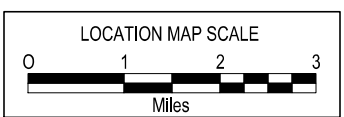
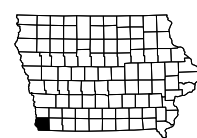
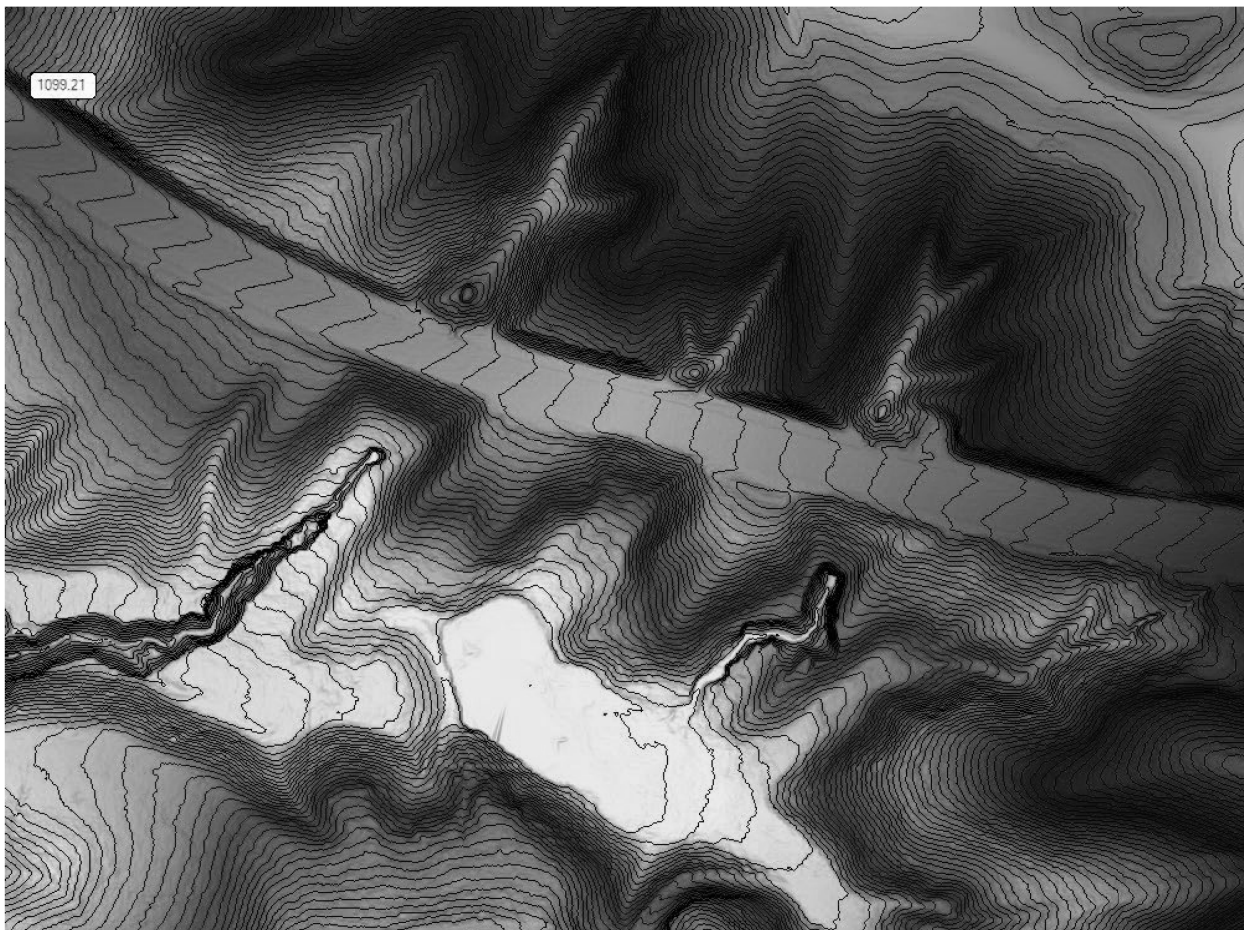
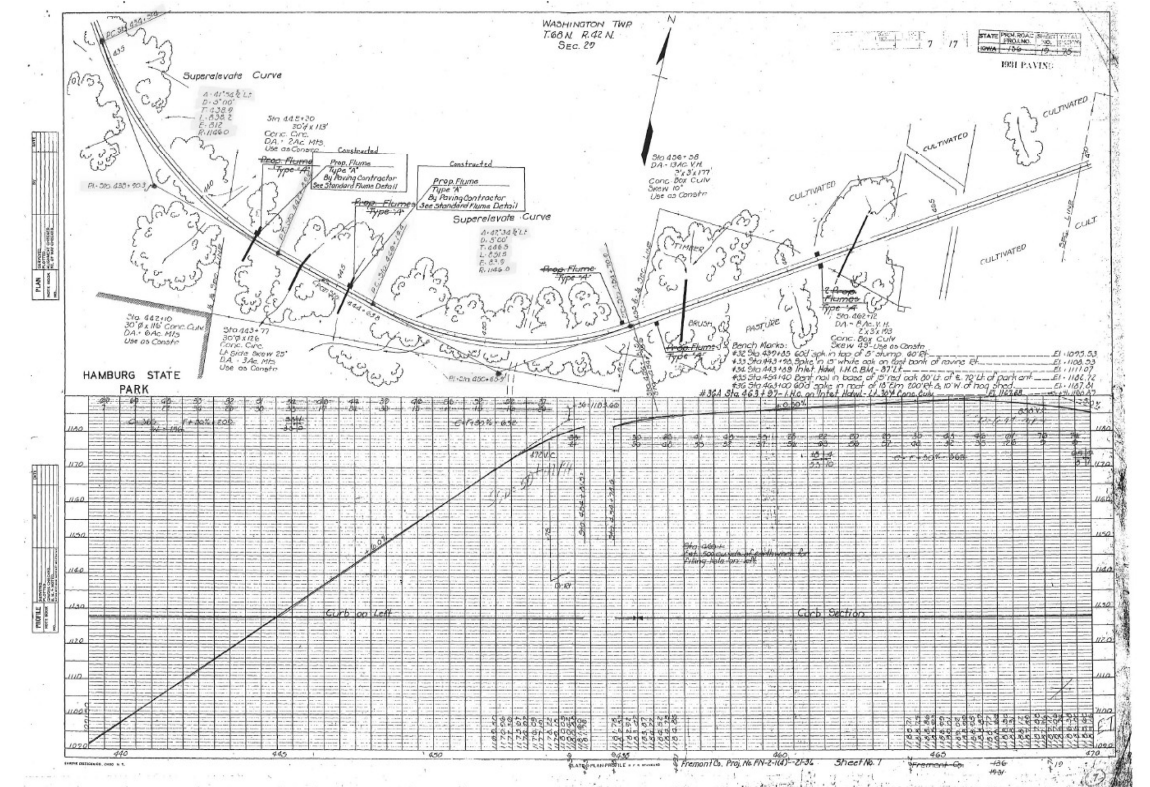


IA 2 Project Location
Sta. 440+00.00 - Sta. 446+00.00



B. Present Facility

The existing pipes are 30'' x 126 and 30'' x 116 , circular concrete pipes culverts. Built in 1967



C. Traffic Estimates

Passenger Vehicle AADT: **1442**
 Single Unit Truck AADT: **65**
 Combination Truck AADT: **123**

Total Roadway AADT: 1630 vehicles

D. Functional Classification

IA 2 is classified as "Minor Arterial" road.

E. Access Control

There is currently no suitable access to the erosion location. Access will be through a private Property east of the 3 pipes.

F. Crash History

During the five-year study period from January 1, 2020 through December 31, 2024, there were 0 crashes.

II. PROJECT CONCEPT

A. Feasible Alternatives

Alternative #1 – Pipe extension

Restore/fill all eroded areas, roadway embankment, and ditch grading to what It originally was . Then extend the existing RCP with a near Flat RCP extension (~1% slope) until they discharges at the natural stream flow line elevation at the outlet. Place revetment at the outlet of the proposed extension.

Cost Estimate

RCP -310 Lf @ \$187/ft	60,000
Aprons 3 @ 5000/each	15,000
Revetment 26800 SF ,2977T @50\$/T	150,000
Engineering fabric	50,000
Debris removal	30,000
Traffic Control	15,000
Mobilization (10%)	32,000
Contingency and Misc. (20%)	<u>70,000</u>
Total	\$422,000

Alternative #2: Erosion Control Basin

Place an Erosion Control Basins at the outlets of the Pipes

Bridge Items	<u>Estimated Costs</u>
Revetment 106 T @\$50/T	5,300
Debris removal/earthwork,3pipe	150,000
Traffic Control	15,000
Mobilization (10%)	16,000
Contingency and Misc.	<u>39,000</u>
(20%) Project Total	\$225,000

C. Recommendations

Alternative 2 is the recommended alternative, the Riprap basin will dissipate the energy of flow from the steep pipe then release it at a lower velocity.

It will also be easier to maintain. The district also expressed a preference for having the repair visible at the surface rather than using a buried pipe extension. This alternative also significantly more cost-effective.

D. Traffic Control:

Traffic will be maintained on IA 2 using a flagging operation during construction.

E. ADA Accommodations

There are no bike paths or sidewalks adjacent to IA 2; therefore, no ADA accommodations are planned in conjunction with this project.

F. Special Considerations

Fencing will be required, there was existing fence there. and it's washed out.

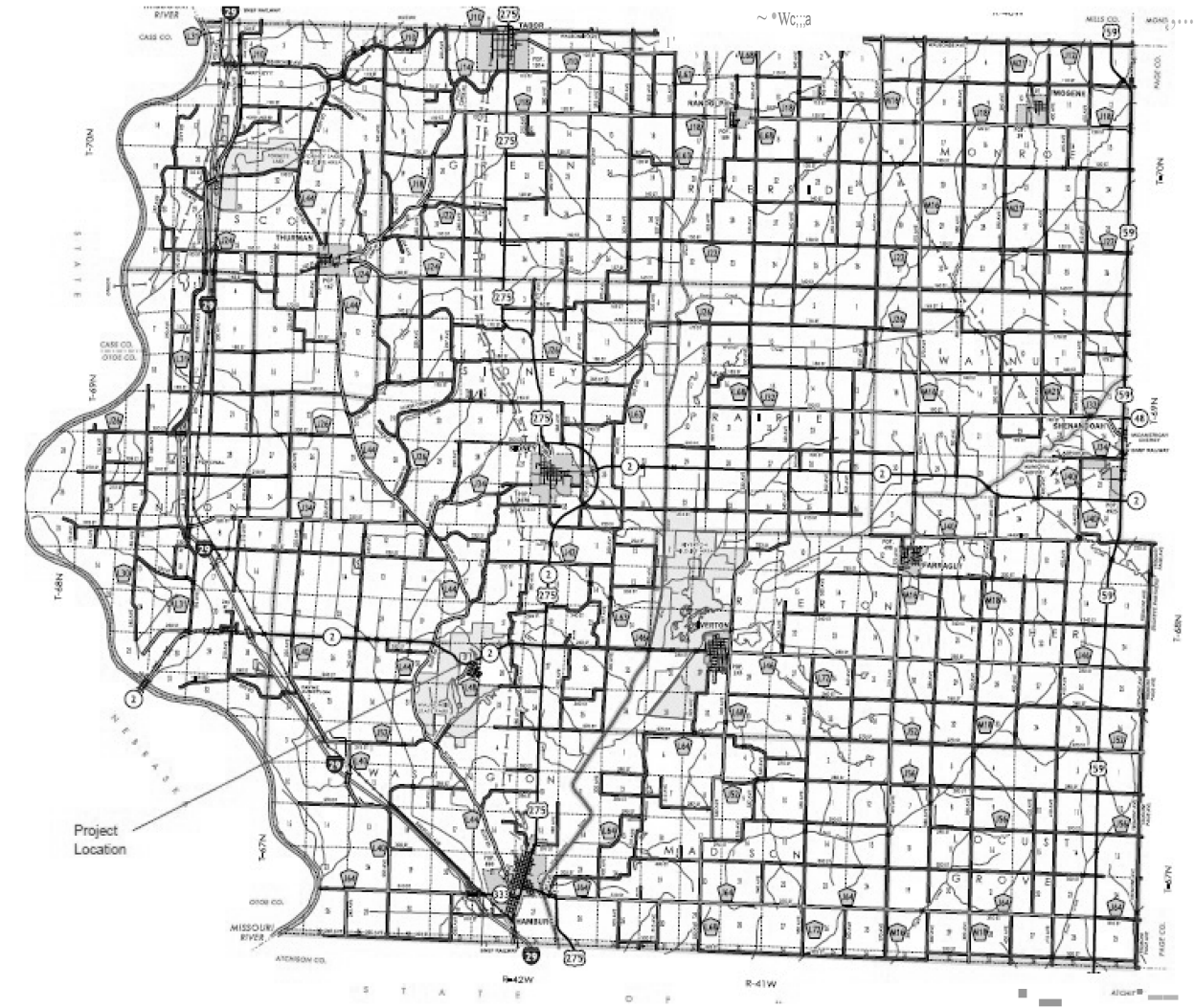
This will not be a traffic critical project.

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.

G. Right of way

Right of Way will be required for this project.



Bridge Bureau Attachment for Concept Statement

Date: <03 04, 2026>
By: <M.dokmak>
Location: <0.2 mi W of Waubonsie Park Rd>

County: <Fremont> County
 Phase No.: <MP-002-4(721)9--76-36>
 Project Code: <26-36-002-010 >

1. Regulatory/Coordination
 - a. Iowa DNR Flood Plain permit = < No>
 - b. Iowa DNR Sovereign Lands permit = < No>
 - c. Local Record of Coordination = < No>
 - d. Flood Insurance Study = <No> <
 - 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>
 - k. Obstruction Evaluation/Airport Airspace Analysis per FAA website = <No>
2. Hydrologic/Hydraulic Analysis/RIDB Dataset
 - a. Design discharge methodology (Not required)
 - b. Hydraulic analysis (Not required)
 - c. If DA > 10 sq. mi. Riverine Infrastructure Database (RIDB) dataset is required with B1 submittal = <No>
3. Structure/Roadway Layout Considerations
 - a. Roadway profile grade raise is not anticipated
 - b. Restore the Roadway embankment and ditch grading.

C Extend the existing RCP with a CM pipe (letdown structure) so the outlet discharges at the natural stream flow line elevation. or revet the entire eroded area with Class E revetment.

 - d. revetement-ROW acquisition might be needed.
4. Special construction issues
 - a. Extend the existing RCP with a letdown structure beyond the ROW limits.
 - b. letdown pipe slope could become excessively steep in order to tie into the natural stream flow line elevation while avoiding a shallow surface condition.
 - c.
5. Special survey = <Yes>
6. Aesthetic enhancements = <No>
 - a. =<Maintenance of Traffic - Staged construction

Special Survey:
 include all 3 pipes next to each other.

~ 1 ~

Bridge Cost Estimate and Analysis for Concept Statement

Location:
 County: Fremont County
 Des. No.: <N/A>
 Maint. No.: <0000.0x000>
 On <Route over Crossing>
 Section <29, T-68N, R-42W>
 Functional Class: <Local Road>
 By: <M,Dokmak>

Phase No.: < MP-002-4(721)9--76-36 >
 Project Code: < 26-36-002-010 >
 FHWA No.: <0000>
 Sta.: <Station>
 AADT: <1630 vehicles / 11.53% trucks >
 Date: <03/05/2026>

Existing Structure :

Type: Conc. Circular Pipe culvert Length x Width: 30'' x 116' / 30'' x 126
 Pier Type: <N/A> Abut. Type: <Ex.Integral/Stub/SemiInt.>
 Spans: ??, ??, ?? Approach Pavement Width: ??'
 Skew: ?? deg <Lt/Rt> Ahead
 Drainage Area: 6 Acers.
 New/Reconstructed Roadway Width: <See Replacement Request>

General Comments:

2 Alternatives were proposed:

Alt 1: Restore/fill all eroded areas, roadway embankment, and ditch grading. Then extend the existing RCP with a CM pipe (letdown structure) until it discharges at the natural stream flow line elevation at the outlet. Place revetment at the outlet of the proposed extension.

Alt 2: place an erosion control basins at the outlets

Alt 1 -

Type: <Pipe extension, CMP> Length x Diameter: pipe 1: 208'-0 x 30''-0
 / pipe 2: 100'-0 x 30''
 Pier Type: <N/A> Abutment Type: <N/Ae>
 Spans: ??'-?, ??'-?, ??'-? Skew: ?? degrees <L.A. or R.A.>
 Stage Traffic: <How is traffic maintained for this option Ex. Off-site detour, on-site detour, staged, ABC>

Costs:

Corrugated Metal Pipe - 308 LF @ \$73/lf	= \$	23,000
Aprons 2 @ 5000/each	= \$	10,000
Debris removal	= \$	20,000
Traffic Control	= \$	15,000
Revetment	= \$	30,000
Mobilization (10%)	= \$	10,000
Contingency and Misc. (20%)	= \$	21,000

Bridge Concept Statement

<County> County
 Project Number <Project #>

Total Alt 1

\$ 129,000

Alt 2 -

Type: <Class B revetment for pipe 1,2&3 Length x Width: ??'-0 x ??'-0
 Pier Type: <Type> Abutment Type: <Type>
 Spans: ??'-?, ??'-?, ??'-? Skew: ?? degrees <L.A. or R.A.>
 Stage Traffic: <How is traffic maintained for this option Ex. Off-site detour,
 on-site detour, staged, ABC>

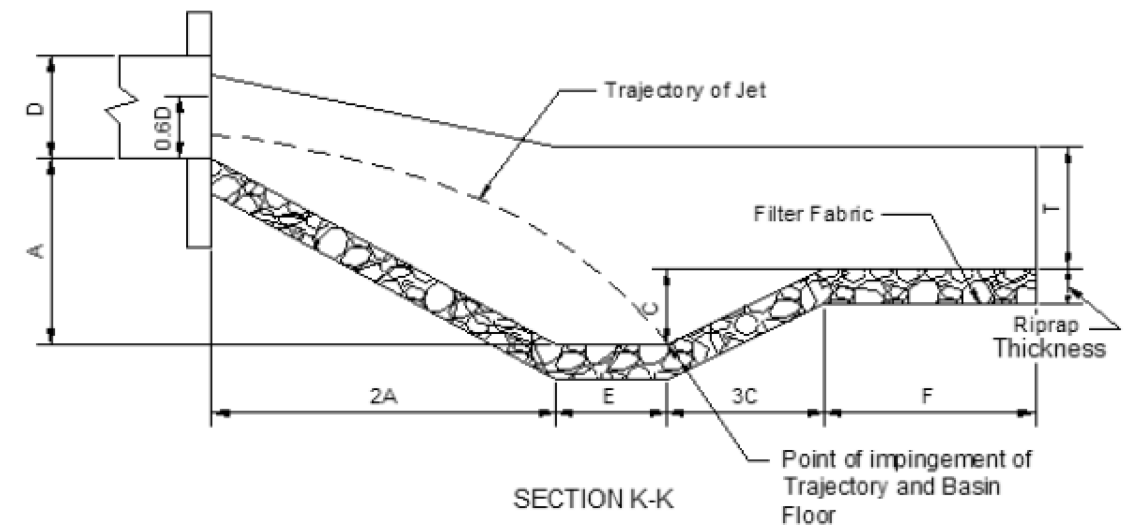
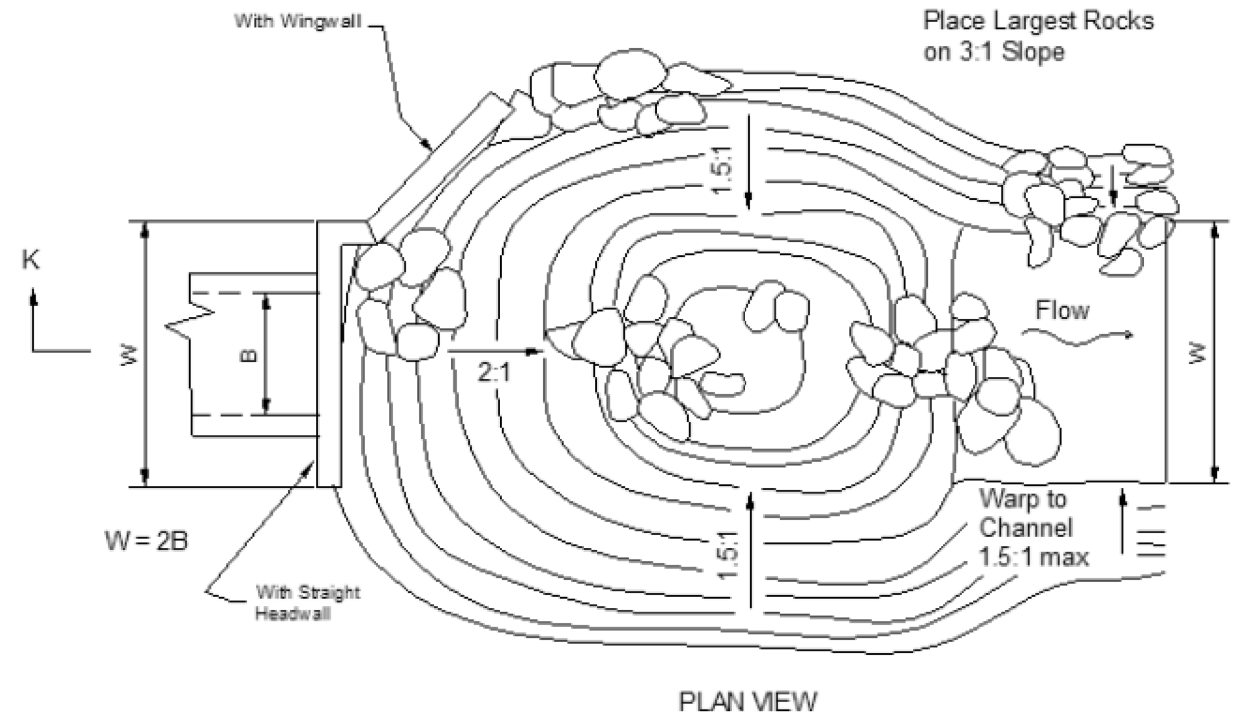
Costs:

3 pipes riprap basin 106 T @50\$/	= \$	5,300
t Debris removal/earth work	= \$	150,000
Traffic control	= \$	15,000
Mobilization (10%)	= \$	16,000
Contingency and Misc. (20%)	= \$	39,000

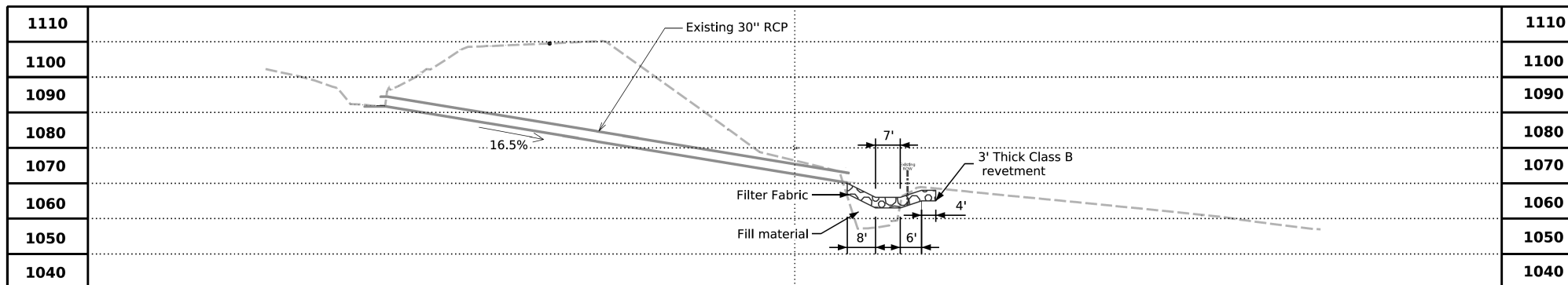
Total Alt 2

\$ 225,000

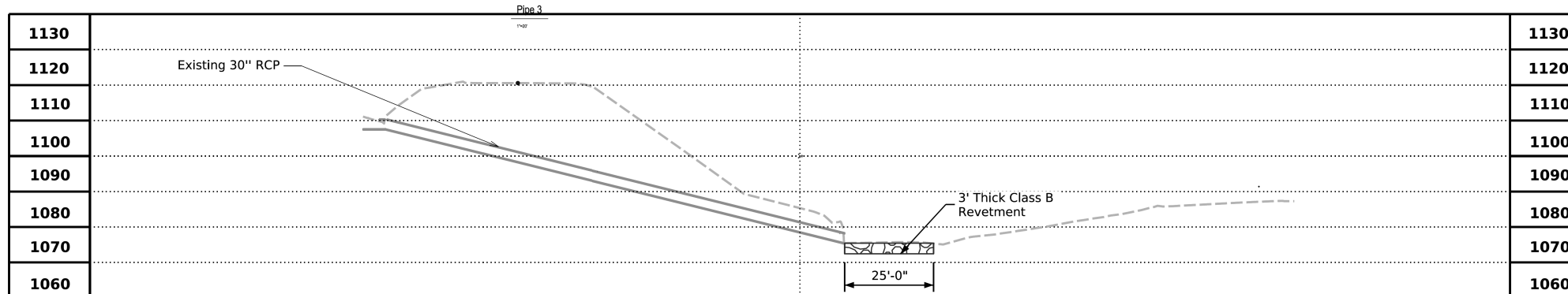
Alt 2:



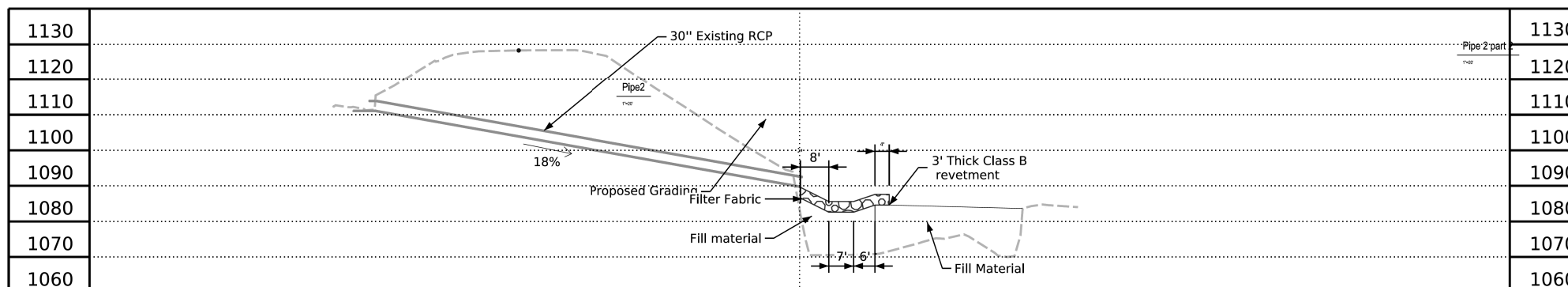
1140



Pipe 1



Pipe 2



Pipe 3

Design For
Alternative 2
Pipe Extension/Erosion Repair
 STA. () Turn-In Date:
Fremont County
 IOWA DEPARTMENT OF TRANSPORTATION
 Design No. Design Sheet No. Pipes Cross Section No./Asset
 V.0

Q IA 2

Existing 30" RCP

Existing 30" RCP

ROW

Existing Contours

3' thick embedded Class b revetment

Erosion Control Basin

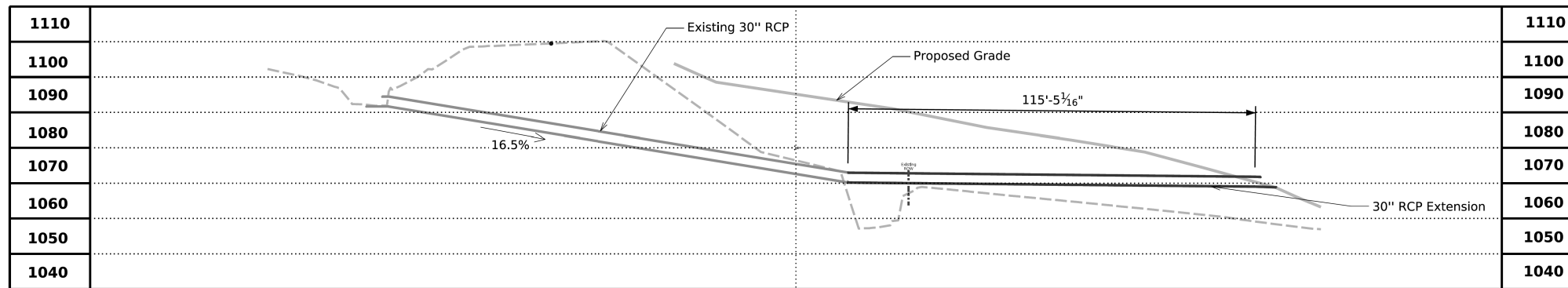
3' thick embedded Class b revetment

3' thick embedded Class b revetment

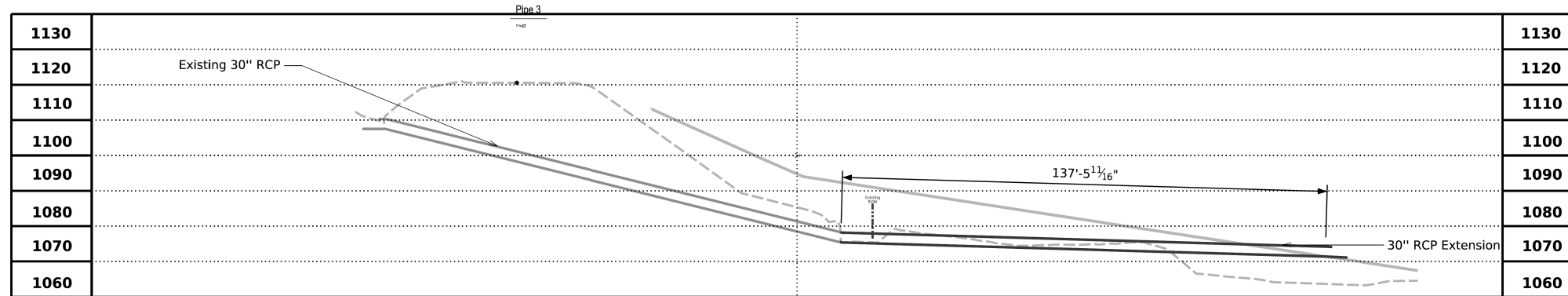
Erosion Control Basin

1140

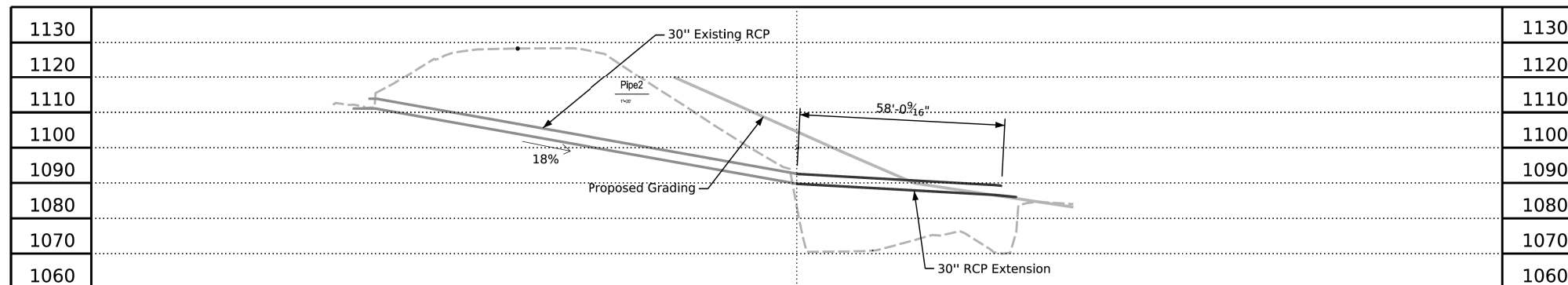
Alt 1



Pipe 1



Pipe 2



Pipe 3

Design For

Alternative 1

Pipe Extension/Erosion Repair

STA. () Turn-In Date:

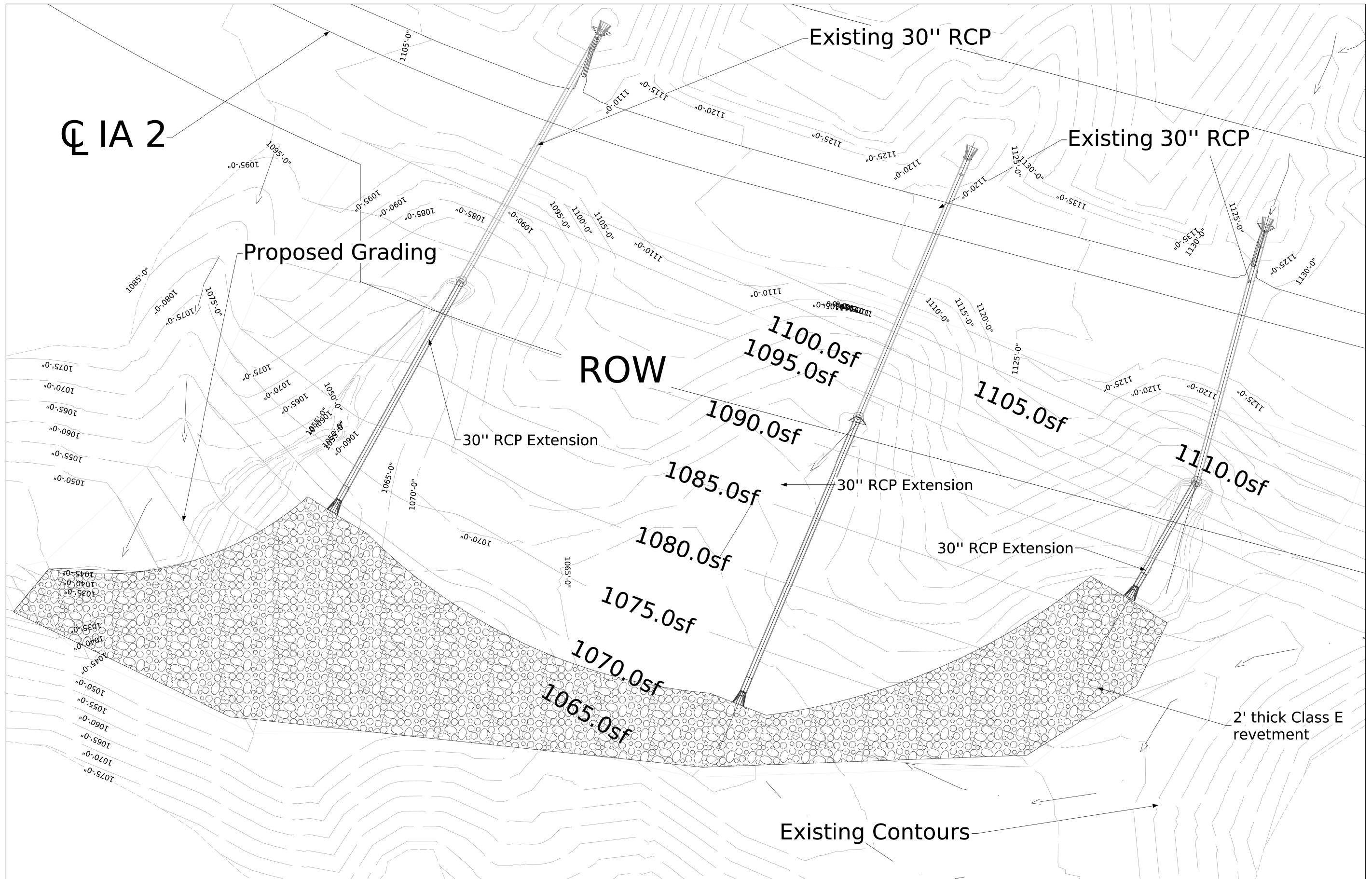
Fremont County

IOWA DEPARTMENT OF TRANSPORTATION

Design No. Design Sheet No. Pipes Cross Section No./Asset

V.0

Q IA 2



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 Sign
- TCB Traffic Signal Control Box
- RRB Rail Road Signal Control Box
- TSB Telephone Switch Box
- EB Electric Box

UTILITY LEGEND

SURVEYED UTILITY OWNER SYMBOLS

Sub-Surface Utility Mapping Quality Level is in accordance with CI/ASCE 38-02 Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data.

Remark Abbreviations
 QLA Quality Level A Highest guideline quality level
 QLD Quality Level D Lowest guideline quality level

— F0 — F01D, Fiber Optic Centurylink - Quality D

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

RIGHT-OF-WAY LEGEND

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

PLAN AND PROFILE LEGEND AND SYMBOL INFORMATION SHEET

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

Washington TWP.
T-68N R-42W
SEC. 29

$\Delta = 41^\circ 53' 32.62''$ (LT)
T = 438.90'
L = 838.34'
R = 1146.59'
E = 81.13'
e = —
L = —
x = —

Sta. 441+98.9
30"x132" RCP
D.A.=6Ac MTS

Sta. 443+77
Lt. Side Skew 25° LT AH
30"x126" RCP (Plan)
D.A.=3Ac MTS
Outlet Not Found

Sta. 445+30
30"x120" RCP
D.A.=2Ac MTS

440+00

441+00

442+00

PT 442+16.21
443+00

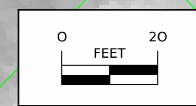
444+00

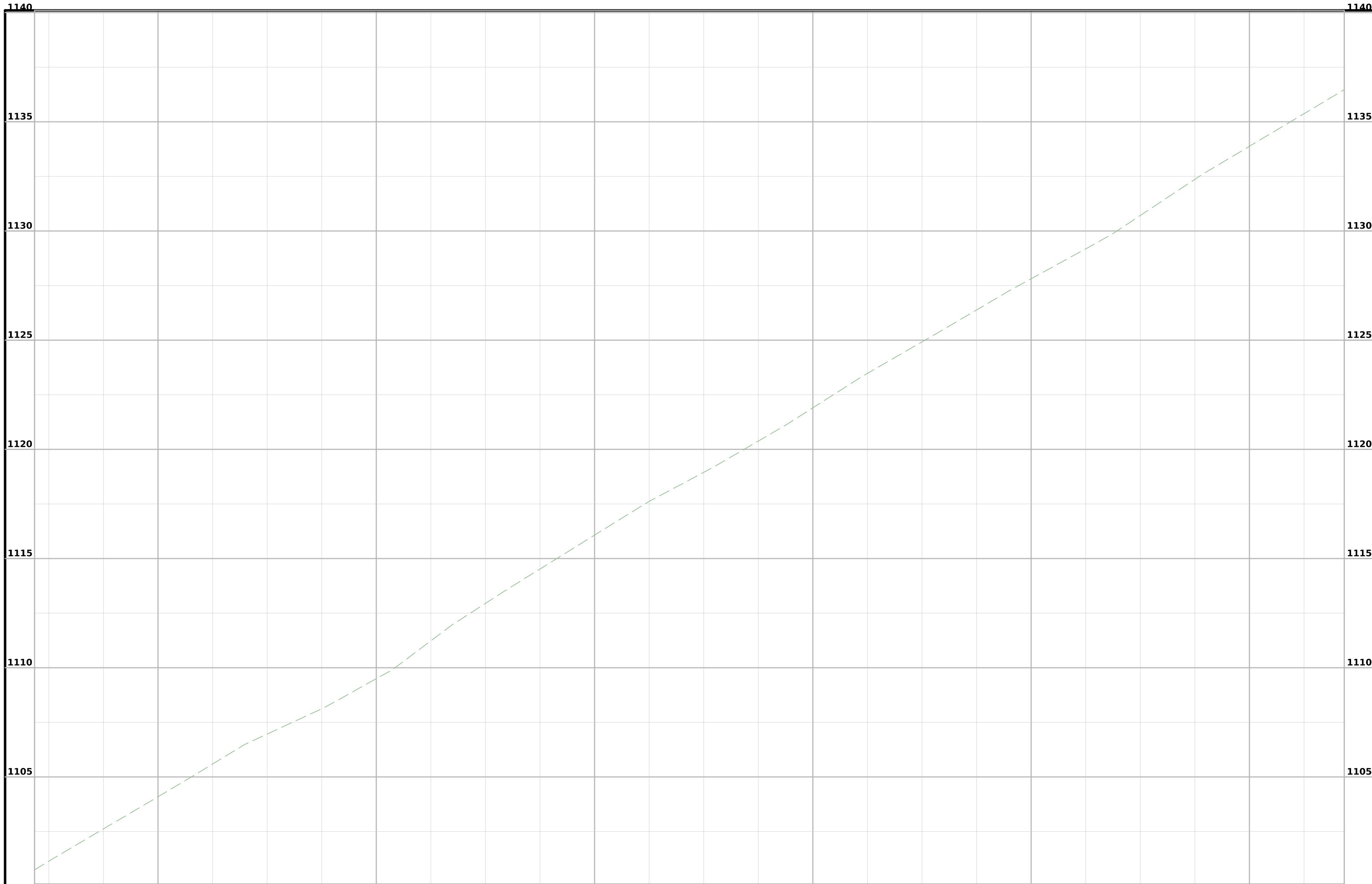
445+00

446+00

2

State Highway 2





FILE NO.	ENGLISH	DESIGN TEAM Flattery\Bell	FREMONT COUNTY	PROJECT NUMBER MP-002-4(721)9--76-36	SHEET NUMBER D.3
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Survey Information

SURVEY INDEX

County: Fremont
Project Code: 26-36-002-010
Phase Number: MP-002-4(721)9--76-36
Location: 0.2 mi W of Waubonsie Park Rd
Work Code: 3571-Revetment
Project Directory: 3600201026

Survey Personnel

Paul Harry – Survey Party Chief
Bob Fredrickson – Assistant Survey Party Chief

Date(s) of Survey

Begin Date 03/04/2026
End Date 03/10/2026

General Information

This survey is for Hwy 2 ditch revetment at two locations 0.2 miles west of Waubonsie Park Road. 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

Primary control points (36002001,36002002,36002003) from project BRF-002-1(114)—38-36 were utilized to obtain horizontal and vertical control on primary project control points (PARK,36002005). Two five-minute Base-Rover 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(2011) for EPOCH 2010.00 (IaRTN 2019 ADJUSTMENT)
COORDINATE SYSTEM: IOWA REGIONAL COORDINATE SYSTEM ZONE 06
(U.S. SURVEY FOOT)
VERTICAL DATUM: NAVD88
GEOID MODEL: 2018u2

Alignment Information

The horizontal alignment for Hwy 2 this survey was provided by the District 4 ROW Office.

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 06 (U.S. Survey Foot)

VERT. DATUM: NAVD88 - Geoid Model: 2018u2

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 06 (U.S. Survey Foot)
 VERT. DATUM: NAVD88
 Geoid Model: 2018u2

Point Name	Nothing	Easting	Elevation	Code Description
36002003	6759381.81	16509046.50	943.62	CP FD CONC MON AS DESCRIBED
36002001	6759754.14	16499699.71	919.18	CP FD FENO MON AS DESCRIBED
36002002	6759642.58	16503871.66	919.04	CP FD FENO MON AS DESCRIBED
PARK	6755022.87	16511781.97	1275.11	CP FD NGSMON AS DESCRIBED
36002005	6760254.04	16519279.79	1218.91	CP SET 5/8IN X 40IN REBAR

