



SUMMARY OF CONSTRUCTABILITY REVIEW MEETINGS

The Iowa DOT held one-on-one meetings with interested contractors to review the staging, constructability, and risks associated with the C-2 contract to gain feedback on methods to make the construction more cost- and schedule-efficient. Meetings were held on May 13th and May 14th with representatives from the following construction companies that requested a meeting:

- » Ames Construction
- » Hawkins
- » Cramer
- » United
- » Jensen

The following attendees facilitated the discussion with each contractor:

- » George Feazell (District 4 Construction)
- » Joe Jurasic (FHWA)
- » Greg Mulder (Office of Construction)
- » Keith Quernemoen (Council Bluffs Interstate PM/GEC)
- » Mark Pohlmann (Council Bluffs Interstate PM/GEC)

The discussions included the following contracts and scope:

C-2 – New bridge construction and grade & pave from east of South Expressway to Madison Ave.

- » Bridge: I-80 WB Viaduct (372) – 13.6M lbs structural steel
- » Bridge: Ramp G (377) – 6.2M lbs structural steel
- » Bridge: Ramp A (373) – 2.7M lbs structural steel
- » Additional pier construction for future bridges
- » Grade & Pave
- » Lighting, Signing, Noise Wall

C-4 – New bridge construction at South Expressway and grade & pave east and west of South Expressway.

- » Bridges: I-29 NB & I-80 WB over South Expressway (371, 377)
- » Grade & Pave



- » Lighting, Signing, Traffic Signals, Railroad Signals

Below is a summary of the issues discussed and ideas presented by the contractor participants to mitigate risks and reduce cost to the project.

Working within the rail/intermodal yard

- » The rail yard is limited for use as a lay down area due to intermodal traffic.
- » Limitations for only working on one of the pier lines at a time greatly limits production
- » Excavations and other work will have to conform to Form B railroad requirements
- » Excavations and foundation construction may have to be done in segments to limit excavation areas and railroad impacts
- » Does IAIS use the last 150' of track on the west side of yard? It would be beneficial to temporarily close a portion of the tracks to speed up construction and open up access to piers 16G, 8WB, and 9EB.
 - › **Note: A subsequent discussion with IAIS RR indicated that the two stub tracks will be connected to the BNSF tracks/turn-outs south of the project area by the end of 2015. So abandoning these track stubs may not be an option.
 - › IAIS later indicated that there is opportunity to construct crossings of the westernmost track; interruptions are 2-3 times per day with an approximate 15-minute duration.
- » Can materials be swung over the tracks on the west side of the yard for the west pier line?
 - › This would have to be done in coordination with the railroad and applicable flagging requirements.
- » Can a temp crossing be built for girder placement? Would be better to have a temp crossing between piers for girder placement, rather than walking girders in on cranes
 - › The IAIS RR is considering the temp crossings for girder placement.
 - › Need to determine who would construct the temp crossings – contractor or RR forces?
 - IAIS RR has indicated that the railroad would construct the temp crossings.
 - › Maybe consider a crossing that could be moved within a 4-hour window
 - › Crossing would make the cost much cheaper
 - › The girder skews make the girder sets harder
 - › Can rail crossings be put in (more permanent for all future contracts)? Contractors noted a cost of about \$1800/LF of crossing (that's for concrete panels in segments of 8')
 - This will be discussed with IAIS RR.
 - › Can crossing at end of 29th Avenue be used?
 - This will be discussed with IAIS RR.
 - › Setting girders will be almost impossible across tracks in the RR without temp crossings
 - › Duration for setting girders is several weeks – assuming decent roads and temp crossings can be used



- » Can the EB Bridge (girders) be built in the rail yard? Building the WB viaduct bridge will limit access to the EB Viaduct superstructure that will be built in a future D-2 contract. If girders in the rail yard are not set for EB, then girder placement will be difficult. Crane reach will be limited
 - › This will be discussed with Iowa DOT design.
- » A temporary intermodal storage/parking area should be explored to move intermodal containers out of the construction area and allow the contractor more area to work. Can the area south of new 29th Avenue be used as temporary intermodal parking?
 - › This may be problematic to get the containers to the loading area efficiently. The IAIS RR has ideas of temporary storage areas.
- » Contractor could put in false deck after girder set to allow for intermodal operations to resume in those areas
- » Splice points of girders should be looked at in terms of girder setting. The locations may drive how girders are assembled and set in place over the RR tracks.
- » Delivering beams to the site will be challenging
- » Could beams be delivered via rail?
 - › IAIS RR indicated this may not be an option as it would be difficult to arrange rail yard sidings to deliver materials to the site.
- » Crane loads could easily damage the paving in the intermodal area. Iowa DOT should consider including pavement replacement of a rather large, inclusive area of the intermodal area.
- » Contractors have poured structural slabs for crane support on other projects and could be considered here as well
- » IAIS RR has been open to crane mats in other jobs in Iowa
- » Temporary shoring for pier excavation will be needed to limit area of impact
- » RR roadmasters vary in terms of what can be allowed for train clearance.
- » Median barrier (TBR) could be considered for use to establish work area near the railroad. An estimate of linear footage could be established for a bid item in the plans
- » How frequent are the 4-6 hour work windows? Every 2 hours? Every day? How much advance scheduling of RR operations is available to plan the work? One week? Can construction continue to progress if a train is parked next to the area? Or does it need to be clear? Does IAIS RR have a time of year of lesser traffic in the rail yard that would be more beneficial to do bridge construction? Does IAIS have a siding that could be used to assemble and truck in the girders?
 - › There are many questions regarding these work windows. In general, Iowa DOT should try to provide as much information in the plans as possible to define what the limitations and rules will be regarding working within the RR area. If these parameters are not clearly defined, contractors will bid the risk and prices will reflect that risk.
 - The IAIS discussed the use of a 2-week schedule to be discussed weekly to discuss the operations and needs of the RR and the contractor. Work windows can generally be accommodated with enough notice and coordination.
 - › Is there anyway a track could be temporarily closed during construction? This would help the contractor get work done faster and disrupt RR less.
 - There is potential for this as the IAIS has to reconstruct two (2) of the western tracks during C-2 construction. This would facilitate construction of the west pier.
 - › Tracks on west side of the yard would have to be temporarily closed 3 months to complete pier line without interruption.



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- › Contractor would be willing to work longer shifts for the RR giving greater access around tracks
- » Construction grade for new I-80 WB east of Harry Langdon could be used as laydown area.
- » Need to have a solution to drop the power lines within the rail yard.
- » Could the DOT handle the Right-of-Entry permitting?
 - › The IAIS does not have right-of-entry permits. The BNSF does and the DOT will facilitate this.
- » How does the RR define/set the edge of the workspace relative to the drip line?
 - › The RR seems willing to delineate the workspace necessary to facilitate construction of the piers and deck.
- » Several contractors expressed Iowa DOT should consider using stay in place decking
 - › Cheaper and less construction time
 - › Commercially available materials
 - › Can get competitive pricing with the large quantities
 - › Would be most beneficial for the areas over the rail yard
- » Contractors did not think a short tower crane would be practical
- » A shoring tower may be needed in the middle of tracks to set the steel beams, if there is room.
- » For the reaches needed on girder sets in the rail yard, 200+ ton cranes are needed for this job
- » Could consider doing a drop span girder set in the track area.
- » Would prefer to leave in crane mats between tracks until all girders are in. Cranes are typically 28'+ wide for 200+ ton cranes
- » If a track could be taken out of service for girder sets, it would be ideal to have the one just east of the BNSF track. (approximately a month)...this area could be used to put girders together and then set.
 - › The IAIS is considering this and/or the use of crane mats to build a road in along the track for the crane during girder erection.
- » Will need some large windows to get at least the first two beam lines set. Other lines can be done one at a time with 4-6 hour windows.
- » Are the as-built plans for the rail yard parking lot available?
 - › The as-built information will be provided with the letting package.
- » Could some form of contractual agreement be made with the RR to give more assurance of work windows?
 - › Iowa DOT is working with the IAIS RR to define the working relationship between the contractor/DOT and IAIS RR. This will include providing better parameters for train operations within the rail yard.

Flagging Specification

- » Will each RR require their own flagger?
 - › Yes. IAIS flags for IAIS and CBEC. BNSF will require a flagger as well.
- » Several flagging specifications were discussed:



- › Contractor picks up first \$1000, then DOT handles remainder. This keeps the contractor engaged with some “skin” in the game
- » Estimating flagging is difficult – could DOT pay for all flagging?
 - › The DOT is considering options for flagging costs.
- » What about A+B bidding for flagging?
 - › The DOT is considering options for flagging costs.
- » RR Safety – need to have a clear system/process for prohibiting trains in the area. Ideally physical train barriers on the tracks during work windows. Have some form of “horn” notification to clear tracks when needed
- » Best practice – Set the number of days for flagging in the plans at a DOT negotiated rate from RR’s
- » Would the permanent crossing require flagging since this is construction traffic and not intermodal traffic?
 - › The permanent crossing near the east entrance to the rail yard does not require flagging, but traffic is required to follow traffic signs within the yard. Larger equipment movement, such as cranes, may need some form of flagging.

Pier Construction in Schildberg Pond

- » Riprap is preferred as a causeway to build in Schildberg pond. Gives more flexibility and ease of movement. Use a cofferdam to build the foundation
- » Not practical to use a barge, given the depth of the water. May consider using barge for manlift work
- » One idea is to build causeway all the way across the pond and then T off along pier line
- » Sand would be an easier material to work with
 - › Maybe rip rap would not be needed since pond has no flow
 - › Modify EW 401 to not require armoring
- » Could do a “ring” causeway and access from one side of the pond
- » It could save money to build the causeway from material at bottom of pond or use dirt in the area rather than trucking in sand
- » Contractors may consider using a temporary bridge for the pond. Local contractors have already invested in temporary bridges, so this becomes more cost effective.
- » Think about what type of demolition can be done on future bridge removals. The demolition access can have huge cost implications – especially if no coffer dam is needed.
- » What are the 404 permit requirements for construction in the pond?
 - › The 404 permit allows for the construction of an earthen causeway for which details will be provided in the letting package. The use of material in the pond for construction of the causeway is being discussed.
- » What is the depth of the pond? Can a survey of the pond be provided?
 - › The pond information will be provided in the letting package.

South Expressway Fills

- » Consider use of pipe pile for ground improvement – filled with concrete
- » Rigid Inclusion operation with limited quantity would be very expensive



- » Geofoam is a good option – contractors have good experience using the material
- » Lightweight foam concrete fill (LFCF) is likely to be more expensive compared to geofoam fill option due to the small quantity and the large cost of mobilizing a plant to the area. The density of the geofoam drives the cost of the material, so pricing should stay stable for the foreseeable future.

Woodbury Ave – Fills and Cutwalls

- » Sheet pile with tiebacks is acceptable for cut walls. Seems to be comparable to soldier pile wall. Probably cheaper.
 - › Sheet pile would be a cheaper option - more comfort from the industry – less need for specialty sub
 - › Need to avoid utility conflicts with tiebacks
- » Iowa DOT should look at moving the cut wall closer to new paving and handle drainage at the top of the wall. Shortens the wall considerably – both height and length
- » If you specify new sheet pile, price will be higher as compared to allowing contractor to utilize used piles in good condition (acceptable section modulus) at the discretion of the Engineer.
 - › FHWA noted that sheet pile material needs to meet the Buy America requirements. The interpretation is that to meet these requirements, the used sheet pile will need to be removed entirely in the future D-2 contract in order to avoid conflicts with Buy America requirements.
- » Could you use geo-piers in this area? Easier and more options from local contractors
- » Will the spec for MSE wall backfill be modified to allow local material to be used?
 - › Yes – Iowa DOT confirmed this MSE wall will not require macadam stone backfill
- » Primarily use sheet pile with tiebacks – fairly expensive. Tiebacks ruin the sheeting.
- » There is local capability to do either sheeting or soldier wall – but most typically sheeting is preferred
- » Contractor could look at a cold formed sheeting as a cheaper option
- » Not seeing a lot of used sheeting on the market or some form of price break for used sheet piling
- » Should use an Engineer-designed wall to make bidding easier and more consistent since contractor will leave wall in place. Minimizes contractor submittals and results in better bid prices
- » Can the contractors be given two alternates to bid? Would still be designed by engineer, but would be shown as only one bid item in the proposal (similar to Detour Paving, HMA or PCC)
 - › Bid alternates will be considered.
- » Several contractors noted that soldier pile walls can be expensive
- » Could more detour paving be placed so that the wall could be eliminated?
 - › This will be considered.
- » Using RI's for this project will be expensive due to small quantity – \$45-\$50 per foot
 - › Using geofoam or LFCF would be a more feasible option
 - › Have not had any good luck with alternate ground improvements such as stone columns or pipe piles – performance specs add price due to additional risk
- » Geofoam vs LFCF
 - › Several contractors spoke more favorably about use of Geofoam



- › Geofoam cost is not as costly as it once was as contractors are becoming familiar with the construction and Geofoam can give more of a “lock” on the price
- › LFCF would cost roughly \$130/Cu yd for small quantities, is hard to acquire, and needs specialty sub to do the work and mobilization of special plant

Steel Procurement

- › Iowa DOT should review the shop drawing review process. Incremental reviews of the shop drawings would be preferred to create a rolling assembly/fabrication of the structural steel. This would allow more lead time to handle the large volume of steel rolling at the mills.
 - › Submit shop drawings by structural bridge unit.
- › What’s lead time for steel? 9-12 months for delivery
- › This job should attract several steel bidders.
 - › If any new steel fabricators are used, Iowa DOT suggested that they start working through the pre-qualification process as soon as possible
- › Most steel mills go into shut down around Thanksgiving. So short time window to get steel ordered for piling and get it rolled before shutdown. So a quick turnaround on contract execution would be essential
- › Could the steel procurement be done separately from the project to improve lead time?
 - › This may be considered on future contracts.
- › Seems the demand for steel is down a little, so could get good prices on steel this summer/fall
- › 14x73 piling are typical and fairly easy to procure
- › Electronic files of beam lines and deck haunches would be helpful to have after the contract is awarded – Excel spreadsheet
- › Total square foot of each bridge was shared with the participating contractors:
 - › WB I-80 267,000 sf
 - › Ramp A 55,000 sf
 - › Ramp G 129,000 sf
- › What type of cast-in-place bridge rail is included? Standard or Aesthetic?
 - › The plans show an aesthetic rail detail

Construction Schedule and Contracting

- › The 30-month construction duration seems doable
- › Consider putting a completion date on the project that will be done first (C-4) to make area available for traffic switch.
- › Why was C-2 split into 2 jobs?
 - › It was explained that this was done to allow more time to work out geotech design issues at S. Expressway.
- › Contractors liked this process using one-on-one meetings, rather than having a group of contractors meeting together. It was a more open/comfortable environment to ask questions and discuss various ideas
- › A pre-bid meeting would be beneficial to talk about rules for working in and around railroad



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- › Liked the use of a simple figure or illustration of the contract milestones/staging layouts – similar to what was done for the A-2 (102) pre-bid. This helped to visualize what was tied to a particular stage/milestone of work
- › Would be good to have a RR representative at the pre-bid meeting
- › Specific railroad time restrictions presented
- » Some contractors stated to hold the pre-bid 1-2 weeks after advertisement. Others preferred to hold it half or two-thirds of the way through the advertisement period
- » All contractors expressed that this contract would benefit from an extended bid period. Contractors mentioned time periods of 6-8 weeks.
- » Will the current scheduling spec be used?
 - › Contractors would like to see some changes and possibly better process for reviews.

Other Miscellaneous Items

- » Ramp G construction access will be challenging with the slopes in and around the existing roadway embankments. The plans should also include an access plan.
- » Preference is to have a bid item for temp shoring for bridge construction – even if it is a lump sum
- » Will project management spec be included?
 - › Yes - Iowa DOT confirmed
- » Would there be the option of contractor furnished borrow?
 - › Yes, all the Council Bluffs Interstate projects include an option for contractor furnished borrow with the limitation the material cannot be obtained from the Loess Hills.
- » On future jobs – include as-builts for bridge demolitions. Contractors will need more information for developing demolition plans and estimating steel salvage
- » Could a contact be provided to talk to from the RR's during the advertisement period so that contractors could contact them about a possible site visit?
 - › This is being discussed. The pre-bid meeting may be used to get input from the RR for all contractors.

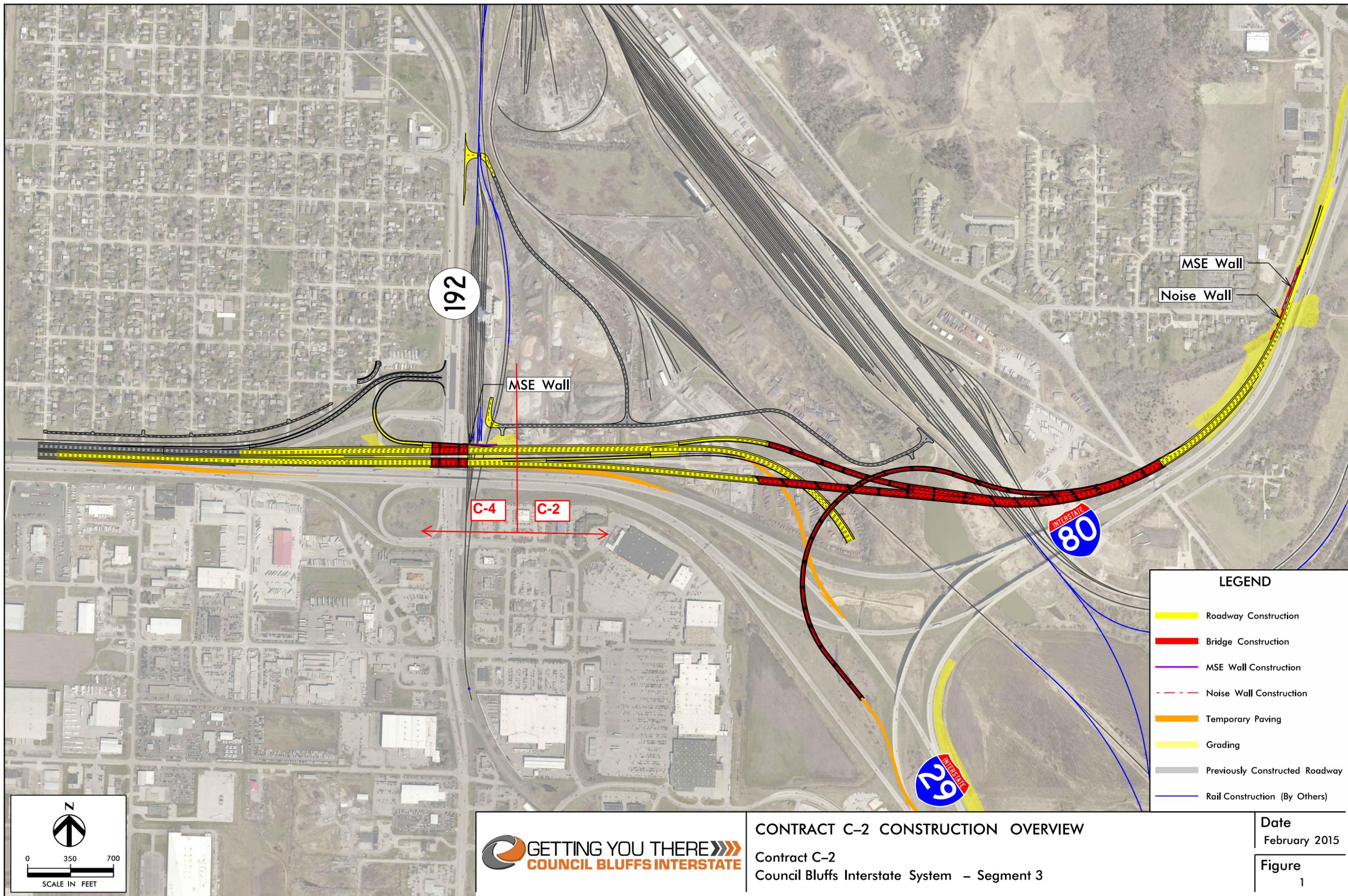
Follow Up Actions

- » Hold follow-up meeting/discussion with IAIS Railroad to discuss:
 - › Temporary Crossings
 - › Defining work windows
 - › Flagging requirements and rates
 - › Intermodal container storage
 - › Temporary shoring tower for girder sets
 - › Crane placement within the railroad tracks
- » Clarify 404 limitations/requirements for work in the pond
- » Discuss the use of stay-in-place decking with Office of Bridges & Structures
- » Research best-practice flagging specification options
- » Discuss possibility of using a more shallow ditch grade at base of temporary cut wall to shorten wall height

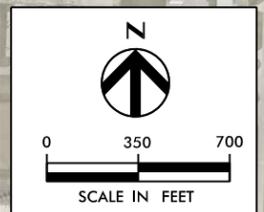


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- » Gather as-built plans for RR/intermodal paving to use to estimate pavement replacement
- » Gather any available survey information for pond bottom
- » Follow up with Office of Contracts on options and schedule for contracting, advertisement period and pre-bid meeting



LEGEND	
	Roadway Construction
	Bridge Construction
	MSE Wall Construction
	Noise Wall Construction
	Temporary Paving
	Grading
	Previously Constructed Roadway
	Rail Construction (By Others)



CONTRACT C-2 CONSTRUCTION OVERVIEW

Contract C-2
Council Bluffs Interstate System - Segment 3

Date
February 2015

Figure
1