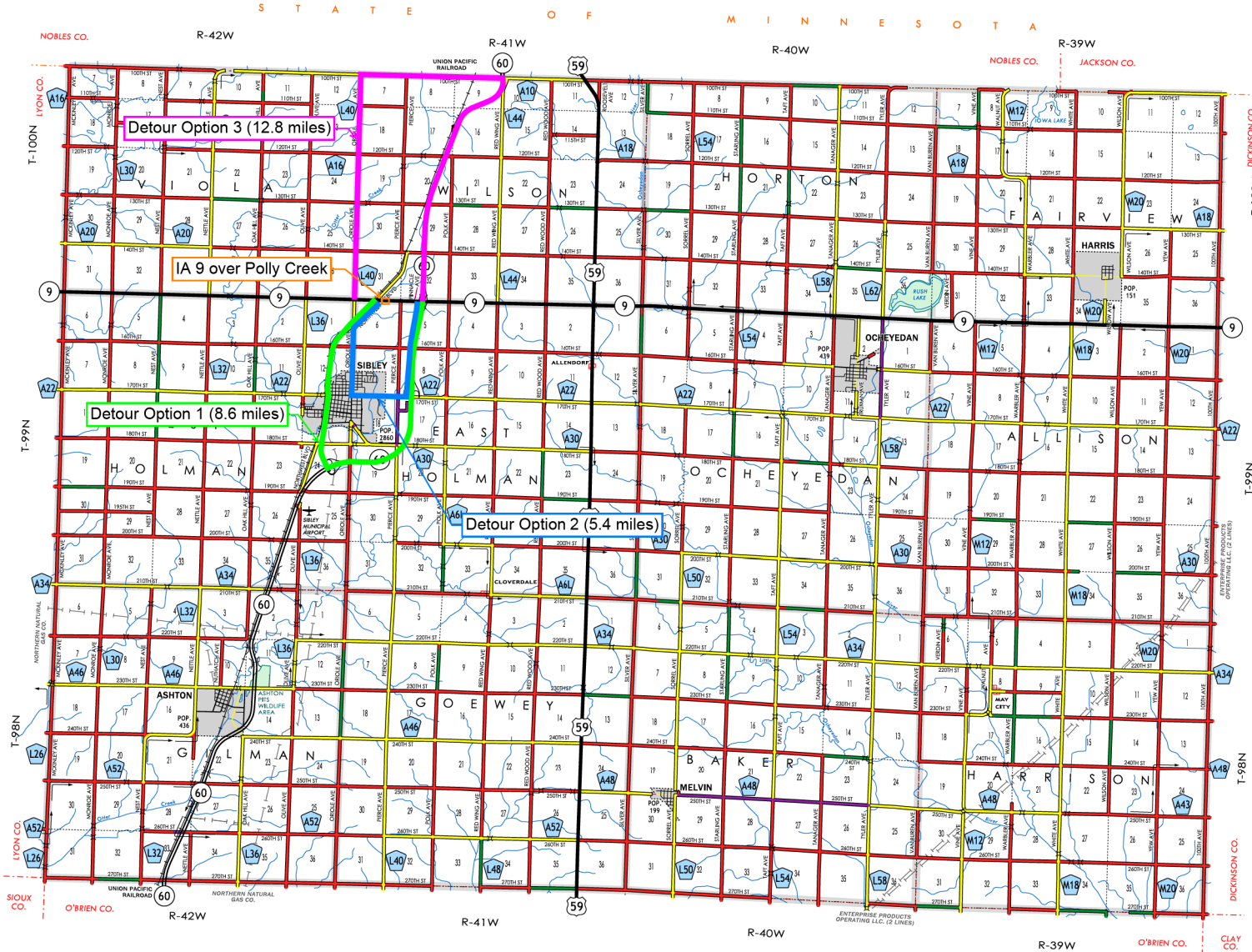
Prepared By
IOWA DOT
SYSTEMS PLANNING BUREAU
Phone: (515) 239-1664
WWW.IOWADOT.GOV/MAPS

In Cooperation With
United States
Department of Transportation
JANUARY 1, 2024



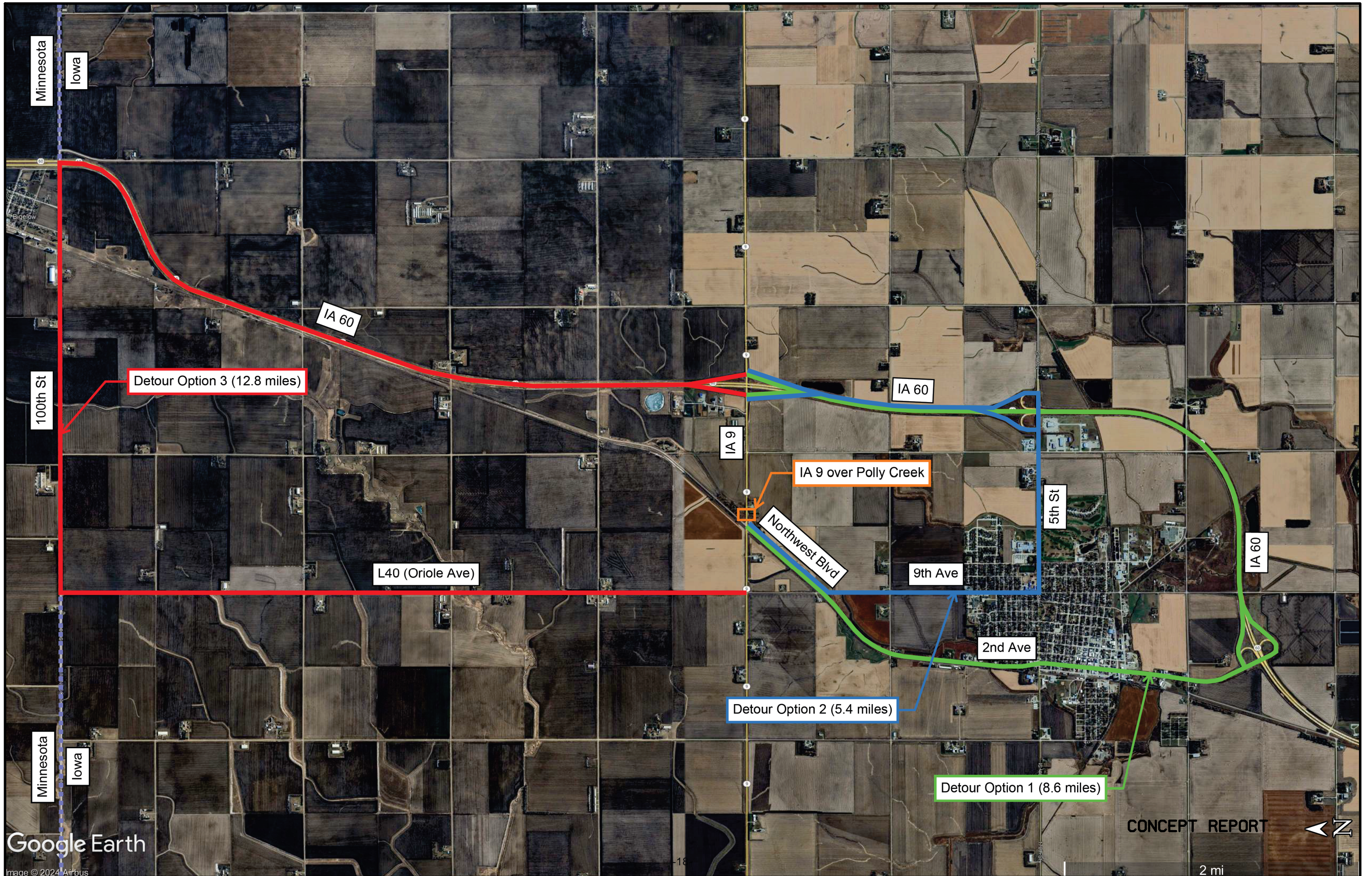
LEGEND

- 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



72

CONCEPT REPORT



Bridge Cost Estimate and Analysis for Concept Statement

Location:

County: Osceola County

Des. No.: Not Assigned

Maint. No.: 7242.3S009

On IA 9 over Polly Creek

Section 6,31; T-99N,100N; R-41W

Functional Class: 06

By: Kevin M. Placzek (Benesch)

Phase No.: BRFN-009-2-(029)-39-72

Project Code: 24-72-009-030

FHWA No.: 038460

Sta.: 39+689

ADT: 1910 (2023)

Date: 01-27-2025

Existing Bridge:

Type: Ex.RSB

Pier Type: None

Spans: 1 @ 33'

Skew: 0 deg

Drainage Area: 2.71 sq. mi.

New/Reconstructed Roadway Width: 40'

Length x Width: 33'x 30'

Abut. Type: Ex. Cantilevered

Approach Pavement Width: 24'

General Comments:

- A twin box culvert was proposed for replacement of the existing structure. A box culvert will reduce the long term maintenance and safety issues associated with a bridge. The culvert option will provide sufficient hydraulic capacity.
- Stage construction would require the used of temporary signals. Due to the proximity of Northwest Boulevard and the railroad to the west, the use of temporary signals is impractical. Therefore, it is anticipated that work will be completed during a full closure of IA 9 and detour.
- Preliminary hydraulic analysis has been completed for this project. Based on the preliminary hydraulic analysis a twin 10' x 10' RCB will meet hydraulic criteria.
- A Flood Hazard Boundary Map has been created for this area. The project is within a Zone A flood hazard area. Flood elevations have not been determined for this area.
- The drainage area at this site is 2.71 square miles. Since this is an unincorporated area with a drainage area less than 100 square miles a DNR permit is not required.

Option A - Replacement Bridge, Off-Site Detour

Type: Continuous concrete slab

Pier Type: Pile Bent

Spans: 36'-6, 47'-0, 36'-6"

Stage Traffic: No, Off-site detour

Length x Width: 120'-0 x 40'-0

Abutment Type: Integral

Skew: 0 degrees

Costs:

Bridge - 5280 sf @ \$130/sf

Remove Exist. Bridge 1120 sf @ \$10.00/sf

= \$ 686,400

= \$ 11,200

Bridge Concept Statement

Osceola County

Project Number BRFN-009-2-(029)-39-72

Revetment

Mobilization (10%)

Contingency and Misc. (20%)

Total Option A (including 4 years inflation @ 4.5%)

= \$ 35,000

= \$ 73,260

= \$ 161,172

= \$ 1,153,204

Option B - Replace with Twin 10' x 10' RCB, Off-Site Detour

Type: Prestressed Beam Bridge

Pier Type: N/A

Spans: 2 @ 10'-0

Stage Traffic: No, Off-site detour

Length x Width: Twin 10' x 10' x 100'

Abutment Type: N/A

Skew: 0 degrees

Costs:

Twin Box - 10' x 10' - 339 cy @ \$900/cy

Remove Exist. Bridge 1120 sf @ \$10.00/sf

Revetment

Stream Mitigation

Mobilization (10%)

Contingency and Misc. (20%)

Total Option B (including 4 years inflation @ 4.5%)

= \$ 305,010

= \$ 11,200

= \$ 10,000

= \$ 100,000

= \$ 32,621

= \$ 71,766

= \$ 670,908

Option C - Replacement Bridge, Off-Site Detour

Type: Prestressed Beam Bridge

Pier Type: None

Spans: 1 @ 80'-0

Stage Traffic: No, Off-site detour

Length x Width: 80'-0 x 40'-0

Abutment Type: Integral

Skew: 0 degrees

Costs:

Bridge - 3520 sf @ \$135/sf

Remove Exist. Bridge 1120 sf @ \$10.00/sf

Revetment

Mobilization (10%)

Contingency and Misc. (20%)

Total Option C (including 4 years inflation @ 4.5%)

= \$ 475,000

= \$ 11,200

= \$ 20,000

= \$ 50,640

= \$ 111,408

= \$ 797,137

Accelerated Bridge Construction (ABC):

The calculated ABC Rating Score based on Iowa DOT BDM Chapter 8 criteria and 12.8 miles out of distance travel of is 36.

The ABC Rating score of 36 is less than the first stage filter threshold of 50.

Bridge Bureau Attachment for Concept Statement

Date: January 27, 2025
By: Kevin Placzek (Benesch)
Location: On IA 9 over Polly Creek, 0.9 mi W of IA 60

County: Osceola County
Phase No.: BRFN-009-2(029)-39-72
Project Code: 24-72-009-030

1. Regulatory/Coordination
- a. Iowa DNR Flood Plain permit = No

b. Iowa DNR Sovereign Lands permit = No

c. Local Record of Coordination = Yes

d. Flood Insurance Study = No, Zone A- No Base Flood Elevation (BFE)-
Flood map panel 19143C0136C effective 11/05/2021.

e. Drainage District = No

f. Corps of Engineers Section 408 = No

g. State Water Trail or Paddling Route =No

h. Historic Structure = No

i. Federally owned land in vicinity = No

j. USGS or Iowa Flood Center (IFC) gage or sensor impacted? No
2. Hydrologic/Hydraulic Analysis/RIDB Dataset
- a. Design discharges determined = Q50 = 557 cfs - Q100 = 695 cfs, AEPD

b. Hydraulic analysis done = Partial, SMS 2D and HY-8

c. If DA > 10 sq. mi. Riverine Infrastructure Database (RIDB) dataset
is required with B1 submittal =No

d. Project development hydraulic analysis will comply with the RIDB
Guidelines at a minimum= No, the drainage area is less than 10 sq.
mi. which is the threshold for including structure in RIDB
database.
3. Structure/Roadway Layout Considerations
- a. Roadway profile grade raise is not anticipated

b. No Shallow rock indicated by existing borings

c. Channel shift recommended = No
4. Special construction issues
- a. No shallow bedrock is present

b. It is desirable for new structure foundations to avoid existing
foundations when possible
5. Special survey = No
6. Aesthetic enhancements = No
7. Other
- a. Maintenance of Traffic - Off site detour potential. Approximately
8.6 miles.

b. Railroad crossing approximately 0.1 miles west of bridge.

Special Survey:None

~ 1 ~

CONCEPT REPORT

BRIDGE ESTIMATE:				
Item	Quantity	Unit	Rate	Amount
Twin Box Culvert - 10' x 10' x 100'	338.9	CY	\$900	\$305,010
Remove Existing Bridge	1120	SF	\$10	\$11,200
Revetment, Class E	200	TON	\$50	\$10,000
Mobilization	1	LS	10%	\$32,621
	Base Cost:		\$358,831	
	Contingency:		20%	\$71,766
	4 Years Inflation:		4.5%	\$82,898
	BRIDGE TOTAL:		\$513,495	
ROADWAY ESTIMATE:				
Item	Quantity	Unit	Rate	Amount
Embankment-in-Place, Contractor Furnished	1565	CY	\$40	\$62,600
Excavation, Class 13, Waste	1755	CY	\$38	\$66,690
Topsoil, Furnish and Spread	441	CY	\$75	\$33,059
Modified Subbase	290	CY	\$60	\$17,377
Paved Shoulder, PCC, 8"	521	SY	\$100	\$52,130
Shoulder Construction, Earth	5.86	STA	\$615	\$3,607
PCC Pavement	782	SY	\$150	\$117,292
Removal of Steel Beam Guardrail	270	LF	\$14	\$3,780
Removal of Pavement	798	SY	\$25	\$19,946
Additional Roadway Items	1	LS	\$10,000	\$10,000
Erosion Control	1	LS	1%	\$3,765
Detour	1	LS	5%	\$18,824
Mobilization	1	LS	10%	\$37,648
	Base Cost:		\$446,717	
	Contingency:		20%	\$89,343
	4 Years Inflation:		4.5%	\$103,202
	ROADWAY TOTAL:		\$639,262	
PROJECT TOTAL:			\$1,152,757	

FIELD EXAM COST ESTIMATE

Plan and Profile:

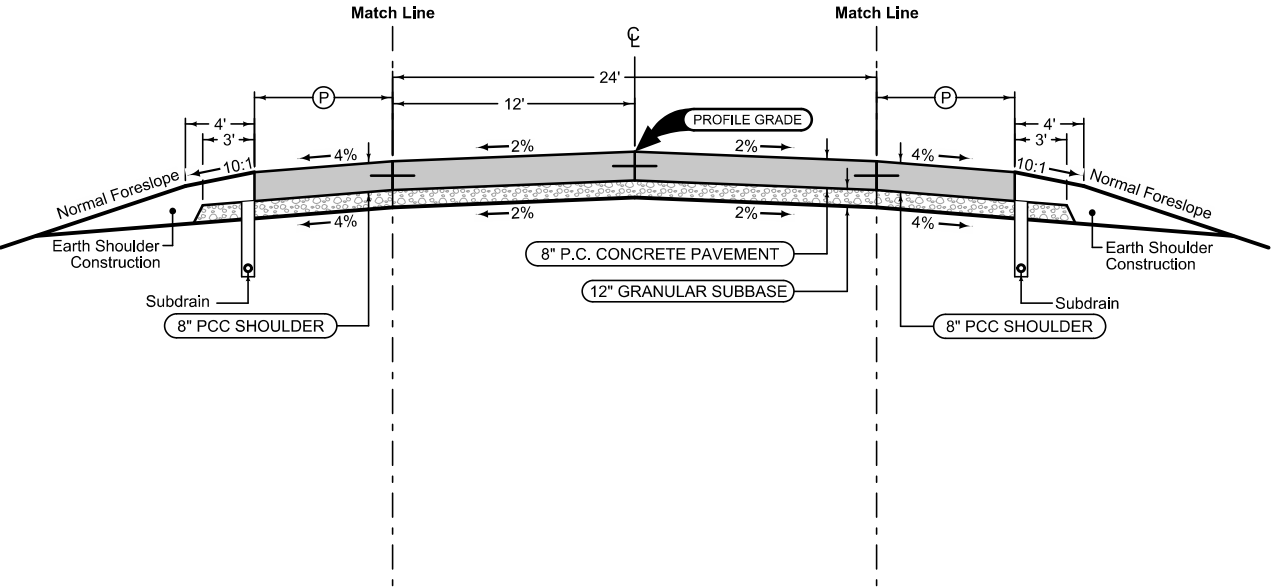
The speed limit on IA 9 is 55 mph and we are using a 60 mph Design Speed. If we can get an exception to reduce the design speed to 55 mph, this would reduce the earthwork as well as construction limits.

Power poles will be located within ditch area. Discuss utility relocation.

The DGN file in the DistrictROW ProjectWise folder does not contain any ROW lines. Is this information available?

In order to tie the existing ditches into the proposed culvert inverts, the proposed ditch grades exceed the 3% desirable grade. Should we consider extending the proposed ditch beyond the roadway limits to allow for flatter proposed ditch grades?

FIELD EXAM QUESTIONS



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

2P_ 04-21-20	
STATION TO STATION	
395+42.42	398+35.65

Full Depth PCC Shoulder

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

2_P_FullPCC_ 04-15-25		
STATION TO STATION		(P) Feet
395+42.42	398+35.65	8

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

— FO — Existing Fiber Optic
— W — Existing Water Line

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	50%
Yellow	(4)		Proposed Pavement Shading	50%
Orange	(6)		Proposed Granular Shading	50%
Orange	(70)		Proposed Shoulder Granular Shading	50%
Yellow	(68)		Proposed Shoulder Paved Full Depth Shading	50%
Yellow	(132)		Proposed Shoulder Paved Partial Depth Shading	50%
Brown, Light	(236)		Grading Shading	50%
Orange, Light	(134)		Proposed Granular Entrance Shading	50%
Yellow	(220)		Proposed Paved Entrance Shading	50%
Tan	(8)		Proposed Sidewalk Shading	50%
Blue, Light	(230)		Proposed Sidewalk Landing Shading	50%
Pink	(11)		Proposed Sidewalk Ramp Shading	50%
Red	(3)		Proposed Structure Shading	50%
Red	(3)		Delineates Restricted Areas	0%

PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS

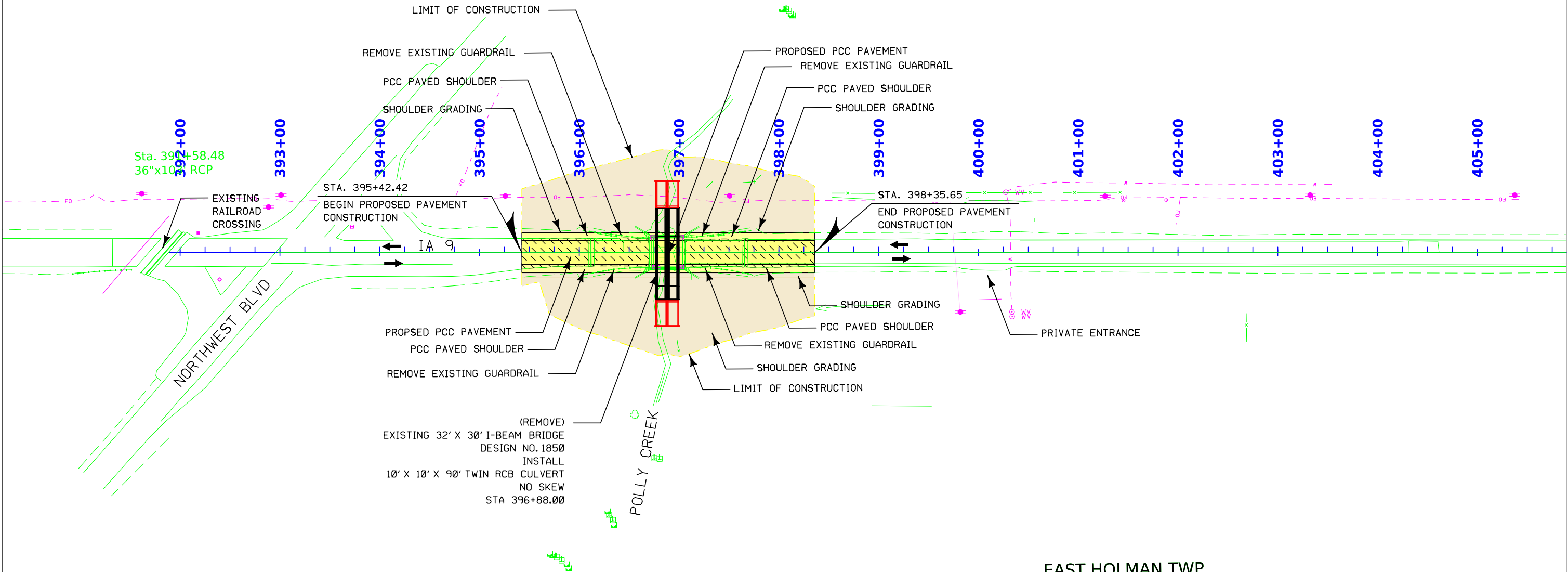
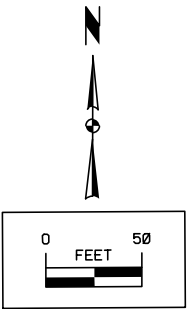
LINEWORK	Design Color No.	
Green	(10)	 Existing Ground Line Profile
Blue	(1)	 Proposed Profile and Annotation
Magenta	(5)	 Existing Utilities
Blue, Light	(230)	 Proposed Ditch Grades, Left
Black	(0)	 Proposed Ditch Grades, Median
Rust	(14)	 Proposed Ditch Grades, Right

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

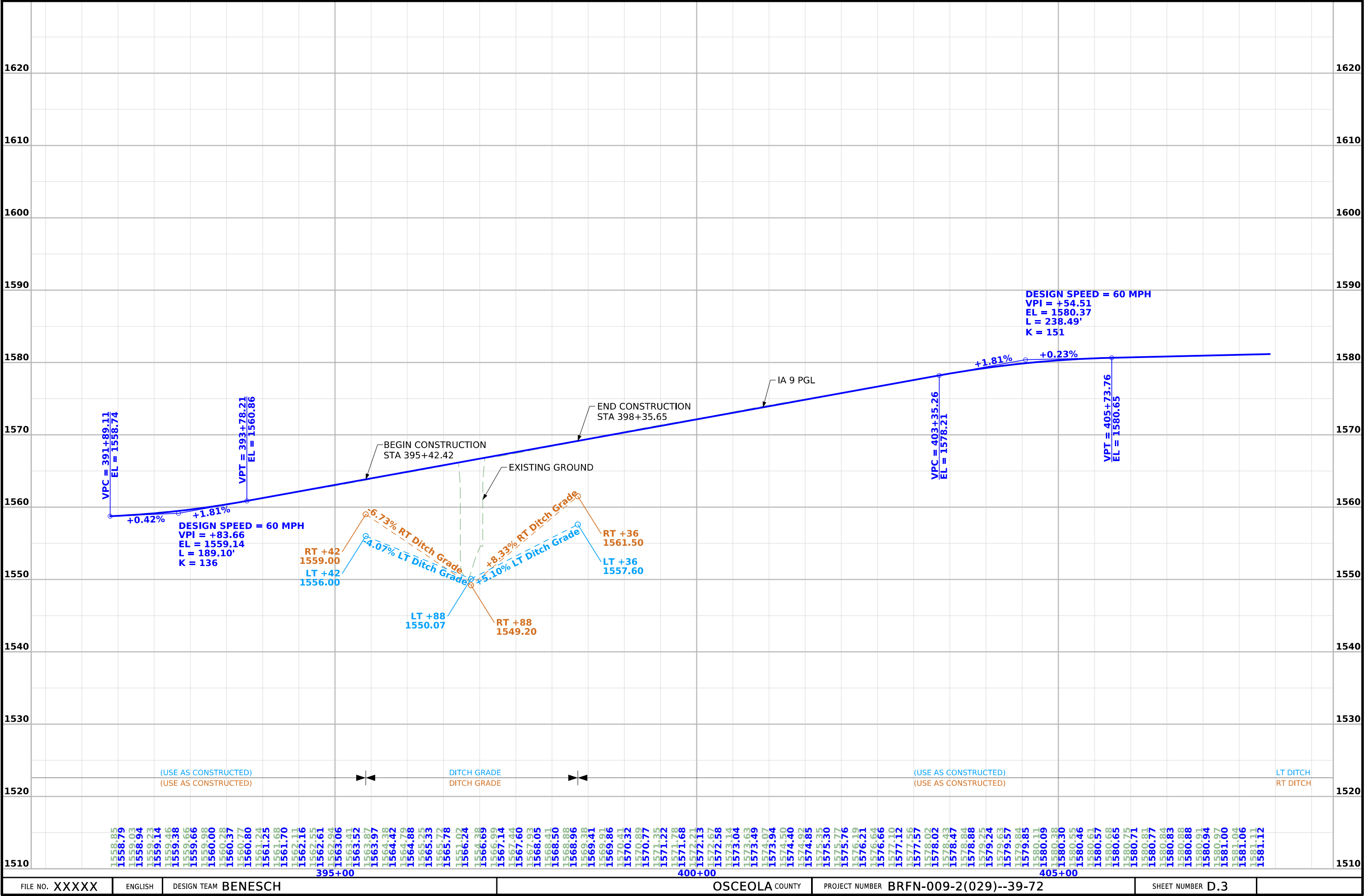
PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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

WILSON TWP.
T-100N R-41W
SEC. 31



EAST HOLMAN TWP.
T-99N R-41W
SEC. 6



SURVEY INDEX

County: Osceola
PIN: 24-72-009-030
Project Number: BRFN-009-2(029)--39-72
Location: Polly Creek 0.9 mi W of IA 60
Type of Work: Bridge Replacement
Project Directory: 7200903024

Survey Personnel

Tom Pajula – Survey Party Chief
Ricky Wesel – Assistant Survey Party Chief

Date(s) of Survey

Begin Date 12/02/2024
End Date 12/08/2024

General Information

This survey is for IA 9 bridge replacement at Polly Creek 0.9 miles west of IA 60. This survey request was for the US Hwy 34 corridor only. 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. Three five-minute observations were taken with a minimum two-hour time span between and used in a weighted average to obtain final coordinate values. For additional details of the control survey, contact the Preliminary Survey department.

PROJECT DATUM: NAD83
COORDINATE SYSTEM: IaRCS Zone 1 Spencer (U.S. SURVEY FOOT)
VERTICAL DATUM: NAVD88
GEOID MODEL: 2018

Alignment Information

The horizontal alignment for Iowa 9 this survey is a retrace of Plans for Project No. FA-882(2). Survey stationing was equated to the plan face of west abutment at Sta. 396+73.21, split the pavement to the far east, and carried back and ahead without equation throughout the survey. Stationing increases to the east in both the plan and the survey.

Survey stationing relates to plan stationing as follows:

POT Sta. 396+73.21 As-built Plans Project No. FA-160
Survey POT Sta. 396+73.21

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 01 (U.S. Survey Foot)

VERT. DATUM: NAVD88 - Geoid Model: 2018

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

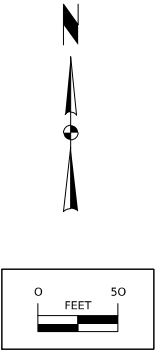
Point Name	Northing	Easting	Elevation	Code Description
11	9685158.05	11371680.26	1558.52	CP MAG NAIL S SIDE OF IA 9 NW OF NORTHWEST BLVD +/-7FT SE OF NEAR RAIL +/-56.5FT W OF STOP SIGN POST +/-65FT NORTHWESTERLY OF LIGHT POLE
12	9685154.06	11372139.38	1564.75	CP ROD W CAP S SIDE OF IA 9 +/-70FT E OF EAST 9 SIGN POST +/-4FT S OF GUARDRAIL POSTS
13	9685157.02	11372589.88	1573.55	CP COG GEAR S SIDE OF IA 9 +/-0.5FT N OF BIT SHOULDER +/-70FT E OF DRIVEWAY
AB1	9685152.7	11371746.5	1558.36	BM SQUARE CUT SOUTHEAST SIDE OF LIGHT POLE FOUNDATION SOUTHWEST QUADRANT OF NORTHWEST BLVD. AND IOWA 9

4:54:59 PM

8/1/2025

jMajcher

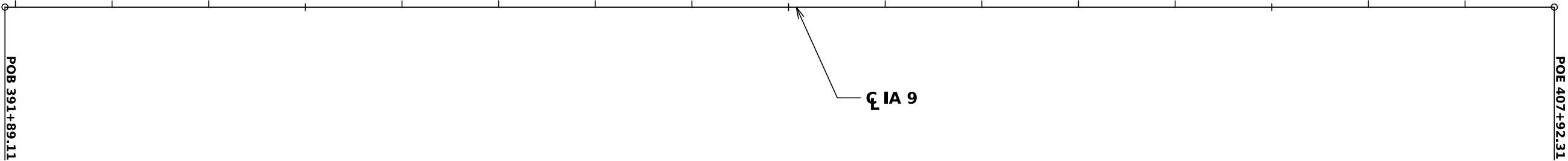
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395+00

400+00

405+00



℄ IA 9

ALIGNMENT
IA 9

ALIGNMENT COORDINATES																			101_16 10/25/24
Name	Location	Point on Tangent Station	Point on Tangent Y Northing	Point on Tangent X Easting	Begin Spiral Station	Begin Spiral Y Northing	Begin Spiral X Easting	Begin Curve Station	Begin Curve Y Northing	Begin Curve X Easting	Simple Curve PI or Master PI Station	Simple Curve PI or Master PI Y Northing	Simple Curve PI or Master PI X Easting	End Curve Station	End Curve Y Northing	End Curve X Easting	End Spiral Station	End Spiral Y Northing	End Spiral X Easting
PrCL IA 9	Mainline	391+89.11	9685180.90	11371695.83															
PrCL IA 9	Mainline	407+92.31	9685161.97	11373298.91															

108_23A
8/15/22

TRAFFIC CONTROL PLAN

IA 9 will be closed to traffic during construction using Standard Road Plan TC-252. Three detour options are presented on sheets J.2-J.4. In option 1, traffic is detoured via Northwest Boulevard, 2nd Avenue and IA 60. In option 2, traffic is detoured via Northwest Boulevard, 9th Avenue, 5th Street and IA 60. In option 3, traffic is detoured via L40 (Oriole Avenue), 100th Street and IA 60. All detour signs are to be provided, placed, maintained and removed by the Contractor as part of the Traffic Control bid item.

511 TRAVEL RESTRICTIONS												108_25 3/28/24
Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No. or Structure ID or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
			NONE ANTICIPATED				None					

108_26A
8/15/22

STAGING NOTES

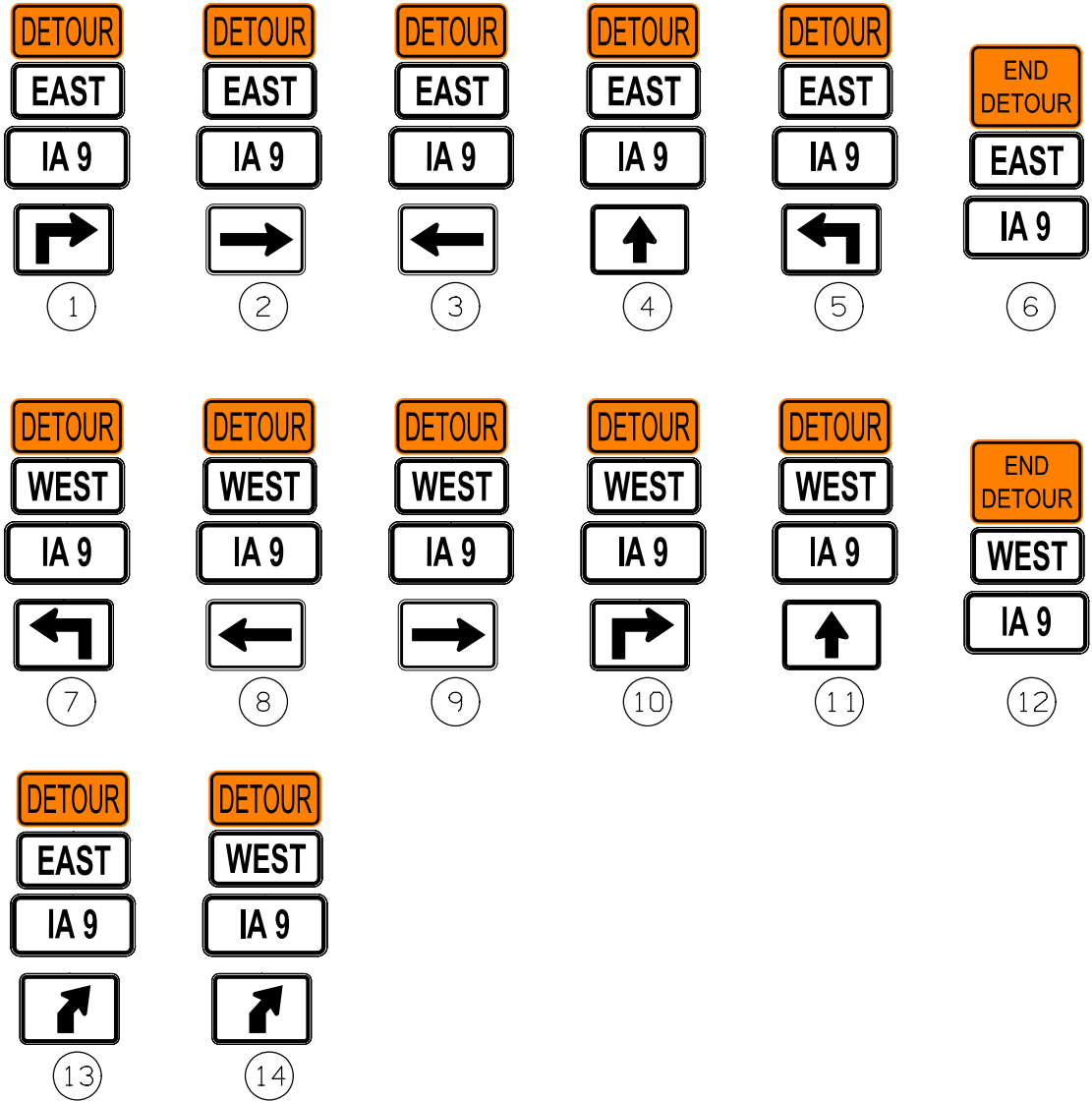
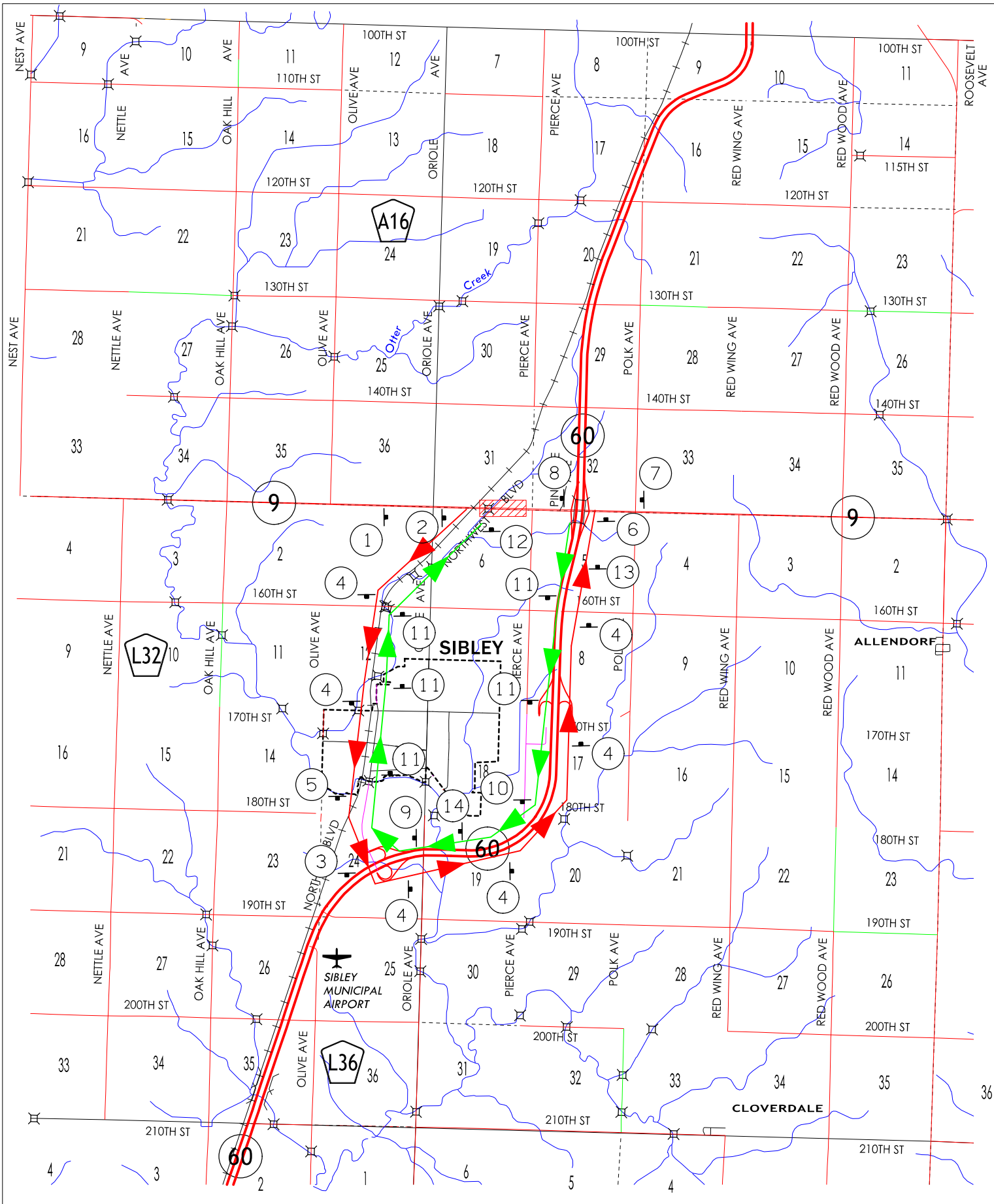
Construction will be performed in a single stage during a full closure of the bridge.

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
NONE ANTICIPATED	

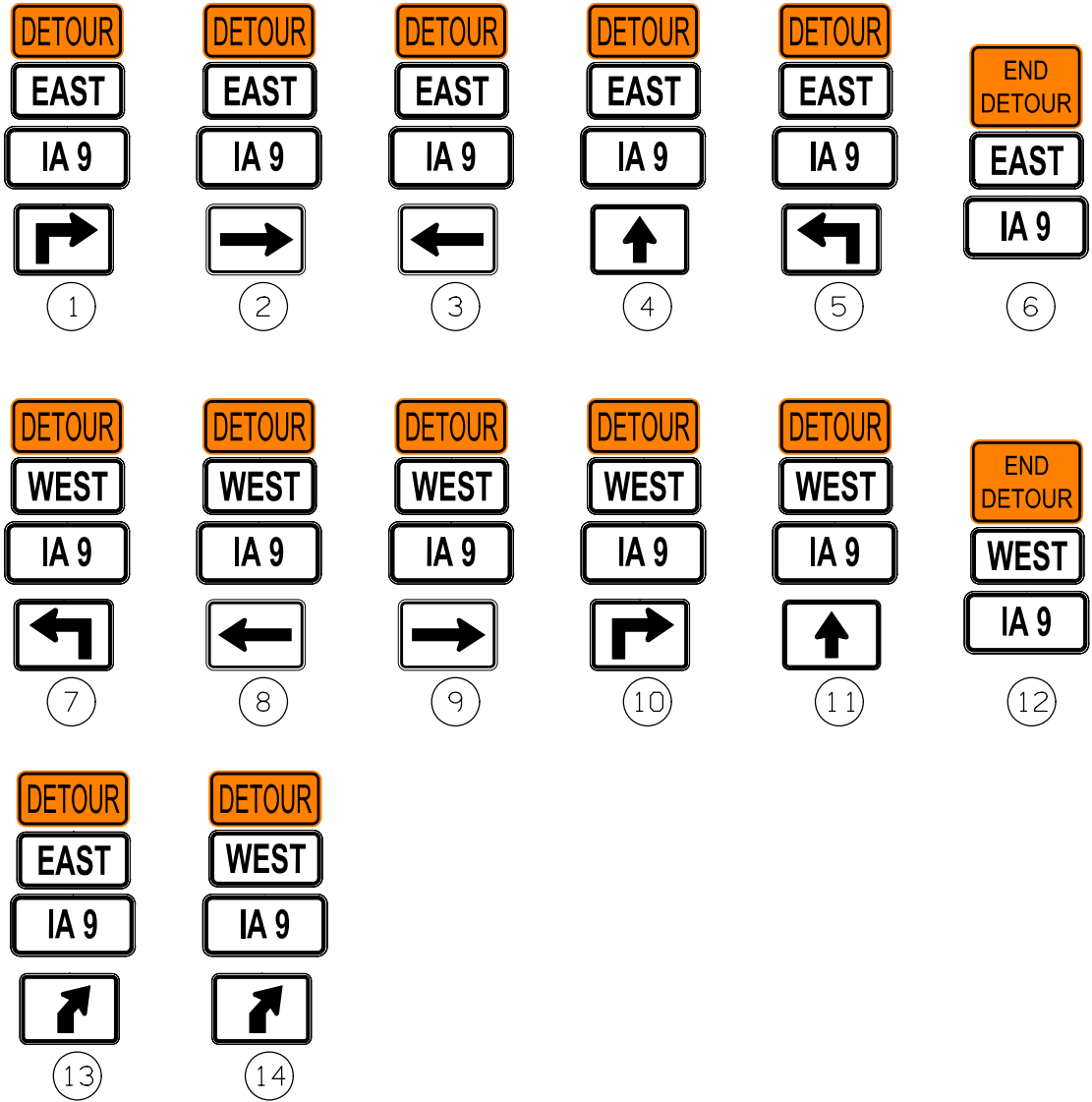
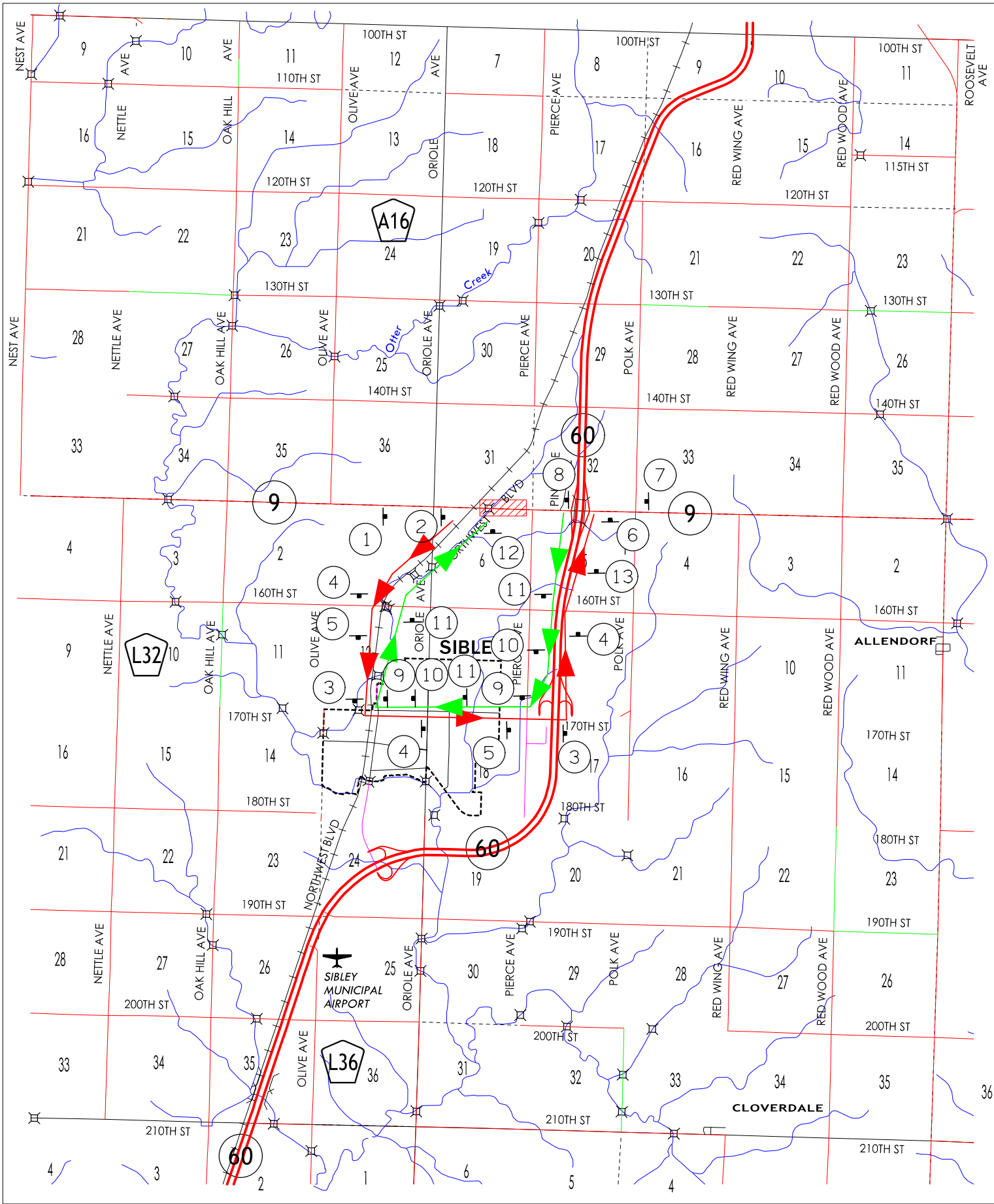


Notes:
All detour signs are to be provided, placed, maintained and removed by the Contractor as part of the Traffic Control bid item.

Access to be maintained to all entrances on IA 9.

- IA-9 WB Detour Route
- IA-9 EB Detour Route
- Road Closed

DETOUR OPTION 1
FOR CLOSURE OF IA 9

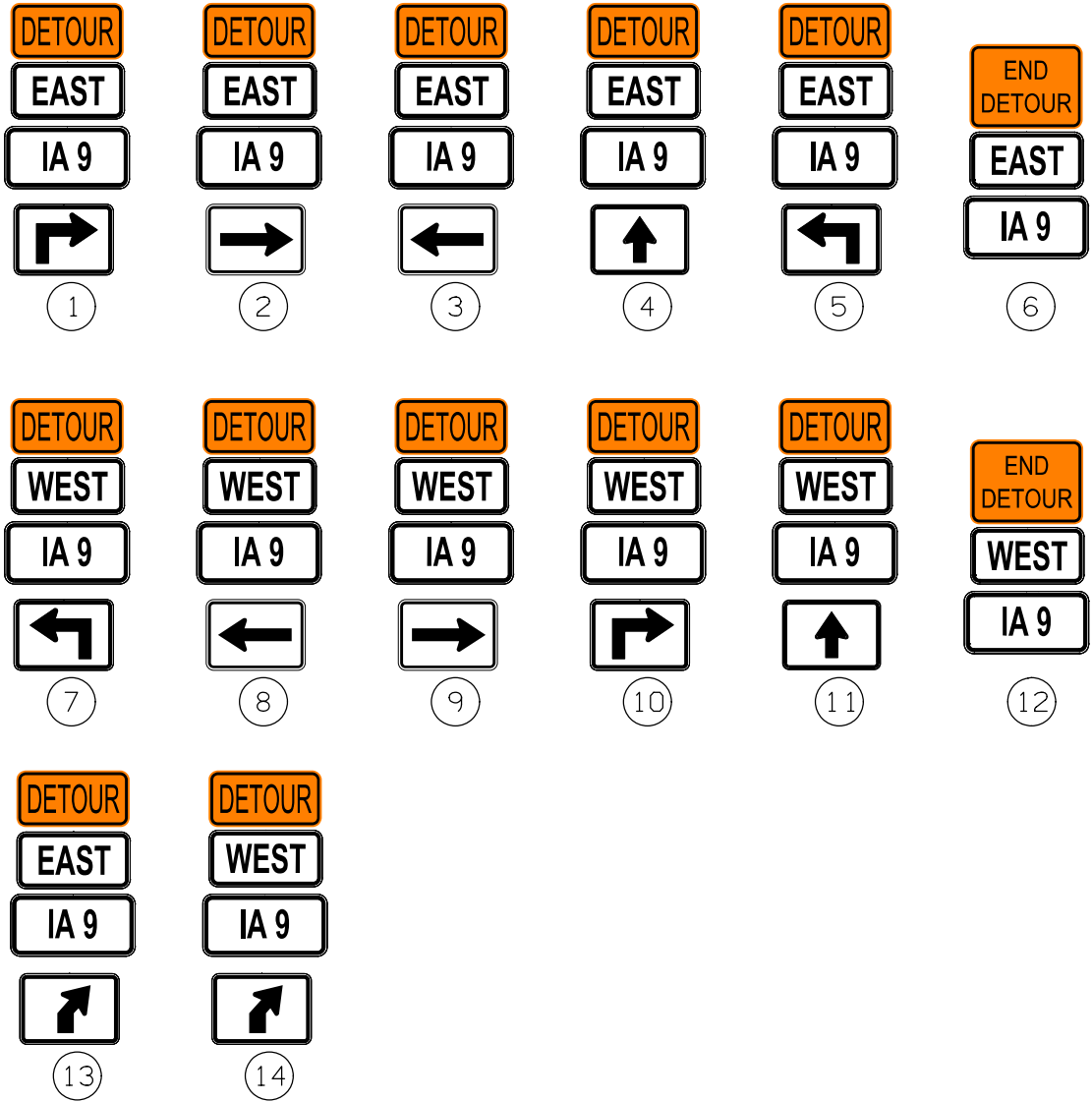
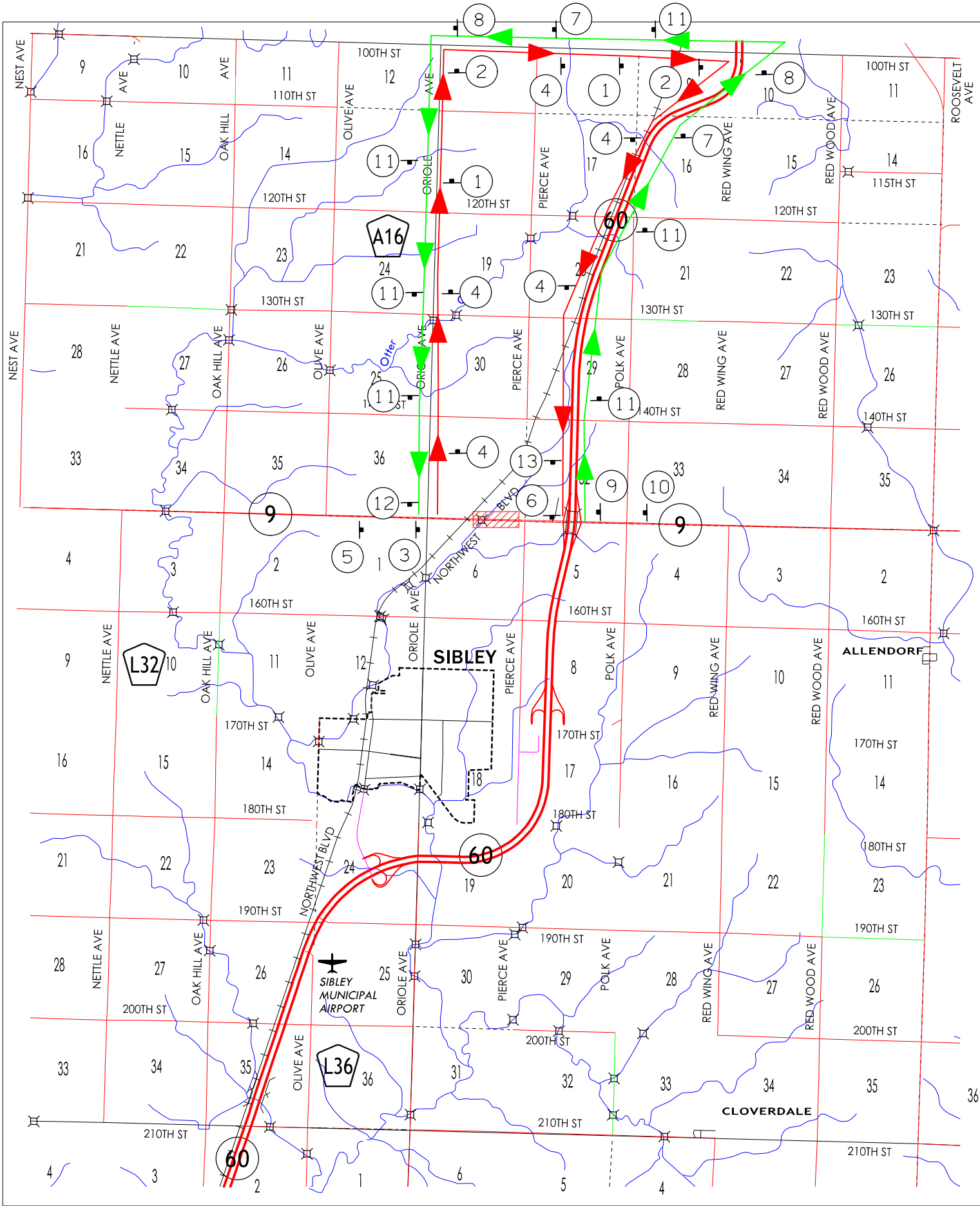


Notes:
All detour signs are to be provided, placed, maintained and removed by the Contractor as part of the Traffic Control bid item.

Access to be maintained to all entrances on IA 9.

- IA-9 WB Detour Route
- IA-9 EB Detour Route
- Road Closed

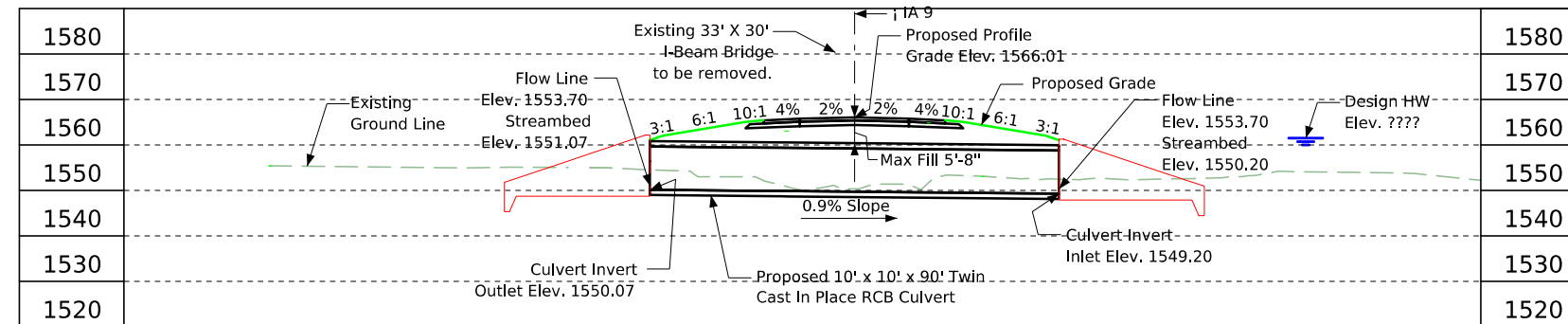
DETOUR OPTION 2
FOR CLOSURE OF IA 9



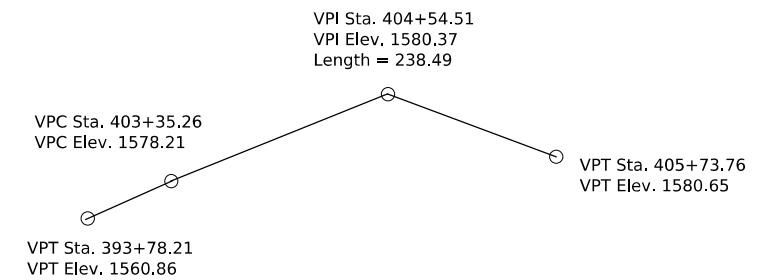
Notes:
All detour signs are to be provided, placed, maintained and removed by the Contractor as part of the Traffic Control bid item.
Access to be maintained to all entrances on IA 9.

- IA-9 WB Detour Route
- IA-9 EB Detour Route
- Road Closed

DETOUR OPTION 3
FOR CLOSURE OF IA 9

Control Point: Rod w/ cap south side of IA 9 $\pm$ 70 ft. east or east 9 sign post $\pm$ 4 ft. of guardrail posts

Longitudinal Section Along ; Culvert



Proposed Profile
Grade IA 9

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.

Signature	Eric J. Dean	Date
Printed or Typed Name		
My license renewal date is December 31,		2026

Pages or sheets covered by this seal:

Plan Notes:

1. Drainage through existing channel must be maintained throughout construction.
2. Culvert invert has been set 1' below streambed.

General Notes:

This design is for the replacement of the existing 33' x 30' I-Beam Bridge, Osceola County, Design No. 1850 FHWA No. 038460 Maint. No. 7242.3S009

Design Notes:

1. IA 9 will be closed during construction.
2. Additional ROW will be required.
3. Cast-in-place culvert is nonstandard.
4. Revetment is required at the ?????ds/us? end.

~~Hydraulic Data~~

~~RIDB: "MunnC_Grun, River Mile 0.89"
Drainage Area = 7.4 sq. mi.
Q₅₀ = 2,942 cfs
Q₁₀₀ = 3,482 cfs
HW Elev. = 955.19 (50 year)
Exit Velocity = 7.95 fps (50 year)
Stream Slope = 5.2 Ft./Mi.~~

Utilities Legend

F0 - Fiber Optic
W - Water

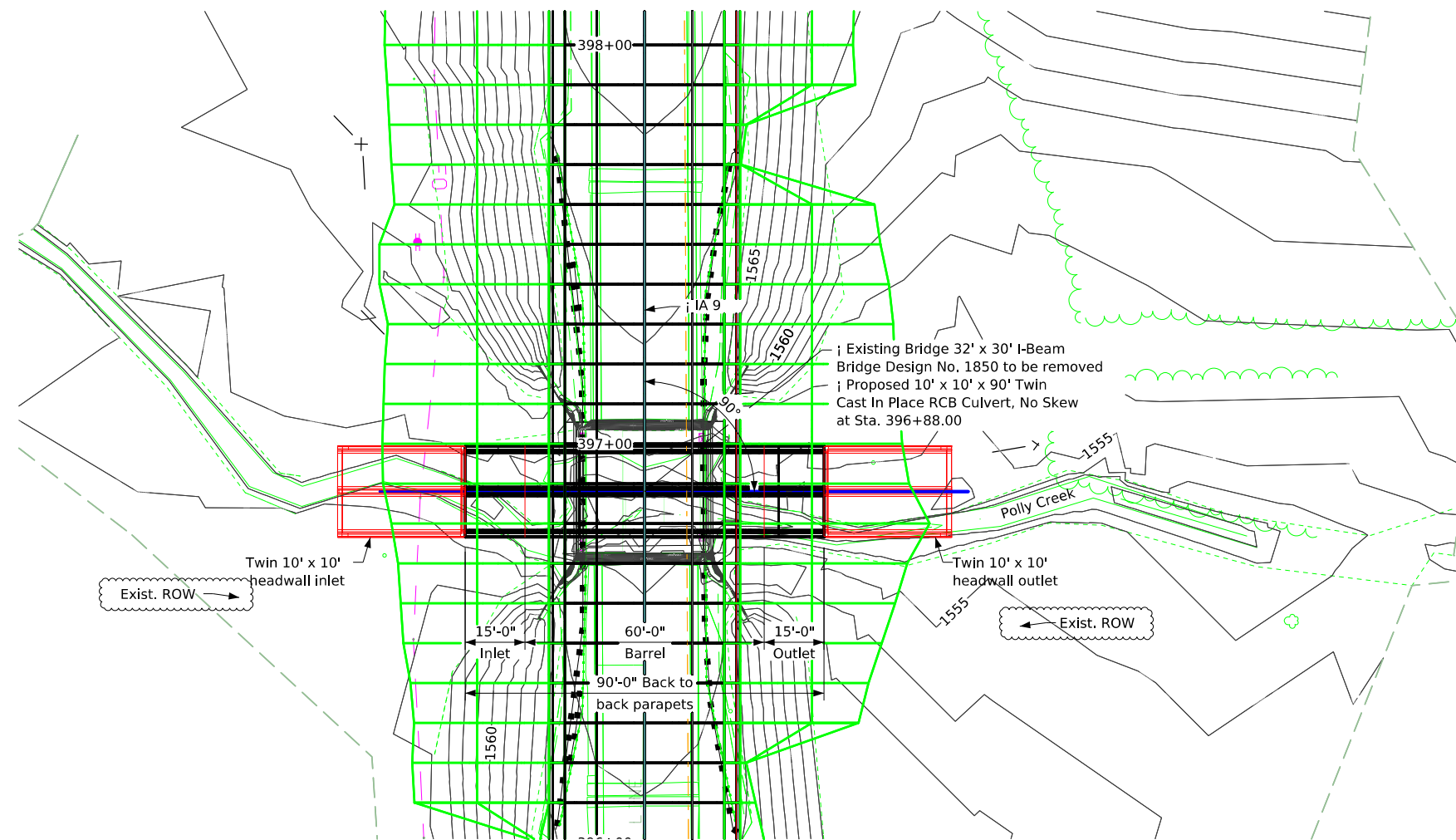
Utilities shown on this sheet are for information only, see Road Design sheets for final utility information.

Traffic Estimate

2024 AADT	1920 V.P.D.
TRUCKS	17 %
Total	
Design ESALs	1,000,000

Location

IA 9 over Polly Creek
In City of Sibley
T-99N, 100N R-41W
Sections 6,31
Wilson Township
Osceola County
FHWA No. 38460
Bridge Maint. No. 7242.35009
Latitude 43.432664°
Longitude -95.731180°



Situation Plan

Preliminary
Not For Construction

Design For 0 Degree

**Twin 10'x10'x90' Cast In Place
Reinforced Concrete Box Culvert**

Situation Plan - CIP

STA. 396+88.00 (IA 9)

Turn-in Date: July 2025

Osceola County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. ????

Design Sheet No. 1 of 1

FHWA/Asset 038460

FILE NO. 77777

ENGLISH

DESIGN TEAM Benesch

2:44:23 PM 8/1/2025 jMaicher c:\pw_work\pwmmain\jack.maicher\d2513173\SH 72009029 DSN# FHWA# CIP_Z01.dgn

Osceola COUNTY

PROJECT NUMBER BRFN-009-2(029)-39-72

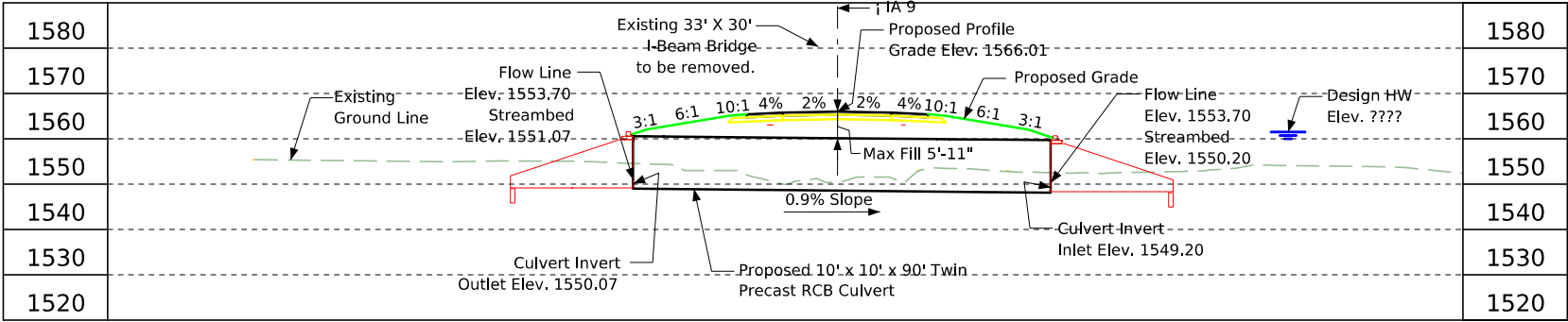
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V.1

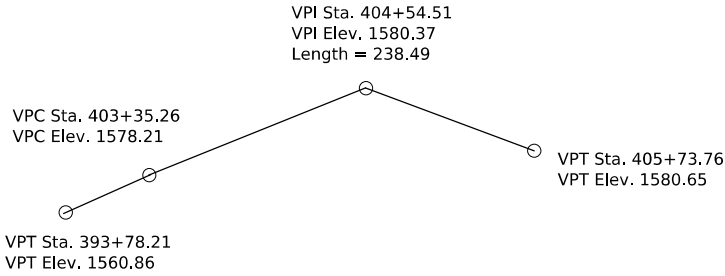
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Control Point: Rod w/ cap south side of IA 9 ±7 70 ft. east or east 9 sign post ±4 ft. of guardrail posts



Longitudinal Section Along i Culvert



Proposed Profile
Grade IA 9

General Notes:
This design is for the replacement of the existing 33' x 30' I-Beam Bridge, Osceola County, Design No. 1850 FHWA No. 038460 Maint. No. 7242.35009

Design Notes:
1. IA 9 will be closed during construction.
2. Additional ROW will be required.
3. Cast-in-place culvert is nonstandard.
4. Revetment is required at the ?????ds/us? end.

Plan Notes:
1. Drainage through existing channel must be maintained throughout construction.
2. Culvert invert has been set 1' below streambed.

Hydraulic Data
RIDB: "MunnC_Grun, River Mile 0.89"
Drainage Area = 7.4 sq. mi.
Q₅₀ = 2,942 cfs
Q₁₀₀ = 3,482 cfs
HW Elev. = 955.19 (50 year)
Exit Velocity = 7.95 fps (50 year)
Stream Slope = 5.2 Ft./Mi.

Utilities Legend

F0 - Fiber Optic
W - Water

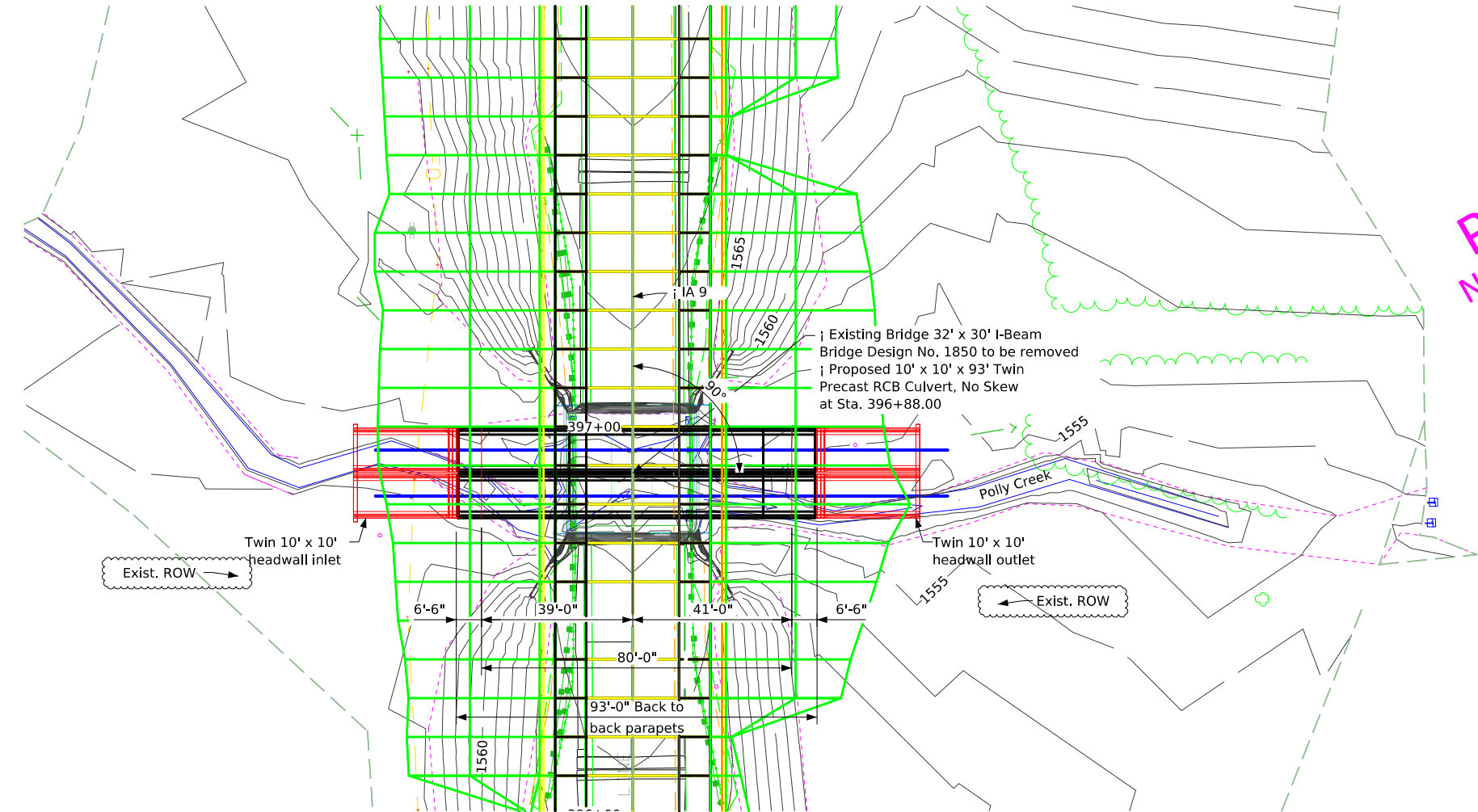
Utilities shown on this sheet are for information only, see Road Design sheets for final utility information.

Traffic Estimate

2024 AADT	1920 V.P.D.
TRUCKS	17 %
Total Design ESALs	1,000,000

Location

IA 9 over Polly Creek
In City of Sibley
T-99N, 100N R-41W
Sections 6,31
Wilson Township
Osceola County
FHWA No. 38460
Bridge Maint. No. 7242.35009
Latitude 43.432664°
Longitude -95.731180°



Situation Plan

Preliminary
Not For Construction

Design For 0 Degree

Twin 10'x10'x93' Precast Reinforced Concrete Box Culvert

Situation Plan - PC

STA. 396+88.00 (IA 9)

Turn-in Date: July 2025

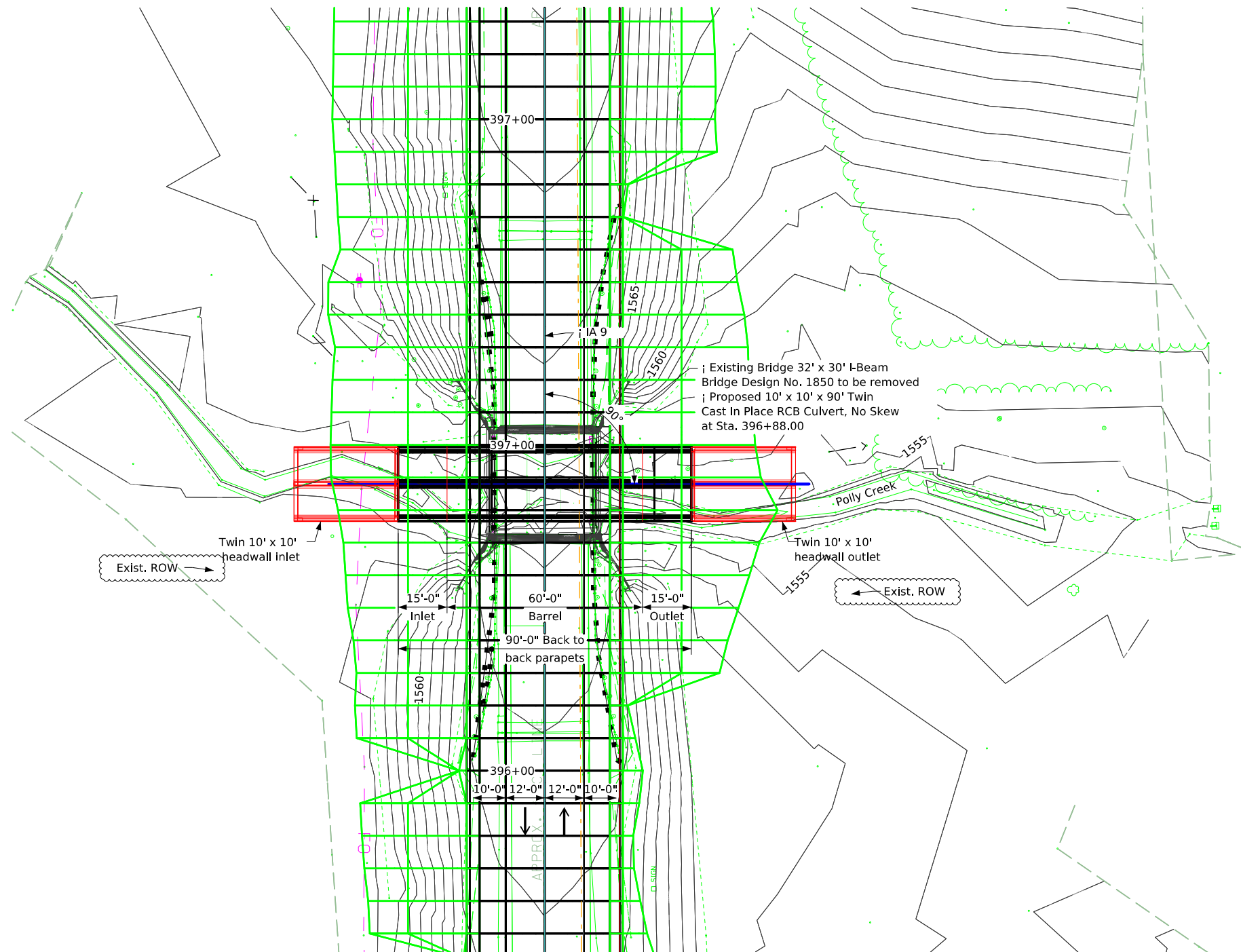
Osceola County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. ????

Design Sheet No. 1 of 1

FHWA/Asset 038460



Situation Plan



Design For 0 Degree

Twin 10'x10' Reinforced Concrete Box Culvert

Situation Plan - Site

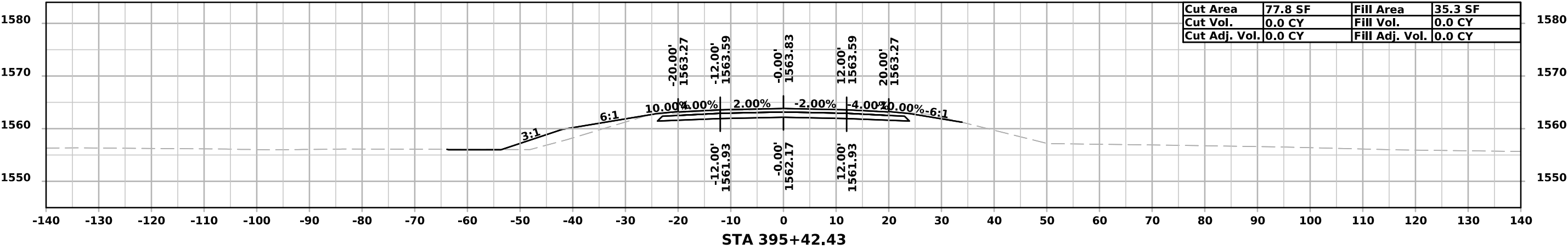
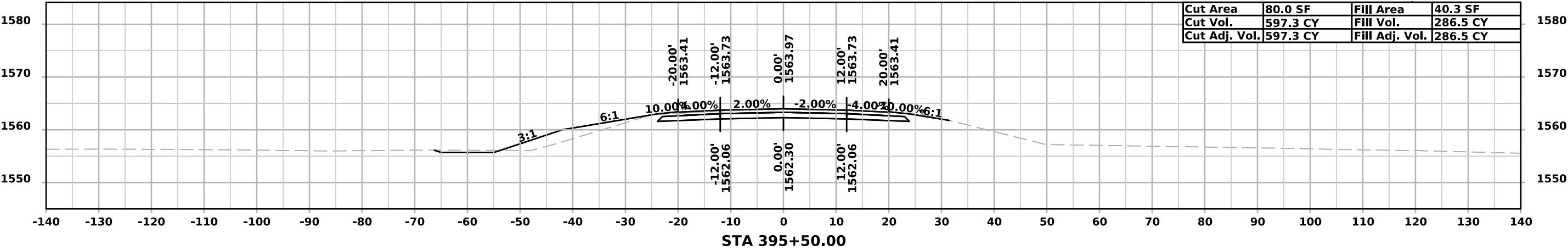
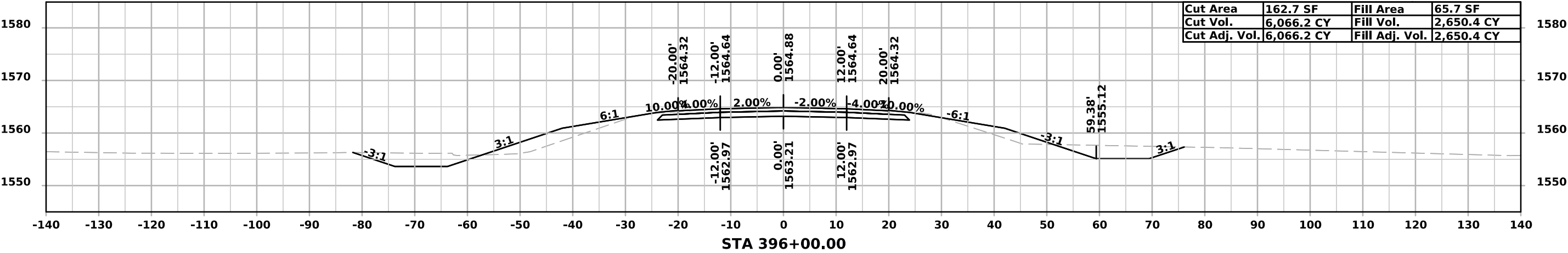
STA. 396+88.00 (IA 9) Turn-in Date: July 2025

Osceola County

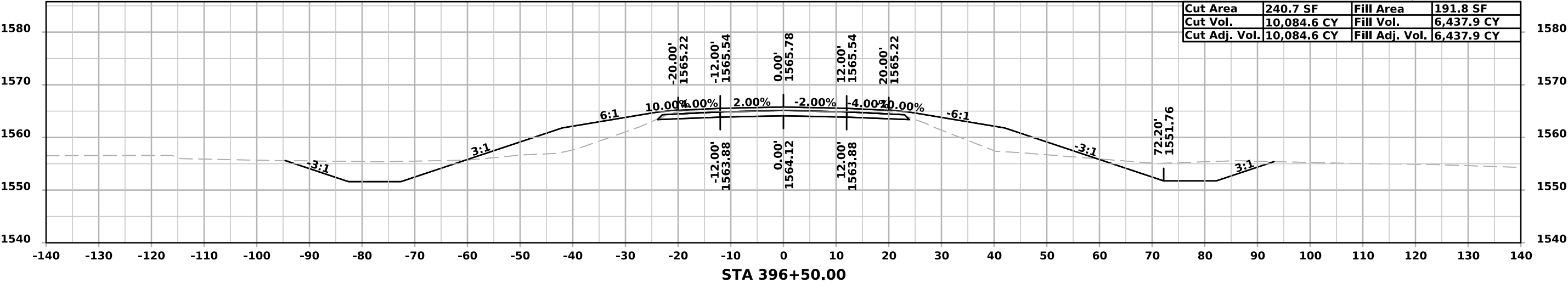
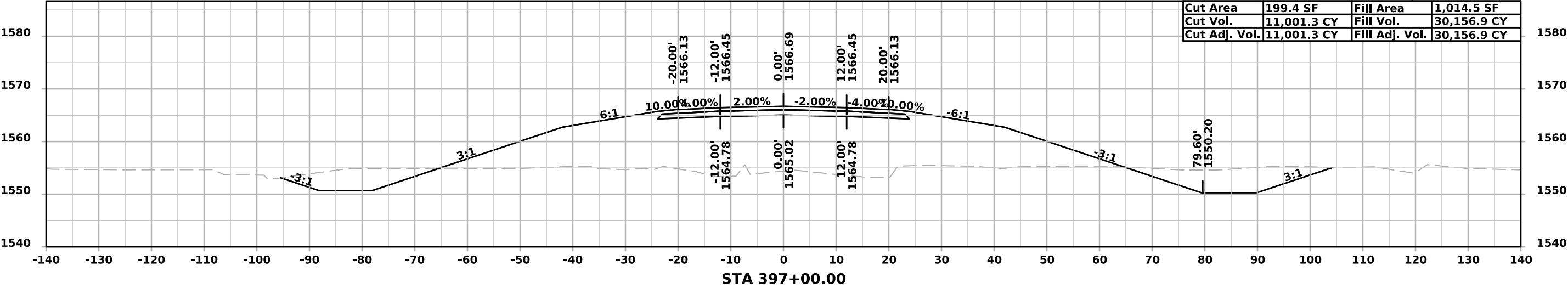
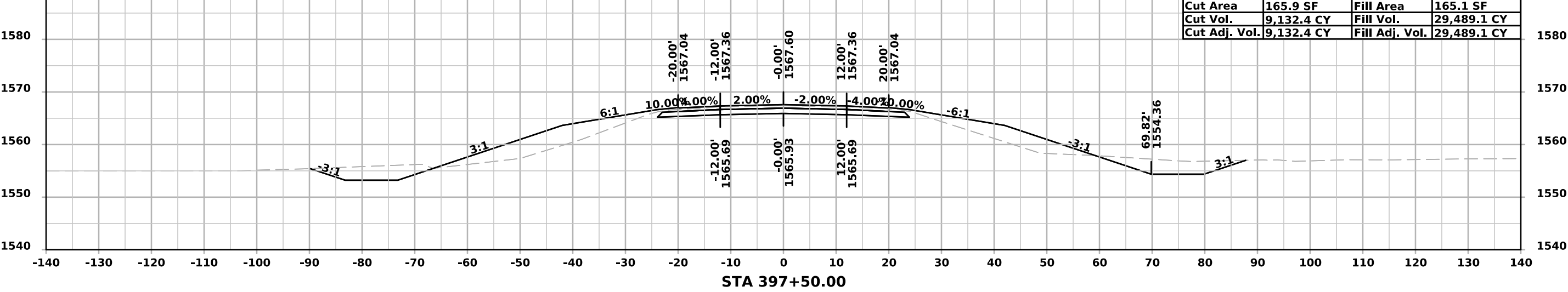
IOWA DEPARTMENT OF TRANSPORTATION

Design No. ??? Design Sheet No. 1 of 1 FHWA/Asset 038460

ML - IA 9



ML - IA 9



ML - IA 9

