



a Genesee & Wyoming Company

June 5, 2024

Jack Dokken
South Dakota Department of Transportation
700 East Broadway Ave
Pierre, SD 57501

Subject: STC West River Resiliency Project

Dear Mr. Dokken,

The Rapid City, Pierre & Eastern Railroad, Inc. (RCP&E) respectfully requests a change in both scope and budget for the West River Resiliency STC Project (the Project). This change request is a result of a completed and detailed Hydrologic and Hydraulic (H&H) analysis which was performed by Civil Design Inc. A copy of this analysis has been provided. The analysis revealed that the original scope of the Project would result in negative impacts to both the railroad and adjacent landowners.

Therefore, RCP&E requests that the change of scope as recommended in the H&H analysis be adopted, and that the new scope also include the strengthening of Bridge 553.10 to a 286k load rating. This strengthening will be accomplished by adding 5-ply to all spans and both chords, and subsequently re-centering the chords under the rail. The total cost of this Project, after taking into account the requested change of scope, is \$1,098,615 with a requested STC amount of \$878,892.

Additionally, this letter provides RCP&E's written commitment that in the event this change request is rejected, RCP&E will still complete the strengthening work at bridge 553.10 to ensure the structure is 286k compliant. Work at this structure will be completed by the end of 2025.

If you need anything further, please do not hesitate to contact me.

Thank you for your attention and consideration.

Sincerely,

DB Dalton

Daniel Dalton
President
Rapid City, Pierre & Eastern Railroad, Inc.

RCP&E STC Grant – West River Increasing Rail Resilience Project

An independent consultant of the RCP&E conducted a preliminary desktop hydrology and hydraulics study prior to submittal of the STC Grant application. This preliminary study provided a general scope to locate hydraulic structure locations to be included in the grant. Initial structure recommendations for sizes and locations were proposed from RCP&E based on the preliminary study.

Since the initial recommendations, preliminary PE design for the grant has been completed. The preliminary PE design included a detailed analysis of each proposed hydraulic structure location. Each site was surveyed to gather existing structure and topographic data. Survey data was then utilized to create detailed existing conditions within analyzed hydraulic models. Proposed structure locations were modeled either in a one-dimensional setting via Autodesk Storm and Sanitary Analysis (SSA), or in a two-dimensional setting with the Surface Water Modeling System (SMS). All proposed site locations were analyzed based on the Genesis & Wyoming Hydraulic Design Standards. The SDDOT standards for hydraulic design were also utilized in development of the proposed sites and structure options.

The detailed analysis of each site has created a change of scope for multiple locations presented in the grant. The change in scope is noted in the attached tables and reports.

SUMMARY OF RESULTS FROM H/H STUDIES ON RCPE STRUCTURES

(Proposed Changes from Grant Application Indicated in Red)

No.	Milepost	Existing Structure	Grant - Replacement Structure	CDI - Replacement Structure	Notes
1	506.80	Two - 60" CMP Culverts	Two - 72" CMP x 50-ft	Three - 72" CMP x 60-ft	Three culverts needed instead of two to meet hydraulic requirements, 60-ft needed to meet minimum slopes
2	517.93	36" CMP Culvert	60" CMP x 60-ft	60" CMP x 70-ft	This structure replacement is being removed from the Grant Application due to the following: Riprap extends downstream outside of ROW; 70-ft needed to meet minimum slopes / match existing; Downstream riprap important due to ex. headcut
3	530.25	96" CMP Culvert	Three - 72" CMP x 80-ft	Three - 72" CMP x 90-ft	This structure replacement is being removed from the Grant Application due to the following: Riprap extends upstream and downstream outside of ROW; 90-ft needed to meet minimum slopes
4	553.10	25-span Bridge	Infill 22 of 25 bridge spans	Strengthen Bridge to 286k	This work is being revised from the Grant Application due to the following: Infilling of bridge spans increases 100-yr by 2.1-ft on south side of bridge; SDDOT & FEMA allow 1-ft max rise; Proposed 50-yr water surface on south side of mainline is at ballast elevation from MP 552.95 to 552.85 (500-ft); A new overtopping occurs between 100-yr and 500-yr event that does not occur under existing conditions & overtopping at ex. overtopping location still occurs between 25-yr & 50-event; high velocity & high potential for bridge scour with narrow opening; South side refuge islands for cattle eliminated or greatly reduced during the 50-yr event
5	616.70	24" CMP Culvert	4 - 36" CMP x 40-ft	4 -36" CMP x 40-ft	Proposed culverts provide relief to Bridge at 616.90 and reduce ditch flows on the south side of the RCPE ML.
6	617.15	None	Two - 48" CMP x 40-ft	Two - 48" CMP x 40-ft located approx. 80-ft southeast of southeast bridge abutment (MP 617.26)	Proposed location directs flows across private property; Culverts do not reduce potential for overtopping. The addition of culverts simply reduce flows through Bridge at 617.30. Proposed location will be approximately 80-ft southeast of southeast abutment to direct flows back into stream within existing ROW.
7	620.35	Grant Indicates No - Survey Found Ex. 36" RCP Culvert	Three - 72" CMP x 80-ft	Single 60" CMP x 50-ft	Berm on east side of Bridge at 620.60 keeps flows from entering the ditch to just prior to the 50-yr event; proposed structure is hydraulically equivalent to the existing 36" RCP & reestablishes the flow capacity; The proposed 60" CMP structure will meet the HDCs of the railroad.
8	632.60	48" CMP Culvert	Three -60" CMP x 50-ft	Three - 60" CMP x 50-ft	Existing conditions results in overtopping between the 10-yr and 25-yr event; development occurring upstream; The proposed culverts exceed RCPE HDC's and provide some additional capacity for development and for routing over downstream low water crossing.

EXHIBITS FOR STRUCTURE AT MP 506.80

Hydraulic Report

Structure at Milepost 506.80

for Rapid City, Pierre & Eastern (RCPE) Railroad

Site Photos: January 2024



CDI_Upstream End of Existing 2 - 60" CMP



CDI_Upstream Looking North at Bad River Road & Ex. 96" RCP Arch

Hydraulic Report

Structure at Milepost 506.80

for Rapid City, Pierre & Eastern (RCPE) Railroad

Site Photos: January 2024

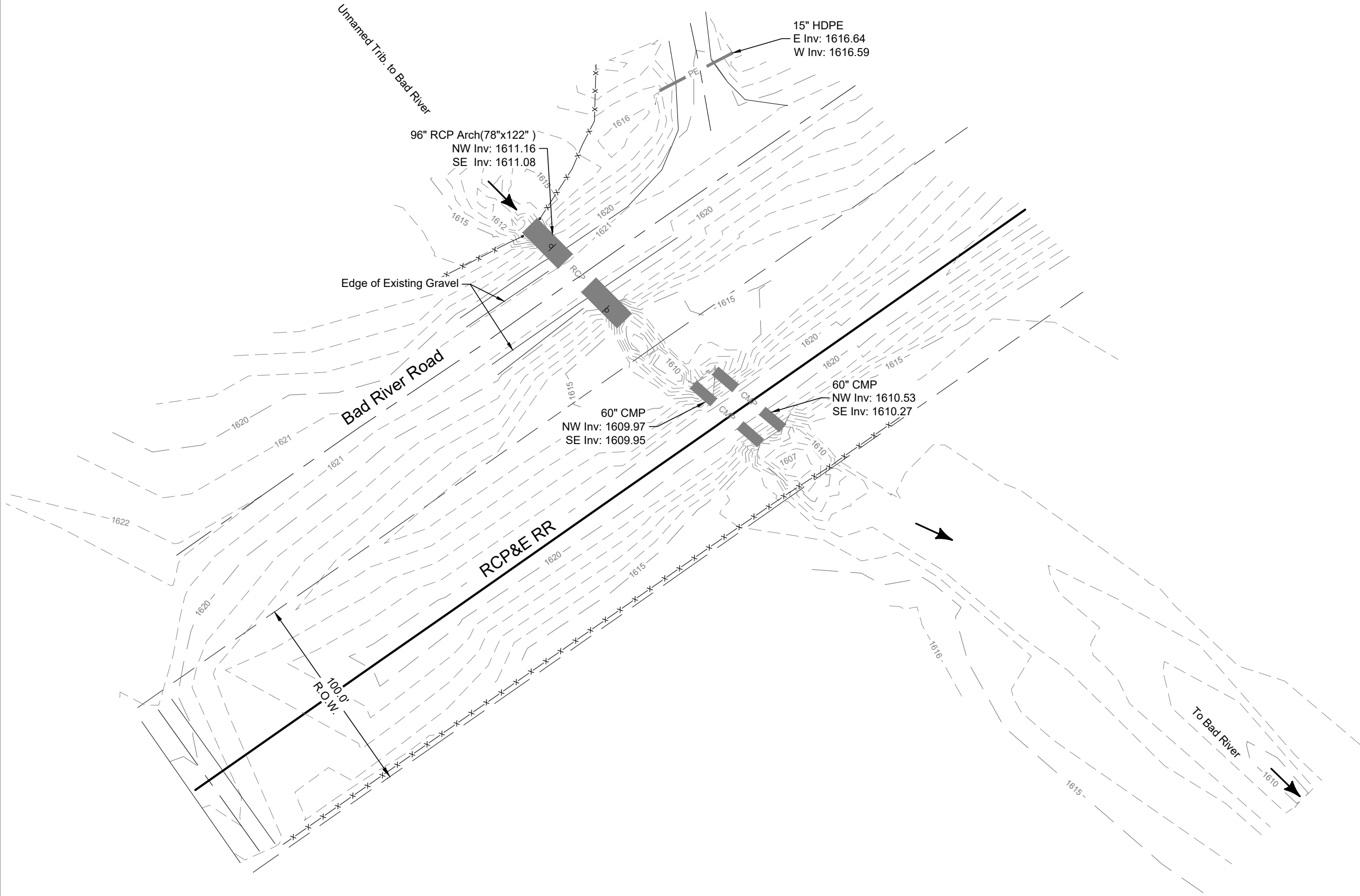


CDI_Downstream End of Existing 2 - 60" CMP



CDI_Downstream Looking South

Existing Conditions



SITE LEGEND

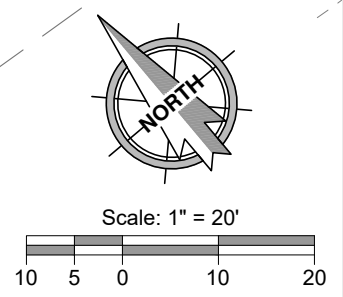
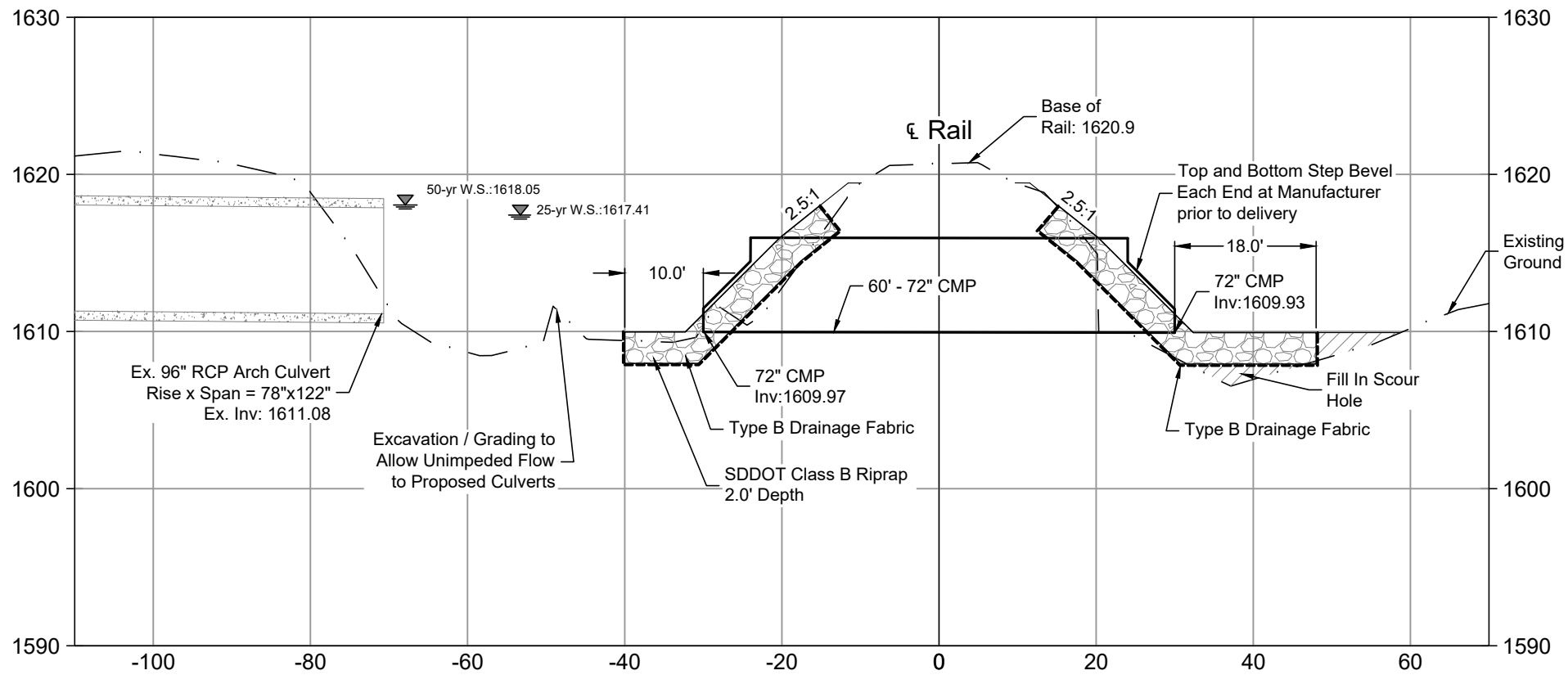
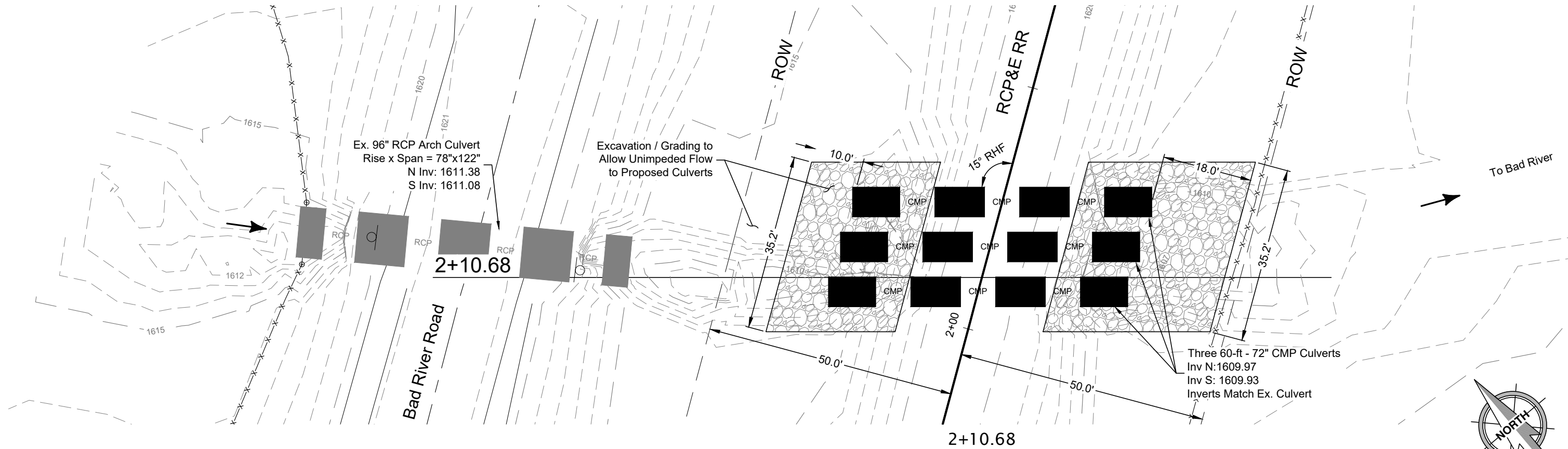
- 1700 --- Existing Contours
- x-x-x-x-x- Barbwire Fence
- ⊥ Sign
- ⊗ Wood Post

NORTH

Scale: 1"=50'

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Proposed Structure & Riprap Protection



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EXHIBITS FOR STRUCTURE AT MP 517.93

Removed As Explained in Summary Spreadsheet

EXHIBITS FOR STRUCTURE AT MP 530.25

Removed As Explained in Summary Spreadsheet

EXHIBITS FOR STRUCTURE AT MP 553.10

Removed As Explained in Summary Spreadsheet

EXHIBITS FOR STRUCTURE AT MP 616.70

Hydraulic Report

Structure at Milepost 616.70

for Rapid City, Pierre & Eastern (RCPE) Railroad

Site Photos: January 2024



CDI_Downstream End of Existing 24" CMP



CDI_Looking North Downstream_Boxelder Creek to Left

Hydraulic Report

Structure at Milepost 616.70

for Rapid City, Pierre & Eastern (RCPE) Railroad

Site Photos: January 2024

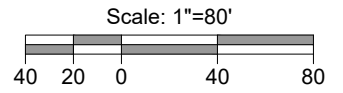
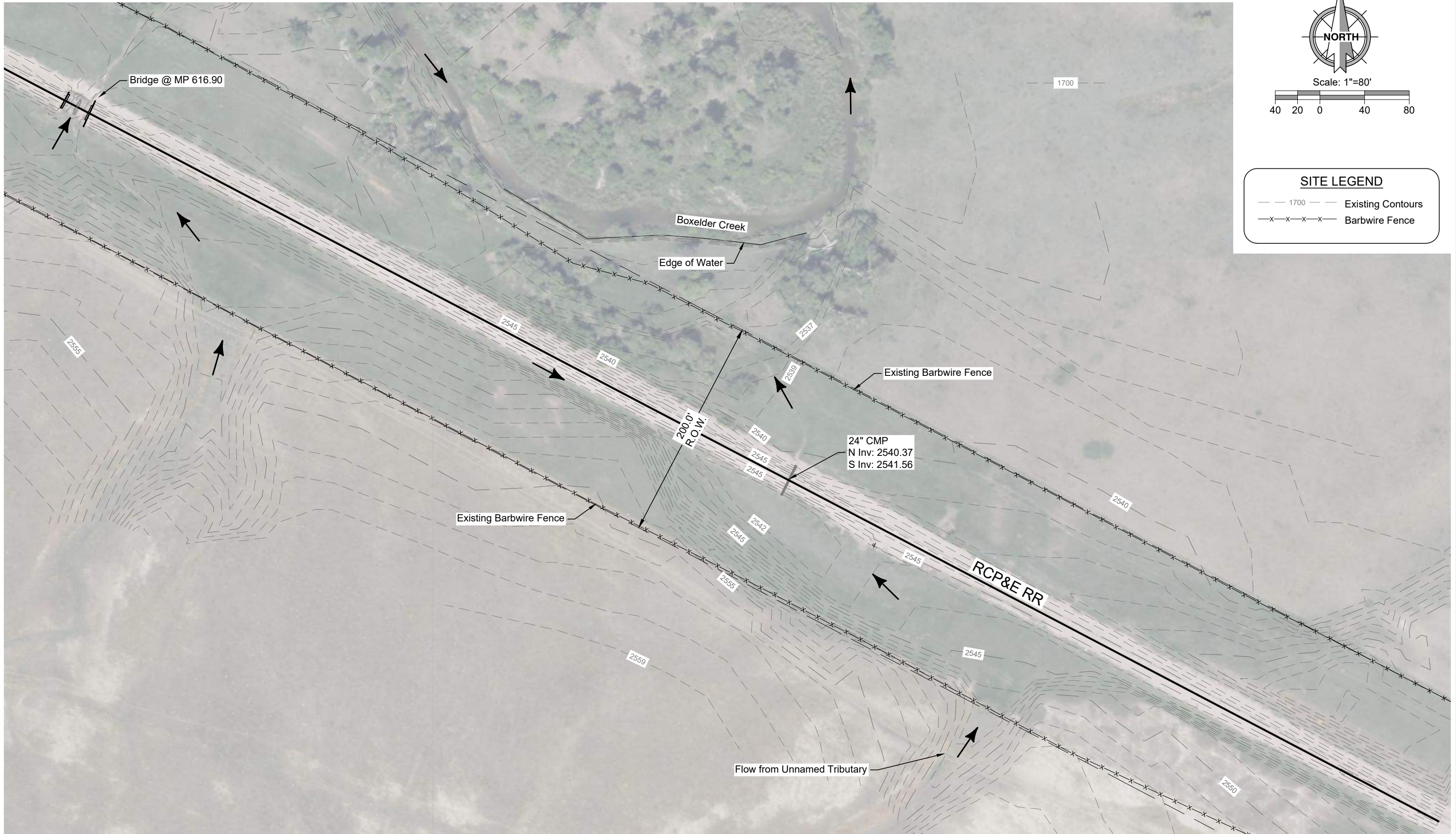


CDI_Looking South Upstream



CDI_Upstream End of Existing 24" CMP

Existing Conditions



SITE LEGEND

- 1700 Existing Contours
- Barbwire Fence

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RCPE - STC Grant MP 616.70 Site

CAD Filename:
Hydraulics

CDI Project No.
2023-022

Drawn By:
JLU

Checked By:
JDP

Scale:
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Date:
03/28/2024

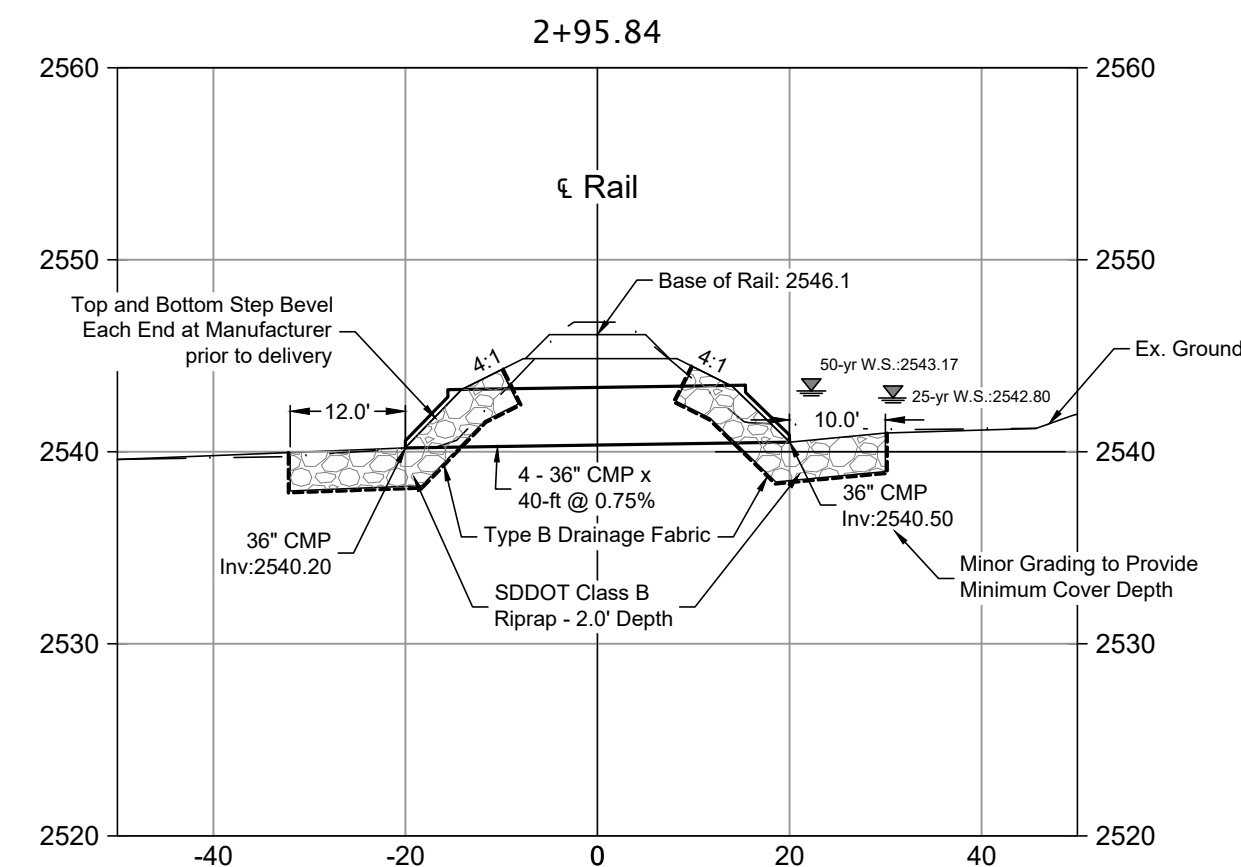
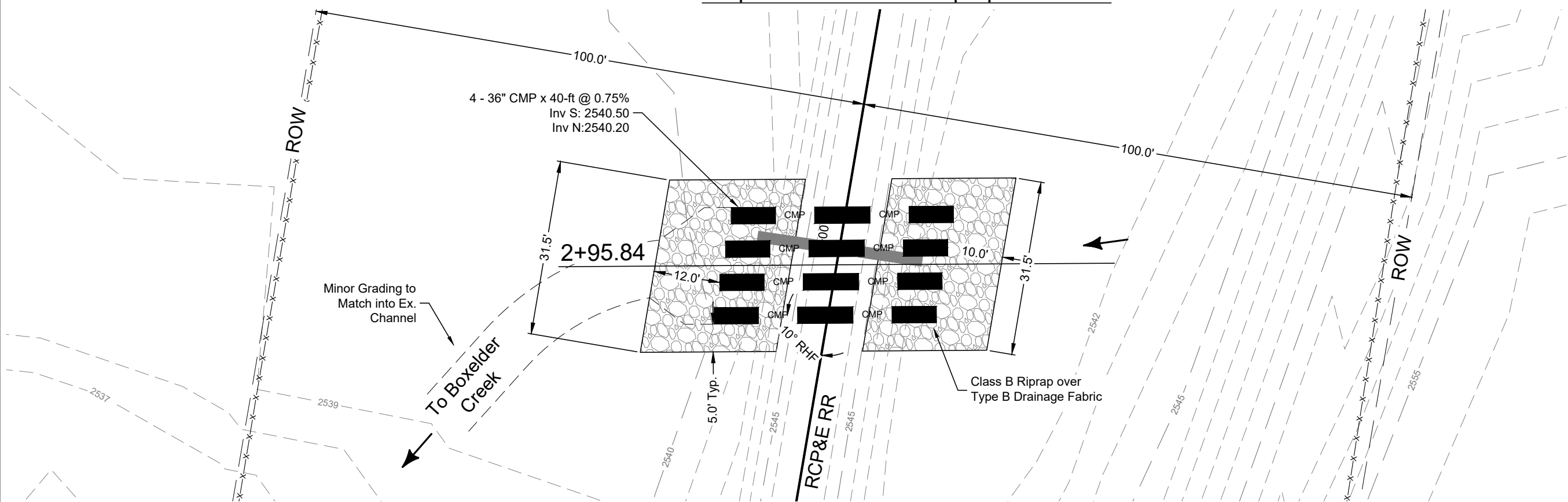
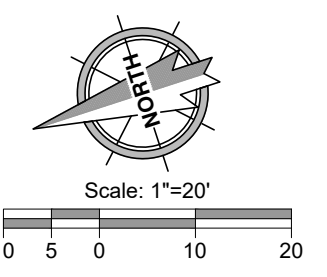


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Brookings, SD
605-696-3200

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Proposed Structure & Riprap Protection



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EXHIBITS FOR STRUCTURE AT MP 617.15

Hydraulic Report

Structure at Milepost 617.15

for Rapid City, Pierre & Eastern (RCPE) Railroad

Site Photos: February 2024



CDI_Profile Structure 617.30 Looking Northwest



CDI_Profile Structure 617.30 Looking Southwest

Hydraulic Report

Structure at Milepost 617.15

for Rapid City, Pierre & Eastern (RCPE) Railroad

Site Photos: February 2024



CDI_Channel Looking Southwest Upstream of Bridge at MP 617.30



CDI_Channel Looking Northwest Downstream of Bridge at MP 617.30

Hydraulic Report

Structure at Milepost 617.15

for Rapid City, Pierre & Eastern (RCPE) Railroad

Site Photos: February 2024



CDI_Looking North Upstream of Grant Application Structure Location (MP 617.15)



CDI_Looking West Upstream of Grant Application Structure Location (MP 617.15)

Hydraulic Report

Structure at Milepost 617.15

for Rapid City, Pierre & Eastern (RCPE) Railroad

Site Photos: February 2024



CDI_Looking North Downstream of Grant Application Structure Location (MP 617.15)



CDI_Looking Northeast Downstream of Grant Application Structure Location (MP 617.15)

Existing Conditions



SITE LEGEND

- 1700 Existing Contours
- Barbwire Fence
- Chainlink Fence

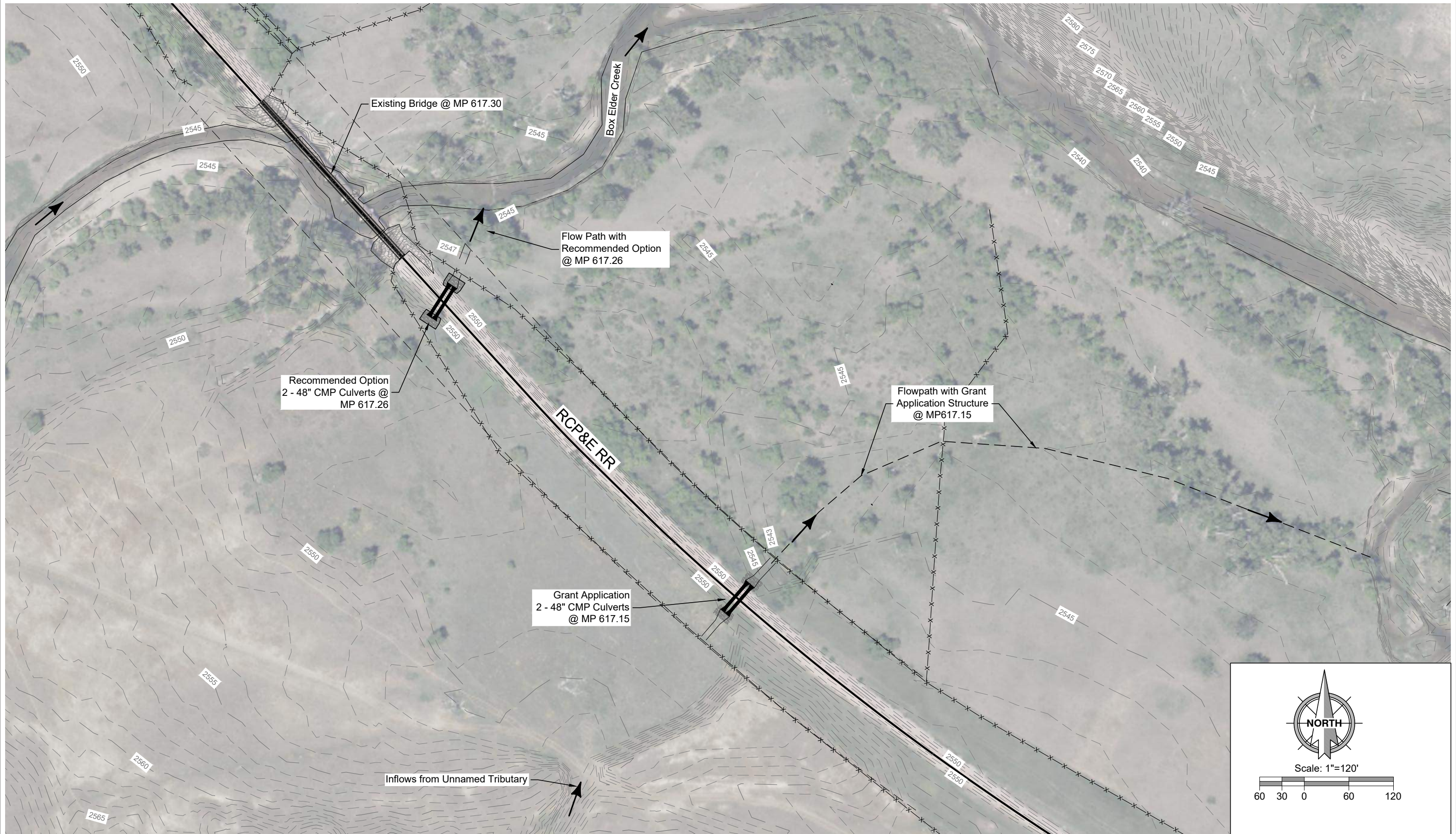
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Locations of Analyzed Options



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RCPE - STC Grant MP 617.15 Site

CAD Filename:
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CDI Project No.
2023-022

Drawn By:
JLU

Checked By:
JDP

Scale:
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Date:
04/01/2024

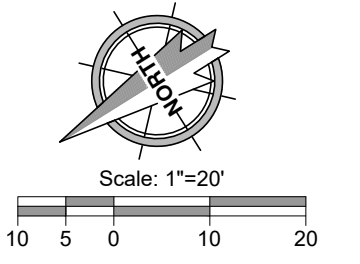
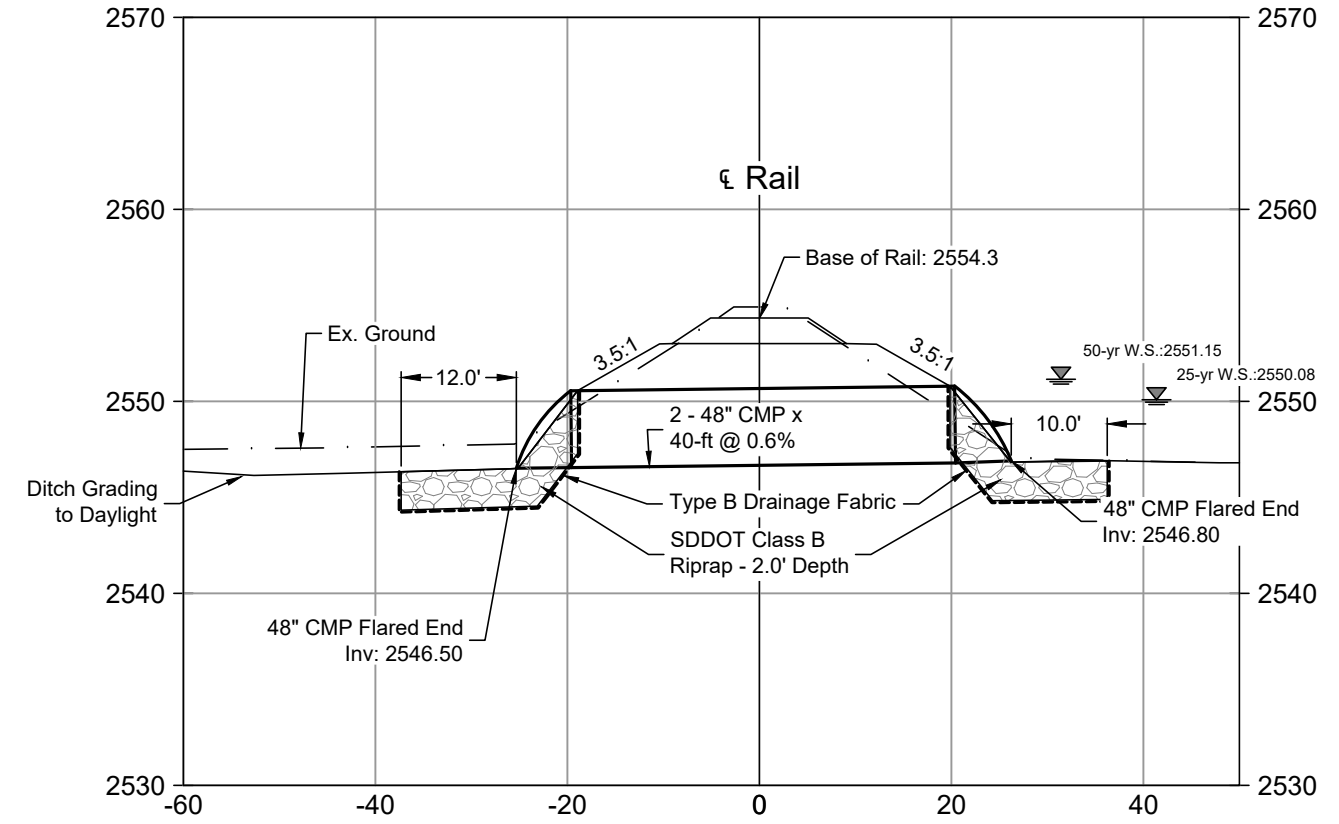
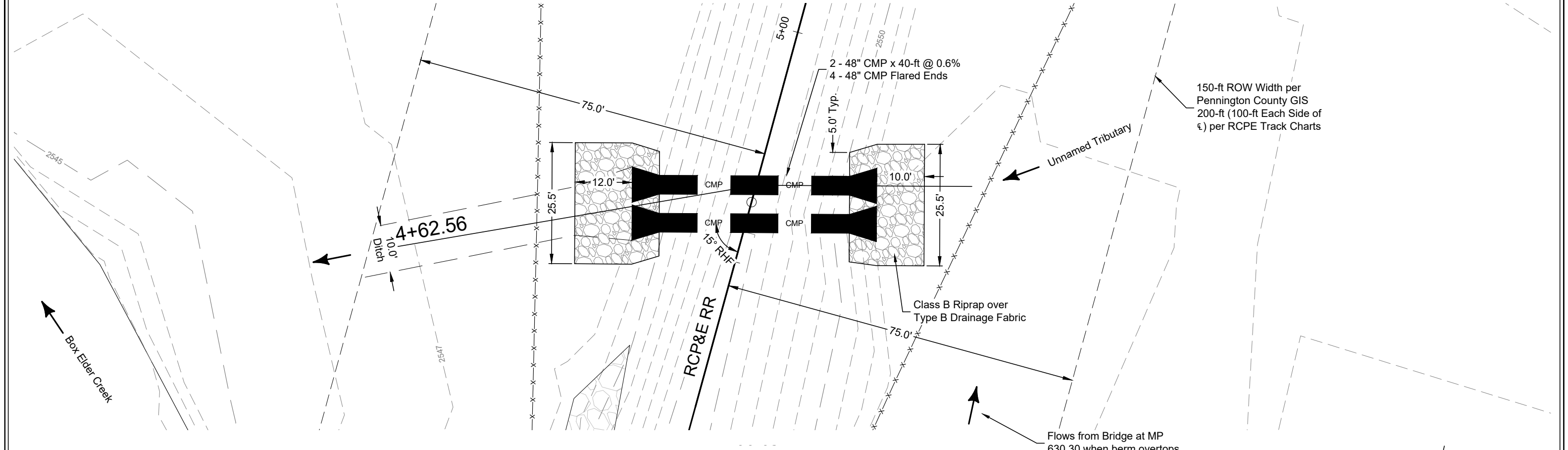


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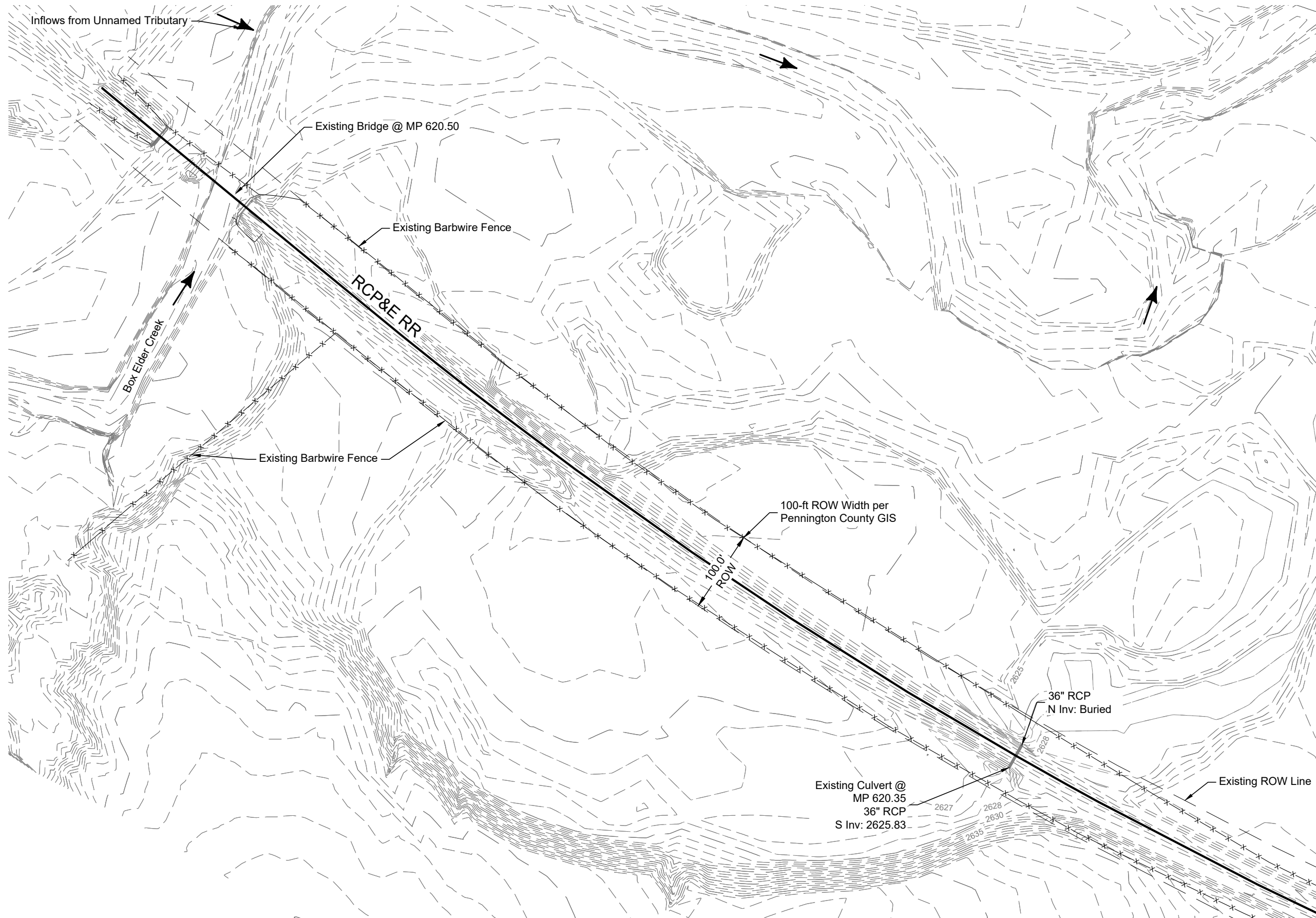
Recommended Option: Proposed Structure & Riprap Protection @ MP 617.26



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EXHIBITS FOR STRUCTURE AT MP 620.35

Existing Conditions



SITE LEGEND

- 1700 --- Existing Contours
- x-x-x-x- Barbwire Fence

NORTH

Scale: 1"=120'

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RCPE STC Grant - MP 620.35

CAD Filename:
Hydraulics

CDI Project No.
2023-022

Drawn By:
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Checked By:
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Scale:
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Date:
04/04/2024

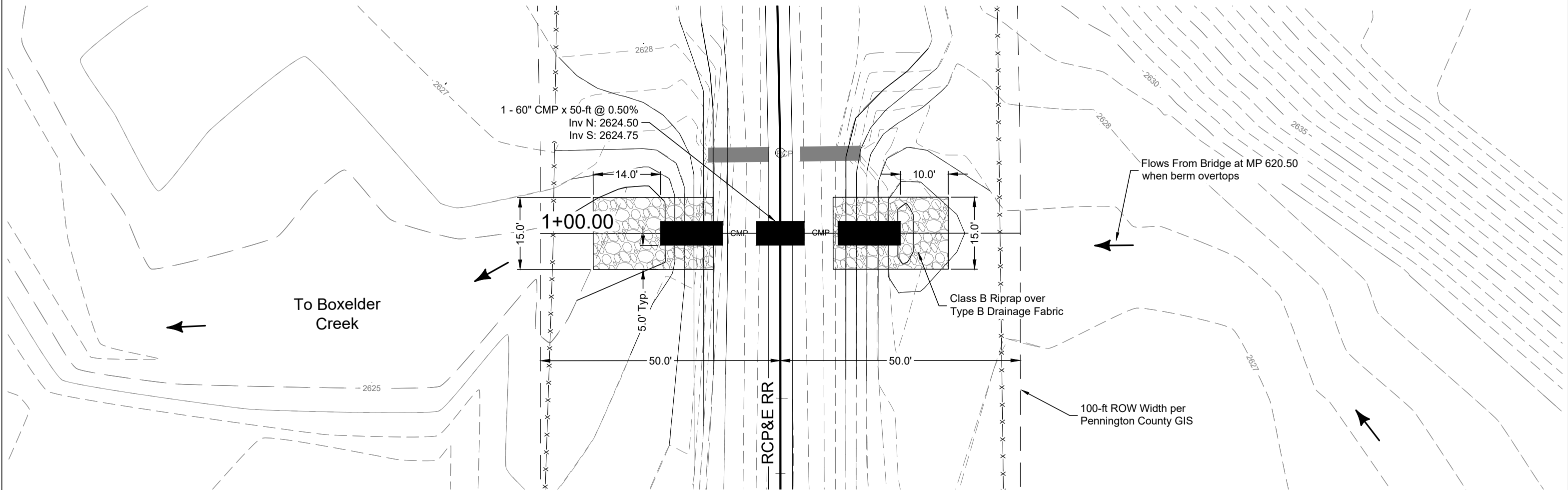


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Brookings, SD
605-696-3200

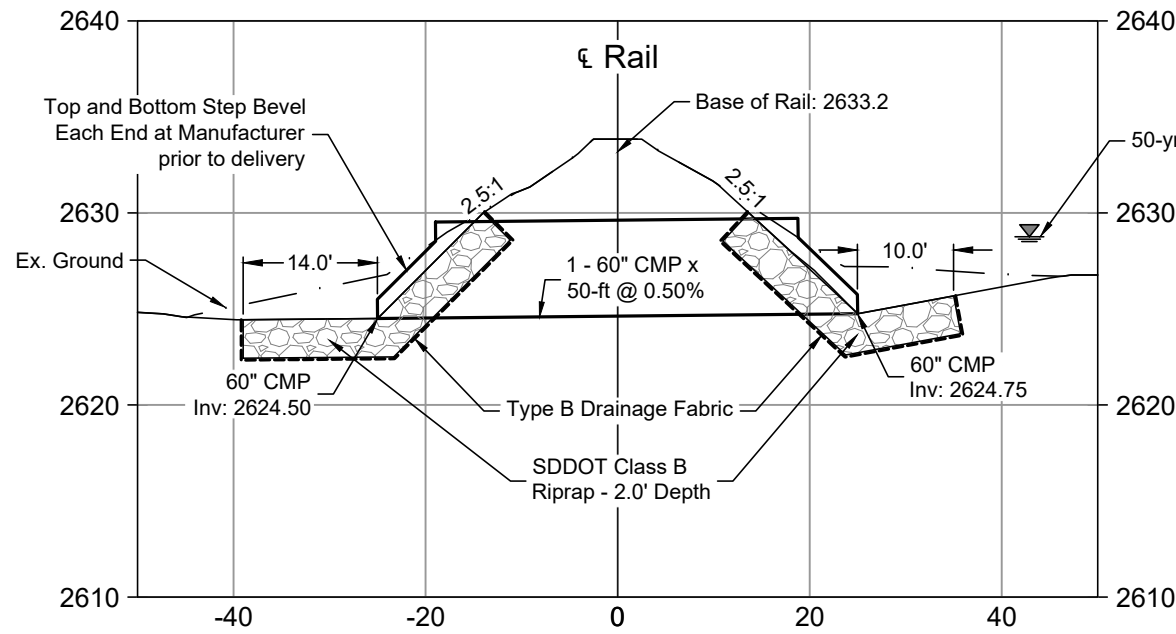
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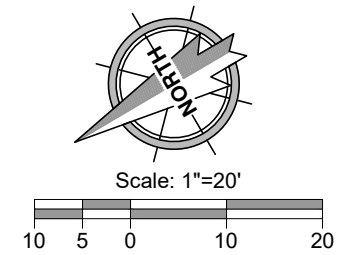
Proposed Structure and Riprap Protection



1+00.00



Note: 25-yr WSE not shown due to flows not reaching structure location.



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EXHIBITS FOR STRUCTURE AT MP 632.60

Hydraulic Report

Structure at Milepost 632.60

for Rapid City, Pierre & Eastern (RCPE) Railroad

Site Photos: February 2024



CDI_Downstream End of Existing 48" CMP



CDI_Looking North Downstream_Low Water Crossing

Hydraulic Report

Structure at Milepost 632.60

for Rapid City, Pierre & Eastern (RCPE) Railroad

Site Photos: February 2024

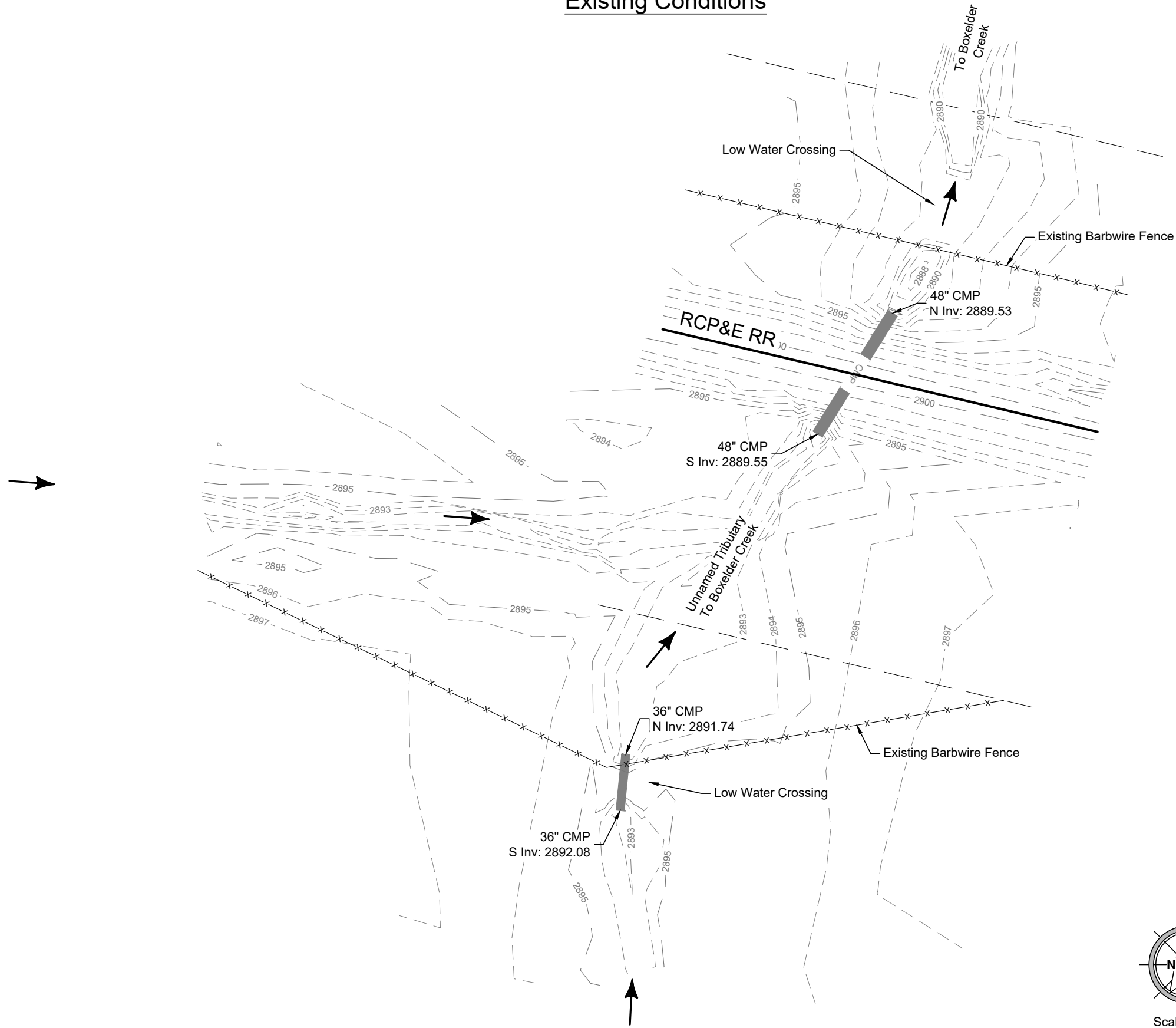


CDI_Looking South Upstream



CDI_Upstream End of Existing 48" CMP

Existing Conditions



SITE LEGEND

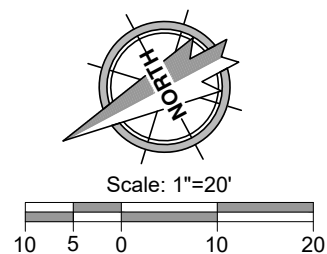
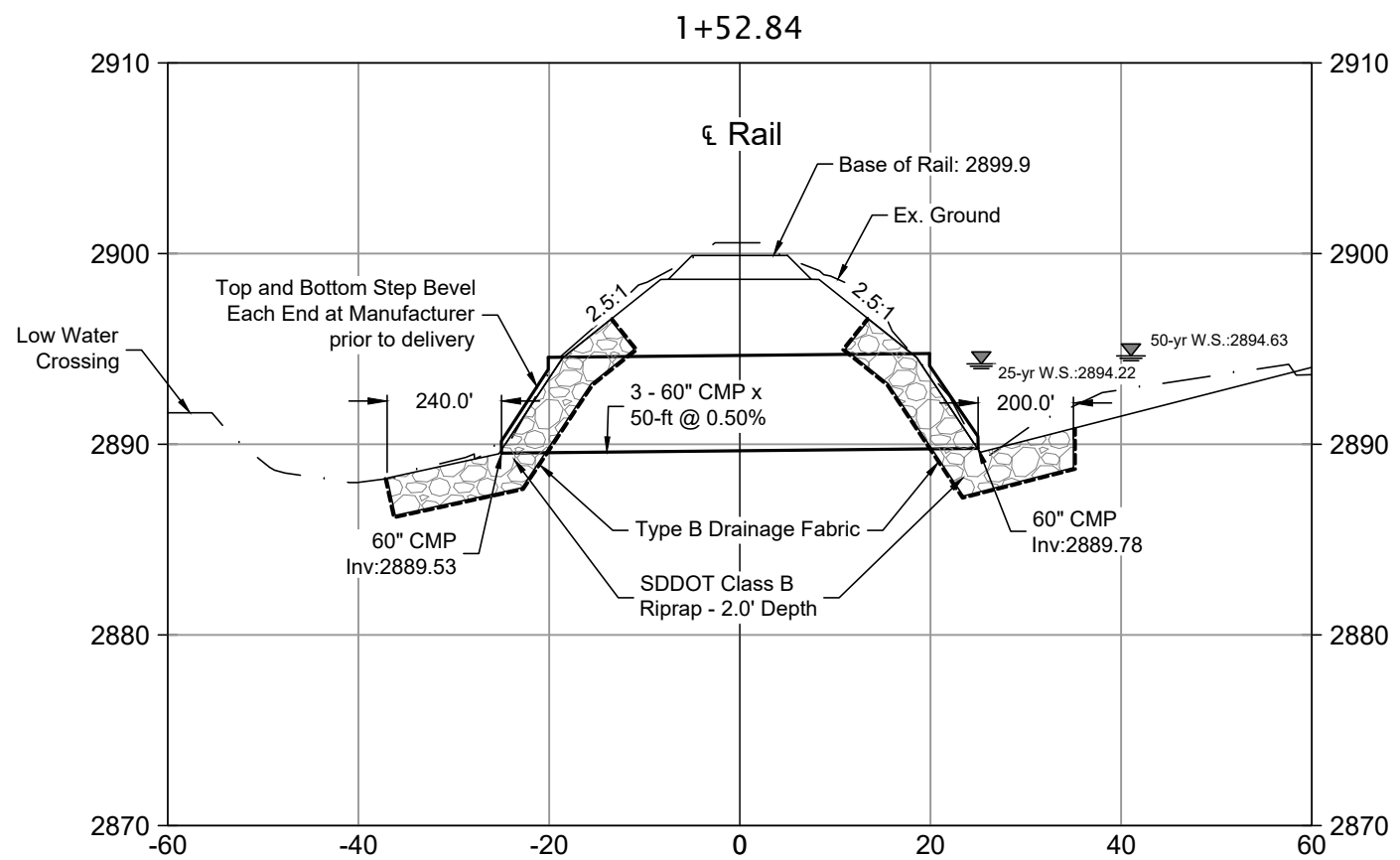
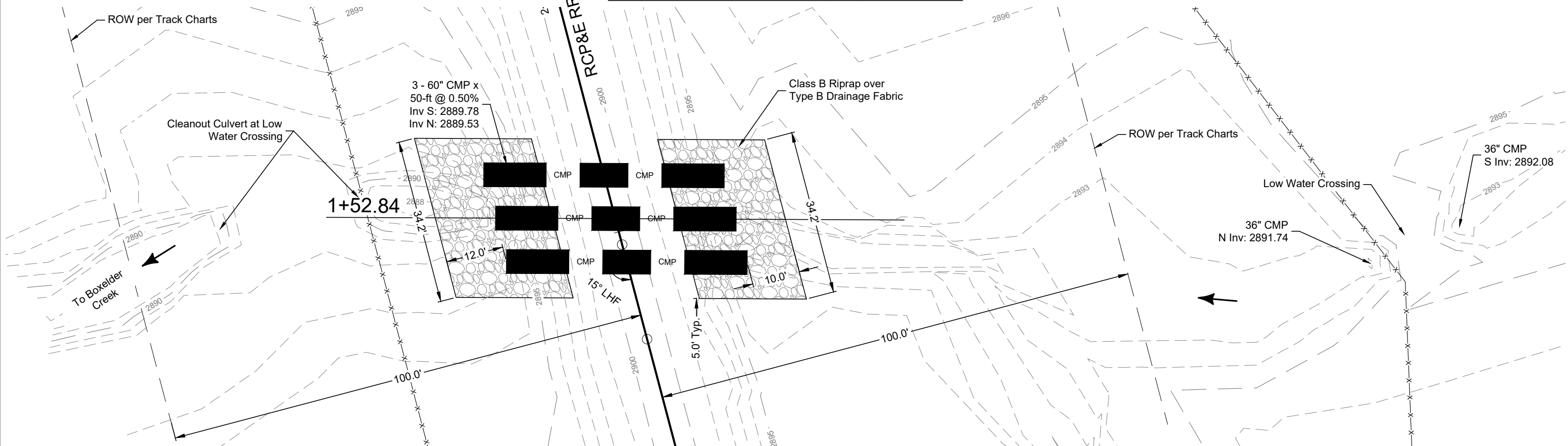
- 1700 Existing Contours
- Barbwire Fence

NORTH

Scale: 1"=40'

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Proposed Structure & Riprap Protection



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