

Project Description:

1.0 This project is a US 30 two lane bypass of the town of Missouri valley. This project is planned for grading and bridges to be let in July 2027. Paving will be let in July 2029. The bypass is approximately 4 miles long and includes 4 new bridges including 2 over the Union Pacific railroad.

2.0 The project includes 3 grading phases, 2 paving phases, and 4 bridge phases

3.0 This project consists of the following major items of work:

Excavation: 150,000 CY

Embankment: 1,700,000 CY

Paving: 155,000 SF

Drainage Pipe: 2,950 LF

Reinforced Concrete Box Culvert: 1,350 LF

Wick Drains/Staged Fill/Embankment Surcharge: Assumed

Concrete Girder Bridges:

- U.S. 30 over Willow Creek: 406 LF, 4 spans, 23,870 SF
- Relocated Canal Street over Willow Creek: 401 LF, 4 spans, 15,650 SF

Steel Girder Bridges:

- U.S. 30 over UPRR/Kirlin 603 LF, 3 spans, 30,000 SF
- U.S. 30 over UPRR 513 LF, 3 spans, 24,100 SF

It is currently packaged in 3 grading sections with a rough total of 150,000 cubic yards of cut and 1,700,000 cubic yards of fill, not accounting for shrink.

4.0 This project presents significant construction complexities and challenges. To develop a more efficient and constructible design, the Iowa DOT is requesting input from the industry regarding bridge constructability and schedule issues that would result in a successful project for both Iowa DOT and the Contractors. The Iowa DOT is requesting to hold one-on-one meetings with contractors to review the preliminary staging, constructability, and risks associated with the project to gain feedback on methods to make the construction more cost- and schedule-efficient.

5.0 Input is requested on the following items:

- Bridges over the railroad
 - Naturally Occurring windows will be allowed for work over the railroad tracks
 - How much time needed to set the first center span beam?
 - How much time needed to set each remaining beam?
 - Are there alternate methods for setting the beams over the tracks?

- Use shoring towers and set the middle section of the beam over the track then splice the outside sections of the beams to minimize time directly over the tracks
 - Launch the beams from the abutments
 - Other innovative methods for minimizing track closures?
- Does the current packaging work well for the railroad bridges
- What will the shoring needs be related to the splice location for the center span
- Will there be a need for access across the tracks during beam placement
- Will there be any railroad considerations for crane and pump truck placement
- Would a down time item by the hour be a good approach
- Available Borrow Material for the grading
 - Looking at approximately 2 million cubic yards of borrow
 - Are there going to challenges finding this much suitable material near the project?
 - What are possible borrow sources for this project?
 - What other options could we look at for fill materials?
- Anticipated access concerns
 - Depending on where the borrow pits are located, there may be need to cross the railroad tracks and/or use local roads to move material. There are some weight-restricted local bridges near the project.
 - What other access considerations or concerns do you have?
 - Does the packaging create access challenges
- Two years are planned for the grading and bridge construction.
 - Fills as high as 40' and fill over RCBs are the main settlement considerations on this project. The table below depicts a summary of the settlement at culvert locations
 - A combination of wick drains, staged construction, and surcharge loading is being considered for the large fill areas. Are there other options we should consider?

- Is two years realistic to get the grading and structures completed?

Summary of Settlement Analysis for All RCB Culverts

RCB Culvert Station	Fill Height (ft)	Maximum Estimated Settlement (inches)	Bottom Elevation of Compressible Layer (ft)	Estimated t_{90} (days)
116+07.233	9	4.7	982	51
180+40.00	20	18.6	975	142
193+26.00	25	25	969	221
263+80.00	8	10.5	975	208
285+88.00	26	9.2	987	165
316+91.22	13	6.1	978	294
6010+77.02	15	16.6	960	165
8010+41.52	6	6.9	971.5	255