Illinois Department of Natural Resources
CONSERVATION PLAN
(Application for an Incidental Take Authorization)
Per 520 ILCS 10/5.5 and 17 Ill. Adm. Code 1080

150-day minimum required for public review, biological and legal analysis, and permitting

PROJECT APPLICANT: **Illinois and Iowa Departments of Transportation and Federal Highway Administration**

PROJECT NAME: **Interstate 74 (I-74) Bridge Replacement Project**

COUNTY: **Rock Island**

AREA OF IMPACT: **The Action Area is limited to the construction and demolition footprint of the existing and proposed bridge, as well as a 50-foot buffer on both the upstream and downstream sides of the existing and proposed bridges within the Mississippi River (see Figures 1, 2, and 3 attached). The following sites were identified as potential mussel relocation areas and are, therefore, included in the action area (Figure 4):**

- **LeClaire Channel – Iowa Bank of Pool 14; River Mile (RM) 494**
- **Illiniwek Park – Illinois Bank of Pool 15; RM 494**
- **Eagle's Landing – Iowa Bank of Pool 15; RM 490-491**
- **Upstream Site – Illinois Bank of Pool 15; RM 486.5-488.5; Upstream of proposed bridge**
- **Sylvan Slough – Illinois Bank of Pool 15; RM 484.5-485.5; Downstream of the existing bridge**
- **Lateral Dike (Spectaclecase only) – Illinois Bank of Pool 15**
- **Arsenal Power Dam (Spectaclecase only) – Arsenal Island downstream of the Arsenal power dam**

The incidental taking of endangered and threatened species shall be authorized by the Illinois Department of Natural Resources (IDNR or Department) only if an applicant submits a conservation plan to the IDNR Incidental Take Coordinator that meets the following criteria:

1. **A description of the impact likely to result from the proposed taking**

A) Identification of the **area to be affected** by the proposed action - The Iowa and Illinois Departments of Transportation (Iowa DOT and Illinois DOT) and the Federal Highway Administration (FHWA) are proposing to replace the I-74 bridge across the Mississippi River between Bettendorf, Iowa and Moline, Illinois (Figure 1). In Illinois, the bridge project is located in Sections 28, 29, 32 and 33, Township 18N, Range 01W in Rock Island County (Figure 1). The I-74 bridge and associated right-of-way, which includes the action area, is owned by the State of Illinois.

The existing I-74 bridge crosses Pool 15 of the Mississippi River near RM 486 (Figure 1). The project will involve removal of the existing suspension bridge and construction of a new basket handle twin arch bridge just upstream of the current location (Figure 1).

B) **Biological data** on the affected Species – A Biological Assessment (BA) that included a Conservation Plan for Illinois state-listed mussel species was submitted to IDNR on May 5, 2016. On July 16, 2016, the IDNR issued an Incidental Take Authorization (ITA) for the following federal and state-listed mussel species previously identified within the Action Area (see Attachment A for biological data for these species):

- Higgins-eye pearlymussel (*Lampsilis higginsi)*
- Spectaclecase mussel (*Cumberlandia monodonta)*
- Sheepnose mussel (*Plethobasus cyphyus)*
- Butterfly (*Ellipsaria lineolata)*
- Ebonyshell (*Fusconia ebena)*
- Black Sandshell (*Ligumia recta)*

Mussel relocation was conducted within the proposed bridge corridor from August 1, 2016 through October 25, 2016 (see mussel removal areas on Figure 3). During the relocation, two additional state-listed mussel species were captured that were not included in the 2016 ITA. The Iowa and Illinois DOTs and the FHWA are requesting incidental take authorization for the following additional mussel species for the project:

- Purple wartyback (*Cyclonaia tuberculata)*
- Spike (*Elliptio dilatata)*

Biological data for these two species are also included in Attachment A.

C) **Description of project activities** that will result in taking - Project activities include:

- Construction of basket handle twin arch bridge (includes drilled pier shafts into riverbed)
- Construction of two storm sewer outfalls
- Demolition of existing suspension bridge
- Dredging to facilitate construction and demolition
- Installation of coffer dams
- Installation of anchored silt curtain
- Relocation of mussels prior to construction and demolition activities

The new bridge will consist of 14 concrete piers supporting the deck and will be approximately 3,372 feet in length (Figure 2). A detailed discussion of the proposed construction components and activities, including construction staging areas and dredge activities and project components in the river, is included in Attachment B. Project plans are included in Attachment C. Table 1 below provides a summary of the proposed project schedule. Construction and/or demolition activities will occur year-round.

Table 1. Proposed Project Schedule

Project Phase	Proposed Schedule
Mussel Relocation (Pre-Construction)	July through September 2016 - COMPLETED
Installation of Silt Curtain (Pre-Construction)	Summer 2017
Storm Sewer Outfall Projects	August to October 2017 (Outfall M6) Fall 2017 or April-July 2018 (Outfall M1B)
Construction of the Proposed Bridge	September 2017 through November 2020 (Eastbound lanes complete November 2019; Westbound lanes complete November 2020)

Mussel Relocation (Pre-Demolition)	Fall 2020
Demolition of the Existing Bridge	November 2020 through Fall 2021

The existing bridge will remain open to traffic during construction of the new bridge and will be demolished once construction of the new bridge is complete. Demolition will include removal of the bridge deck and all existing piers, with the exception of Pier K located in Sylvan Slough (Figure 2). This pier will remain to minimize effects to the existing Sylvan Slough mussel bed and federal and state-listed mussel species found at that location. A detailed discussion of demolition activities and staging is included in Attachment B. Demolition activities will occur year-round.

The project will also include construction of two storm sewer outfalls to the Mississippi River in Moline, Illinois (Figure 2). The city of Moline's existing storm sewer systems that drain the I-74 bridge and a portion of the city have a history of surcharging (i.e., the volume of stormwater exceeds the capacity of the drain), resulting in flooding at 3rd, 6th, and 7th avenues in Moline. The two proposed outfalls will be constructed to manage drainage from mainline roads and bridges as well as side roads, and are expected to remove some of the water from the existing flood-prone areas. Specifics of the storm sewer outfall projects are discussed in Attachment B and site plans are found in Attachment C.

D) Explanation of the anticipated **adverse effects on listed species**; how will the applicant's proposed actions impact each of the species' life cycle stages.

A discussion of direct and indirect effects to federal and state-listed mussel species as a result of the project is included in Attachment D. Potential adverse effects to mussel species include mortality, disturbance and stress to the animals as a result of relocation and construction/demolition activities, temporary disruption to reproduction, and temporary displacement of host fish (see Attachment D). Take estimates for both federal and state-listed mussel species are included in Attachment E).

2) Measures the applicant will take to **minimize and mitigate** that impact and the **funding** that will be available to undertake those measures, including, but not limited to -

A) plans to **minimize the area affected** by the proposed action, the estimated **number of individuals** of each endangered or threatened species that will be taken, and the **amount of habitat** affected (please provide an estimate of area by habitat type for each species).

The action area is limited to the construction and demolition footprints of the existing and proposed bridges as well as a 50-foot buffer on both the upstream and downstream sides of the existing and proposed bridges within the Mississippi River. A discussion of project activities, including dimensions of project infrastructure to be placed in the river and impacts to mussel habitat, is found in Attachment B. Approximately 6.2 acres of suitable mussel habitat will be dredged between Piers 1 through 5 on the Illinois side of the river following relocation of mussels (see Attachment D). In addition, approximately 0.69 acre of suitable mussel habitat will be permanently altered by the placement of piers on the Illinois side of the river (see Attachment C for site plans). Take estimates for the Higgins eye pearlymussel, spectaclecase mussel, sheepnose mussel, butterfly, ebonyshell, black sandshell, purple wartyback, and spike are included in Attachment E.

B) **plans for management of the area** affected by the proposed action that will **enable continued use** of the area by endangered or threatened species by maintaining/re-establishing suitable habitat

(for example, native species planting, invasive species control, use of other best management practices, restored hydrology, etc.).

During construction, adjacent land areas will contain erosion and sediment control features. The Department's erosion and sediment control policy will be followed and will be in compliance with the U.S. Army Corps of Engineer's Section 404 permit, the water quality certification of Illinois Environmental Protection Agency (EPA), and the requirements within the National Pollutant Discharge Ellimination System (NPDES) construction permit. It is anticipated the areas affected by dredging will return to pre-construction conditions in time and mussels will recolonize the area.

C) description of **all measures to be implemented to avoid, minimize, and mitigate** the effects of the proposed action on endangered or threatened species.

Project-specific Special Provisions were developed by the Iowa DOT to avoid and minimize effects to mussel species (Attachment F). Restrictions will be implemented for project staging to reduce effects to mussels. Silt curtains will be installed (see Attachment B for details). Pier K in Sylvan Slough will not be removed during demolition to avoid and minimize impacts to the spectaclecase mussel (see Attachment D for details).

The following conservation measures will be implemented to avoid and minimize potential effects to mussel species: Prior to construction activities, mussels will be relocated from the action area of the proposed bridge (see Attachment G for details of the relocation plan); and, a second round of mussel relocation will occur prior to demolition of the existing bridge.

In an effort to avoid and/or minimize impacts to mussels downstream, floating silt curtains will be installed prior to construction to retain sediment created by construction. The need for and placement of silt curtains prior to demolition activities will be determined prior to commencement of those activities and will be based on the effectiveness of the silt curtain during construction.

In addition to the placement of silt curtains and relocation efforts described above, the Special Provisions include:

- Near the Illinois riverbank, construction is restricted in sensitive areas, including Sylvan Slough, and extending upstream of both bridge corridors (see Attachment F).
- Barges and water craft used for construction activities shall be inspected for the presence of zebra mussels (*Dreissena polymorpha)* prior to placing the barges into the Mississippi River and shall be completely out of water for 10 days to ensure proper drying and reduce potential infestation by zebra mussels.
- The contractor will be responsible for implementing measures to prevent debris from falling into the river. Debris will not be allowed to collect at the bottom of the river. The contractor will remove any debris from the water or river bed as soon as practicable during the same work day in order to prevent the accumulation of potentially polluted materials. Construction inspectors will be present during construction and demolition activities to ensure compliance with DOT Special Provisions (Attachment F).

The Special Provisions (Attachment F) also address measures to avoid and minimize effects to water quality which also protect mussel species. Attachment G outlines the relocation plan for mussel species.

A comprehensive conservation strategy to serve as mitigation for potential impacts as a result of the I-74 project was developed cooperatively with U.S. Fish and Wildlife Service (USFWS), IDNR, and Iowa DNR. The Intergovernmental Agreement (IGA) was executed on May 10, 2016. As a result of that agreement, the following mitigation measures were agreed to by the DOTs for implementation:

- A large-scale study of Pool 15 will occur in three phases to map habitat and mussel distribution consisting of compilation and mapping of existing data, quantitative sampling to map the distribution of existing mussel beds in channel border habitat, and provide calibration for larger scale sampling, and poolwide sampling to determine density and population estimates.
- A study will be conducted to investigate the effects of increasing resident mussel density at varying rates resulting from the I-74 Bridge Project mussel relocation. A subset of relocated mussels will be placed at varying densities within the three general (not spectaclecase) relocation sites. The sites will be monitored to determine whether different densities persist or if the beds return to pre-relocation numbers. Monitoring will occur annually for the first two years and in the 4^{th}, 7^{th}, and 10^{th} years following mussel relocation. Data from this study will provide valuable information on the potential carrying capacity of mussel beds and inform future relocation efforts.
- A two-year mussel education and outreach staff position to serve as the point of contact, to develop education materials, to conduct classroom and public interpretive outreach, to perform media and community education, and to develop and coordinate a social media presence. The staff will educate on both the ecology of mussels and bridge construction/demolition techniques. A document may be developed through this position to address best management practices for future bridge projects that have the potential to impact mussel resources.
- A five-year effort to inoculate host fish with mussel glochidia and perform free release of 10,000 inoculated fish annually near the project impact in cooperation with the Genoa National Fish Hatchery's Native Mussel Recovery Program. This effort will assist with repopulation of impacted areas and offset the impacts from bridge construction and demolition. The resource agencies will determine which mussel species and host fish species will be stocked based on the data collected from the mussel relocation and the impacts to mussel beds within the action area.

D) plans for **monitoring** the effects of the proposed actions on endangered or threatened species, such as species and habitat monitoring before and after construction, include a plan for follow-up reporting to IDNR.

Post-construction monitoring activities will be conducted to determine the success of mussel recolonization of the action area, and the success of relocations and survival of mussel species (see Attachment H for details of the monitoring plan). Other monitoring studies may be implemented in coordination with the USFWS and IDNR.

E) **adaptive management practices** that will be used to deal with changed or unforeseen circumstances that affect an endangered or threatened species. Consider environmental variables such as flooding, drought, and species dynamics as well as other catastrophes. Management practices should include contingencies and specific triggers. Note: Not foreseeing any changes does not quality as an adaptive management plan.

Mussel relocation is dependent on the flow and volume of water in the river at that time. If the flow is swift and/or the water levels are high the relocation(s) will be postponed, which may cause the overall timeframe of the relocation to be extended. Mussel relocation will occur only when water levels are low and current conditions are moderate or low. Potential mussel relocation beds will be carefully screened to assure that habitat is suitable for transplanted mussels and that risks of external threats to the relocation beds (siltation, chemical spills) are minimized. The relocation will be done according to accepted standards to minimize mussel mortality.

F) verification that **adequate funding** exists to support and implement all mitigation activities described in the conservation plan. This may be in the form of bonds, certificates of insurance, escrow accounts or other financial instruments adequate to carry out all aspects of the conservation plan.

All proposed mitigation will be completed as part of, and not separate from, the construction of the project and in many cases will also be conditions of other permits (e.g., NPDES). Therefore, funding for the mitigation will be included in the funding for the overall project. Iowa DOT, Illinois DOT, and FHWA commit to funding construction of the project, and by extension, funding of the mitigation.

3) A description of **alternative actions** the applicant considered that would reduce take, and the reasons that each of those alternatives was not selected. A "no-action" alternative" shall be included in this description of alternatives. Please, describe the economic, social, and ecological tradeoffs of each action.

The proposed action was selected after carefully evaluating several alternatives, including a No Action alternative, in the Final Environmental Impact Statement (FEIS) published by FHWA on January 8, 2009 (http://www.iowadot.gov/ole/nepaprojects/nepaprojectseis.aspx?I-74 Quad Cities Corridor Study#feis). Various roadway and multimodal improvements were developed and tested at a conceptual level to allow identification of a complete set of reasonable and representative build alternatives for more detailed consideration. The options included:

- Reuse of the Mississippi River bridges
- Multiple location and lane configuration options for a new river crossing
- Interchange location and design options
- Multimodal improvements

Ten river crossing alignment options, representing both easterly and westerly alignment shifts, initially were developed. Two new alignment locations were carried forward for detailed analysis considered in the Central Section, along with variations for the interchanges and local road configurations. The remaining alignment locations, as well as reuse of the existing Mississippi River bridges, were analyzed but ultimately dismissed because they did not meet the purpose and need of the project. Multimodal improvements were incorporated into the design where appropriate.

A No-Action Alternative was also considered and was defined as no new major construction along the I-74 corridor. Selection of the No Action alternative would have meant that no mussels would have been impacted by the project because a new bridge would not have been constructed; however, this alternative did not meet the purpose and need of the I-74 bridge replacement project, which was to improve capacity, travel reliability, and safety of the I-74 corridor.

4) Data and information to indicate that the proposed taking **will not reduce the likelihood of the survival** of the endangered or threatened species in the wild within the State of Illinois, the biotic community of which the species is a part, or the habitat essential to the species existence in Illinois.

Attachment E includes methods used to calculate total take by species and tables that provide details of the take estimates for federal and state-listed species. The Mississippi River, and specifically, Sylvan Slough, provides suitable habitat for the federal and state-listed mussels within the action area. Table 2 presents a comparison between the number of federal and state-listed mussels estimated to be successfully relocated from the construction action area prior to construction (based on take estimates provided in Attachment E) and the total number of each species relocated during the 2016 relocation effort. Individuals were relocated per the methods described in the relocation plan (see Attachment G).

Table 2. Comparison of Relocation Estimates and 2016 Relocation Results for Federal and State-listed Threatened and Endangered Mussel Species – I-74 Bridge Replacement Project

Species	Estimated Number of Individuals Successfully Relocated from the Action Area	Total Number of Individuals Captured during the 2016 Relocation Effort
Higgins eye pearlymussel	741	747
Spectaclecase Mussel	0	23
Sheepnose Mussel	186	106
Butterfly	3,679	2,640
Ebonyshell	0	0
Black Sandshell	12,516	8,741
Purple Wartyback	91	1
Spike	91	2
Total	17,304	12,260

In addition, it is estimated approximately 726 Higgins eye pearlymussels, 184 sheepnose mussels, 347 spectaclecase mussels, 2,521 butterfly, 10,939 black sandshell, 135 purple wartyback, and 135 spike will be successfully relocated from the demolition action area prior to demolition activities. Individuals will be relocated per the methods described in the relocation plan (see Attachment G).

The risk of "incidental take" as a result of project activities does exist (see Attachments D and E). Expected mortality for each species (and percent mortality of that species) within the Illinois portion of the action area resulting from both construction and demolition is listed below:

- Higgins eye pearlymussel 1,860 (55.8%)
- Sheepnose mussel 489 (56.5%)
- Butterfly 8,525 (57.8%)
- Black sandshell 29,709 (55.8%)
- Spectaclecase mussel 60 (14.8%)
- Purple wartyback 202 (47.2%)
- Spike 202 (47.2%)

No live ebonyshell were found during surveys of the action area; therefore, no take of this species is anticipated, although take coverage is sought for this species in the event the species found during relocation efforts. The action area is not the only location in Illinois where the affected species are found. In addition to Sylvan Slough, these species are found in other locations along the Illinois portion of the Mississippi River as well as in some inland rivers. Therefore, the incidental take of Higgins eye pearlymussels, sheepnose mussels, spectaclecase mussels, butterfly, black sandshell, purple wartyback, and spike will not reduce the likelihood of the survival of these species in the wild in Illinois.

5) An **implementing agreement**, which shall include, but not be limited to (on a separate piece of paper containing signatures):

A) the names and signatures of all participants in the execution of the conservation plan;

By _____
Kevin Marchek
Region 2 Engineer
Illinois Department of Transportation

By _____
Tammy Nicholson, Director
Office of Location and Environment
Iowa Department of Transportation

B) the obligations and responsibilities of each of the identified participants with schedules and deadlines for completion of activities included in the conservation plan and a schedule for preparation of progress reports to be provided to the IDNR;

The IDNR is responsible for the review of this Conservation Plan and for subsequent issuance of the Incidental Take Authorization.

The Iowa DOT will be responsible for relocation of Higgins eye, spectaclecase, sheepnose, butterfly, ebonyshell (if found), black sandshell, purple wartyback, and spike mussels from the action area to specified relocation areas (see Table 1 for estimated schedule of relocation activities). Post-construction monitoring activities will be conducted to determine the success of mussel re-colonization of the action area, and the success of relocations and survival of mussel species. Other monitoring studies may be implemented in coordination with the USFWS and the IDNR. Annual progress reports will be provided to the IDNR in January each year of the permit and will include, but may not be limited to, a summary of any mussel relocations, the results of any monitoring studies performed, or a discussion of adaptive management strategies that may be implemented.

The Iowa DOT is responsible for the construction sites, the placement and function of the erosion and sediment control, all items in the Incidental Take Authorization and coordination with the IDNR and the USFWS.

The Iowa DOT is responsible for obtaining biological clearance from IDNR, coordination and implementing recommendations to the contractor related to and constructing the project and addressing commitments listed under the Incidental Take Authorization permit.

C) certification that each participant in the execution of the conservation plan has the legal authority to carry out their respective obligations and responsibilities under the conservation plan;

Ecological Specialists, Inc. (ESI), on behalf of the Iowa DOT, has the authority to conduct the mussel relocation and follow-up monitoring under Federal TES Permit TE206781-6. In addition, prior to the 2016 mussel relocation, ESI obtained the required Illinois T&E permit (Permit No. 16-027).

The Iowa DOT has the legal responsibility for the implementation and oversight of the mussel relocations under the Illinois Endangered Species Act. All federal and state laws, regulations, permits, and commitments will be adhered to.

D) assurance of compliance with all other federal, State and local regulations pertinent to the proposed action and to execution of the conservation plan;

Project activities will require a Clean Water Act Section 404 permit from the U.S. Army corps of Engineers (USACE Rock Island District), Rivers and Harbors Act Section 10 Permit (USACE Rock Island District), and a water quality certification from Illinois EPA. Iowa DOT, Illinois DOT, and FHWA will obtain any necessary federal, state, and local permits and comply with all permit conditions.

E) **copies of any final federal authorizations for a taking already issued to the applicant**, if any.

None.

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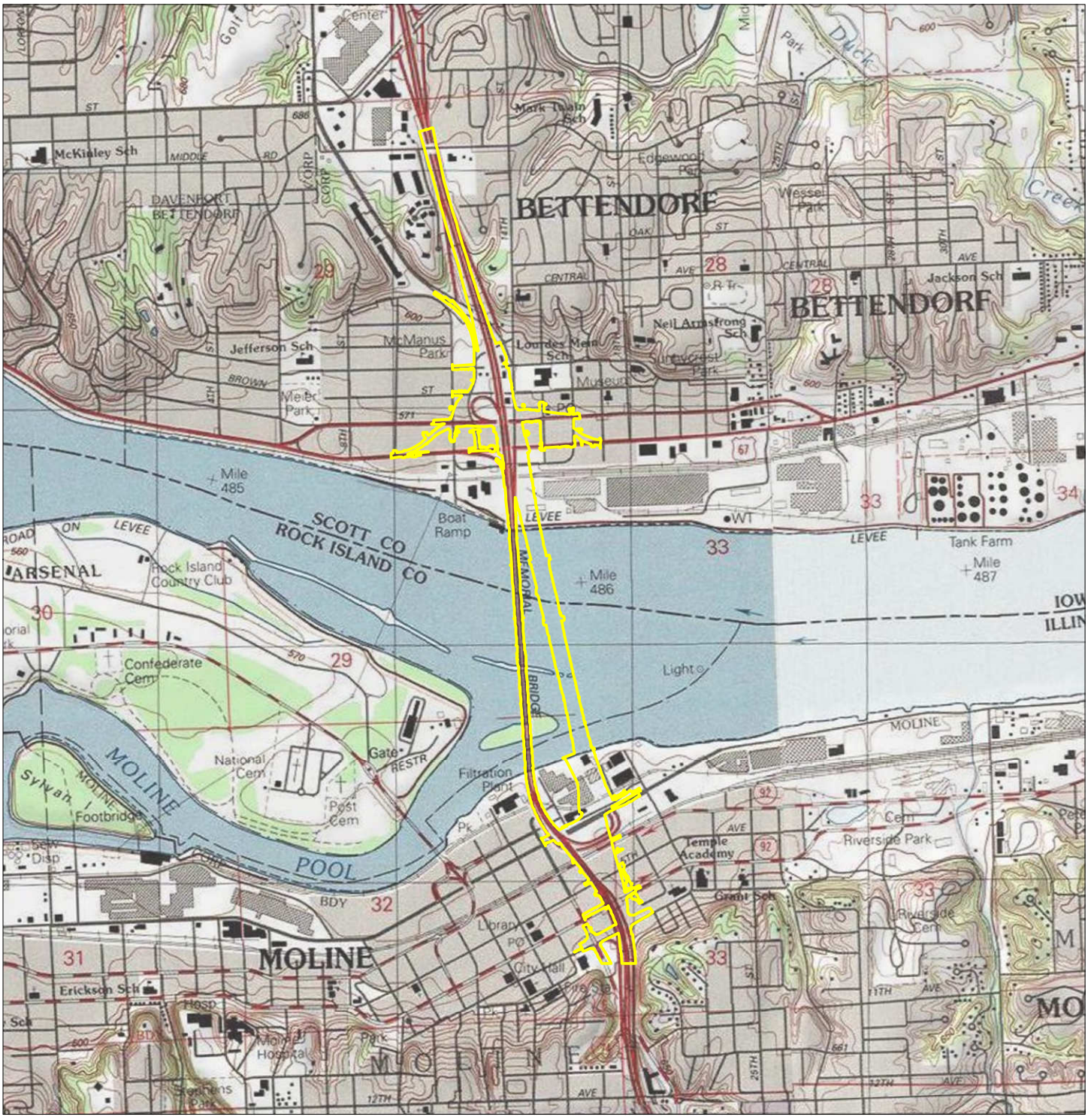

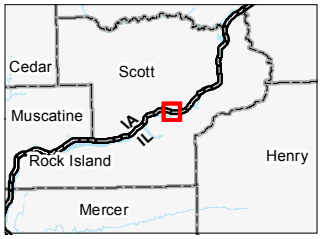

Legend

Project Area

Notes

1. Coordinate System: NAD 1983 StatePlane Iowa South FIPS 1402 Feet
2. Data Sources Include: Stantec, IDOT
3. Background: USGS 7.5' Topographic Quadrangles

Figure No.

1

Title

Project Location

Client/Project

Iowa Department of Transportation
I-74 Bridge Replacement Project
Biological Assessment

Project Location
T. of Bettendorf, Scott Co., IA;
T. of Moline, Rock Island Co., IL

193703186

Prepared by KAS on 2015-12-14
Technical Review by JD on 2016-01-07
Independent Review by SP on 2016-04-29

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Notes

1. Coordinate System: NAD 1983 StatePlane Iowa South FIPS 1402 Feet
2. Data Sources Include: Stantec, IDOT, NADS, USGS
3. Orthophotography: NAIP 2015

Legend

- Action Area – Aquatic Resources
- Action Area – Terrestrial Resources
- Pier K
- Storm Sewer Outfall

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Ephemeral Stream
- Waterbody

Figure No.
2

Title
Action Area Overview

Client/Project
Iowa Department of Transportation
I-74 Bridge Replacement Project
Biological Assessment

Project Location
T. of Bettendorf, Scott Co., IA;
T. of Moline,
Rock Island Co., IL

193703186
Prepared by KAS on 2015-12-14
Technical Review by JD on 2016-01-07
Independent Review by SP on 2016-04-29

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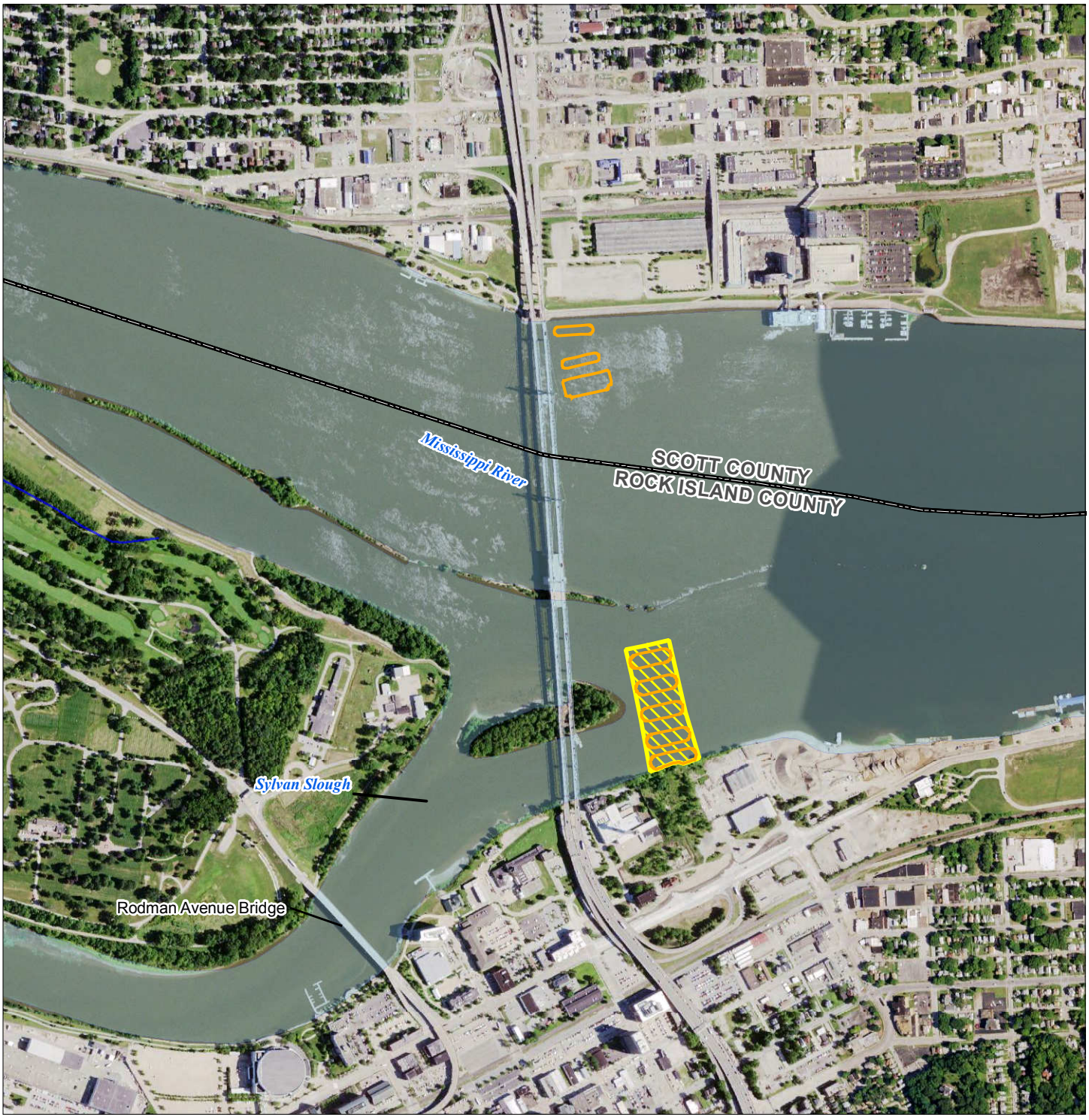

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1. Coordinate System: NAD 1983 StatePlane Iowa South FIPS 1402 Feet
2. Data Sources Include: Stantec, IDOT, NADS, USGS
3. Orthophotography: NAIP 2015

Legend

- Mussel Removal Area (Construction)
- Potential Dredging Area (Construction)

National Hydrography Dataset

- Perennial Stream
- Intermittent Stream
- Ephemeral Stream
- Waterbody

Figure No.
3

Title
Mussel Removal Areas and Potential Dredging Area

Client/Project
Iowa Department of Transportation
I-74 Bridge Replacement Project
Biological Assessment

Project Location
T. of Bettendorf, Scott Co., IA;
T. of Moline, Rock Island Co., IL

193703186
Prepared by JD on 2016-04-28
Technical Review by MP on 2016-04-28
Independent Review by SP on 2016-04-29

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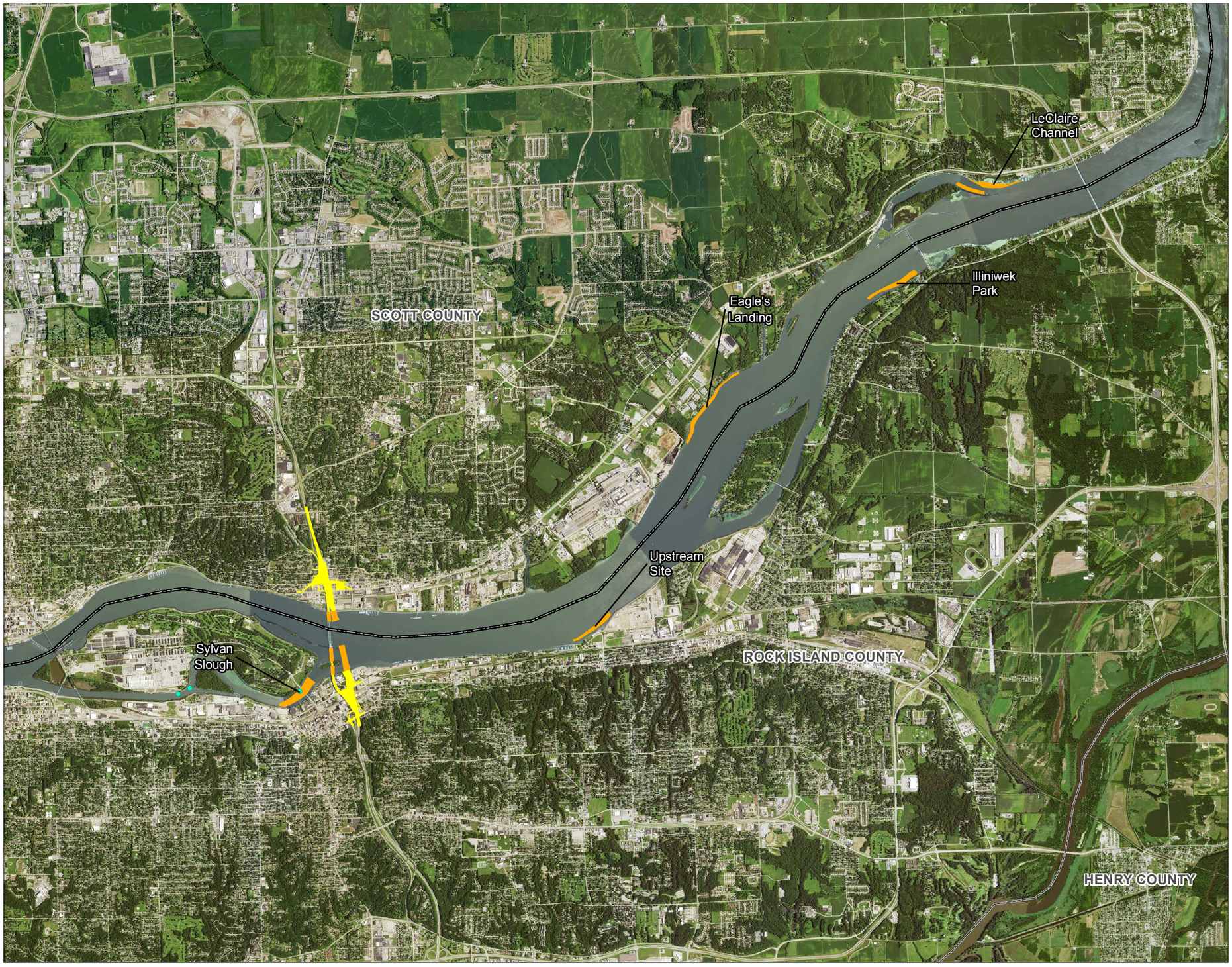

Figure No.
4

Title
Action Area - Aquatic Resource

Client/Project
Iowa Department of Transportation
I-74 Bridge Replacement Project
Biological Assessment

Project Location
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T. of Moline,
Rock Island Co., IL

193703186
Prepared by KAS on 2016-01-20
Technical Review by JD on 2016-01-20
Independent Review by SP on 2016-04-29

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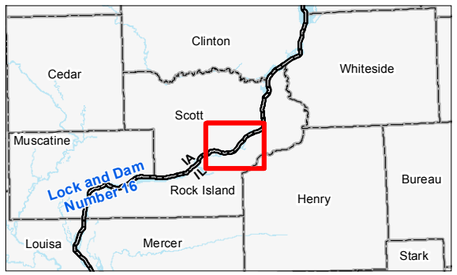
Legend
- Spectaclecase Relocation Point
- Action Area - Aquatic Resources
- Action Area – Terrestrial Resources
- Waterbody



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2. Data Sources Include: Stantec, IDOT, NADS, USGS
3. Orthophotography: NAIP 2015

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ATTACHMENT A

BIOLOGICAL DATA

BIOLOGICAL DATA – FEDERAL AND STATE-LISTED MUSSEL SPECIES

Higgins Eye Pearlymussel

Current Status

The Higgins eye pearlymussel was listed as endangered by the USFWS on June 14, 1976 (41 FR 24062-24067). A USFWS Higgins Eye Mussel Recovery Plan was first developed and signed on July 29, 1983 (USFWS 1983a). Revision of the plan began in 1994 in response to concern that the large flood of 1993 may have significantly impacted Higgins eye. The most recent version of the plan is the Higgins eye pearlymussel (*Lampsilis higginsii*) Recovery Plan: First Revision signed on May 12, 2004 (USFWS 2004).

The Higgins eye pearlymussel is also currently listed as endangered by State of Illinois. Listed species in Illinois are protected under the Illinois Endangered Species Protection Act (ESPA; 520 ILCS 10) and regulatory authority lies with the Illinois DNR.

The 1983 recovery plan listed seven locations as primary habitats and nine locations as potential secondary habitats (USFWS 1983a). The revised recovery plan lists 10 Essential Habitat Areas (EHA), 6 of which are in the Mississippi River between river miles 489 and 656 (USFWS 2004):

- Whiskey Rock (Pool 9; Lansing, Iowa)
- Harpers Slough (Pool 10; near Harpers Ferry, Iowa)
- Prairie du Chien, Wisconsin (Pool 10; main and east channel)
- McMillan Island (Pool 10; Guttenberg, Iowa)
- Cordova, Illinois (Pool 14)
- Sylvan Slough (Pool 15; Moline, Illinois) – located within the I-74 action area

EHAs are those areas that the USFWS and its partners have found to be of utmost importance to the conservation of the Higgins eye pearlymussel (USFWS 2004). Since publication of the revised recovery plan (USFWS 2004), four new EHAs were added in consultation with the recovery team:

- Lansing, Iowa (Pool 9; RM 660-661)
- Cassville, Wisconsin (Pool 11, RM 606-608)
- Hanson's Slough (Pool 14, RM 509.1-510.1)
- Buffalo, Iowa (Pool 16, RM 470-471)

The revised recovery plan describes two main objectives that indicate the USFWS's current management direction (USFWS 2004):

1. Preserving the Higgins eye pearlymussel and its Essential Habitat Areas.
2. Enhancing the abundance and viability of the Higgins eye pearlymussel in areas where it currently exists and restoring populations within its historical range.

Species Description

The Higgins eye pearlymussel is a medium-sized (reaching approximately 4 inches in length) freshwater mussel with smooth, yellow, yellowish green or brown with green rays that are obscure on some individuals (USFWS 1983). The species is sexually dimorphic. Baker (1928) provided the following description of the shell morphology:

"The shell is oval or elliptical, somewhat inflated, solid, with a gaping anterior base. The beaks are placed forward of the center of the dorsal margin, much elevated, swollen, their sculpture consisting of a few feeble ridges slightly looped; anterior end broadly rounded; posterior end truncated in the female, bluntly pointed in the male; ventral and dorsal margins slightly curved, almost parallel; posterior ridge rounded, but well-marked; surface shining, marked by irregular growth lines which are better developed at rest periods where they are usually dark colored; epidermis olive or yellowish green with faint green rays. Hinge massive; pseudocardinals erect, triangular or pyramidal, divergent, serrated, two in the left and one in the right valve, with sometimes indications of additional denticles on either side of the single right pseudocardinal; interdentium narrow, flat; laterals short, thick, slightly curved, almost smooth, cavity of the beaks deep, containing the dorsal muscle scars, anterior adductor scar deeply excavated, posterior scar distinct; nacre silvery-white, iridescent, often tinged with pink."

The Higgins eye feeds by filtering food particles from the water column. The specific food habits of the species are unknown, but other juvenile and adult freshwater mussels have been documented to feed on detritus, diatoms, phytoplankton, and zooplankton (Churchill and Lewis 1924). The diet of Higgins eye glochidia (larvae), like other freshwater mussels, is comprised of fish body fluids (once encysted).

The major reasons for listing Higgins eye were the decrease in both abundance and range of the species. The initial recovery plan (USFWS 1983a) indicated the Higgins eye was never abundant and Coker (1919) indicated that the species was becoming increasingly rare even at the end of the 1800s. The fact that there were few records of live specimens from the early 1900s until the enactment of the ESA in 1973 was a major factor in its listing in 1976.

Habitat

The Higgins eye has been characterized as a large river mussel species (USFWS 2004). Higgins eye may be primarily adapted to large river habitats with moderate current, such as the East channel of the Mississippi River near Prairie du Chien, Wisconsin (USFWS 2004). Davis and Hart (1995) indicated that it was found in the more "riverine" portion of Pool 7 (near La Crescent, Minnesota) and in the tailwater reaches of other Mississippi River navigation pools. Higgins eye has also been found in beds bordering main or side channels and may prefer areas of high turbulence and oxygen content (Fuller 1978).

Little information is available about the specific habitat requirements of Higgins eye. The Higgins eye has been found in various substrates from sand to boulders but not in areas of unstable shifting coarse sands. Fuller (1978) indicates Higgins eye may be found in 8-15 feet of water in mud with a mixture of gravel and stones. Cawley (1996) indicated that Higgins eye were most common in sand/gravel substrate. Miller and Payne (1996) considered substratum that was free of plants and consisted of stable, gravelly sand as suitable. The species is not associated with firmly packed clay, flocculent silt, organic material, bedrock, concrete or unstable moving sand (Wilcox et al. 1993). Habitat associations or requirements for the juvenile stage are unknown.

Life History

The reproductive cycle of the Higgins eye is similar to that of other native freshwater mussels. Males release sperm into the water column; the sperm are then taken in by the females through their siphons during feeding and respiration. The females retain the fertilized eggs in their gills until the glochidia fully develop. The glochidia are released into the water and within a few days they must attach to the appropriate species of fish, which they parasitize for a short time while they develop

into juvenile mussels. Female Higgins eye are bradytitic (i.e., long-term breeders that retain the developing larvae within their marsupia throughout most of the year, except during early summer). The breeding season is between May and September (Baker, 1928) and glochidial release has been reported during June and July (Waller and Holland-Bartels 1988) and May and September (Surber 1912). Reproduction is attempted annually.

Early studies indicated that sauger (*Sander canadensis)* and freshwater drum (*Aplodinotus grunniens)* were glochidial fish hosts (Surber 1912; Wilson 1916; Coker et al. 1921) based on examination of natural infections; however, field identifications were not robust. In laboratory studies, Waller and Holland-Bartels (1988) indicated that four species of fish were suitable hosts: largemouth bass (*Micropterus salmoides),* smallmouth bass (*Micropterus dolomieu)*, walleye (*Sander vitreus)* and yellow perch (*Perca flavescens).* There was some transformation of glochidia to juveniles on green sunfish (*Lepomis cyanellus)*, whereas two species, bluegill (*Lepomis macrochirus)* and fathead minnow (*Pimephales promelas)* were unsuitable hosts. Hove and Kapuscinski (2002) have confirmed sauger as a suitable host and identified largemouth bass and black crappie (*Pomoxis nigromaculatus)* as additional host species.

Status in the Action Area

Since 1980, live Higgins eye pearlymussels have been found in parts of the following rivers: the Upper Mississippi River north of Lock and Dam 19 at Keokuk, Iowa, and in three tributaries of the Mississippi River - the St. Croix River between Minnesota and Wisconsin, the Wisconsin River in Wisconsin, and the lower Rock River between Illinois and Iowa. The species' current range is about 50 percent of its historic distribution which extended as far south as St. Louis, Missouri, and in several additional tributaries of the Mississippi River (USFWS 2004). Since 2000, reintroductions have occurred in the Mississippi River, Wisconsin River, Rock River, Iowa River, Cedar River, and the Wapsipinicon River (ESI, personal communication).

The Sylvan Slough EHA, located in Pool 15 of the Mississippi River in Rock Island County, Illinois (Figure 2), is found within the action area for the Project.

A survey of the action area conducted in August and September 2014 found live Higgins eye in all four survey areas; however, this species comprised <1% of the sample in each of the survey areas (ESI 2014). One live specimen was also found at an existing bridge pier adjacent to the navigation channel (ESI 2014).

Spectaclecase Mussel

Current Status

The spectaclecase mussel was listed as endangered by the USFWS on April 12, 2012 (50 FR 14914-14949). A recovery outline for the species was completed in 2014 (Butler 2002a).

The spectaclecase mussel is also currently listed as endangered by the State of Illinois. Listed species in Illinois are protected under the Illinois Endangered Species Protection Act (ESPA; 520 ILCS 10) and regulatory authority lies with the Illinois DNR.

Species Description

The spectaclecase mussel has an oblong, elongate, and compressed shell that can be up to approximately 8 inches in length with rounded anterior and posterior ends. The surface of the shell is smooth to somewhat rough and is brown in young shells, becoming dark brown to black and rayless with age (Cummings and Mayer 1992).

Habitat

This species inhabits large rivers with swiftly flowing water and are found among boulders in patches of sand, cobble, or gravel in areas of reduced current (Cummings and Mayer 1992).

Life History

The reproductive cycle of the spectaclecase is similar to that of the Higgins eye pearlymussel (see above). Males expel clouds of sperm into the water column, which are drawn in by females through their incurrent siphons. Fertilization takes place internally, and the resulting zygotes develop into specialized larvae (glochidia) within the gills. The spectaclecase utilizes all four gills as marsupia for its glochidia. It is thought to be a short-term brooder, with glochidial release occurring from early April to late May in Missouri streams (Baird 2000 as cited in USFWS 2007). As stated in USFWS (2007), both Howard (1915) and Gordon and Smith (1990) reported it as producing two broods, one in spring or early summer and the other in the fall, also based on Meramec River specimens. Baird (2000 as cited in USFWS 2007), however, found no evidence of two spawns in a given year.

Glochidia are released in the form of conglutinates, which are analogous to cold capsules (i.e., gelatinous containers with numerous glochidia within). Conglutinates typically contain not only glochidia, but embryos and undeveloped ova as well. Based on eight Missouri specimens, the number of conglutinates released per individual varied from 53 – 88, with a mean of 64.5 (Baird 2000 as cited in USFWS 2007).

USFWS (2007) indicates spectaclecase glochidia "are the smallest known for any North American mussel; they measure approximately 0.0024 inches in both length and height (Baird 2000 as cited in USFWS 2007). Tens to hundreds of thousands of the hookless glochidia may occur in each conglutinate. Total fecundity (including glochidia and ova) in Baird's (2000 as cited in USFWS 2007) Missouri study varied from 1.93 – 9.57 million per female. In mussels, fecundity is related positively to body size and inversely related to glochidia size (Bauer 1994 as cited in USFWS 2007). The reproductive potential of *C. monodonta* is therefore phenomenal. However, the fact that extant populations are generally skewed towards larger adults strongly indicates that survival rates to the adult stage must conversely be extraordinarily low" (USFWS 2007).

Researchers in Wisconsin have observed females in the lab and under boulders in the St. Croix River simultaneously releasing their conglutinates (David Heath, WDNR, pers. com.). The conglutinates are entrained along a transparent, sticky mucous strand up to several feet in length (M.C. Barnhart, Southwest Missouri State University, pers. comm., 2002). Baird (2000 as cited in USFWS 2007) observed the release of loose glochidia and small fragments of conglutinates. Based on his observations, he hypothesized that conglutinates may typically contain mostly immature glochidia, and that conglutinates primarily with immature glochidia may be aborted when disturbed (USFWS 2007).

As stated in USFWS 2007, the host(s) for the *C. monodonta* is unknown, although over 60 species of potential fishes, amphibians, and crayfish have been tested in the lab during host suitability studies (Knudsen and Hove 1997; Lee and Hove 1997; Hove et al. 1998; Baird 2000; and Henley and Neves 2006). Two of 690 wild-collected fish checked by Baird (2000 as cited in USFWS 2007) had spectaclecase glochidia attached to their gills: the bigeye chub (*Hybopsis amblops*) and pealip redhorse (*Moxostoma macrolepidotum pisolabrum)*. However, these fish are not confirmed as hosts, because the encysted glochidia had not grown measurably and glochidial transformation was not observed (Baird 2000 as cited in USFWS 2007).

Status in the Action Area

Historically, the spectaclecase was found in at least 44 streams of the Mississippi, Ohio and Missouri River basins in 14 states; however, it has been extirpated from 3 states and today is found in only 20 streams.[1] The spectaclecase mussel's current range includes Iowa and Illinois. With few exceptions, spectaclecase populations are fragmented and restricted to short stream reaches.[2]

A survey of the action area conducted in August and September 2014 by ESI (2014) found live spectaclecase in three of the four survey areas. Fourteen were found at the existing bridge pier (Pier K) within Sylvan Slough (Survey Area A). Two individuals were found in Survey Area B, one of which was found at the north end of a small island, the other was found at an existing pier. Approximately 15 additional spectaclecase were collected at this existing pier in 2015 (ESI 2015). One individual was found near the Iowa bank of the river (Survey Area D) at an existing pier closest to the bank (ESI 2014).

Sheepnose Mussel

Current Status

The sheepnose mussel was listed as endangered by the USFWS on April 12, 2012 (50 CFR 17). A status assessment for this species was prepared in 2002 (Butler 2002b).

The sheepnose mussel is currently listed as endangered by the State of Illinois. Listed species in Illinois are protected under the Illinois ESPA and regulatory authority lies with the Illinois DNR.

Species Description

The sheepnose mussel has thick, oval, or oblong, somewhat elongate, and slightly inflated shell that can be up to 5 inches in length with a rounded anterior end and bluntly pointed posterior end. The surface of the shell is smooth except for a row of knobs or tubercles on the center of the valve (Cummings and Mayer 1992). The periostracum is often a distinctive yellowish color but may also be dark brown.

Habitat

This species inhabits medium to large rivers in shallow areas with moderate to swift current that flows over gravel or mixed sand and gravel (Cummings and Mayer 1992). However, they have also been found in areas of mud, cobble, and boulders, and in large rivers they may be found in deep runs.[3]

Life History

The reproductive cycle of the spectaclecase is similar to that of the Higgins eye pearlymussel (see above). Sheepnose glochidia are expelled in jellylike masses of mucus called conglutinates. Sheepnose conglutinates are narrow, red or pink, and discharged in an unbroken line that look like small worms. When a fish eats a conglutinate, glochidia are exposed to and attach to the fish's gills. The only confirmed wild host for sheepnose glochidia is the sauger, although recent laboratory studies have successfully transformed sheepnose glochidia on fathead minnow, creek chub (*Semotilus atrromaculatus*), central stoneroller (*Campostoma anomalum*) and brook stickleback (*Culaea inconstans*).

If glochidia successfully attach to a host fish, they mature into juvenile mussels within a few weeks, and then drop off. If they land on suitable habitat, juveniles grow and mature into adult mussels.

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[1] http://www.fws.gov/midwest/endangered/clams/spectaclecase/SpectaclecaseFactSheetMarch2012.html

[2] ibid

[3] http://www.fws.gov/midwest/endangered/clams/sheepnose/SheepnoseFactSheetMarch2012.html

Using fish as hosts allows the sheepnose to move upstream and populate habitats it could not otherwise reach. Sheepnose mussels are reported to live as long as 30 years.

Status in the Action Area

The USFWS indicates the sheepnose is a freshwater mussel found across the Midwest and Southeast; however, it has been eliminated from two-thirds of the total number of streams from which it was historically known. Today, the sheepnose is found in several states, including Iowa and Illinois.[4]

A survey of the action area conducted in August and September 2014 by ESI (2014) found one live sheepnose in Sylvan Slough (Survey Area A), representing approximately 0.1% of the total sample (ESI 2014).

Butterfly

Current Status

The butterfly is currently listed as threatened in Illinois.[5]

Species Description

Cummings and Mayer (1992) indicate the butterfly is approximately 4 inches in length; the shell of the butterfly is somewhat triangular, thick, solid, and compressed. The anterior end is broadly rounded; the posterior end is pointed. The shell is smooth, yellow or yellowish green, with scattered brown rays that are usually broken into V-shaped or irregular rectangular blotches. Old shells have faint brown rays or are rayless. The beak cavity is shallow to moderately deep.

Habitat

The species inhabits large rivers with sand or gravel substrates (Cummings and Mayer 1992).

Life History

The reproductive cycle of the butterfly is similar to that of other native freshwater mussels (see Life History discussion of the Higgins eye pearlymussel above). The freshwater drum (*Aplodinotus grunniens)* is a known host of glochidia of the butterfly mussel.

Status in the Action Area

A survey of the action area conducted in August and September 2014 by ESI (2014) found this species in all four survey areas, three of which are found on the Illinois side of the river (ESI 2014). This species was most abundant in Area C where it made up approximately 2% of the total sample (ESI 2014).

Ebonyshell

Current Status

The ebonyshell is listed as threatened in the state of Illinois.[6]

Species Description

Cummings and Mayer (1992) indicate the ebonyshell can measure up to 4 inches in length; the

[4] http://www.fws.gov/midwest/endangered/clams/sheepnose/index.html
[5] http://www.dnr.illinois.gov/ESPB/Documents/ET_by_County.pdf
[6] ibid.

shell of this species is solid and heavy, rounded or oval and inflated with rounded anterior end. The posterior end is rounded or bluntly pointed. The shell is smooth with elevated ridges that indicate periods of growth. The beak cavity of this species is very deep.

Habitat Requirements

This species is known to inhabit large rivers with sand or gravel substrates (Cummings and May 1992).

Life History
The reproductive cycle of the ebonyshell is similar to that of other native freshwater mussels (see Life History discussion of the Higgins eye pearlymussel above). The skipjack herring is the primary host fish for the ebonyshell.

Status in the Action Area
One weathered, dead shell and no live specimens of the Illinois state-threatened ebonyshell were found during the 2014 survey (ESI 2014).

Black Sandshell

Current Status
The black sandshell is listed as threatened in the state of Illinois.[7]

Species Description
Cummings and Mayer (1992) indicate the black sandshell is approximately 8 inches in length; the shell of this species is elongate, solid, and moderately compressed with a rounded anterior end. The posterior end is pointed in males and saber-shaped in females. The shell is smooth and shiny and is dark green, brown, or black with green rays visible on some individuals. The beak cavity is shallow.

Habitat Requirements

This species inhabits medium to large rivers in riffles or raceways in gravel or firm sand (Cummings and Mayer 1992).

Life History
The reproductive cycle of the black sandshell is similar to that of other native freshwater mussels (see Life History discussion of the Higgins eye pearlymussel above). The American eel and the bluegill are likely host species for the black sandshell.

Status in the Action Area
A survey of the action area conducted in August and September 2014 by ESI (2014) found this species in all four survey areas, three of which are found on the Illinois side of the river (ESI 2014). In addition, this species was also found within the navigation channel (ESI 2014).

[7] http://www.dnr.illinois.gov/ESPB/Documents/ET_by_County.pdf

Purple Wartyback

Current Status
The purple wartyback is listed as threatened in the state of Illinois.[8]

Species Description
Cummings and Mayer (1992) indicate the purple wartyback is approximately 5 inches in length; the shell of this species is rounded with a fairly prominent wing. The beak is covered with fine, wavy sculpturing with no green stripe on the umbo and purple nacre. Young shells are yellowish brown to greenish brown becoming dark brown in older shells. The shell, except the anterior quarter, is covered with tubercles that form small ridges on the dorsal wing. The beak cavity is very deep.

Habitat
This species inhabits medium to large rivers in gravel or mixed sand and gravel (Cummings and Mayer 1992).

Life History
The reproductive cycle of the black sandshell is similar to that of other native freshwater mussels (see Life History discussion of the Higgins eye pearlymussel above). Known fish hosts for the purple wartyback include: the black bullhead (*Ameiurus melas*), yellow bullhead (*Ameiurus natalis*), flathead catfish (*Pylodictis olivaris*) and the channel catfish (*Ictalurus punctatus*) (Hove 1997; Hove and Kurth 1997 as cited in Watters et al. 2009).

Status in the Action Area
This species was not found during the survey of the action area conducted in August and September 2014 by ESI (2014); however, one individual was captured during the 2016 relocation (ESI, personal communication).

Spike

Current Status
The spike is listed as threatened in the state of Illinois.[9]

Species Description
Cummings and Mayer (1992) indicate the spike is approximately 5 inches in length; the shell of this species is thick and elongate. Shells are greenish brown with faint green rays visible on small shells; the shell is dark brown to black in adults. The nacre is almost often purples. The beak cavity is very shallow.

Habitat
This species inhabits small to large streams and occasionally lakes in mud or gravel (Cummings and Mayer 1992).

Life History
The reproductive cycle of the spike is similar to that of other native freshwater mussels (see Life History discussion of the Higgins eye pearlymussel above). Watters et al. 2009 indicates a range of

[8] Ibid.

[9] http://www.dnr.illinois.gov/ESPB/Documents/ET_by_County.pdf

known host fish for the spike including sauger, gizzard shad ((*Dorosoma cepedianum*), flathead catfish, and white crappie (*Pomoxis annularis)*.

Status in the Action Area

This species was not found during the survey of the action area conducted in August and September 2014 by ESI (2014); however, two individuals were captured during the 2016 relocation (ESI, personal communication).

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ATTACHMENT B

PROJECT DETAILS

Proposed Construction Components and Activities

Construction Staging Areas and Dredge Activities

Because the navigation channel must be maintained and remain open to river traffic during both construction and demolition activities, it is assumed two staging areas will be used: one on the Iowa shore and a second on the Illinois shore. Staging will occur primarily within the river and will consist of barges moored (i.e. attached by cable or cable) to shore or anchored into the riverbed. The exact location of the staging areas is not yet known because the construction contractor will be responsible for choosing the location of the staging areas. However, the Iowa DOT, by means of project-specific Special Provisions (see Attachment F), will restrict contractors from selecting staging areas within certain areas of the river (see map in Attachment F). Specifically, construction staging will be prohibited within Sylvan Slough and upstream of the proposed bridge corridor (see map in Attachment F).

Workers will be transported to and from the construction/demolition areas daily via either a small watercraft or work barge; materials transport will occur via work barge on an as-needed basis. It is assumed that transport vehicles will travel the most direct route between the staging areas and the construction/demolition areas, and that dredging of the river bottom to accommodate transport of materials and workers will not occur.

Dredging may be required to allow for barge access to the staging areas; however, staging areas will be chosen the contractor so the need for and limits of dredging are not known at this time. Should dredging be required outside of the dredging limits shown on Figure 3, the Iowa DOT will coordinate with the USFWS and IDNR prior to dredging activities to determine what, if any, impacts mussels would occur. Dredged material will not be placed back into the river; however, areas disturbed by dredging will be backfilled with special revetment (i.e., boulders) (see Attachment F). If dredged material is deposited on the shore before being hauled away, silt fences, perimeter and slope sediment control devices, or low silt berms will be required to limit the re-entry of sediment into the river. In addition, the material will be placed in a confined area that is not classified as a wetland (Attachment F).

Dredging may also be required to allow barge access to construction and demolition areas (Figure 3). Dredging, if required, will occur after relocation of mussel species (see discussion below) and prior to construction and/or demolition activities. It is assumed dredging will occur once for each phase of the project. However, should additional dredging be required as a result of unforeseen circumstances (e.g., major flood event that deposits significant material in the work space), the contractor will contact the Iowa DOT which will meet and confer with the USFWS prior to additional dredging activities.

To be conservative, it is assumed that dredging for construction and demolition activities will occur in all areas with water depths of less than 6 feet (as depicted on Figure 3); however, this is likely an overestimate. Based on this depth, approximately 271,145 square feet (6.2 acres) located between Piers 1 through 5 (Illinois side of the river) may require dredging of the river bottom prior to construction. The exact limits of dredging required for demolition activities will not be known until closer to demolition. Iowa DOT will meet and confer with the USFWS and IDNR to discuss the dredging effort and potential effects to mussels prior to demolition activities.

Project Components Within the River

Silt Curtain

In an effort to protect the City of Moline's drinking water intake structure on the Illinois bank, floating silt curtains will be installed prior to construction of the bridge to retain sediment created by construction (see map in Attachment F showing silt curtain locations). In addition to protecting the water intake structure, effects of sedimentation on mussel species will also be avoided and/or minimized by the silt curtain. On the Illinois side of the river, three silt curtains will be placed downstream of the proposed bridge corridor to protect the water intake structure and Sylvan Slough (Attachment F).

Silt curtains will be deployed via work barge or boat. The placement of the silt curtains will occur prior to any potential dredging activities that may be required on the Illinois side of the river; however, no dredging is currently anticipated as a result of the silt curtain placement. The top of the curtain would be equipped with floating expanded polystyrene float material and navigation markers. The bottom of the curtain would be weighted down by anchors that will be placed approximately every 25 feet and will have a dimension of approximately 3 feet by 3 feet. The curtains would remain in place for the duration of construction; following construction, any accumulated debris at the river bottom and surface would be removed before curtain removal.

The need for and placement of silt curtains prior to demolition activities will be determined prior to commencement of those activities and will be based on the effectiveness of the silt curtains during the construction phase of the project.

Bridge Piers

The proposed bridge consists of 14 piers in the river; each pier consisting of up to 10 columns with a 7-foot diameter (see Attachment C for project plans). Piers will be placed in the river bed with spans between piers ranging from 148 feet to 203 feet (Attachment C). Piers will be approximately 30-feet wide with varying lengths ranging from 119 feet, 8 inches (Pier 2) to 86 feet, 8 inches (Pier 9) (Attachment C). Footings for two arch foundations will be placed on either side of the navigation channel (Attachment C). The total footprint of the proposed bridge piers within the river is approximately 36,900 square feet.

Foundations for the approach spans (Spans 1-11 and 14-15 [see Attachment C]) will consist of shafts drilled into the bedrock. The shafts will be drilled using barge mounted drill rigs wherever adequate water depths are present. If the water depth is not sufficient to accommodate a barge, construction of temporary supports, consisting of a steel structure, would occur in the water to support the drilling work. The supports would require socketing (i.e., to be embedded) into the bedrock. This work will occur within a 16.4-foot (5-meter) buffer of all proposed pier locations.

For the main span substructure footings, a cofferdam will be required at each of the six locations (two outer footings and an interior footing at Piers 12 and 13). Due to very shallow overburden (e.g., silt, rock, sand, etc.), the sheeting for the cofferdams will be embedded (i.e., pounded/driven) into bedrock in order to provide a seal and obtain adequate strength and stability at the toe.

Spoil from pier columns will be placed on barges and taken off site. No fill material will be left in the river.

Storm Sewer Outfall

Construction of two storm sewer outfall structures is proposed as part of the project (Figure 2; Attachment C). Outfall M6 and a 72-inch storm sewer that runs along existing Ramp RD-H (the

ramp from River Drive to westbound I-74) that drains the I-74 roadway from the river bank to 19th Street will be constructed in August to October 2017 (Attachment C). Construction at this location is expected to take approximately three weeks.

Outfall M1B and the proposed 36-inch storm sewer will be constructed in fall 2017 or April to July of 2018. Construction at this location is also expected to take approximately three weeks, though this structure is slightly smaller than M6 and may be constructed in less than three weeks.

Construction staging for the storm sewer outfalls would occur on land. Construction would consist of an open cut for installation of the pipe at each location. Cofferdams will be required at each outfall into the river unless river levels are exceptionally low. The exact dimensions of the cofferdams, if required, will be determined by the contractor at the time of construction. However, a conservative estimate indicates the dimensions of the coffer dam at Outfall M6 will be approximately 17 feet x 40 feet (680 square feet) and the dimensions at Outfall M1B will be slightly smaller at 13 feet x 40 feet (520 square feet).

Proposed Demolition Activities

Demolition of the existing bridge is anticipated to occur in late 2020 and be completed by fall of 2021. Demolition activities include demolition of the bridge railing and concrete deck, and demolition of the existing bridge piers (except Pier K within Sylvan Slough (Figure 2)).

The removal of the bridge railing and concrete deck will occur from above with equipment working on the existing bridge deck. The deck will be deconstructed from the top of the deck and materials will be lowered onto barges staged below the bridge.

The suspended portion of the bridge over the navigation channel will be demolished via explosive demolition and dropped into the channel during the winter months when the lock and dam system is closed for the winter, likely January through early March each year. Piers will be demolished so they fall into the tightest pile possible. Subsequent removal of the demolished bridge material from the river bottom within the navigation channel will be accomplished using barge mounted cranes to lift this material onto barges for removal.

In order to reduce impacts to mussels and to the existing mussel bed within Sylvan Slough, explosive demolition of the existing structure will not be permitted on the Illinois side of the river, and no materials will be dropped into the river at this location. Pier K, located within Sylvan Slough (Figure 2), provides habitat for mussel species, including the spectaclecase mussel, and will not be removed. During demolition activities, the contractor will be restricted from impacting the river bottom within a 16.4-foot (5-meter) buffer of Pier K.

The remaining piers and anchor spans will be removed using barge mounted cranes. The specific method used for pier removal will be chosen by the contractor; however, it is anticipated the piers will be removed mechanically by either cutting the pier off at the base and using cranes to lift the material onto work barges for removal or pushing the pier or portions of the pier directly onto the work barge for transport. No material will be dropped into the river as a result of these activities; however, the exact methods used to ensure materials are not dropped into the water as a result of demolition will be at the discretion of the contractor. Construction inspectors will be present at all times during construction and demolition activities to ensure compliance with DOT Special Provisions (Attachment F). Demolition of individual piers is anticipated to take approximately 1 day per pier.

ATTACHMENT C

PROJECT PLANS/DRAWINGS

BRIDGE REPLACEMENT - STEEL GIRDER
BRFIM-074-1(197)5--05-82

LETTING DATE

SCOTT COUNTY

LEGEND

INTERSTATE ROUTE	29
FREEWAY OR EXPRESSWAY ROUTE	69
U.S. NUMBERED ROUTE	6
STATE NUMBERED ROUTE	44
COUNTY NUMBERED ROUTE	A13
LOCAL ROAD OR CITY STREET	
RAILROAD	
CORPORATION LINE	
SECTION LINE	
CUL DE SAC	
SECTION, TOWNSHIP & RANGE NUMBERS	9 , T-81N , R-30W
PIPELINE	
AIRPORT	
HYDROLOGY	
BRIDGE	
STATE BOUNDARY	
COUNTY BOUNDARY	
CORPORATE LIMIT LINE	
TOWNSHIP LINE	

Iowa Department of Transportation

Highway Division

PLANS OF PROPOSED IMPROVEMENTS ON THE

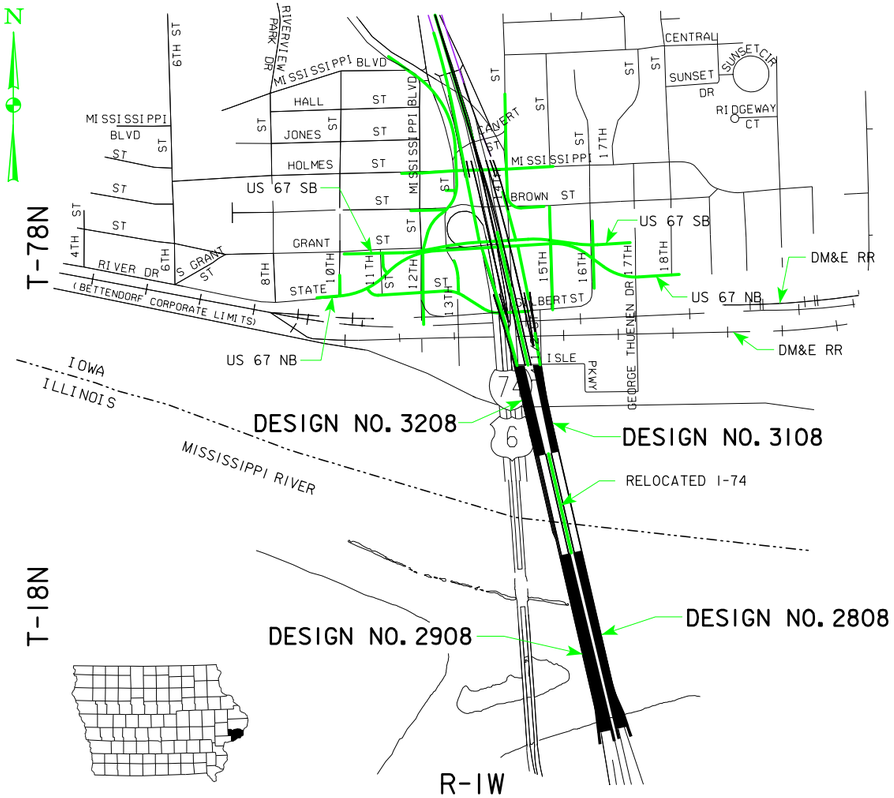
INTERSTATE ROAD SYSTEM

SCOTT COUNTY

BRIDGE REPLACEMENT- STEEL GIRDER I-74 APPROACHES TO ARCH BRIDGE OVER MISSISSIPPI RIVER

THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2012, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

R-4E



LOCATION MAP - PART OF CITY OF BETTENDORF

PROJECT DIRECTORY NAME: P0022000/8207401003

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FINAL PLANS - FOR REVIEW
NOT FOR CONSTRUCTION
JANUARY 2014

ENGLISH STANDARD BRIDGE PLANS

STANDARD	ISSUED	REVISED

REVISIONS

	TOTAL SHEETS 1050
PROJECT NUMBER	
BRFIM-074-1(197)5--05-82	
R.O.W. PROJECT NUMBER	
PROJECT IDENTIFICATION NUMBER	
03-82-074-010-03	

INDEX OF SHEETS

INDEX OF SEALS

SHEET NO.	NAME	TYPE
1	DAVID J. MORRILL	STRUCTURAL
6	MICHELLE A. LEWIS	SCOUR
6	ANDREW McCOY	HYDRAULIC
300	DAVID J. MORRILL	MAINTENANCE WATER LINE
SPS.1	JAMES P. KNUTELSKI	GEOTECHNICAL
651	DAVID J. MORRILL	MAINTENANCE WATER LINE
SPS.10	JAMES P. KNUTELSKI	GEOTECHNICAL
755	DAVID J. MORRILL	MAINTENANCE WATER LINE
886	DAVID J. MORRILL	MAINTENANCE WATER LINE
MU.1	DAVID J. MORRILL	PIER MOCKUP
C.1	JEFFREY TARDY	ROADWAY
G.1	COVENTINE FIDIS	SURVEY
J.1	SCOTT SWEET	TRAFFIC CONTROL
N.1	STEVEN GARBE	ITS DESIGN
P.1	GEOFFREY THIESSE	ELECTRICAL

ALL WORKING DRAWINGS, INCLUDING SHOP DRAWINGS AND FALSEWORK DRAWINGS, SHALL BE SUBMITTED ACCORDING TO ARTICLE 1105.03 OF THE STANDARD SPECIFICATIONS.
THESE DRAWINGS SHALL BE SUBMITTED TO AND CHECKED BY:

ALFRED BENESCH & COMPANY
205 NORTH MICHIGAN AVENUE, SUITE 2400
CHICAGO, IL 60601
(312) 565-0450
DMORRILL@BENESCH.COM

STANDARD ROAD PLANS

STANDARD ROAD PLANS ARE LISTED ON SHEET C.1

DESIGN DATA URBAN

REFER TO INDIVIDUAL SITUATION PLANS FOR TRAFFIC DATA INFORMATION

STRUCTURAL DESIGN

LICENSED PROFESSIONAL ENGINEER
David J. Morrill
11799
IOWA

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 Date

David J. Morrill
Printed or Typed Name

My license renewal date is December 31, 2011

Pages or sheets covered by this seal: 2-297, 310-646, 659-750, & 757-881

SCOTT COUNTY - DESIGN NO. 2808, 2908, 3108, & 3208

DESIGN TEAM: ALFRED BENESCH & HANSON | ENGLISH | IOWA DOT * OFFICE OF BRIDGES AND STRUCTURES | FILE NO.30253 | SCOTT COUNTY | PROJECT NUMBER BRFIM-074-1(197)5--05-82 | SHEET NUMBER 1

1/23/2014 6:09:26 AM tsorens pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\8207401003\BRFinal\100 Compiled Approved 2013 Files\Task 900\82074197.brg 822808S000 11x17_pdf.pltcfg

ESTIMATED BRIDGE QUANTITIES

ITEM NO.		ITEM	UNIT	TOTAL	AS BUILT QUANTITY
1	2402-2720000	EXCAVATION, CLASS 20	CY	262	
2	2403-0100010	STRUCTURAL CONCRETE (BRIDGE)	CY	6763.4	
3	2403-7000210	HIGH PERFORMANCE STRUCTURAL CONCRETE	CY	4808.3	
4	2404-7775000	REINFORCING STEEL	LB	2397792	
5	2404-7775005	REINFORCING STEEL, EPOXY COATED	LB	2081843	
6	2404-7775009	REINFORCING STEEL, STAINLESS STEEL	LB	35482	
7	2405-2705000	EXCAVATE AND DEWATER	LS	1.0	
8	2408-7800000	STRUCTURAL STEEL	LB	6640258	
9	2408-8500100	REINFORCED NEOPRENE	SF	949	
10	2413-1200000	STEEL EXTRUSION JOINT WITH NEOPRENE	LF	104	
11	2413-1200100	NEOPRENE GLAND INSTALLATION AND TESTING	LF	104	
12	2414-6424110	CONCRETE BARRIER RAILING	LF	4631.0	
13	2414-6625502	STRUCTURAL STEEL RAILING, TRAFFIC	LF	4591.7	
14	2433-0003000	DEMONSTRATION SHAFT	LF	29	
15	2434-0000100	DISC BEARING ASSEMBLIES	EACH	118	
16	2499-2300001	DECK DRAINS	LS	1.0	
17	2499-2300002	BRIDGE DRAINAGE SYSTEM	LS	1.0	
18	2501-0201473	PILES, STEEL, HP 14 X 73	LF	1440	
19	2501-5374060	TEST PILE	LS	1.0	
20	2526-8285000	CONSTRUCTION SURVEY	LS	1.0	
21	2533-4980005	MOBILIZATION	LS	1.0	
22	2599-9999003	HP SELF-CONSOLIDATING CONCRETE (HP-SCC)	CY	1272.3	
23	2599-9999003	LATERAL DAM REMOVAL	CY	30	
24	2599-9999008	STRUCTURAL STEEL (GRADE HPS 70W)	LB	944208	
25	2599-9999009	CONCRETE DRILLED SHAFT, 84 IN. DIAMETER	LF	1694.0	
26	2599-9999010	EXPANSION JOINT (FINGER PLATE TYPE)	LS	1.0	
27	2599-9999010	MAINTENANCE WATER LINE	LS	1.0	
28	2599-9999010	TRIAL BATCH HP SELF-CONSOLIDATING CONCRETE (HP-SCC)	LS	1.0	
29	2599-9999014	ANTI-GRAFFITI COATING	SF	1281	
30	2601-2638610	CONCRETE SLOPE PROTECTION	SY	348	
31	2601-2638660	BRIDGE WING ARMORING-MACADAM STONE	SY	72.7	
		ALTERNATE AA OPTION 1			
32A	2413-0698121	DECK SURFACING (CLASS O PCC)	SY	17419	
		ALTERNATE AA OPTION 2			
32B	2413-0698131	DECK SURFACING (CLASS HPC-O PCC)	SY	17419	

ESTIMATED REFERENCE INFORMATION

ITEM NO. — DESCRIPTION

2 INCLUDES THE CONCRETE FOR PIER CAPS 2A, 2B, 4-6 AND 8-11, PIER FOOTINGS 2-9, AND THE ABUTMENT WINGWALLS. ALL PIER FOOTING CONCRETE SHALL BE CLASS "C". INCLUDES 126 FT. OF 1" DIA. RIGID STEEL CONDUIT. INCLUDES MATERIAL AND LABOR ASSOCIATED WITH PROVIDING AND INSTALLING RIGID STEEL CONDUIT IN THE PIER CAPS.

3 INCLUDES THE CONCRETE FOR THE STRUCTURAL DECK SLAB, ABUTMENTS, MASKWALLS, AND PIER CAPS 3 AND 7.
INCLUDES FURNISHING AND PLACING 3" DIAMETER PVC PLASTIC PIPE AND EXPANDING FOAM IN THE ABUTMENT WINGS AND MASKWALL.
REFER TO THE DEVELOPMENTAL SPECIFICATIONS FOR "HIGH PERFORMANCE CONCRETE FOR STRUCTURES" FOR ADDITIONAL INFORMATION.
INCLUDES FURNISHING AND PLACING SUBDRAIN (INCLUDING EXCAVATION), FLOODABLE BACKFILL, POROUS BACKFILL, GEOTEXTILE FABRIC, WATER FLOODING AND SUBDRAIN OUTLET AT ABUTMENTS AND TOE OF BERM.
INCLUDES FURNISHING AND PLACING CONCRETE SEALER ON ABUTMENT 1 SEAT AND TOP OF PIER CAPS 3 AND 7.
INCLUDES ALL PREFORMED EXPANSION JOINT FILLER REQUIRED.
INCLUDES 320 FT. OF 1" DIA. RIGID STEEL CONDUIT. INCLUDES MATERIAL AND LABOR ASSOCIATED WITH PROVIDING AND INSTALLING RIGID STEEL CONDUIT IN THE DECK. SEE N SHEETS FOR DETAILS.

4 INCLUDES ALL MECHANICAL SPLICE ASSEMBLIES REQUIRED.

6 ALL VERTICAL BARRIER RAIL REINFORCING STEEL WHICH EXTENDS FROM THE DECK OR THE ABUTMENT WINGWALLS & ALL HORIZONTAL REINFORCING STEEL THAT CONNECTS THE MASKWALL TO OTHER STRUCTURAL ELEMENTS SHALL BE DEFORMED BAR GRADE 60, TYPE 304, 316L OR 316LN IN ACCORDANCE WITH ASTM A955/A955M-11. STAINLESS STEEL REINFORCING BARS AND COUPLING NUTS SHALL MEET THE REQUIREMENTS OF MATERIALS IM 451 APPENDIX E, EXCEPT THAT THE BAR AND COUPLING NUT MATERIAL SHALL BE TYPE 304, 316L OR 316LN, IN ACCORDANCE WITH ASTM A955/M955-11.

INCLUDES 24 STAINLESS STEEL COUPLING NUTS FOR THREADED NO. 5 REBAR.

7 INCLUDES ALL COSTS ASSOCIATED WITH DESIGN, FURNISHING & INSTALLING MATERIALS, AND REMOVAL OF FORMWORK REQUIRED TO CONSTRUCT ALL PIER FOOTINGS. THIS MAY INCLUDE BUT IS NOT LIMITED TO STEEL FOOTING TUB FORM SUPPORTS, SIDEWALL SKIN PLATES, SPLICE PLATES, CHANNEL BRACING, CONCRETE & REINFORCING FOR THE TREMIE SEAL & FOOTING TUB FORM BOTTOM SLAB, AND GROUT FILLED GEOTEXTILE FABRIC TUBES.

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Alfred Benesch & Company
205 North Michigan Avenue, Suite 2400
Chicago, Illinois 60601
312-565-0450 Job No. 10061

ROADWAY QUANTITIES SHOWN ELSEWHERE IN THESE PLANS.

ITEM NO. — DESCRIPTION

8 WEIGHT INCLUDES 5,514,345 LBS OF GRADE 50W SUPERSTRUCTURE STEEL AND 1,125,913 LBS OF GALVANIZED STEEL FOR INSPECTION WALKWAYS, TRANSVERSE ACCESS PLATFORMS, AND FIXED LADDERS. EXCEPT FOR THE GRATING, STEEL FOR INSPECTION WALKWAYS, TRANSVERSE ACCESS PLATFORMS, AND FIXED LADDERS SHALL BE GRADE 50. SEE DESIGN SHEET 288 FOR GRATING MATERIAL.

INCLUDES PORTABLE ALUMINUM LADDERS. REFER TO PORTABLE ALUMINUM LADDER NOTES ON DESIGN SHEET 294 FOR ADDITIONAL INFORMATION.

INCLUDES ALL COSTS ASSOCIATED WITH FLUOROPOLYMER PAINT SYSTEM IN ACCORDANCE WITH THE SPECIAL PROVISIONS FOR "FLUOROPOLYMER PAINT FOR STRUCTURAL STEEL".

INCLUDES TEMPORARY STRUTS AND CLAMPS.

9 PAYMENT FOR REINFORCED NEOPRENE WILL BE MADE ON A SQUARE FOOT BASIS FOR NEOPRENE INCORPORATED INTO THE STRUCTURE.

10 INCLUDES ALL NECESSARY HARDWARE AND ACCESSORIES INCLUDING THE ANCHORAGE SYSTEM, TEMPORARY ERECTION MATERIAL, AND THE $\frac{3}{8}$" BARRIER PLATES WITH THEIR ANCHORAGE SYSTEM. EXCLUDES INSTALLATION OF NEOPRENE GLAND.

11 INCLUDES INSTALLATION OF NEOPRENE GLAND AND WATER TESTING OF JOINT.

12 IF PLACEMENT OF CONCRETE IS DONE BY THE SLIPFORMING METHOD, CLASS BR CONCRETE IS REQUIRED. CAST-IN-PLACE BARRIER RAILS SHALL USE HIGH PERFORMANCE CONCRETE. PRICE BID FOR THIS ITEM SHALL INCLUDE THE COST OF CAST-IN-PLACE FORMS IF REQUIRED FOR PLACEMENT OF THE CONCRETE.

INCLUDES 17.6 C.Y. OF CONCRETE FOR THE LIGHT POLE BLISTERS. INCLUDES ANCHOR BOLTS AND PLATES AT LIGHT POLE BASES.

INCLUDES ALL NECESSARY INSERTS FOR CONDUIT AND FIXTURE ATTACHMENTS AS DETAILED ON DESIGN SHEETS 243 THRU 251. SEE P SHEETS FOR CONDUIT AND FIXTURE ASSEMBLY DETAILS.

INCLUDES 7027 FT OF 2" DIA. & 234 FT OF 1" DIA. RIGID STEEL CONDUIT. INCLUDES MATERIAL AND LABOR ASSOCIATED WITH PROVIDING AND INSTALLING RIGID STEEL CONDUIT, JUNCTION BOXES, AND FITTINGS WHICH ARE EMBEDDED IN THE CONCRETE BARRIER RAIL.

13 MEASUREMENT WILL BE PER LINEAL FOOT FOR ALL STRUCTURAL STEEL RAILING, TRAFFIC AS SPECIFIED IN THE PLANS. THE PAYMENT SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, EQUIPMENT AND LABOR AND FOR PERFORMANCE OF ALL WORK NECESSARY FOR FABRICATING AND INSTALLING THE STRUCTURAL STEEL RAILING, TRAFFIC AS PER PLAN.

REFER TO THE DEVELOPMENTAL SPECIFICATIONS FOR "INSTALLING ADHESIVE-BONDED ANCHORS AND DOWELS FOR TRAFFIC RAILINGS" FOR ADDITIONAL INFORMATION.

14 THE DEMONSTRATION SHAFT SHALL BE LOCATED BETWEEN PIERS 7 & 8 AS SHOWN ON DESIGN SHEET 268 AND CONSTRUCTED IN ACCORDANCE WITH ARTICLE 2433 OF THE STANDARD SPECIFICATIONS. THE TIP ELEVATION IS ESTIMATED TO BE AT ELEVATION 530.00 AND THE SOCKET LENGTH BELOW THE BOTTOM OF THE CASING SHALL BE 12'-0. HOWEVER, THESE WILL REQUIRE ADJUSTMENT BASED ON FIELD CONDITIONS AND RESULTS OF THE EXPLORATORY BORING. ADDITIONALLY, THE REINFORCING STEEL IN THE DEMONSTRATION SHAFT WILL BE THE SAME AS THAT SHOWN FOR PIER 8, HOWEVER, THE REINFORCING DETAILS WILL REQUIRE ADJUSTMENT BY THE CONTRACTOR FOR THE DIFFERENCE IN LENGTH BETWEEN THE PRODUCTION SHAFTS AND THE DEMONSTRATION SHAFT AS NEEDED.

15 INCLUDES DISC BEARING, SOLE PLATE, GUIDE BARS, SLIDER PLATE, MASONRY PLATE, $\frac{1}{8}$" PREFORMED MASONRY PADS, AND ANCHOR BOLTS.

16 INCLUDES ALL NEW DECK DRAINS. REFER TO DESIGN SHEETS 277 THRU 279 FOR LOCATION, MATERIALS AND THE DETAILS OF THEIR CONSTRUCTION. MEASUREMENT WILL BE THE LUMP SUM FOR ALL DECK DRAINS REQUIRED AS SPECIFIED IN THE PLANS. THE PAYMENT SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, EQUIPMENT AND LABOR AND FOR PERFORMANCE OF ALL WORK NECESSARY FOR FABRICATING AND INSTALLING THE DECK DRAINS AS PER PLAN.

17 MEASUREMENT WILL BE THE LUMP SUM FOR COMPONENTS OF THE BRIDGE DRAINAGE SYSTEM REQUIRED AS SPECIFIED IN THE PLANS. THE PAYMENT SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, EQUIPMENT AND LABOR AND FOR PERFORMANCE OF ALL WORK NECESSARY FOR FABRICATING AND INSTALLING THE BRIDGE DRAINAGE SYSTEM AS PER PLAN.

INCLUDES PIPING, PIPE SUPPORTS, SPLASH BLOCK, AND COLLECTION BOXES BELOW FINGER JOINT TROUGHS. INCLUDES DRAINAGE SYSTEMS AT PIER 3 AND PIER 7. SEE DESIGN SHEETS 265 THRU 267 AND DESIGN SHEETS 274 THRU 276 .

18 INCLUDES FURNISHING AND INSTALLING STEEL PILE POINTS.

22 INCLUDES CONCRETE FOR PIER COLUMNS AT PIERS 2-11. REFER TO THE DEVELOPMENTAL SPECIFICATIONS FOR "HIGH PERFORMANCE SELF CONSOLIDATING CONCRETE (HP-SCC)" FOR ADDITIONAL INFORMATION.

23 INCLUDES ALL EQUIPMENT, LABOR, AND MATERIALS NECESSARY TO REMOVE PORTIONS OF THE EXISTING LATERAL DAM TO THE EXTENTS SHOWN IN THESE PLANS.

24 INCLUDES ALL COSTS ASSOCIATED WITH FLUOROPOLYMER PAINT SYSTEM IN ACCORDANCE WITH THE SPECIAL PROVISIONS FOR "FLUOROPOLYMER PAINT FOR STRUCTURAL STEEL".

26 INCLUDES ALL NECESSARY EXPANSION DEVICE MATERIALS AND HARDWARE AS DETAILED ON DESIGN SHEETS 255 THRU 264 AND DESIGN SHEETS 268 THRU 273, EXCEPT REINFORCED NEOPRENE AND ITEMS INCLUDED IN THE PRICE BID FOR BRIDGE DRAINAGE SYSTEM. EXPANSION JOINT (FINGER PLATE TYPE) SHALL BE MEASURED AND PAID FOR AT THE LUMP SUM CONTRACT PRICE. INCLUDES EXPANSION JOINTS AT PIER 3 AND PIER 7.

27 REFER TO THE SPECIAL PROVISIONS FOR "MAINTENANCE WATER LINE" FOR ADDITIONAL INFORMATION.

28 REFER TO THE DEVELOPMENTAL SPECIFICATIONS FOR "HIGH PERFORMANCE SELF CONSOLIDATING CONCRETE (HP-SCC)" FOR ADDITIONAL INFORMATION.

29 REFER TO THE SPECIAL PROVISIONS FOR "ANTI-GRAFFITI COATING" FOR ADDITIONAL INFORMATION.

30 INCLUDES FURNISHING AND PLACING ENGINEERING FABRIC, GRANULAR SUBBASE, REINFORCING STEEL, STRUCTURAL CONCRETE, PREFORMED EXPANSION JOINT FILLER, AND ALL REQUIRED EXCAVATING, SHAPING AND COMPACTING.

31 INCLUDES FURNISHING AND PLACING ENGINEERING FABRIC, MACADAM STONE, 4" x 6" TREATED TIMBERS, $\frac{1}{2}$" DIAMETER STEEL PINS (OR REBARS), AND ALL REQUIRED EXCAVATING, SHAPING AND COMPACTING FOR WING ARMORING.

REFERRAL NOTE

PROJECT NUMBER: BRFIM-074-1(198)5--05-82
DESIGN NUMBER: 4408
SEE PIER 12 FOR PIER CAP DETAILS NOT SHOWN.

PROJECT NUMBER: BRFIM-074-1(198)5--05-82
DESIGN NUMBER: 4008
SEE PIERS 10 & 11 FOR FOOTING DETAILS NOT SHOWN.

DESIGN FOR VARIABLE SKEW

1981'-0 x VARIES CONTINUOUS WELDED GIRDER BRIDGE

148'-0 & 187'-0 END SPANS 150'-0 & 8-187'-0 INTERIOR SPANS

ESTIMATED QUANTITIES

STA. 6757+10.50 - 47.63' RT. - I-74 100% APPROVED JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 309 FILE NO. 30253 DESIGN NO. 2808

1/23/2014 6:09:34 AM tsorens pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\8207401003\BRFinal\100 Compiled Approved 2013 Files\Task 900\82074197.brg 822808S001 11x17_pdf.pltcfg
MODEL: $MODEL

GENERAL NOTES:

THIS DESIGN IS FOR A NEW 1981'-0 x VARIES CONTINUOUS WELDED GIRDER BRIDGE OVER THE MISSISSIPPI RIVER, CARRYING WESTBOUND INTERSTATE 74 OVER ELEVEN SOUTH APPROACH SPANS TO THE ARCH SUPERSTRUCTURE.

DURING CONSTRUCTION OF THIS PROJECT THE BRIDGE CONTRACTOR WILL BE REQUIRED TO COORDINATE OPERATIONS WITH THOSE OF OTHER CONTRACTORS WORKING WITHIN THE SAME AREA. OTHER WORK IN PROGRESS DURING THE SAME PERIOD OF TIME WILL INCLUDE, BUT IS NOT LIMITED TO, CONSTRUCTION OF THE FOLLOWING PROJECT(S):

BRFIM-074-1(198)5--05-82	THRU ARCH OVER MISSISSIPPI RIVER
BRFIM-074-1(199)5--05-82	WESTBOUND VIADUCT
BRFIM-074-1(200)5--05-82	EASTBOUND VIADUCT
IM-074-1(161)5--13-82	YEAR 1 BETTENDORF ROADWAY WORK
IM-074-1(205)5--13-82	YEAR 2 BETTENDORF ROADWAY WORK
IM-074-1(206)5--13-82	YEAR 3 BETTENDORF ROADWAY WORK
IM-074-1(207)5--13-82	YEARS 4 AND 5 BETTENDORF ROADWAY WORK

IT SHALL BE THE BRIDGE CONTRACTOR'S RESPONSIBILITY TO PROVIDE SITES FOR EXCAVATED MATERIAL. NO PAYMENT FOR OVERHAUL WILL BE ALLOWED FOR MATERIAL HAULED TO THESE SITES.

THE CITY AND UTILITY COMPANIES WHOSE FACILITIES ARE SHOWN ON THE PLANS OR KNOWN TO BE WITHIN THE CONSTRUCTION LIMITS SHALL BE NOTIFIED BY THE BRIDGE CONTRACTOR OF THE CONSTRUCTION STARTING DATE.

THIS BRIDGE IS DESIGNED FOR HL-93 LOADING.

THE USE OF STEEL OR HIGH-DENSITY OVERLAID (HDO) PLYWOOD FACED FORMS IS REQUIRED FOR THE FORMING OF ALL PIER CONCRETE SURFACES FROM THE TOP OF THE FOOTINGS TO THE BOTTOM OF PIER CAP. USE OF HDO OR MEDIUM-DENSITY OVERLAID (MDO) PLYWOOD FACED FORMS IS REQUIRED FOR THE FORMING OF THE PIER CAP. PLAIN PLYWOOD-FACED FORMS WILL NOT BE ALLOWED FOR ANY PORTION OF THE PIER STEM, COLUMNS OR CAP SURFACES.

SUBSTRUCTURE CONCRETE SHALL BE PROTECTED FROM STAINING BY A WRAPPING OF POLYETHYLENE OR SIMILAR MATERIALS WHICH SHALL BE LEFT IN PLACE AND KEPT IN A SERVICEABLE CONDITION UNTIL AFTER THE DECK HAS BEEN PLACED. IF SUBSTRUCTURE CONCRETE IS STAINED, THE STAINS SHALL BE REMOVED BY METHODS APPROVED BY THE ENGINEER. ALL COSTS ASSOCIATED WITH THE PROTECTION AND ANY REQUIRED CLEANING OF THE SUBSTRUCTURE CONCRETE SHALL BE INCLUDED IN THE PRICE BID FOR "STRUCTURAL STEEL".

CONCRETE BARRIER RAILS PLACED USING THE SLIPFORM METHOD WILL REQUIRE THE USE OF A CLASS BR CONCRETE IN ACCORDANCE WITH ARTICLE 2513.03, A, 2, OF THE STANDARD SPECIFICATIONS. CAST-IN-PLACE BARRIER RAILS SHALL USE HIGH PERFORMANCE CONCRETE. CLASS D CONCRETE IS NOT PERMITTED FOR CONCRETE BARRIER RAILS (CAST-IN-PLACE OR SLIPFORMED METHOD).

THIS STRUCTURE SHALL BE BUILT WITH WEATHERING STEEL, EXCEPT AS NOTED ON PLANS. ALL STRUCTURAL STEEL, EXCEPT AS NOTED, SHALL CONFORM TO ASTM A709 GRADE 50W. PAINTING REQUIREMENTS FOR THIS STRUCTURE SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISIONS FOR "FLUOROPOLYMER PAINT FOR STRUCTURAL STEEL". SEE SUPERSTRUCTURE STEEL PAINTING NOTES ELSEWHERE IN THESE PLANS.

THESE BRIDGE PLANS LABEL ALL REINFORCING STEEL WITH ENGLISH NOTATION (5a1 IS $\frac{5}{8}$" DIAMETER BAR). ENGLISH REINFORCING STEEL RECEIVED IN THE FIELD MAY DISPLAY THE FOLLOWING "BAR DESIGNATION". THE "BAR DESIGNATION" IS THE STAMPED IMPRESSION ON THE REINFORCING BARS, AND IS EQUIVALENT TO THE BAR DIAMETER IN MILLIMETERS.

ENGLISH SIZE:	3	4	5	6	7	8	9	10	11
BAR DESIGNATION:	10	13	16	19	22	25	29	32	36

NO CURING COMPOUNDS SHALL BE USED ON THE SURFACE OF THE CONCRETE DECK (FIRST COURSE).

THE SURFACE OF THE FIRST COURSE SHALL BE INTENTIONALLY ROUGHENED (COMBED) TO A MINIMUM DEPTH OF $\frac{1}{8}$" AND A MAXIMUM DEPTH OF $\frac{1}{4}$". THIS ROUGHENED SURFACE SHALL BE ACCOMPLISHED ON PLASTIC CONCRETE BY USE OF A MECHANICAL DEVICE AS PRESCRIBED IN ARTICLE 2301.03, H, OF THE STANDARD SPECIFICATIONS OR ON HARDENED CONCRETE BY UNIFORMLY SCARIFYING THE ENTIRE DECK AREA. THE INTENT IS TO GIVE THE CONTRACTOR THE OPTION OF ACHIEVING THE REQUIRED SURFACE ROUGHNESS ON THE PLASTIC OR HARDENED CONCRETE SO THE SECOND COURSE WILL BOND PROPERLY.

KEYWAY DIMENSIONS SHOWN ON THE PLANS ARE BASED ON NOMINAL DIMENSIONS UNLESS STATED OTHERWISE. IN ADDITION, THE BEVEL USED ON THE KEYWAY SHALL BE LIMITED TO A MAXIMUM OF 10 DEGREES FROM VERTICAL.

FAINT LINES ON PLANS INDICATE THE EXISTING STRUCTURE OR STRUCTURES BY OTHERS. SEE DESIGN NO. 4008, 4408 & 4508.

COLUMN REINFORCEMENT DETAILS IN THESE PLANS FOR PIERS 10 AND 11 WERE DEVELOPED BASED ON THE BRIDGE PLANS FROM DESIGN NO. 4008 (BY OTHERS). THE BRIDGE CONTRACTOR SHALL FIELD VERIFY THE CONSTRUCTED DETAILS, DIMENSIONS AND SUBSTRUCTURE LOCATIONS BEFORE STARTING CONSTRUCTION OR FABRICATING STRUCTURAL STEEL AND STEEL REINFORCEMENT.

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GENERAL NOTES (CONTINUED):

STAINLESS STEEL REBAR SHALL BE SHIPPED, HANDLED AND PLACED SUCH THAT CARBON STEEL DOES NOT COME IN CONTACT WITH THE STAINLESS STEEL REBAR. PADDING SHALL BE USED TO SEPARATE CARBON STEEL BUNDLING BANDS OR LIFTING DEVICES FROM THE STAINLESS STEEL REBAR. WIRE ROPE SHALL NOT BE USED IN LIFTING OR HANDLING THE STAINLESS STEEL REINFORCING. COVER STAINLESS STEEL REBAR WITH TARPS DURING OUTDOOR STORAGE. USE WOODEN SPACERS TO SEPARATE BUNDLES OF STAINLESS STEEL REBAR FROM OTHER TYPES OF REBAR. USE WOODEN SUPPORTS TO STORE STAINLESS STEEL REBAR OFF THE GROUND OR SHOP FLOOR.

ALL REINFORCING BARS AND BARS NOTED AS DOWELS SUPPLIED FOR THIS STRUCTURE SHALL BE DEFORMED REINFORCEMENT UNLESS OTHERWISE NOTED OR SHOWN.

THE APPROACH FILLS AS SHOWN ARE NOT PART OF THIS CONTRACT, BUT ARE TO BE IN PLACE BEFORE ABUTMENT PILES ARE DRIVEN. THE BRIDGE CONTRACTOR IS TO LEVEL OFF AND SHAPE THE BERMS TO THE ELEVATIONS AND DIMENSIONS SHOWN. DRESSING OF SLOPES OUTSIDE THE BRIDGE AREA NOT DISTURBED BY THE BRIDGE CONTRACTOR SHALL BE PAID FOR AS EXTRA WORK.

ONE TEST PILE EACH SHALL BE DRIVEN AT ABUTMENTS 1A & 1B. THE TEST PILES SHALL BE LOCATED AS SHOWN ON THE ABUTMENT PILING PLANS. TEST PILES MAY BE USED AS PRODUCTION PILES AS LONG AS THEY MEET THE MINIMUM PILE LENGTH AS REQUIRED BY IOWA DOT.

CAST IN-ONE-PIECE STEEL PILE POINTS ARE REQUIRED FOR ABUTMENT 1A AND ABUTMENT 1B IN ACCORDANCE WITH ARTICLE 4167.02 OF THE CURRENT STANDARD SPECIFICATIONS AND MATERIALS I.M. 468.

THE CONTRACTOR SHALL NOTE THE STANDARD ABUTMENT DETAILS HAVE BEEN MODIFIED TO OFFSET THE ABUTMENT FOOTING FROM THE WINGWALL AND THE ABUTMENT FOOTING FROM THE BACKWALL TO AID IN TYING THE REINFORCING STEEL BETWEEN THE FOOTING TO WINGWALL AND THE FOOTING TO BACKWALL.

LONGITUDINAL GROOVING WILL NOT BE A PART OF THIS CONTRACT, BUT WILL BE DONE BY OTHERS PRIOR TO OPENING THE BRIDGE TO TRAFFIC.

THE DEFLECTIONS SHOWN IN THE DEFLECTION DIAGRAMS AND MISCELLANEOUS DATA TABLES IN THESE PLANS WERE COMPUTED ASSUMING THAT THE INSPECTION WALKWAYS WOULD BE INSTALLED PRIOR TO CONCRETE DECK SLAB. THE GIRDERS AS FABRICATED WEBS HORIZONTAL DATA, BEAM LINE HAUNCH DATA, AND BEAM SEAT ELEVATIONS WERE COMPUTED ACCORDINGLY. IF AN ALTERNATE SEQUENCE IS CHOSEN WHEN ERECTING THE BRIDGE, THE CONTRACTOR SHALL PROVIDE CALCULATIONS FOR REVISED BEAM SEAT ELEVATIONS, DEFLECTIONS, WEB FABRICATION DATA, AND BEAM LINE HAUNCH DATA WITH THE SHOP DRAWINGS.

SEE ROADWAY PLANS FOR ELECTRICAL WIRING AND LIGHTING DETAILS. ALL ACCESSORIES ATTACHED TO STRUCTURE ARE DETAILED IN THESE PLANS AND THE COST IS INCLUDED IN THE BID PRICE FOR CONCRETE BARRIER RAIL. THE LIGHT FIXTURES TO BE ATTACHED TO THE PIERS WILL BE SUPPLIED IN A SEPARATE SUPPLY PROJECT. INSERT PLACEMENT IN THE PIER CAPS AND COLUMNS WILL BE DEPENDANT UPON THE SPECIFIC FIXTURES PROVIDED. THE CONTRACTOR SHALL COORDINATE CONDUIT LOCATIONS WITH ADJACENT CONTRACTORS TO ENSURE CONTINUITY OF THE SYSTEM.

FLANGES FOR GIRDER SECTIONS OVER PIERS 2, 4-6 AND 8-11 SHALL BE HPS GRADE 70W STRUCTURAL STEEL AND SHALL CONFORM TO ASTM A709 GRADE 70W. ALL OTHER SUPERSTRUCTURE STEEL IS HPS GRADE 50W. ALL INSPECTION WALKWAY STEEL EXCEPT FOR GRATING SHALL BE GRADE 50 AND CONFORM TO ASTM A709. SEE DESIGN SHEET 288 FOR WALKWAY GRATING MATERIAL.

SOVEREIGN LANDS CONSTRUCTION PERMIT (XXX) SHALL APPLY TO WORK ON THIS PROJECT. THE IOWA DNR CONSERVATION OFFICER FOR THE AREA SHALL BE CONTACTED AT LEAST 48 HOURS PRIOR TO COMMENCING WORK CONTACT (XXX XXX AT (XXX)XXX-XXXX.

THE ROADWAY WILL BE CLOSED TO THRU TRAFFIC. REFER TO THE TRAFFIC CONTROL PLAN ON THE ROAD PLAN IN THESE PLANS.

SPECIFICATIONS:

DESIGN: AASHTO LRFD 5th Ed, SERIES OF 2010, EXCEPT AS NOTED IN THE CURRENT IOWA BRIDGE DESIGN MANUAL.

CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2012, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

THE DEVELOPMENTAL SPECIFICATIONS, DS-12039, FOR ADHESIVE-BONDED ANCHORS AND DOWELS FOR TRAFFIC RAILINGS SHALL APPLY TO WORK ON THIS PROJECT.

THE DEVELOPMENTAL SPECIFICATIONS, DS-12046, FOR MASS CONCRETE - CONTROL OF HEAT OF HYDRATION SHALL APPLY TO WORK ON THIS PROJECT.

THE DEVELOPMENTAL SPECIFICATIONS, DS-12050, FOR HIGH PERFORMANCE CONCRETE FOR STRUCTURES SHALL APPLY TO WORK ON THIS PROJECT.

THE DEVELOPMENTAL SPECIFICATIONS, DS-XXXXX, FOR HIGH PERFORMANCE SELF CONSOLIDATING CONCRETE (HP-SCC) SHALL APPLY TO WORK ON THIS PROJECT.

THE SPECIAL PROVISIONS FOR MAINTENANCE WATER LINE SHALL APPLY TO WORK ON THIS PROJECT.

THE SPECIAL PROVISIONS FOR FLUOROPOLYMER PAINT FOR STRUCTURAL STEEL SHALL APPLY TO WORK ON THIS PROJECT.

THE SPECIAL PROVISIONS FOR ANTI-GRAFFITI COATING SHALL APPLY TO WORK ON THIS PROJECT.

DESIGN STRESSES:

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 5th Ed, SERIES OF 2010, EXCEPT AS NOTED IN THE CURRENT IOWA BRIDGE DESIGN MANUAL.

REINFORCING STEEL IN ACCORDANCE WITH LRFD AASHTO SECTION 5, GRADE 60.

CONCRETE IN ACCORDANCE WITH LRFD AASHTO SECTION 5, f'c = 3,500 PSI.

HIGH PERFORMANCE SELF CONSOLIDATING CONCRETE FOR THE COLUMNS OF THE PIERS, f'c = 5,000 PSI.

BRIDGE DECK CONCRETE f'c = 3,500 PSI.

STRUCTURAL STEEL IN ACCORDANCE WITH LRFD AASHTO SECTION 6. ASTM A709 GRADE 36, GRADE 50, GRADE 50W, AND GRADE 70W (AASHTO M270 GRADE 36, GRADE 50, GRADE 50W, AND GRADE 70W).

FATIGUE CYCLES BASED ON INFINITE FATIGUE.

JACKING STIFFENER LOCATIONS ARE DESIGNED FOR THE SAME REACTIONS AS TABULATED IN THE GIRDER REACTION TABLES.

ALIGNMENTS SHOWN ELSEWHERE IN THESE PLANS.

POLLUTION PREVENTION PLAN SHOWN ELSEWHERE IN THESE PLANS.

BRIDGE DECK DIMENSIONS TABLE

	ITEM	UNITS	QUANTITY
1	DECK LENGTH	L.F.	1981.0
2	MINIMUM DECK WIDTH	L.F.	75.7
3	MAXIMUM DECK WIDTH	L.F.	98.0
4	DECK AREA	S.F.	165200

1. DECK LENGTH IS MEASURED FROM ℄ OF EXPANSION JOINT AT ABUTMENT 1 TO ℄ OF EXPANSION JOINT AT PIER 12 ALONG THE ℄ I-74 WESTBOUND APPROACH ROADWAY.
2, 3. DECK WIDTHS ARE MEASURED FROM OUT-TO-OUT OF DECK PERPENDICULAR TO THE ℄ I-74 WESTBOUND APPROACH ROADWAY.
4. DECK AREA IS TO BE BASED ON THE TABULATED DECK AREAS.

INDEX OF SHEETS

DESIGN FOR VARIABLE SKEW

1981'-0 x VARIES CONTINUOUS WELDED GIRDER BRIDGE

148'-0 & 187'-0 END SPANS 150'-0 & 8-187'-0 INTERIOR SPANS

GENERAL NOTES

STA. 6757+10.50 - 47.63' RT. - I-74

100% APPROVED JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 2 OF 309 FILE NO. 30253 DESIGN NO. 2808

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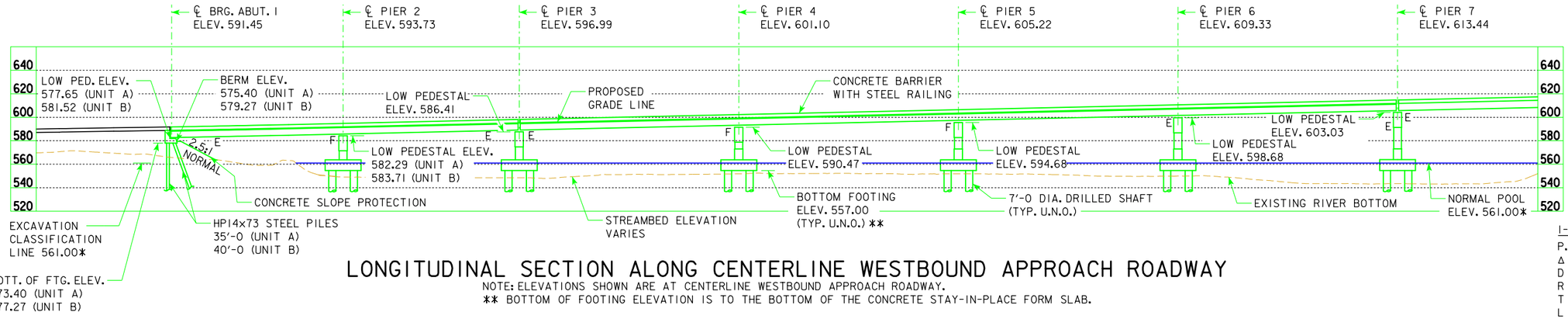
BENCH MARK NO. 500: STA. 6781+18.95 LT. 161.23' ELEV. 575.797,
CHISELED "X" IN BOLT E. SIDE CONCRETE STRUCTURE.



LONGITUDINAL SECTION ALONG CENTERLINE WESTBOUND APPROACH ROADWAY

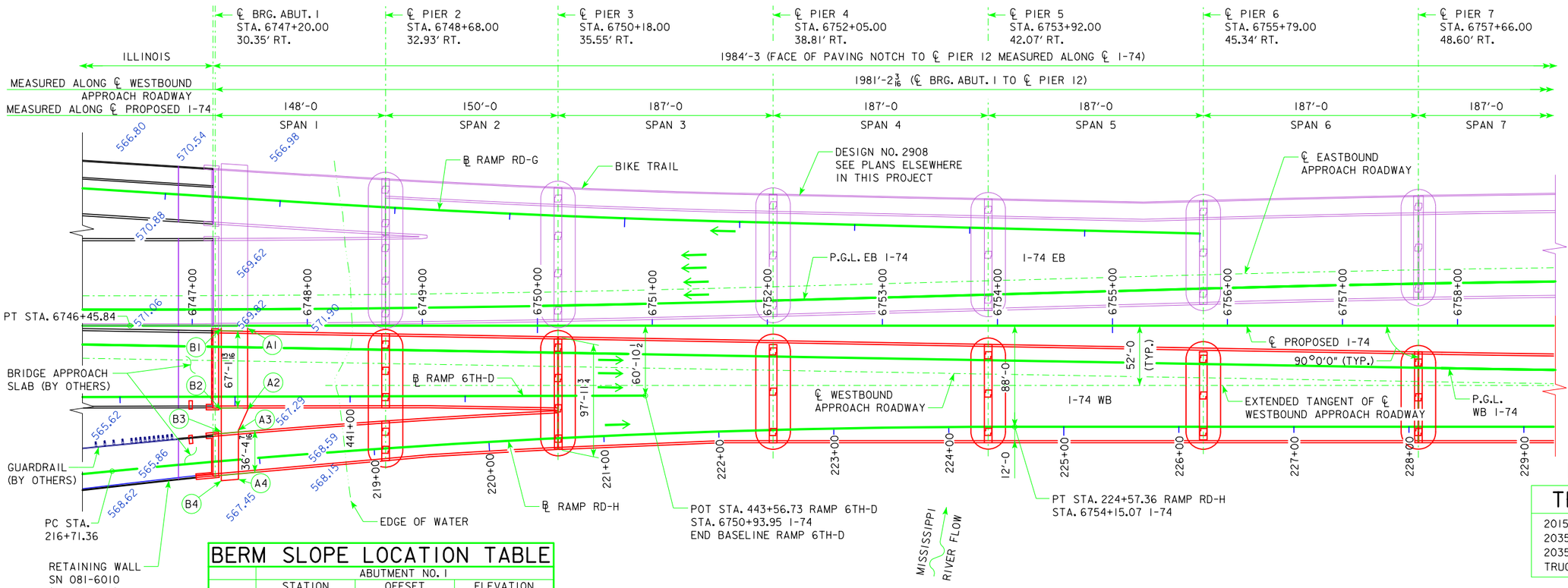
NOTE: ELEVATIONS SHOWN ARE AT CENTERLINE WESTBOUND APPROACH ROADWAY.
** BOTTOM OF FOOTING ELEVATION IS TO THE BOTTOM OF THE CONCRETE STAY-IN-PLACE FORM SLAB.

RAMP RD-H CURVE DATA
P.I. STA. = 220+64.68
Δ = 5°37'45.59"
D = 0°42'58.31"
R = 8,000.000
T = 393.3179
L = 785.6868
E = 9.6628
e = N.C.
P.C. STA. = 216+71.36
P.T. STA. = 224+57.36

I-74 WB P.G.L. CURVE DATA
P.I. STA. = 16759+58.32
Δ = 1°00'00.00"
D = 0°17'11.32"
R = 20,000.000
T = 174.5374
L = 349.0659
E = 0.7616
e = N.C.
P.C. STA. = 16757+83.78
P.T. STA. = 16761+32.85

P.C. STA. 16757+83.78 I-74 WB P.G.L. = STA. 6757+86.21, 36.95 RT. ℄ I-74

P.T. STA. 16761+32.85 I-74 WB P.G.L. = STA. 6761+35.26, 40.00 RT. ℄ I-74



BERM SLOPE LOCATION TABLE

	ABUTMENT NO. 1		
	STATION	OFFSET	ELEVATION
A1	6747+48.15	2.26' RT.	570.85
A2	6747+48.15	73.21' RT.	570.14
A3	6747+40.05	91.04' RT.	569.93
A4	6747+40.05	133.59' RT.	569.50
B1	6747+25.25	2.26' RT.	579.02
B2	6747+25.25	73.24' RT.	579.02
B3	6747+25.25	92.30' RT.	575.15
B4	6747+25.25	134.91' RT.	575.15

SITUATION PLAN - SEGMENT 1

NOTES:

U.N.O. - DENOTES "UNLESS NOTED OTHERWISE"

E - DENOTES "EXPANSION BEARING"

F - DENOTES "FIXED BEARING"

WORK THIS SHEET WITH DESIGN SHEET 4.

FOR ADDITIONAL NOTES, SEE DESIGN SHEET 4.

LOCATION

I-74 WESTBOUND SOUTH APPROACH
OVER MISSISSIPPI RIVER
T-78 N R-4 E
SECTION 33
DAVENPORT TOWNSHIP
SCOTT COUNTY, IOWA
CITY OF BETTENDORF
T-18 N R-1 W
SECTIONS 29 & 32
MOLINE TOWNSHIP
ROCK ISLAND COUNTY, ILLINOIS
CITY OF MOLINE
LATITUDE: 41.516095
LONGITUDE: -90.510845
FHWA NO. 47281

I-74 WESTBOUND TRAFFIC ESTIMATE

2015	AADT	44,700	V.P.D.
2035	AADT	51,770	V.P.D.
2035	DHV	5,000	V.P.H.
TRUCKS		5	%

DESIGN FOR VARIABLE SKEW

1981'-0 x VARIES CONTINUOUS WELDED GIRDER BRIDGE

148'-0 & 187'-0 END SPANS 150'-0 & 8-187'-0 INTERIOR SPANS

SITUATION PLAN

STA. 6757+10.50 - 47.63' RT. - I-74

100% APPROVED JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 3 OF 309 FILE NO. 30253 DESIGN NO. 2808

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DESIGN TEAM DMS/VH/KWS	SCOTT COUNTY	PROJECT NUMBER BRFIM-074-1(197)5--05-82	SHEET NUMBER 4

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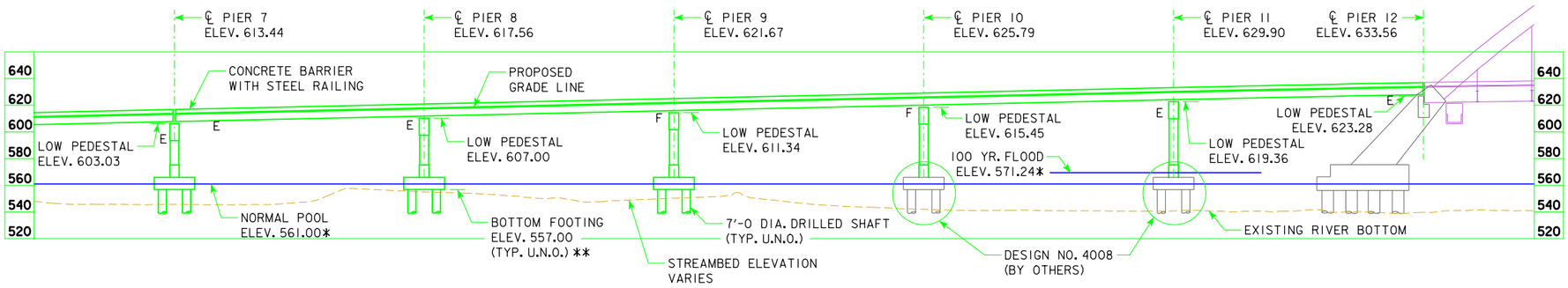
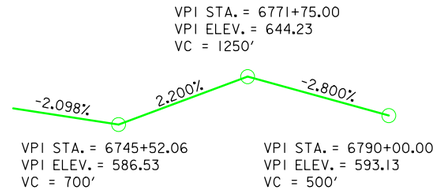
MODEL: $MODEL

BENCH MARK NO. 500: STA. 6781+18.95 LT. 161.23' ELEV. 575.797, CHISELED "X" IN BOLT E. SIDE CONCRETE STRUCTURE.

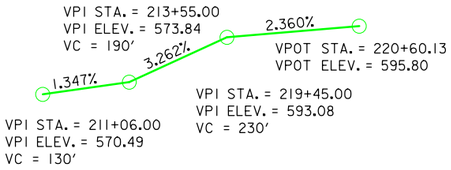


LONGITUDINAL SECTION ALONG CENTERLINE WESTBOUND APPROACH ROADWAY

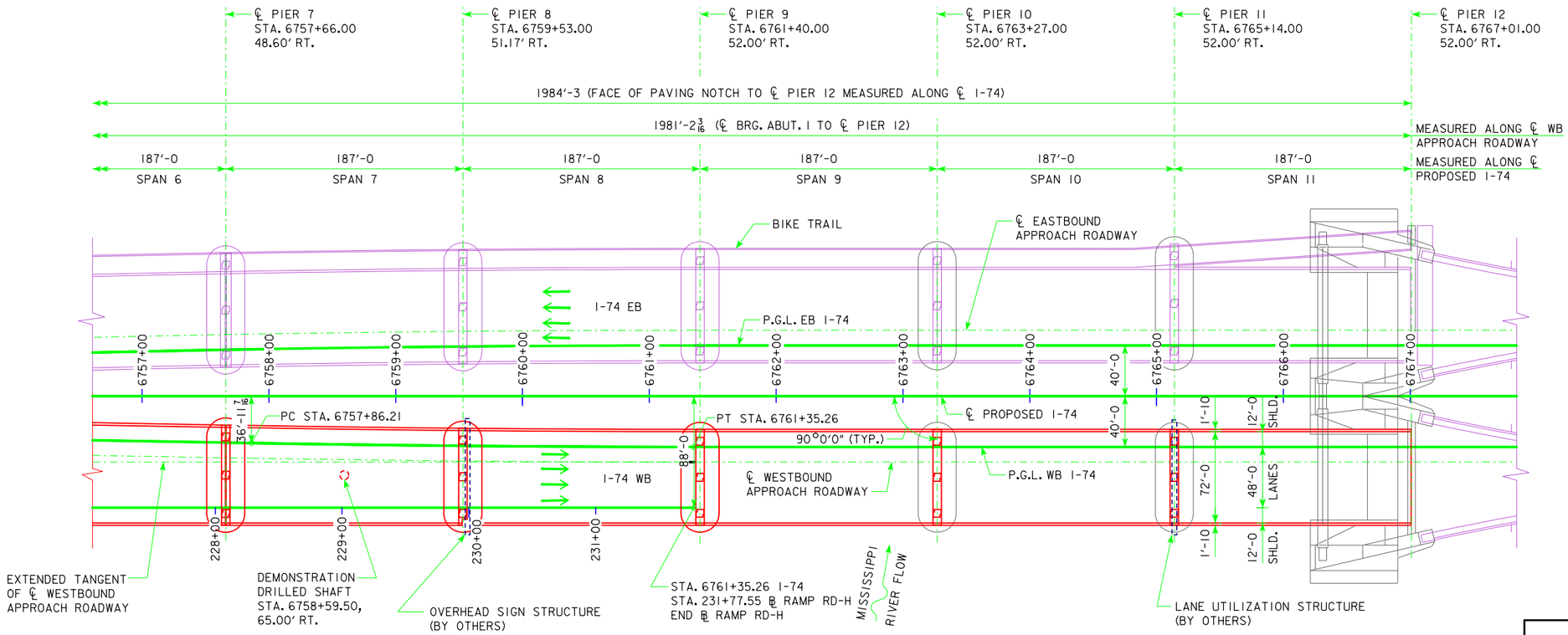
NOTE: ELEVATIONS SHOWN ARE AT CENTERLINE WESTBOUND APPROACH ROADWAY.
** BOTTOM OF FOOTING ELEVATION IS TO THE BOTTOM OF THE CONCRETE STAY-IN-PLACE FORM SLAB.



PROPOSED PROFILE GRADE I-74 WB



PROPOSED PROFILE GRADE RAMP RD-H



SITUATION PLAN - SEGMENT 1

NOTES:

ALL DIMENSIONS ARE SHOWN IN FEET.

WORK THIS SHEET WITH DESIGN SHEET 3.

STATIONS ARE MEASURED ALONG ℄ PROPOSED I-74.

FOR HYDRAULIC DATA SEE DESIGN SHEET 5.

FOR DRAIN LOCATIONS, SEE DESIGN SHEETS 277 AND 278.

FOR LOCATIONS AND DETAILS OF CONDUIT AND LIGHT POLES, SEE DESIGN SHEETS 243 AND 249.

FOR SOIL BORING LOCATIONS, SEE SHEETS SPS.1 THRU SPS.9.

ELEVATIONS AND OFFSETS ARE GIVEN TO THE CENTERLINE WESTBOUND APPROACH ROADWAY.

ELEVATIONS SHOWN ARE BASED ON NAVD 88 DATUM UNLESS NOTED OTHERWISE.

* ELEVATIONS BASED ON NGVD 1912 DATUM.

DESIGN FOR VARIABLE SKEW

1981'-0 x VARIES CONTINUOUS WELDED GIRDER BRIDGE

148'-0 & 187'-0 END SPANS 150'-0 & 8-187'-0 INTERIOR SPANS

SITUATION PLAN

STA. 6757+10.50 - 47.63' RT. - I-74

100% APPROVED JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 4 OF 309 FILE NO. 30253 DESIGN NO. 2808

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DESIGN TEAM DMS/VH/KWS	SCOTT COUNTY	PROJECT NUMBER BRFIM-074-1(197)5--05-82	SHEET NUMBER 5

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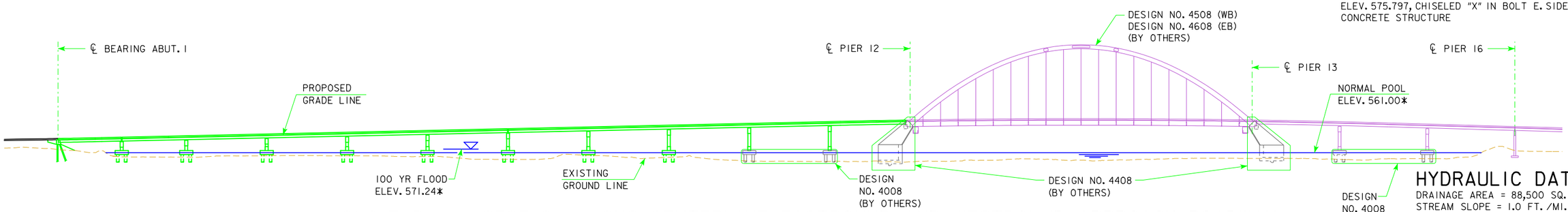
BENCH MARK NO. 500 STA. 6781+18.95 LT. 161.23'
ELEV. 575.797, CHISELED "X" IN BOLT E. SIDE
CONCRETE STRUCTURE



LONGITUDINAL SECTION ALONG CENTERLINE EASTBOUND AND WESTBOUND APPROACH ROADWAY

NOTE: PIERS NOT SHOWN SKEWED FOR CLARITY.

HYDRAULIC DATA

DRAINAGE AREA = 88,500 SQ. MI.
STREAM SLOPE = 1.0 FT./MI.

Q2 = 134,000 CFS
STAGE = 563.63*
CHANNEL VELOCITY = 3.9 FPS
Q100 = 290,000 CFS
STAGE = 571.24*
Q500 = 345,000 CFS
STAGE = 573.04*
EXTREME H.W. STAGE = 570.0*
DATE = JULY 1993
AVG LOW WATER STAGE = 561.0*
CESSATION OF NAVIGATION = 562.50

ELEVATIONS SHOWN ARE BASED ON NAVD 88 DATUM UNLESS NOTED OTHERWISE.

* ELEVATIONS BASED ON NGVD 1912 DATUM.

THE FOLLOWING CONVERSIONS APPLY TO THE PROJECT LOCATION:
NAVD 88 = NGVD 1912 - 0.727 FT.

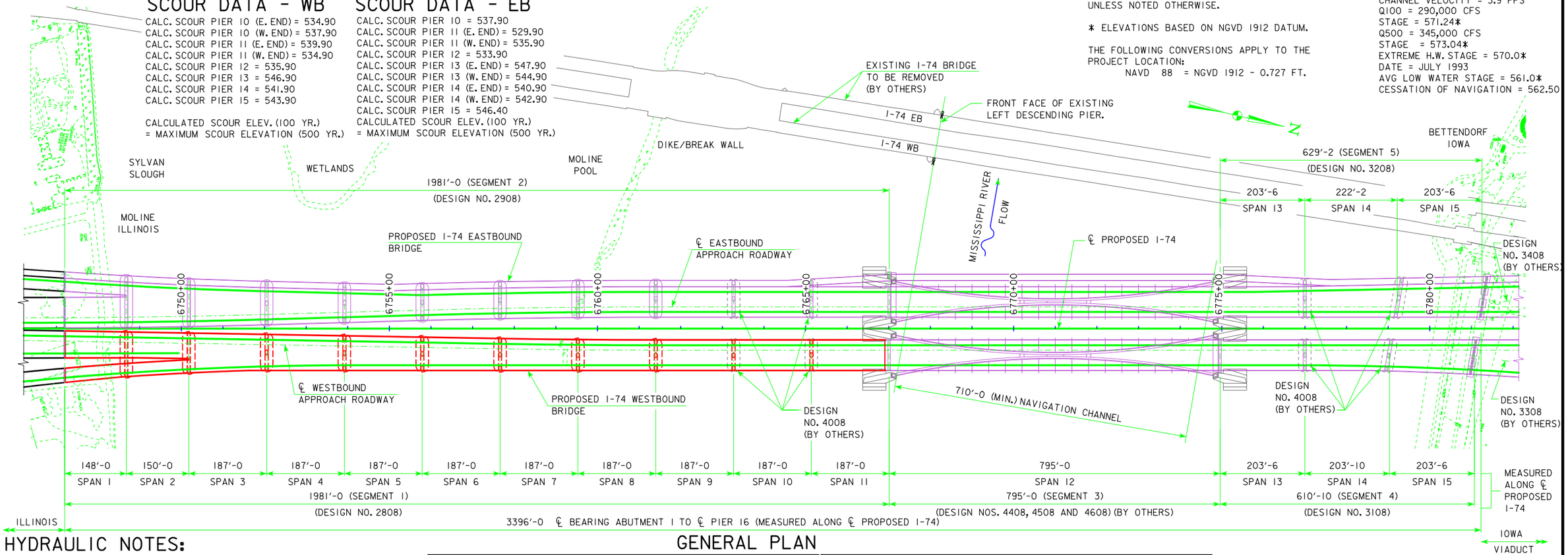
SCOUR DATA - WB

CALC. SCOUR PIER 10 (E. END) = 534.90
CALC. SCOUR PIER 10 (W. END) = 537.90
CALC. SCOUR PIER 11 (E. END) = 539.90
CALC. SCOUR PIER 11 (W. END) = 534.90
CALC. SCOUR PIER 12 = 535.90
CALC. SCOUR PIER 13 = 546.90
CALC. SCOUR PIER 14 = 541.90
CALC. SCOUR PIER 15 = 543.90

CALCULATED SCOUR ELEV. (100 YR.)
= MAXIMUM SCOUR ELEVATION (500 YR.)

SCOUR DATA - EB

CALC. SCOUR PIER 10 = 537.90
CALC. SCOUR PIER 11 (E. END) = 529.90
CALC. SCOUR PIER 11 (W. END) = 535.90
CALC. SCOUR PIER 12 = 533.90
CALC. SCOUR PIER 13 (E. END) = 547.90
CALC. SCOUR PIER 13 (W. END) = 544.90
CALC. SCOUR PIER 14 (E. END) = 540.90
CALC. SCOUR PIER 14 (W. END) = 542.90
CALC. SCOUR PIER 15 = 546.40
CALCULATED SCOUR ELEV. (100 YR.)
= MAXIMUM SCOUR ELEVATION (500 YR.)



GENERAL PLAN

HYDRAULIC NOTES:

1. ALL RIVER ELEVATIONS ARE NGVD 1912 DATUM AND TAKEN AT RIVER MILE 486, JUST UPSTREAM FROM THE PROPOSED BRIDGE. THE RIVER ELEVATIONS COME FROM THE PROPOSED BRIDGE CONFIGURATION MODELED WITH FESWMS, A 2D DEPTH-AVERAGED HYDRAULIC MODEL.

2. THE AVERAGE LOW WATER STAGE IS THE SAME AS THE NORMAL POOL STAGE IN THE LOCK AND DAM 15 NAVIGATION POOL.

3. THE SCOUR CALCULATIONS WERE COMPUTED FOLLOWING HEC-18 PROCEDURES USING DATA TAKEN FROM FESWMS MODEL REFERENCED IN HYDRAULIC NOTE 1 SUPPLEMENTED WITH LABORATORY-MEASURED EROSION RATES OF ROCK CORE SAMPLES TAKEN FROM SELECTED PIER LOCATIONS. THE ENGINEERS CERTIFICATION PERTAINING TO THE HYDRAULIC DATA DOES NOT COVER THE SCOUR DATA.

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312-565-0450 Job No. 10061

SCOUR DESIGN

LICENSED PROFESSIONAL ENGINEER
Michelle A Lewis
19328
IOWA

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 Date

Michelle A. Lewis
Printed or Typed Name

My license renewal date is December 31, 2013

Pages or sheets covered by this seal: SHEET 6 (SCOUR DATA)

HYDRAULIC DESIGN

LICENSED PROFESSIONAL ENGINEER
Andrew W McCoy
18963
IOWA

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 Date

Andrew W. McCoy
Printed or Typed Name

My license renewal date is December 31, 2013

Pages or sheets covered by this seal: SHEET 6 (HYDRAULIC DATA)

DESIGN FOR VARIABLE SKEW

1981'-0 x VARIES CONTINUOUS WELDED GIRDER BRIDGE

148'-0 & 187'-0 END SPANS 150'-0 & 8-187'-0 INTERIOR SPANS

GENERAL PLAN

STA. 6757+10.50 - 47.63' RT. - I-74

100% APPROVED
JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 5 OF 309 FILE NO. 30253 DESIGN NO. 2808

DESIGN TEAM DMS/BS/KWS | SCOTT COUNTY | PROJECT NUMBER BRFIM-074-1(197)5--05-82 | SHEET NUMBER 6

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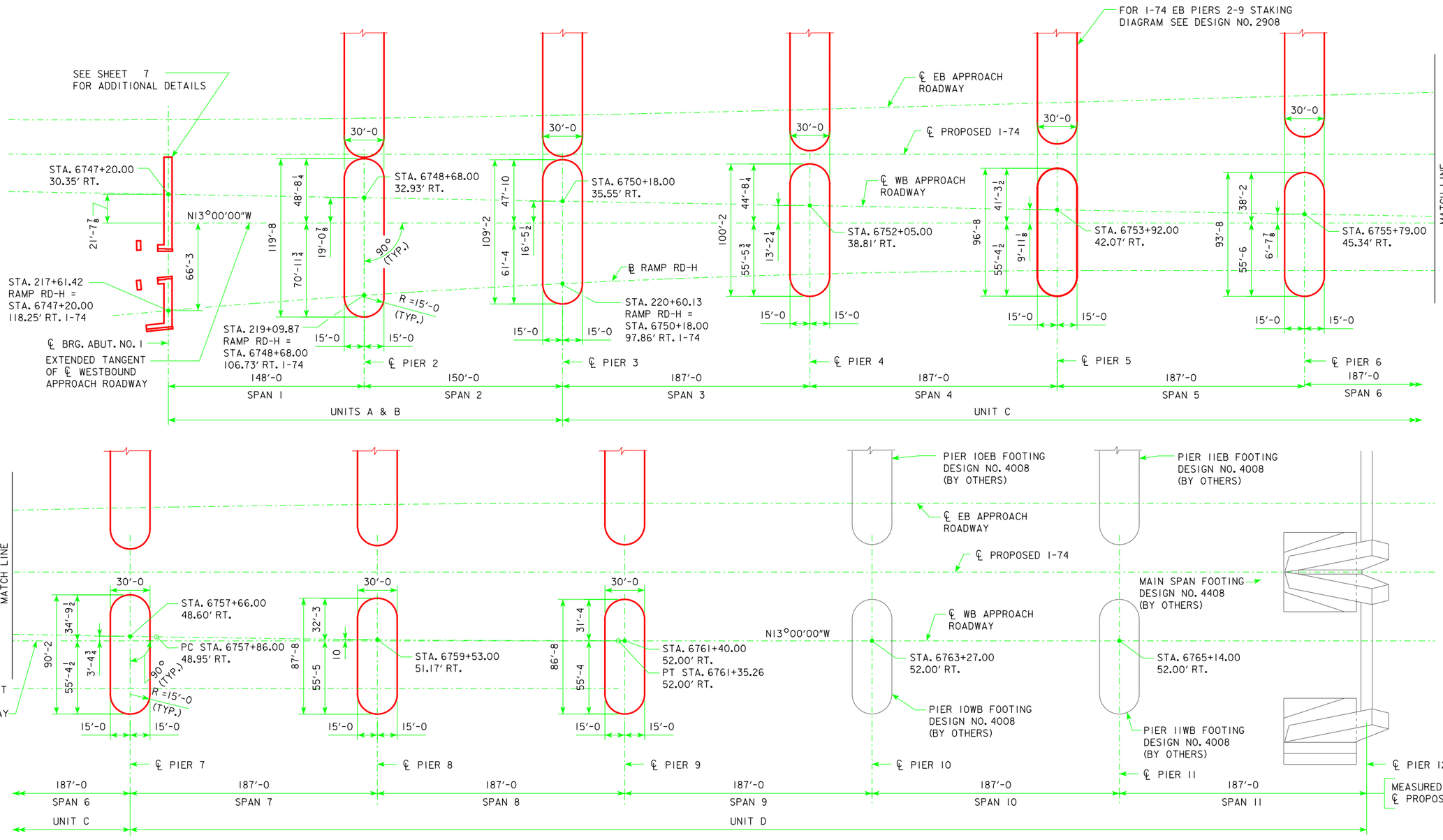

STAKING DIAGRAM

STATIONS ARE TAKEN WITH RESPECT TO ℄ PROPOSED I-74

DESIGN FOR VARIABLE SKEW

1981′-0 × VARIES CONTINUOUS WELDED GIRDER BRIDGE

148′-0 & 187′-0 END SPANS 150′-0 & 8-187′-0 INTERIOR SPANS

STAKING DIAGRAM

STA. 6757+10.50 - 47.63′ RT. - I-74

100% APPROVED
JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 6 OF 309 FILE NO. 30253 DESIGN NO. 2808

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DESIGN TEAM RJT/TJJ/KMP	SCOTT COUNTY	PROJECT NUMBER BRFIM-074-1(197)5--05-82	SHEET NUMBER 7

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MODEL: $MODEL

PIER CONCRETE FINISHING NOTES:

IF FORM TIES ARE USED IN FORMING THE PIER, ARRANGE TIES TO BE REGULARLY SPACED AND IN A CONSISTENT GEOMETRIC GRID PATTERN. DO NOT LOCATE TIES AT EDGES OF CONCRETE RUSTICATIONS.

FOLLOWING FORM REMOVAL, A CLASS 2 STRIP DOWN SURFACE FINISH IN ACCORDANCE WITH ARTICLE 2403, P, 2, B, OF THE STANDARD SPECIFICATIONS SHALL BE REQUIRED BUT WITH THE FOLLOWING ADDITIONAL REQUIREMENTS:

1. DEMONSTRATE HOLE AND VOID PATCHING OPERATIONS IN ACCORDANCE WITH ARTICLE 2403, P, 2, B, OF THE STANDARD SPECIFICATIONS ON A FOUR FOOT SECTION OF VERTICAL PIER CONCRETE LOCATED IN AN INCONSPICUOUS AREA. BEGIN PATCHING DEMONSTRATION BY USING A MORTAR MIX COMPRISED OF 1 PART WHITE CEMENT, 2 PARTS STANDARD PORTLAND CEMENT, 6 PARTS MORTAR SAND, AND WATER. THE QUANTITY OF WATER USED SHALL PRODUCE A MORTAR CONSISTENCY AS DRY AS POSSIBLE TO USE EFFECTIVELY.

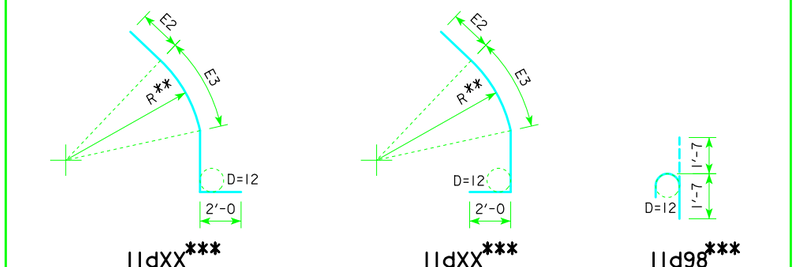
2. WHEN PATCHING TEST AREAS HAVE SET, SATURATE WITH WATER AND RUB WITH A FINE CARBORUNDUM STONE UNTIL SURFACES ARE SMOOTH IN TEXTURE. REMOVE LOOSE POWDER AND OTHER CONTAMINANTS BY RUBBING WITH BURLAP AND RINSING WITH WATER. AFTER SURFACES HAVE DRIED, PATCH COLOR AND TEXTURE OF SURFACES WILL BE REVIEWED BY THE ENGINEER. PATCHES SHOULD MATCH OR BE SLIGHTLY LIGHTER THAN SURROUNDING CONCRETE. IF RESULTS ARE UNSATISFACTORY, ADJUST PATCHING MORTAR MIX PROPORTIONS AND PERFORM ANOTHER DEMONSTRATION UNTIL RESULTS ARE DEEMED SATISFACTORY BY THE ENGINEER.

3. USE THE PATCHING MORTAR MIX PROPORTIONS THAT ARE APPROVED BY THE ENGINEER AS A RESULT OF THE SATISFACTORY DEMONSTRATION. DO NOT USE PATCHING MORTAR THAT IS MORE THAN 1 HOUR OLD.

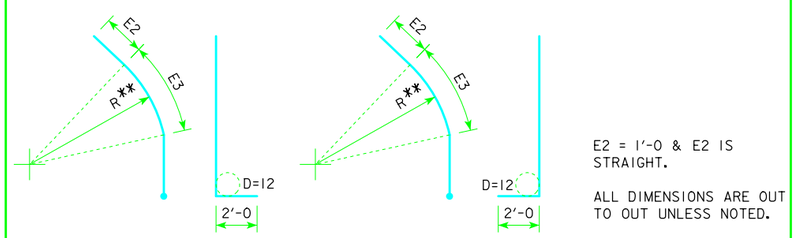
4. FINISHED PIER CONCRETE SHALL BE SMOOTH AND SHOW NO WOOD GRAIN, FORM LINE OR OTHER TEXTURE FROM THE FACE OF THE FORMS USED. ALL COSTS FOR REPAIR OR COVERING WOOD GRAIN, FORM LINES OR OTHER TEXTURES ON THESE SURFACES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

5. CONCRETE SEALER IS TO BE APPLIED TO THE EXPOSED BRIDGE SEAT SURFACE AT THE PIERS 3 AND 7 IN ACCORDANCE WITH ARTICLE 2403.03, P.3 OF THE STANDARD SPECIFICATIONS. DO NOT APPLY CURING COMPOUNDS, SEALERS, OR COATINGS TO THE VERTICAL SURFACES OF THE PIERS 3 AND 7 OR TO THE FINISHED SURFACES OF THE OTHER PIERS.

PIERS 2-7 COLUMN BAR SUBSTITUTION DETAILS



llaXX*** llaXX*** lld98***



llaXX*** llaXX***

E2 = 1'-0 & E2 IS STRAIGHT.

ALL DIMENSIONS ARE OUT TO OUT UNLESS NOTED.

D = PIN DIAMETER.

R** = INSIDE RADIUS

GENERAL PIER NOTES:

1. NO PRODUCTION WORK ON PIERS SHALL BEGIN UNTIL APPROVAL OF THE PIER MOCKUP BY THE ENGINEER.

2. BEAM SEAT ELEVATIONS ARE BASED ON BEARING HEIGHTS SHOWN IN THE CONTRACT PLANS. ACTUAL BEARING HEIGHT MAY DIFFER FROM THE CONTRACT PLANS. CONTRACTOR SHALL VERIFY BEARING HEIGHT AND ADJUST SEAT ELEVATIONS AND REINFORCEMENT, IF REQUIRED, PRIOR TO PLACING PIER CONCRETE.

3. ANCHOR BOLTS SHALL NOT BE PRESET ON TWO ADJACENT FIXED PIERS.

4. THE MINIMUM CLEAR DISTANCE FROM THE FACE OF CONCRETE TO NEAR REINFORCING BAR IS 2" UNLESS NOTED OTHERWISE OR SHOWN.

5. ALL EXPOSED CORNERS, 90 DEGREES OR SHARPER SHALL BE FILLETED WITH A $\frac{3}{4}$" DRESSED AND BEVELED STRIP UNLESS NOTED OTHERWISE.

6. REINFORCING BARS MUST BE PLACED TO CLEAR ANCHOR BOLTS. SHIFT REINFORCING BARS SLIGHTLY AS REQUIRED.

7. ELEVATIONS BASED ON NAVD 88 DATUM, UNLESS NOTED.

8. THE DEVELOPMENTAL SPECIFICATION FOR HIGH PERFORMANCE SELF CONSOLIDATING CONCRETE (HP-SCC) ALONG WITH OTHER APPLICABLE SPECIFICATIONS LISTED ELSEWHERE IN THE PLANS SHALL APPLY TO THE COLUMNS.

9. THE USE OF STEEL OR HIGH-DENSITY OVERLAID (HDO) PLYWOOD FACED FORMS IS REQUIRED FOR THE FORMING OF ALL PIER CONCRETE SURFACES FROM THE TOP OF THE FOOTING TO THE BOTTOM OF PIER CAP. THE USE OF STEEL, HDO OR MEDIUM-DENSITY OVERLAID (MDO) PLYWOOD FACED FORMS IS REQUIRED FOR THE FORMING OF THE PIER CAP. PLAIN PLYWOOD-FACED FORMS WILL NOT BE ALLOWED FOR ANY PORTION OF THE PIER STEM, COLUMNS OR CAP SURFACES.

10. PLACEMENT OF THE SELF CONSOLIDATING CONCRETE SHALL CONFORM TO THE DEVELOPMENTAL SPECIFICATION FOR HIGH PERFORMANCE SELF CONSOLIDATING CONCRETE.

11. THE CONTRACTOR SHALL PROVIDE ADEQUATE FORMS TO CONTAIN THE INCREASED HYDRAULIC PRESSURE OF THE SELF CONSOLIDATING CONCRETE.

12. THE TREMIE TUBE SHALL BE IN PLACE PRIOR TO PLACING FORMWORK.

13. WELDING OF ANCHOR BOLTS SHALL NOT BE ALLOWED. THE CONTRACTOR SHALL OBTAIN A TEMPLATE FROM THE MANUFACTURER/FABRICATOR FOR PROPER PLACEMENT OF THE ANCHOR BOLTS.

14. HIGH PERFORMANCE SELF CONSOLIDATING CONCRETE MY BE USED INSTEAD OF STRUCTURAL CONCRETE (BRIDGE) OR HIGH PERFORMANCE STRUCTURAL CONCRETE.

15. FORM KEYWAYS TO SIZES NOTED IN THE PLANS. SINGLE KEYWAYS SHALL BE CENTERED ON THE CONSTRUCTION JOINT. REFER TO THE DETAIL ON THIS SHEET FOR LOCATION OF TWO 1'-0 x 2'-0 x 2 BEVELED KEYWAYS AT COLUMN CONSTRUCTION JOINTS.

16. FOR ADDITIONAL DETAILS OF RIGID STEEL CONDUIT EMBEDDED IN PIER CAPS, SEE P SHEETS.

PIER COLUMN BAR SUBSTITUTION NOTES:

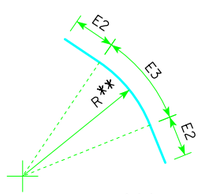
R**, E, E1 & E2 ARE GIVEN IN THE CORRESPONDING TABLE FOR THE SUBSTITUTED BAR ON THE BAR LIST DESIGN SHEET.
FOR PIERS 2-5: E3 = E - E2 - 1'-7
FOR PIERS 6-11: E3 = E1 - E2 - 1'-7

BARS lld98 & llaXX CONNECTED WITH A MECHANICAL BAR SPLICER MAY BE SUBSTITUTED FOR BARS DESIGNATED ***.

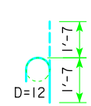
ALL COLUMN BAR SUBSTITUTIONS AT PIERS 3 & 7 SHALL BE EPOXY COATED.

THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL FOR ANY SUBSTITUTED BARS. NO ADDITIONAL PAYMENT WILL BE MADE FOR THE SUBSTITUTED BARS OR MECHANICAL SPLICERS.

PIERS 8-11 COLUMN BAR SUBSTITUTION DETAILS



llaXX***



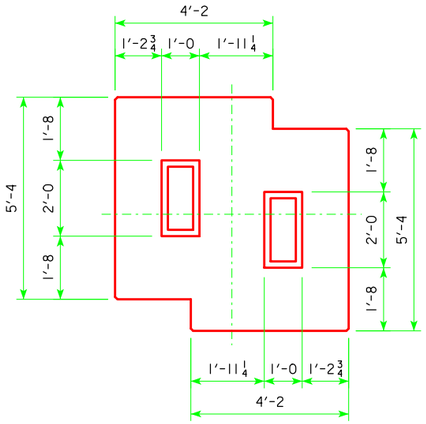
lld98***

E2 = 1'-0 & E2 IS STRAIGHT.

ALL DIMENSIONS ARE OUT TO OUT UNLESS NOTED.

D = PIN DIAMETER.

R** = INSIDE RADIUS



TYPICAL TWO 1'-0 x 2'-0 x 2 BEVELED KEYWAY PLACEMENT DETAIL

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DESIGN FOR VARIABLE SKEW

1981'-0 x VARIES CONTINUOUS WELDED GIRDER BRIDGE

148'-0 & 187'-0 END SPANS 150'-0 & 8-187'-0 INTERIOR SPANS

GENERAL PIER NOTES

STA. 6757+10.50 - 47.63' RT. - I-74

100% APPROVED JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 24 OF 309 FILE NO. 30253 DESIGN NO. 2808

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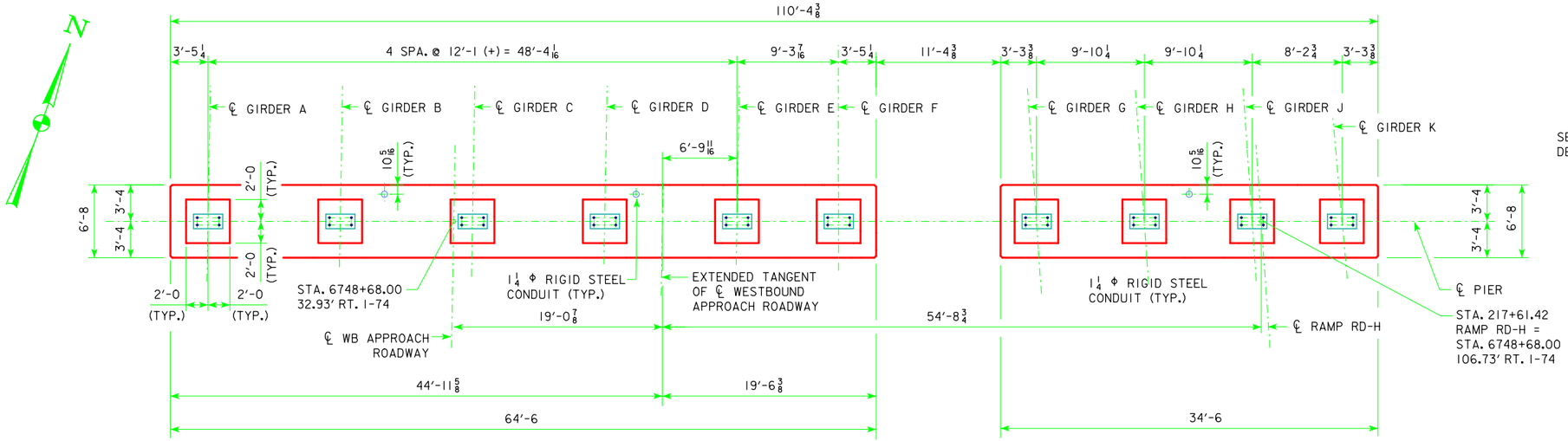
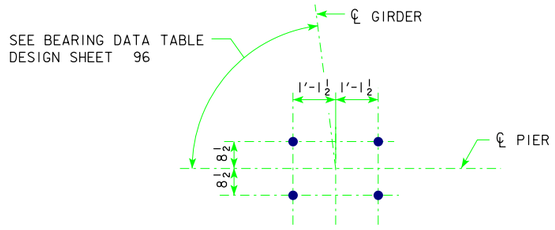
BENCH MARK NO. 500: STA. 6781+18.95 LT. 161.23' ELEV. 575.797, CHISELED "X" IN BOLT E. SIDE CONCRETE STRUCTURE.

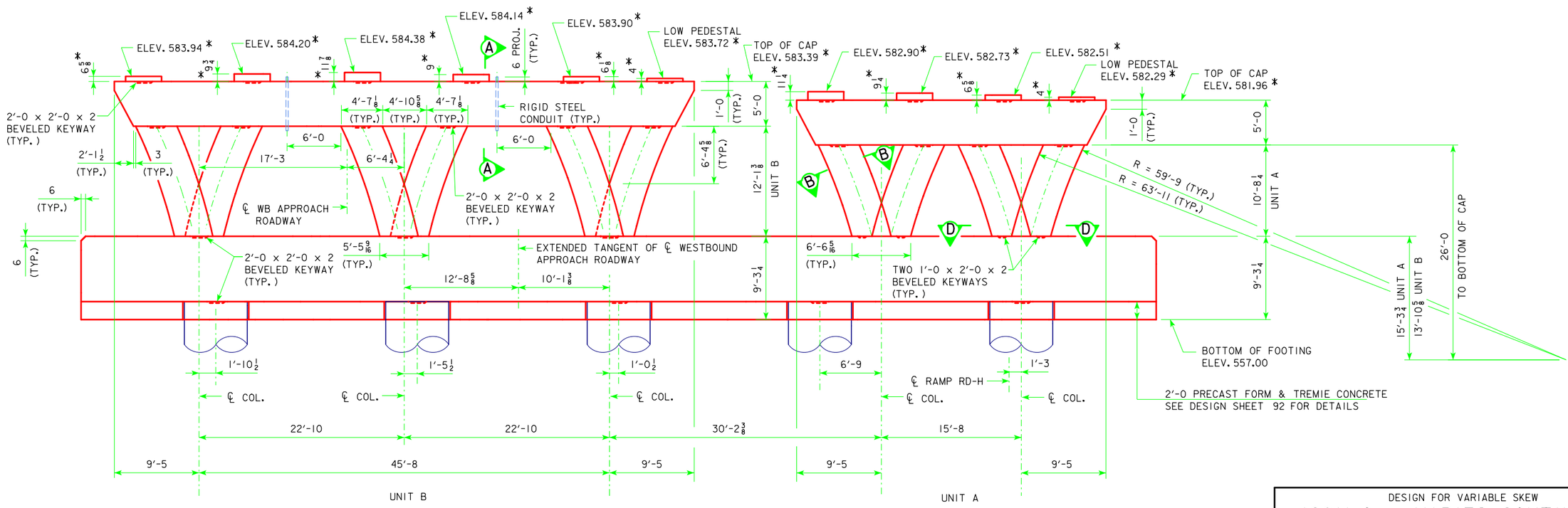


PLAN OF PIER CAP



ANCHOR BOLT LAYOUT

MAINTAIN 0'-6 MIN. EDGE DISTANCE ON ALL SIDES
(FOR ADDITIONAL DETAILS AND NOTES, SEE DESIGN SHEETS 93 AND 97)



PIER 2 ELEVATION

LOOKING NORTH

NOTES:

1. FOR SECTIONS A-A, B-B & D-D, SEE DESIGN SHEET 27.
2. "*" REFERS TO NOTE 2 ON DESIGN SHEET 24.
3. FOR ADDITIONAL NOTES SEE DESIGN SHEET 24.

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DESIGN FOR VARIABLE SKEW

1981'-0 x VARIES CONTINUOUS WELDED GIRDER BRIDGE

148'-0 & 187'-0 END SPANS 150'-0 & 8-187'-0 INTERIOR SPANS

PIER 2 DETAILS

STA. 6757+10.50 - 47.63' RT. - I-74

100% APPROVED JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 25 OF 309 FILE NO. 30253 DESIGN NO. 2808

DESIGN TEAM RJT/VH/KMP	SCOTT COUNTY	PROJECT NUMBER BRFIM-074-1(197)5--05-82	SHEET NUMBER 26

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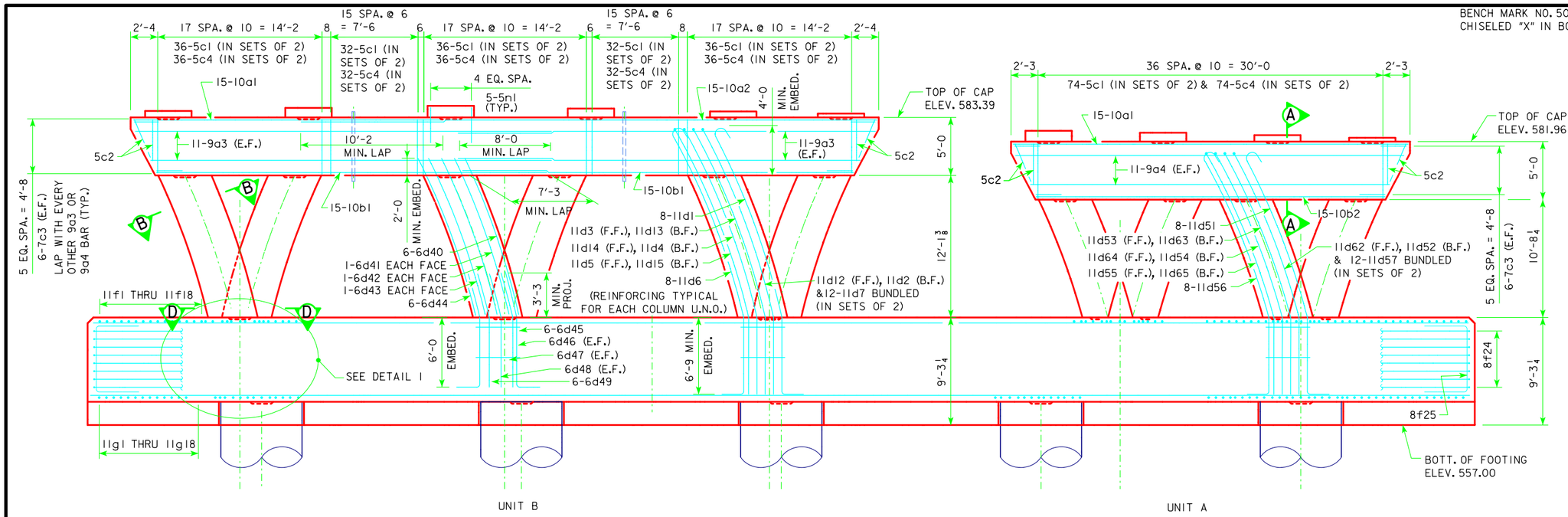
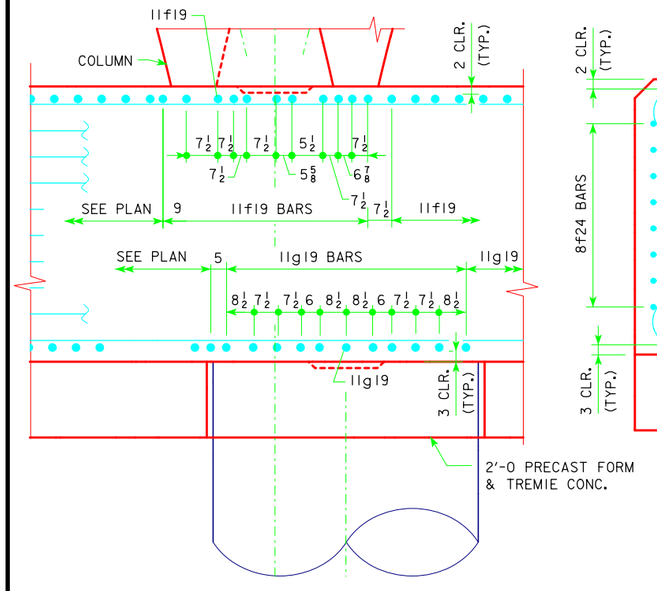
BENCH MARK NO. 500: STA. 6781+18.95 LT. 161.23' ELEV. 575.797, CHISELED "X" IN BOLT E. SIDE CONCRETE STRUCTURE.

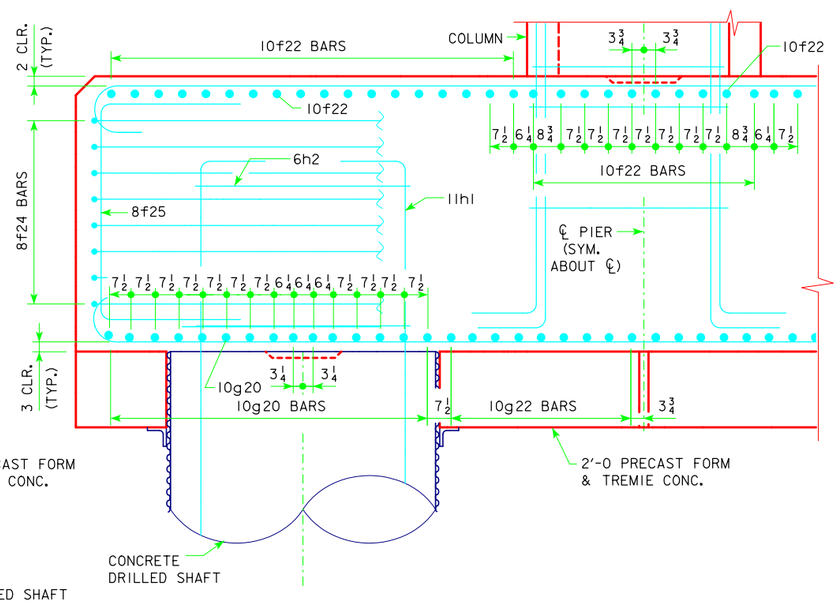


PIER 2 ELEVATION

LOOKING NORTH



DETAIL 1



DETAIL 2

NOTE A:

UNIT A - 11 SPA. @ 1'-0(-) = 10'-1¼
48-6e5 BARS

UNIT B - 12 SPA. @ 1'-0(-) = 11'-6⅜
52-6e5 BARS

NOTE B:

UNIT A - 11 SPA. @ 4(+) = 3'-10¼
24-5e1, 72-5e2, 24-5e3, 48-6e10

UNIT B - 15 SPA. @ 4(+) = 5'-3⅜
32-5e1, 96-5e2, 32-5e3, 64-6e10

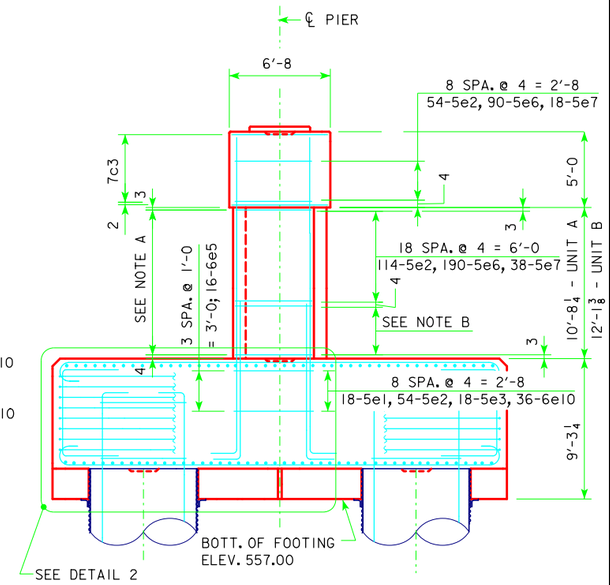
NOTES:

LONGITUDINAL COLUMN BARS SHOWN IN ELEVATION ARE PER ONE ELEMENT OF EACH COLUMN (6 & 4 LOCATIONS). COLUMN TIES SHOWN IN END VIEW ARE PER COLUMN (3 & 2 LOCATIONS).

SEE DESIGN SHEET 25 FOR DIMENSIONS AND ELEVATIONS.

FOR FOOTING REINFORCING DETAILS SEE DESIGN SHEET 29.

SEE DESIGN SHEET 24 FOR ADDITIONAL NOTES.



END VIEW

(OUTER VERTICAL 6d BARS NOT SHOWN FOR CLARITY)

* REFER TO NOTE 2 ON DESIGN SHEET 24.

DESIGN FOR VARIABLE SKEW

1981'-0 × VARIES CONTINUOUS WELDED GIRDER BRIDGE

148'-0 & 187'-0 END SPANS 150'-0 & 8-187'-0 INTERIOR SPANS

PIER 2 DETAILS

STA. 6757+10.50 - 47.63' RT. - I-74

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IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 26 OF 309 FILE NO. 30253 DESIGN NO. 2808

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DESIGN TEAM RJT/VH/KMP	SCOTT COUNTY	PROJECT NUMBER BRFIM-074-1(197)5--05-82	SHEET NUMBER 27

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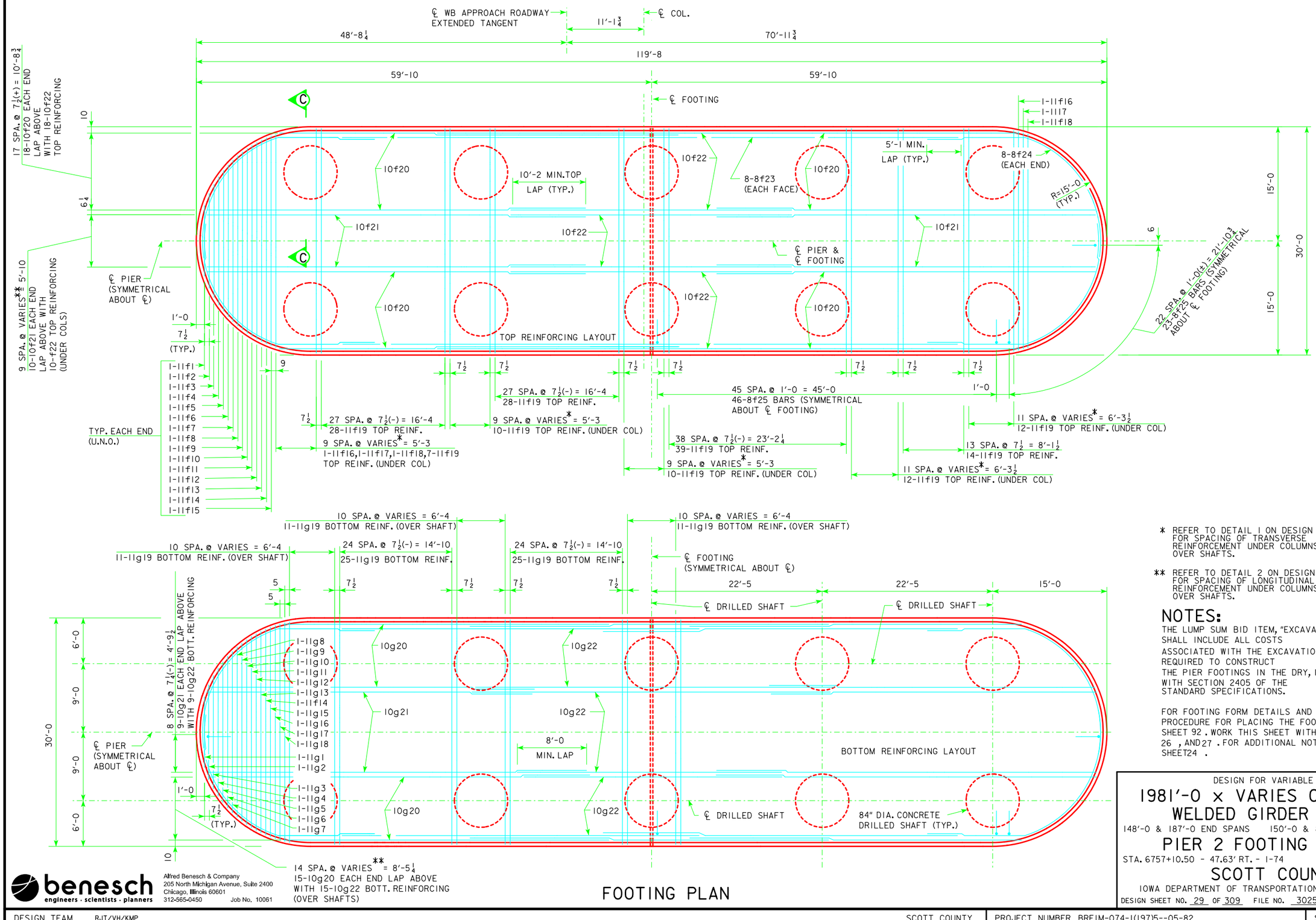

FOOTING PLAN

* REFER TO DETAIL 1 ON DESIGN SHEET 26 FOR SPACING OF TRANSVERSE REINFORCEMENT UNDER COLUMNS AND OVER SHAFTS.

** REFER TO DETAIL 2 ON DESIGN SHEET 26 FOR SPACING OF LONGITUDINAL REINFORCEMENT UNDER COLUMNS AND OVER SHAFTS.

NOTES:

THE LUMP SUM BID ITEM, "EXCAVATE AND DEWATER" SHALL INCLUDE ALL COSTS ASSOCIATED WITH THE EXCAVATION AND DEWATERING REQUIRED TO CONSTRUCT THE PIER FOOTINGS IN THE DRY, IN ACCORDANCE WITH SECTION 2405 OF THE STANDARD SPECIFICATIONS.

FOR FOOTING FORM DETAILS AND CONSTRUCTION PROCEDURE FOR PLACING THE FOOTING, SEE DESIGN SHEET 92 . WORK THIS SHEET WITH DESIGN SHEETS 25 , 26 , AND 27 . FOR ADDITIONAL NOTES, SEE DESIGN SHEET 24 .

DESIGN FOR VARIABLE SKEW

1981'-0 × VARIES CONTINUOUS WELDED GIRDER BRIDGE

148'-0 & 187'-0 END SPANS 150'-0 & 8-187'-0 INTERIOR SPANS

PIER 2 FOOTING DETAILS

STA. 6757+10.50 - 47.63' RT. - I-74

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DESIGN SHEET NO. 29 OF 309 FILE NO. 30253 DESIGN NO. 2808

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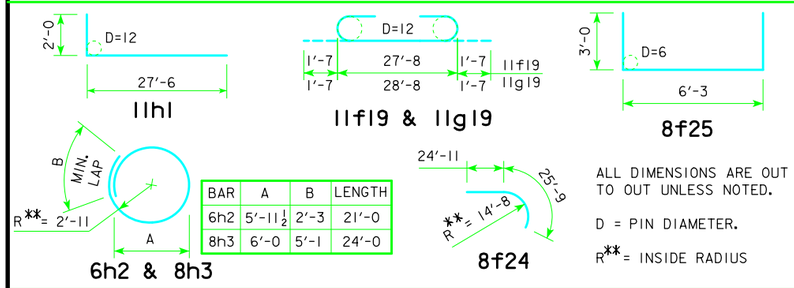
DESIGN TEAM RJT/VH/KMP	SCOTT COUNTY	PROJECT NUMBER BRFIM-074-1(197)5--05-82	SHEET NUMBER 30

NON-COATED REINFORCING

REINFORCING STEEL - PIER 2 FTG.

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
11f1-2WB	FOOTING, TOP, TRANS.	——	2	4'-4	46
11f2-2WB	FOOTING, TOP, TRANS.	——	2	9'-4	99
11f3-2WB	FOOTING, TOP, TRANS.	——	2	12'-4	131
11f4-2WB	FOOTING, TOP, TRANS.	——	2	14'-8	156
11f5-2WB	FOOTING, TOP, TRANS.	——	2	16'-7	176
11f6-2WB	FOOTING, TOP, TRANS.	——	2	18'-2	193
11f7-2WB	FOOTING, TOP, TRANS.	——	2	19'-7	208
11f8-2WB	FOOTING, TOP, TRANS.	——	2	20'-9	220
11f9-2WB	FOOTING, TOP, TRANS.	——	2	21'-11	233
11f10-2WB	FOOTING, TOP, TRANS.	——	2	22'-10	243
11f11-2WB	FOOTING, TOP, TRANS.	——	2	23'-9	252
11f12-2WB	FOOTING, TOP, TRANS.	——	2	24'-6	260
11f13-2WB	FOOTING, TOP, TRANS.	——	2	25'-2	267
11f14-2WB	FOOTING, TOP, TRANS.	——	2	25'-9	274
11f15-2WB	FOOTING, TOP, TRANS.	——	2	26'-4	280
11f16-2WB	FOOTING, TOP, TRANS.	——	2	26'-9	284
11f17-2WB	FOOTING, TOP, TRANS.	——	2	27'-1	288
11f18-2WB	FOOTING, TOP, TRANS.	——	2	27'-4	290
11f19-2WB	FOOTING, TOP, TRANS.	⊂⊃	160	30'-10	26211
10f20-2WB	FOOTING, TOP, LONGIT.	——	72	48'-10	15129
10f21-2WB	FOOTING, TOP, LONGIT.	——	20	50'-0	4303
10f22-2WB	FOOTING, TOP, LONGIT.	——	46	38'-6	7621
8f23-2WB	FOOTING, SIDE, LONGIT.	——	16	50'-0	2136
8f24-2WB	FOOTING, SIDE, END	⊂	32	50'-8	4329
8f25-2WB	FOOTING, SIDE, VERT.	⊏⊐	276	12'-3	9027
11g1-2WB	FOOTING, BOTT., TRANS.	——	2	8'-9	93
11g2-2WB	FOOTING, BOTT., TRANS.	——	2	12'-0	128
11g3-2WB	FOOTING, BOTT., TRANS.	——	2	14'-6	154
11g4-2WB	FOOTING, BOTT., TRANS.	——	2	16'-6	175
11g5-2WB	FOOTING, BOTT., TRANS.	——	2	18'-2	193
11g6-2WB	FOOTING, BOTT., TRANS.	——	2	19'-8	209
11g7-2WB	FOOTING, BOTT., TRANS.	——	2	21'-0	223
11g8-2WB	FOOTING, BOTT., TRANS.	——	2	22'-2	236
11g9-2WB	FOOTING, BOTT., TRANS.	——	2	23'-2	246
11g10-2WB	FOOTING, BOTT., TRANS.	——	2	24'-1	256
11g11-2WB	FOOTING, BOTT., TRANS.	——	2	24'-11	265
11g12-2WB	FOOTING, BOTT., TRANS.	——	2	25'-8	273
11g13-2WB	FOOTING, BOTT., TRANS.	——	2	26'-4	280
11g14-2WB	FOOTING, BOTT., TRANS.	——	2	26'-11	286
11g15-2WB	FOOTING, BOTT., TRANS.	——	2	27'-5	291
11g16-2WB	FOOTING, BOTT., TRANS.	——	2	27'-10	296
11g17-2WB	FOOTING, BOTT., TRANS.	——	2	28'-1	298
11g18-2WB	FOOTING, BOTT., TRANS.	——	2	28'-4	301
11g19-2WB	FOOTING, BOTT., TRANS.	⊂⊃	155	31'-10	26215
10g20-2WB	FOOTING, BOTT., LONGIT.	——	60	47'-6	12264
10g21-2WB	FOOTING, BOTT., LONGIT.	——	36	50'-0	7745
10g22-2WB	FOOTING, BOTT., LONGIT.	——	48	33'-8	6954
11h1-2WB	DRILLED SHAFT, LONGIT.	└	360	29'-6	56424
6h2-2WB	DRILLED SHAFT TIES	○	40	21'-0	1262
8h3-2WB	DRILLED SHAFT TIES	○	200	24'-0	12816
	NO. 5 SHAFT SPIRAL	∿∿∿	10	452'-5	4719
	SPIRAL SPACERS, L$\frac{7}{8}\times\frac{7}{8}\times\frac{1}{8}$	——	40	10'-6	294
	REINFORCING STEEL - TOTAL (LBS.)				205553

BENT BAR DETAILS



BAR	A	B	LENGTH
6h2	5'-11½	2'-3	21'-0
8h3	6'-0	5'-1	24'-0

ALL DIMENSIONS ARE OUT TO OUT UNLESS NOTED.

D = PIN DIAMETER.

R** = INSIDE RADIUS

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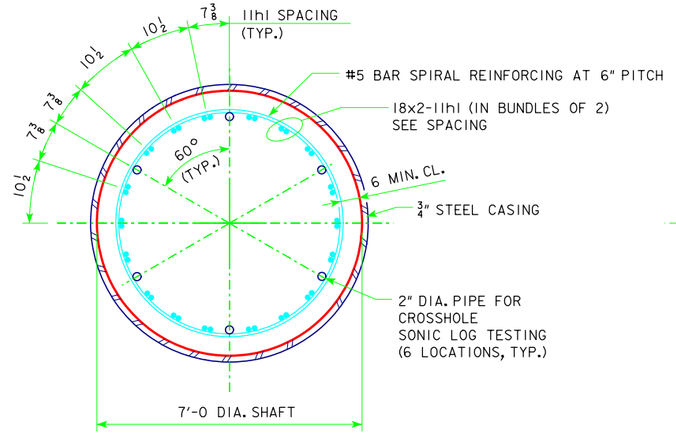
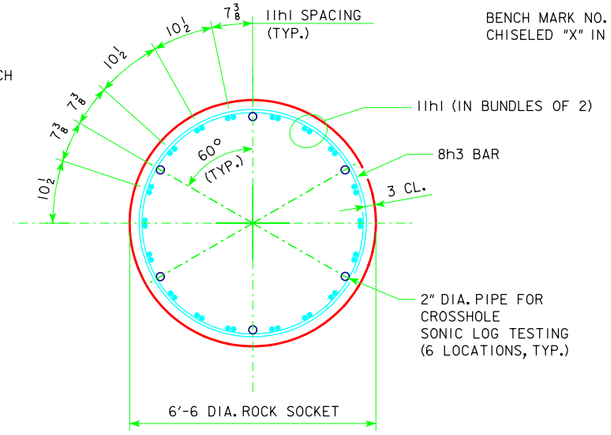
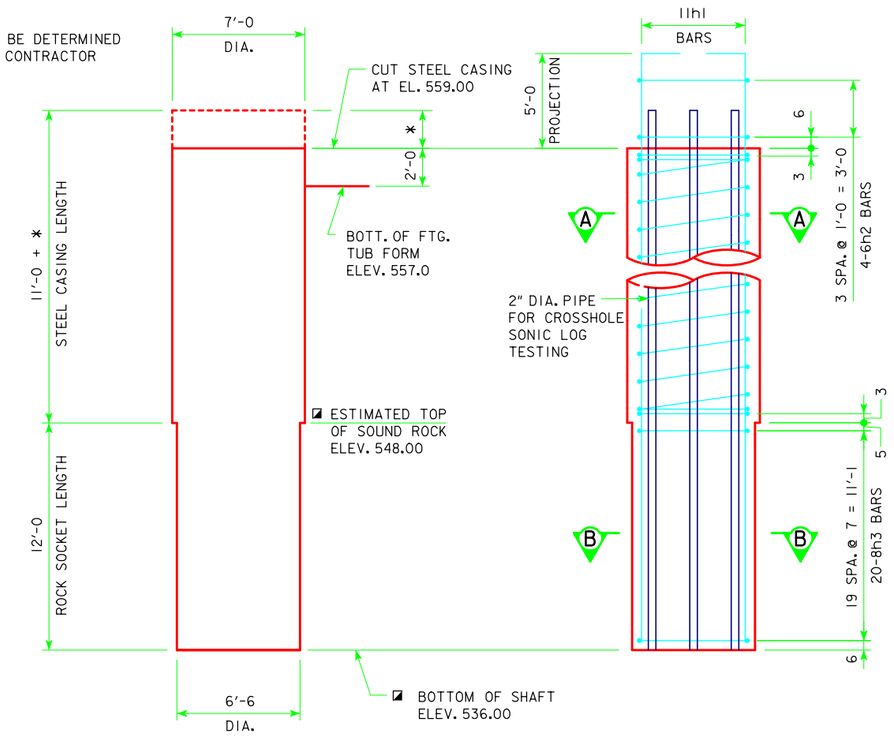


SECTION A-A



SECTION B-B
(ROCK SOCKET)

BENCH MARK NO. 500: STA. 6781+18.95 LT. 161.23' ELEV. 575.797, CHISELED "X" IN BOLT E. SIDE CONCRETE STRUCTURE.



CONCRETE DRILLED SHAFT ELEVATION

NOTES:

HOOKED 11h1 BARS SHALL BE PLACED WITH HOOKS POINTING INWARD TOWARD THE CENTER OF THE DRILLED SHAFT AS SHOWN SO THAT THEY SHALL NOT INTERFERE WITH PLACEMENT OF FOOTING TUB FORM.

SPIRAL REINFORCING IS TO BE NO. 5 BAR WITH 6'-0 OUTSIDE DIAMETER, 0'-6 PITCH WITH 4 EQUALLY SPACED L$\frac{7}{8}\times\frac{7}{8}\times\frac{1}{8}$ SPACERS PUNCHED TO HOLD SPIRALS. SPIRALS ARE TO HAVE 1½ EXTRA TURNS AT EACH END OF THE SPIRAL.

THE SPIRAL REINFORCING MAY BE SPLICED BY LAPPING 2'-2". THE LENGTH OF THE SPIRAL SHOWN DOES NOT INCLUDE THE LAPPED LENGTH OF THE SPLICES. THE COST OF THE LAPS AT SPLICES IS TO BE INCLUDED IN THE PRICE BID FOR OTHER REINFORCING.

6h2 BAR COLUMN TIES SPACED AT 0'-10 CENTERS MAY BE SUBSTITUTED FOR THE SPIRAL REINFORCING. PAYMENT WILL BE BASED ON THE WEIGHT OF SPIRAL REINFORCING. NO ADJUSTMENT IN REINFORCING STEEL PAY WEIGHT WILL BE ALLOWED. SEE BENT BAR DETAILS FOR SPLICE LAP LENGTHS.

IN ROCK SOCKET, TIES ARE TO BE NO. 8 BARS WITH 6'-0 OUTSIDE DIAMETER AT 7 INCH CENTERS. ROTATE LAP LOCATION 90° EVERY LAYER WHEN PLACING DRILLED SHAFT TIES. SUBSTITUTION OF SPIRAL REINFORCING IS NOT ALLOWED IN ROCK SOCKET.

MINIMUM DRILLED SHAFT EMBEDMENT INTO THE ROCK SHALL BE 12'-0.
◪ BOTTOM OF SHAFT ELEVATION, SHAFT LENGTHS AND SHAFT QUANTITIES ARE BASED ON 12'-0 SOCKET INTO SOUND ROCK. REFER TO DRILLED SHAFT SPECIAL PROVISIONS TO DETERMINE CASING LENGTHS. FINAL BOTTOM OF SHAFT ELEVATION, SHAFT LENGTHS AND SHAFT QUANTITIES ARE DEPENDENT ON ROCK ELEVATIONS DETERMINED IN THE FIELD.

DRILLED SHAFT ROCK SOCKET SHALL BE BRUSHED BUT NOT BE GROOVED. THE NOMINAL BEARING RESISTANCE FOR EACH DRILLED SHAFT IS 3318 TONS. THE NOMINAL SIDE RESISTANCE OF EACH DRILLED SHAFT IS 1822 TONS. CONSTRUCTION OF THE DRILLED SHAFTS SHALL BE DONE IN ACCORDANCE WITH SECTION 2433 OF THE STANDARD SPECIFICATIONS.

DESIGNATION "-2WB" SIGNIFIES BAR ASSOCIATED WITH PIER 2 OF THE WESTBOUND (SEGMENT 1, DESIGN NO. 2808) BRIDGE. "-2WB" NOT SHOWN IN DETAILS FOR CLARITY.

DESIGN FOR VARIABLE SKEW

1981'-0 x VARIES CONTINUOUS WELDED GIRDER BRIDGE

148'-0 & 187'-0 END SPANS 150'-0 & 8-187'-0 INTERIOR SPANS

PIER 2 DRILLED SHAFT DETAILS

STA. 6757+10.50 - 47.63' RT. - I-74

100% APPROVED JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 30 OF 309 FILE NO. 30253 DESIGN NO. 2808

DESIGN TEAM RJT/VH/KMP	SCOTT COUNTY	PROJECT NUMBER BRFIM-074-1(197)5--05-82	SHEET NUMBER 31

1/23/2014 6:10:52 AM tsorens pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\8207401003\BRFinal\100 Compiled Approved 2013 Files\Task 900\82074197.brg 822808S030 11x17_pdf.pltcfg
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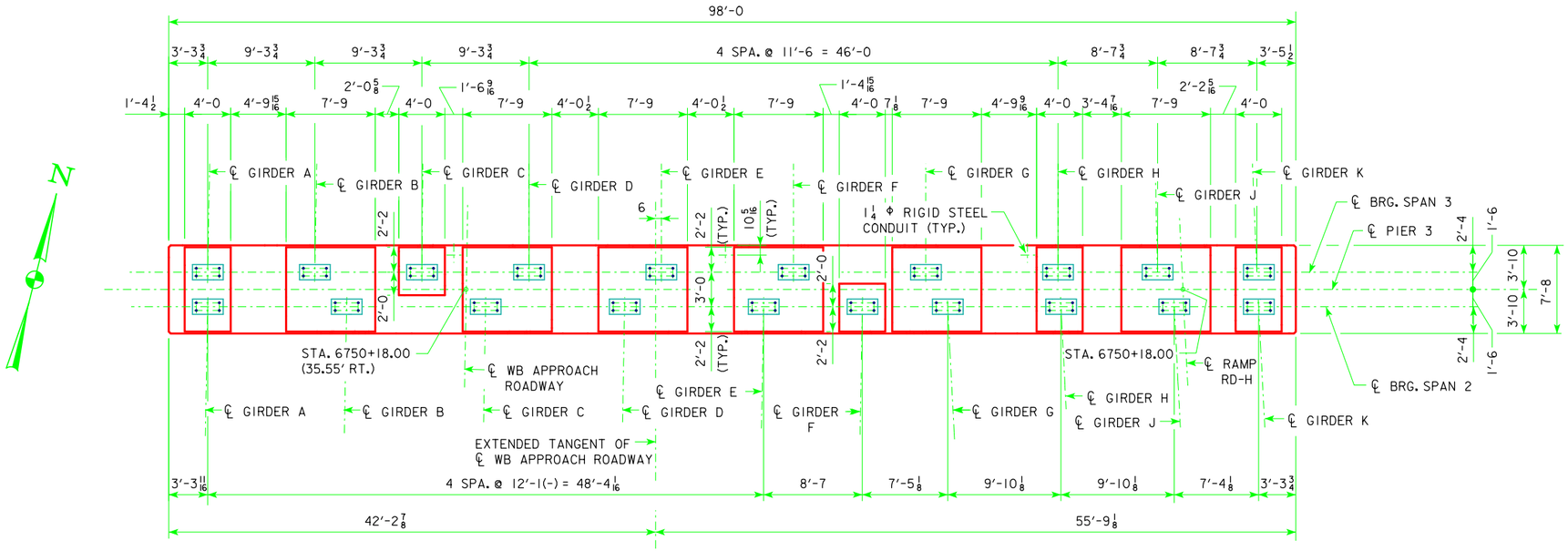
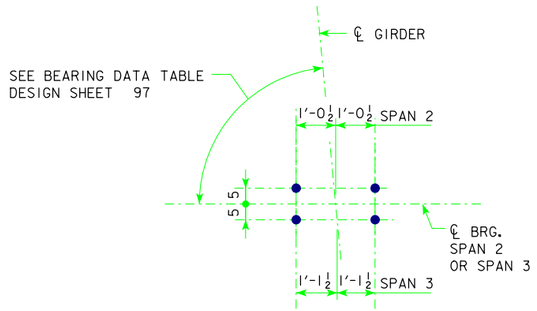
BENCH MARK NO. 500: STA. 6781+18.95 LT. 161.23' ELEV. 575.797, CHISELED "X" IN BOLT E. SIDE CONCRETE STRUCTURE.

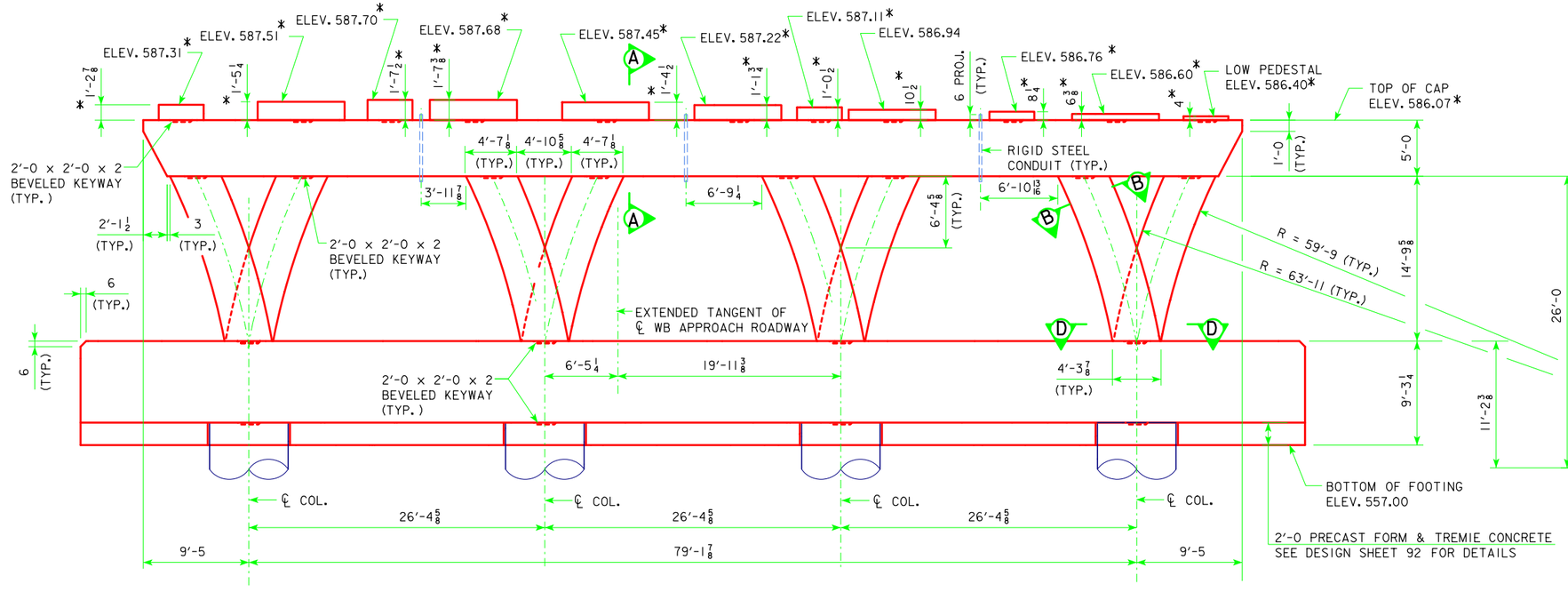


PLAN OF PIER CAP



ANCHOR BOLT LAYOUT

(FOR ADDITIONAL DETAILS AND NOTES, SEE DESIGN SHEETS 93 AND 97)



PIER 3 ELEVATION

(LOOKING NORTH)

NOTES:

1. FOR SECTIONS A-A, B-B & D-D, SEE DESIGN SHEET 34
2. "*" REFERS TO NOTE 2 ON DESIGN SHEET 24.
3. FOR ADDITIONAL NOTES SEE DESIGN SHEET 24.

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DESIGN FOR VARIABLE SKEW

1981'-0 × VARIES CONTINUOUS WELDED GIRDER BRIDGE

148'-0 & 187'-0 END SPANS 150'-0 & 8-187'-0 INTERIOR SPANS

PIER 3 DETAILS

STA. 6757+10.50 - 47.63' RT. - I-74

100% APPROVED JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 32 OF 309 FILE NO. 30253 DESIGN NO. 2808

DESIGN TEAM RJT/VH/KMP	SCOTT COUNTY	PROJECT NUMBER BRFIM-074-1(197)5--05-82	SHEET NUMBER 33

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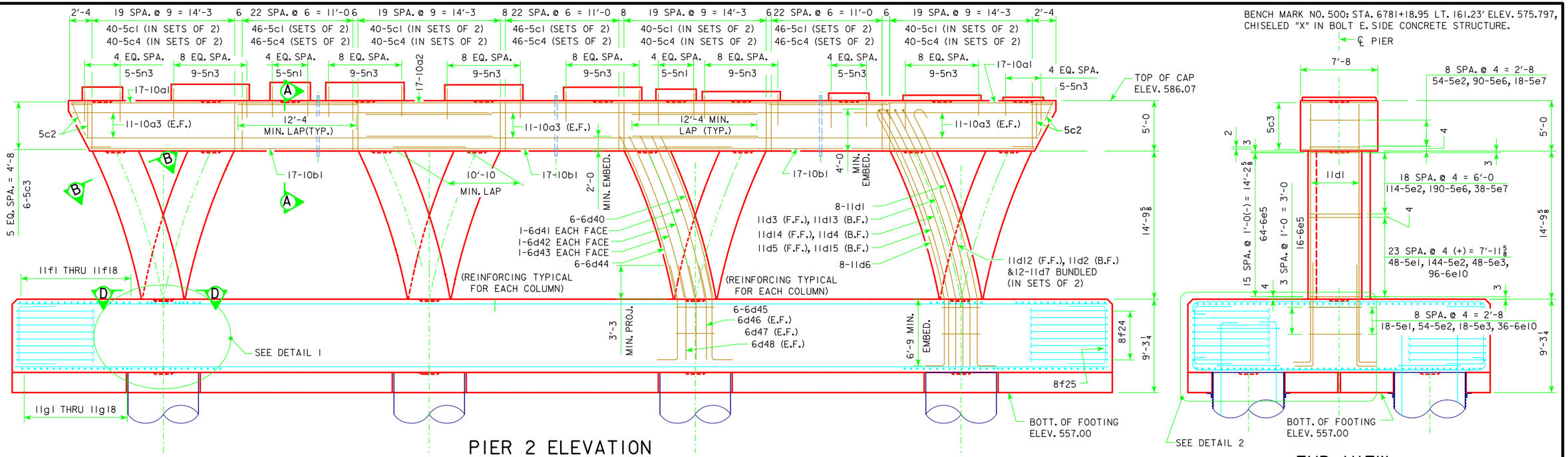


PIER 2 ELEVATION

LOOKING NORTH

BENCH MARK NO. 500: STA. 6781+18.95 LT. 161.23' ELEV. 575.797, CHISELED "X" IN BOLT E. SIDE CONCRETE STRUCTURE.

END VIEW

(OUTER VERTICAL 6d BARS NOT SHOWN FOR CLARITY)

* REFER TO NOTE 2 ON DESIGN SHEET 24.

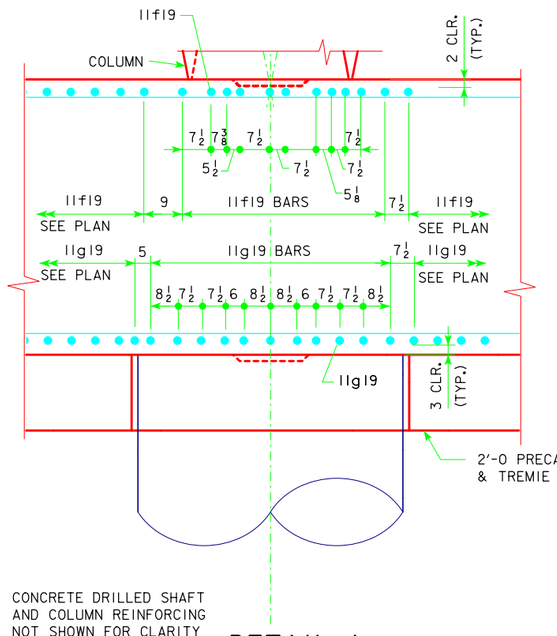
NOTES:

LONGITUDINAL COLUMN BARS SHOWN IN ELEVATION ARE PER ONE ELEMENT OF EACH COLUMN (8 LOCATIONS). COLUMN TIES SHOWN IN END VIEW ARE PER COLUMN (4 LOCATIONS).

SEE DESIGN SHEET 32 FOR DIMENSIONS AND ELEVATIONS.

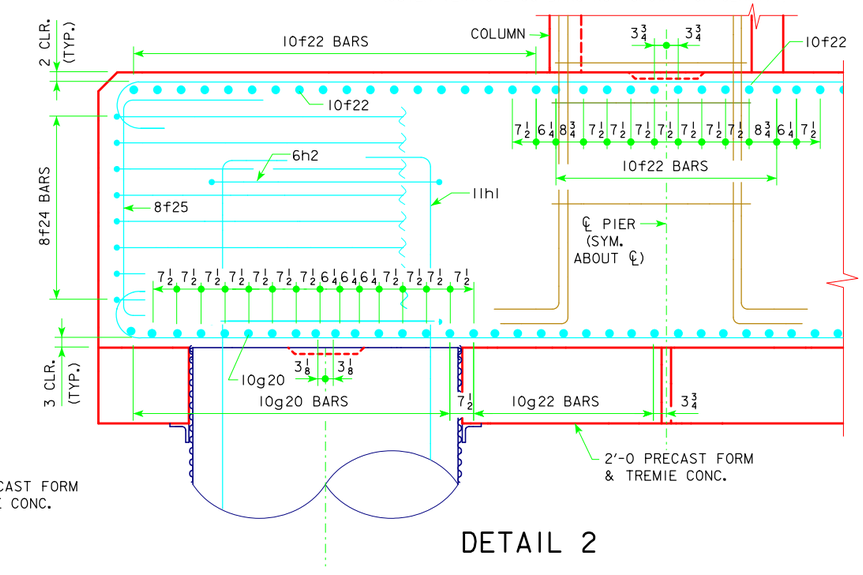
FOR FOOTING REINFORCING DETAILS SEE DESIGN SHEET 36.

SEE DESIGN SHEET 24 FOR ADDITIONAL NOTES.



CONCRETE DRILLED SHAFT AND COLUMN REINFORCING NOT SHOWN FOR CLARITY

DETAIL 1



DETAIL 2

DESIGN FOR VARIABLE SKEW

1981'-0 x VARIES CONTINUOUS WELDED GIRDER BRIDGE

148'-0 & 187'-0 END SPANS 150'-0 & 8-187'-0 INTERIOR SPANS

PIER 3 DETAILS

STA. 6757+10.50 - 47.63' RT. - I-74

100% APPROVED JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 33 OF 309 FILE NO. 30253 DESIGN NO. 2808

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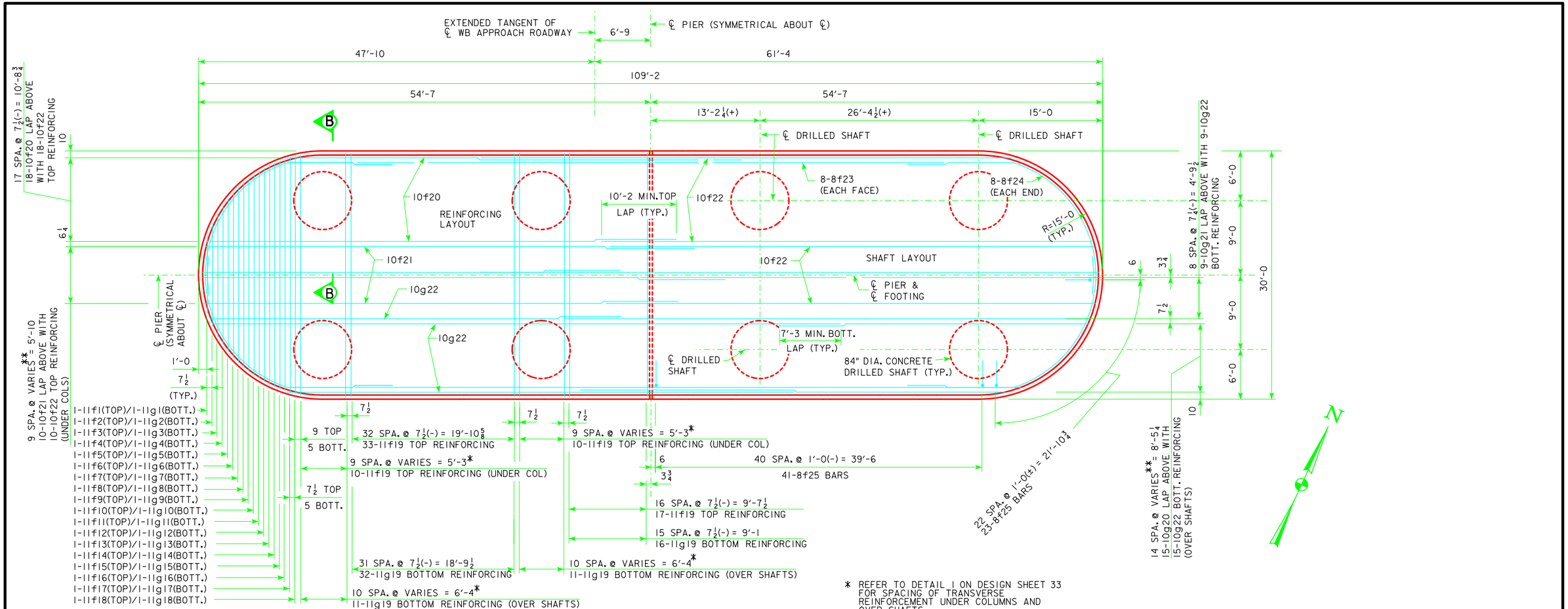
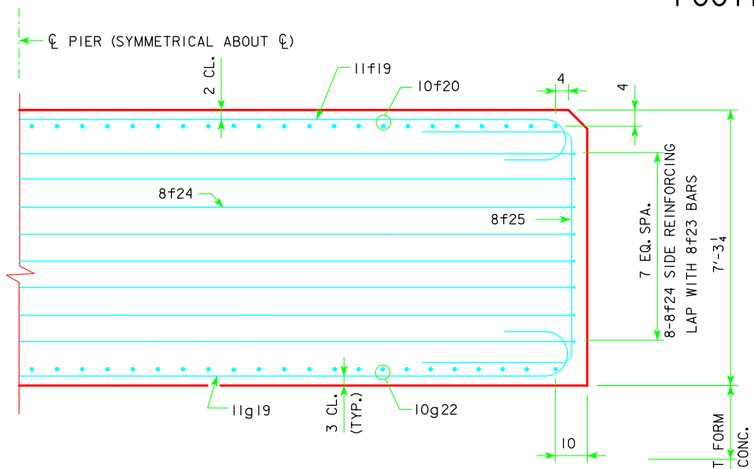


FOOTING PLAN

* REFER TO DETAIL 1 ON DESIGN SHEET 33 FOR SPACING OF TRANSVERSE REINFORCEMENT UNDER COLUMNS AND OVER SHAFTS.

** REFER TO DETAIL 2 ON DESIGN SHEET33 FOR SPACING OF LONGITUDINAL REINFORCEMENT UNDER COLUMNS AND OVER SHAFTS.



SECTION B-B

NOTES:

THE LUMP SUM BID ITEM, "EXCAVATE AND DEWATER" SHALL INCLUDE ALL COSTS ASSOCIATED WITH THE EXCAVATION AND DEWATERING REQUIRED TO CONSTRUCT THE PIER FOOTINGS IN THE DRY, IN ACCORDANCE WITH SECTION 2405 OF THE STANDARD SPECIFICATIONS.

FOR FOOTING FORM DETAILS AND CONSTRUCTION PROCEDURE FOR PLACING THE FOOTING, SEE DESIGN SHEET 92 .
WORK THIS SHEET WITH DESIGN SHEETS 32,33, AND 34.
FOR ADDITIONAL NOTES, SEE DESIGN SHEET 32.

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DESIGN FOR VARIABLE SKEW

1981'-0 x VARIES CONTINUOUS WELDED GIRDER BRIDGE

148'-0 & 187'-0 END SPANS 150'-0 & 8-187'-0 INTERIOR SPANS

PIER 3 FOOTING DETAILS

STA. 6757+10.50 - 47.63' RT. - I-74

100% APPROVED JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 36 OF 309 FILE NO. 30253 DESIGN NO. 2808

DESIGN TEAM RJT/VH/KMP	SCOTT COUNTY	PROJECT NUMBER BRFIM-074-1(197)5--05-82	SHEET NUMBER 37

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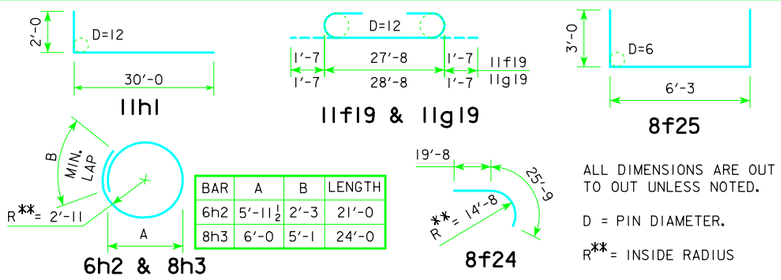
REINFORCING STEEL - PIER 3 FTG.

NON-COATED REINFORCING

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
11f1-3WB	FOOTING, TOP, TRANS.	——	2	4'-4	46
11f2-3WB	FOOTING, TOP, TRANS.	——	2	9'-4	99
11f3-3WB	FOOTING, TOP, TRANS.	——	2	12'-4	131
11f4-3WB	FOOTING, TOP, TRANS.	——	2	14'-8	156
11f5-3WB	FOOTING, TOP, TRANS.	——	2	16'-7	176
11f6-3WB	FOOTING, TOP, TRANS.	——	2	18'-2	193
11f7-3WB	FOOTING, TOP, TRANS.	——	2	19'-7	208
11f8-3WB	FOOTING, TOP, TRANS.	——	2	20'-9	220
11f9-3WB	FOOTING, TOP, TRANS.	——	2	21'-11	233
11f10-3WB	FOOTING, TOP, TRANS.	——	2	22'-10	243
11f11-3WB	FOOTING, TOP, TRANS.	——	2	23'-9	252
11f12-3WB	FOOTING, TOP, TRANS.	——	2	24'-6	260
11f13-3WB	FOOTING, TOP, TRANS.	——	2	25'-2	267
11f14-3WB	FOOTING, TOP, TRANS.	——	2	25'-9	274
11f15-3WB	FOOTING, TOP, TRANS.	——	2	26'-4	280
11f16-3WB	FOOTING, TOP, TRANS.	——	2	26'-9	284
11f17-3WB	FOOTING, TOP, TRANS.	——	2	27'-1	288
11f18-3WB	FOOTING, TOP, TRANS.	——	2	27'-4	290
11f19-3WB	FOOTING, TOP, TRANS.	⊂⊃	140	30'-10	22934
10f20-3WB	FOOTING, TOP, LONGIT.	——	36	58'-0	8985
10f21-3WB	FOOTING, TOP, LONGIT.	——	10	59'-0	2539
10f22-3WB	FOOTING, TOP, LONGIT.	——	46	60'-0	11876
8f23-3WB	FOOTING, SIDE, LONGIT.	——	16	50'-0	2136
8f24-3WB	FOOTING, SIDE, END	⊏	32	45'-5	3880
8f25-3WB	FOOTING, SIDE, VERT.	⊏	256	12'-3	8373
11g1-3WB	FOOTING, BOTT., TRANS.	——	2	8'-9	93
11g2-3WB	FOOTING, BOTT., TRANS.	——	2	12'-0	128
11g3-3WB	FOOTING, BOTT., TRANS.	——	2	14'-6	154
11g4-3WB	FOOTING, BOTT., TRANS.	——	2	16'-6	175
11g5-3WB	FOOTING, BOTT., TRANS.	——	2	18'-2	193
11g6-3WB	FOOTING, BOTT., TRANS.	——	2	19'-8	209
11g7-3WB	FOOTING, BOTT., TRANS.	——	2	21'-0	223
11g8-3WB	FOOTING, BOTT., TRANS.	——	2	22'-2	236
11g9-3WB	FOOTING, BOTT., TRANS.	——	2	23'-2	246
11g10-3WB	FOOTING, BOTT., TRANS.	——	2	24'-1	256
11g11-3WB	FOOTING, BOTT., TRANS.	——	2	24'-11	265
11g12-3WB	FOOTING, BOTT., TRANS.	——	2	25'-8	273
11g13-3WB	FOOTING, BOTT., TRANS.	——	2	26'-4	280
11g14-3WB	FOOTING, BOTT., TRANS.	——	2	26'-11	286
11g15-3WB	FOOTING, BOTT., TRANS.	——	2	27'-5	291
11g16-3WB	FOOTING, BOTT., TRANS.	——	2	27'-10	296
11g17-3WB	FOOTING, BOTT., TRANS.	——	2	28'-1	298
11g18-3WB	FOOTING, BOTT., TRANS.	——	2	28'-4	301
11g19-3WB	FOOTING, BOTT., TRANS.	⊂⊃	140	31'-10	23678
10g20-3WB	FOOTING, BOTT., LONGIT.	——	30	57'-0	7358
10g21-3WB	FOOTING, BOTT., LONGIT.	——	18	60'-0	4647
10g22-3WB	FOOTING, BOTT., LONGIT.	——	48	56'-0	11566
11h1-3WB	DRILLED SHAFT, LONGIT.	└─	288	32'-0	48965
6h2-3WB	DRILLED SHAFT TIES	○	32	21'-0	1009
8h3-3WB	DRILLED SHAFT TIES	○	160	24'-0	10253
	NO. 5 SHAFT SPIRAL	∿∿∿	8	546'-8	4561
	SPIRAL SPACERS, L$\frac{7}{8}\times\frac{7}{8}\times\frac{1}{8}$	——	32	13'-0	291
	REINFORCING STEEL - TOTAL (LBS.)				181158

BENT BAR DETAILS

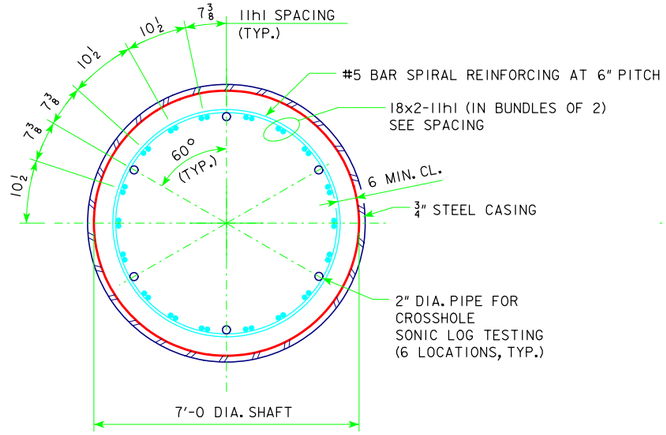


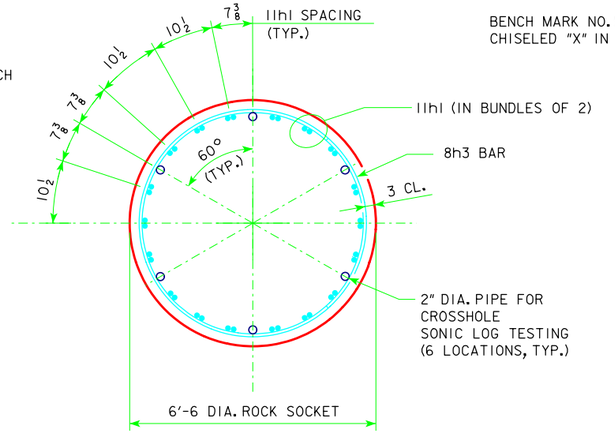
BAR	A	B	LENGTH
6h2	5'-11½	2'-3	21'-0
8h3	6'-0	5'-1	24'-0

ALL DIMENSIONS ARE OUT TO OUT UNLESS NOTED.

D = PIN DIAMETER.

R** = INSIDE RADIUS

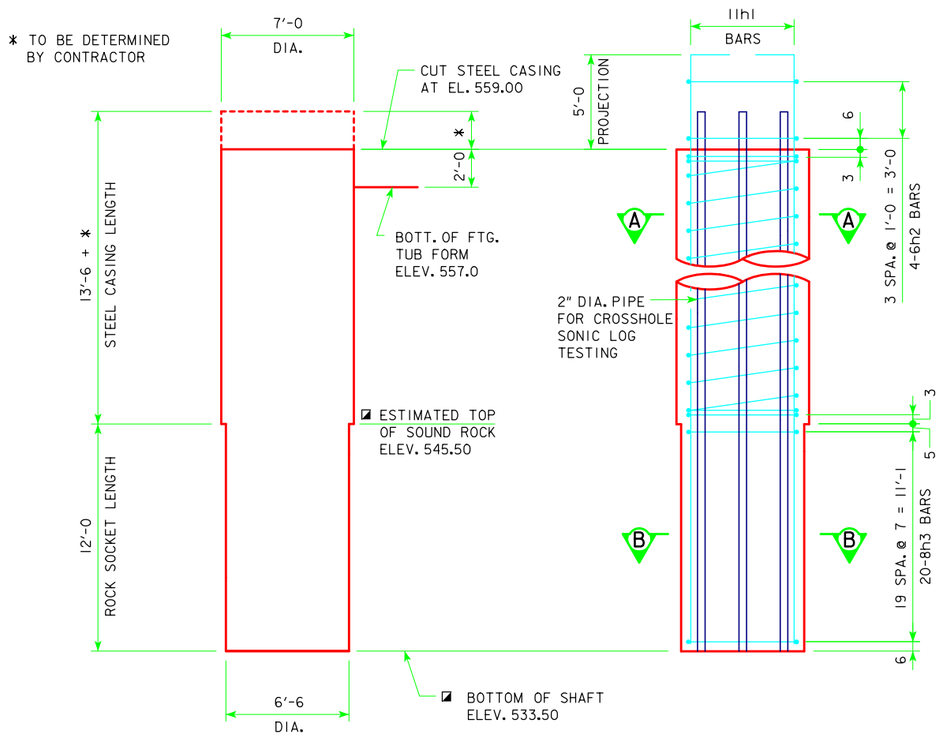




BENCH MARK NO. 500: STA. 6781+18.95 LT. 161.23' ELEV. 575.797, CHISELED "X" IN BOLT E. SIDE CONCRETE STRUCTURE.

SECTION A-A

SECTION B-B
(ROCK SOCKET)



CONCRETE DRILLED SHAFT ELEVATION

NOTES:

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DESIGNATION "-3WB" SIGNIFIES BAR ASSOCIATED WITH PIER 3 OF THE WESTBOUND (SEGMENT 1, DESIGN NO. 2808) BRIDGE. "-3WB" NOT SHOWN IN DETAILS FOR CLARITY.

DESIGN FOR VARIABLE SKEW

1981'-0 x VARIES CONTINUOUS WELDED GIRDER BRIDGE

148'-0 & 187'-0 END SPANS 150'-0 & 8-187'-0 INTERIOR SPANS

PIER 3 DRILLED SHAFT DETAILS

STA. 6757+10.50 - 47.63' RT. - I-74

100% APPROVED JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 37 OF 309 FILE NO. 30253 DESIGN NO. 2808

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DESIGN FOR VARIABLE SKEW

1981'-0 × VARIES CONTINUOUS WELDED GIRDER BRIDGE

148'-0 & 187'-0 END SPANS 150'-0 & 8-187'-0 INTERIOR SPANS

PIER 2 SOIL PROFILE SHEET

STA. 6757+10.50 - 47.63' RT. - I-74

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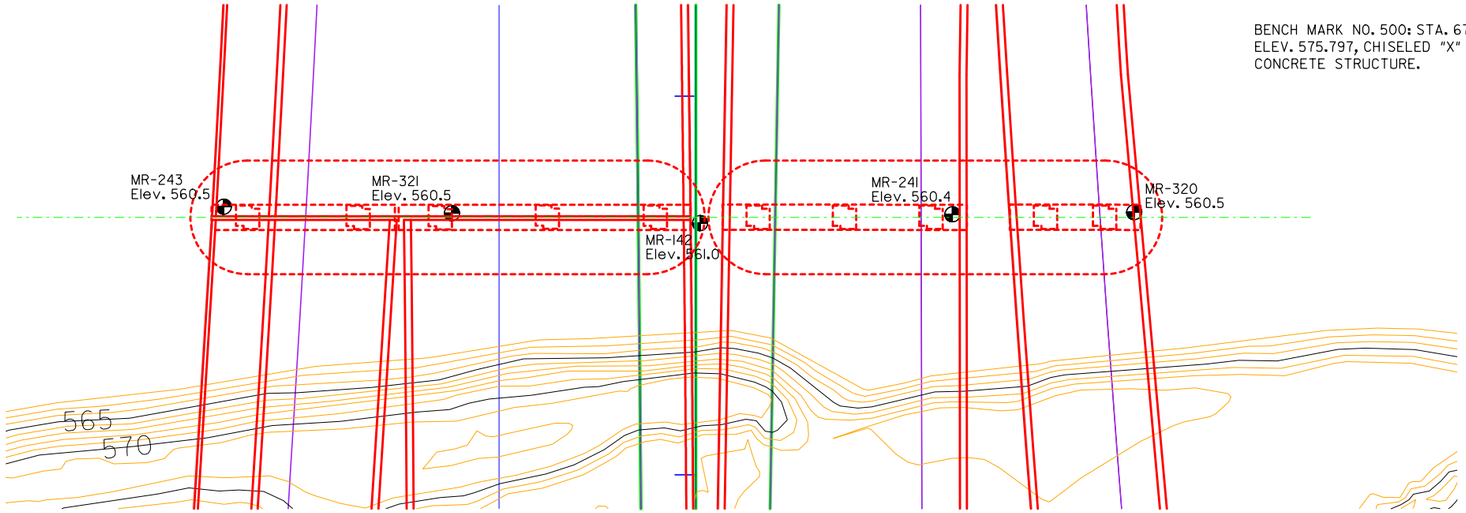
JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 2 OF 9 FILE NO. 30253 DESIGN NO. 2808

BENCH MARK NO. 500: STA. 6781+18.95 LT. 161.23'
ELEV. 575.797, CHISELED "X" IN BOLT E. SIDE
CONCRETE STRUCTURE.



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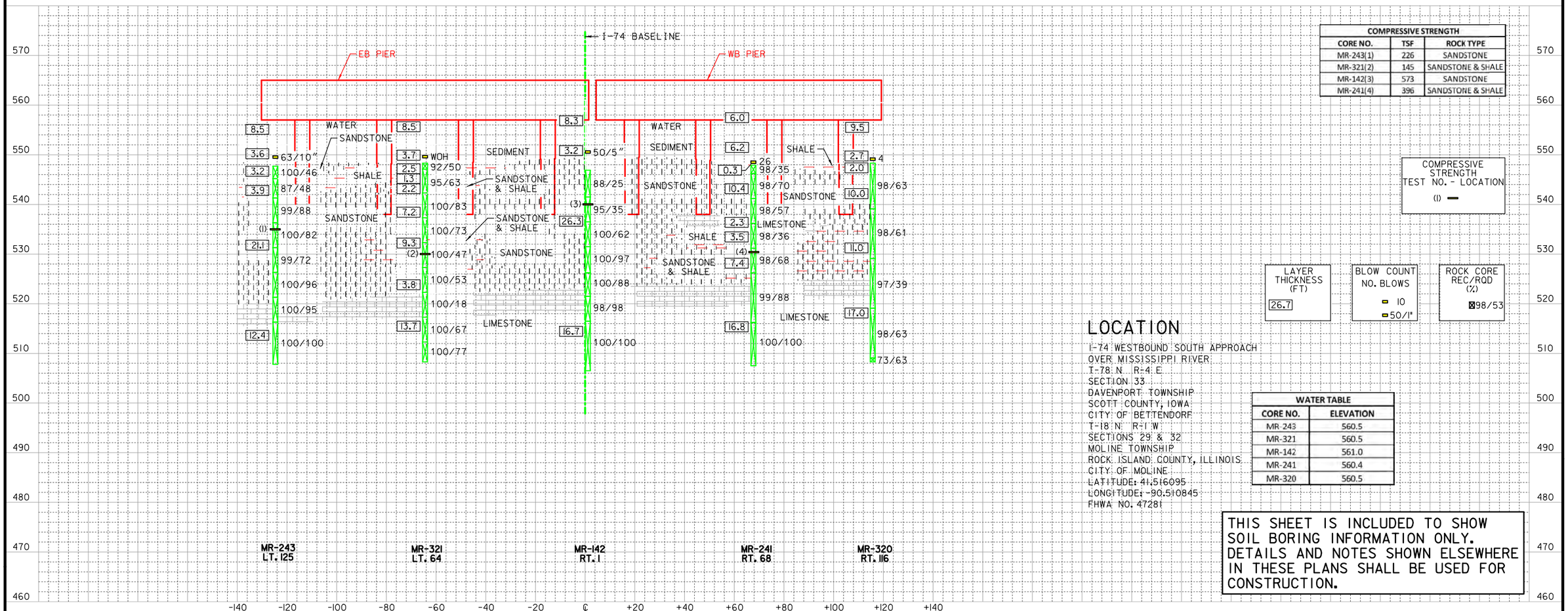

COMPRESSIVE STRENGTH		
CORE NO.	TSF	ROCK TYPE
MR-243(1)	226	SANDSTONE
MR-321(2)	145	SANDSTONE & SHALE
MR-142(3)	573	SANDSTONE
MR-241(4)	396	SANDSTONE & SHALE

COMPRESSIVE STRENGTH
TEST NO. - LOCATION
(1) —

LAYER THICKNESS (FT)
26.7

BLOW COUNT NO. BLOWS
- 10
- 50/1"

ROCK CORE REC/RQD (%)
☒98/53

LOCATION

I-74 WESTBOUND SOUTH APPROACH
OVER MISSISSIPPI RIVER
T-78 N R-4 E
SECTION 33
DAVENPORT TOWNSHIP
SCOTT COUNTY, IOWA
CITY OF BETTENDORF
T-18 N R-1 W
SECTIONS 29 & 32
MOLINE TOWNSHIP
ROCK ISLAND COUNTY, ILLINOIS
CITY OF MOLINE
LATITUDE: 41.516095
LONGITUDE: -90.510845
FHWA NO. 47281

WATER TABLE	
CORE NO.	ELEVATION
MR-243	560.5
MR-321	560.5
MR-142	561.0
MR-241	560.4
MR-320	560.5

THIS SHEET IS INCLUDED TO SHOW SOIL BORING INFORMATION ONLY. DETAILS AND NOTES SHOWN ELSEWHERE IN THESE PLANS SHALL BE USED FOR CONSTRUCTION.

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DESIGN FOR VARIABLE SKEW

1981'-0 × VARIES CONTINUOUS WELDED GIRDER BRIDGE

148'-0 & 187'-0 END SPANS 150'-0 & 8-187'-0 INTERIOR SPANS

PIER 3 SOIL PROFILE SHEET

STA. 6757+10.50 - 47.63' RT. - I-74

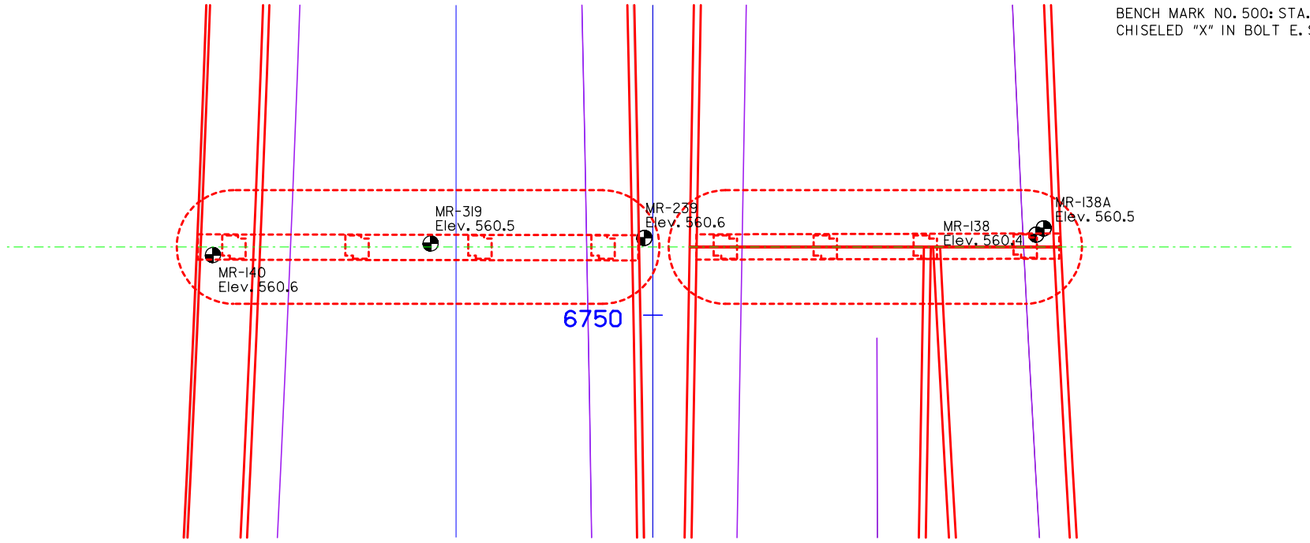
100% APPROVED
JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 3 OF 9 FILE NO. 30253 DESIGN NO. 2808

BENCH MARK NO. 500: STA. 6781+18.95 LT. 161.23' ELEV. 575.797, CHISELED "X" IN BOLT E. SIDE CONCRETE STRUCTURE.



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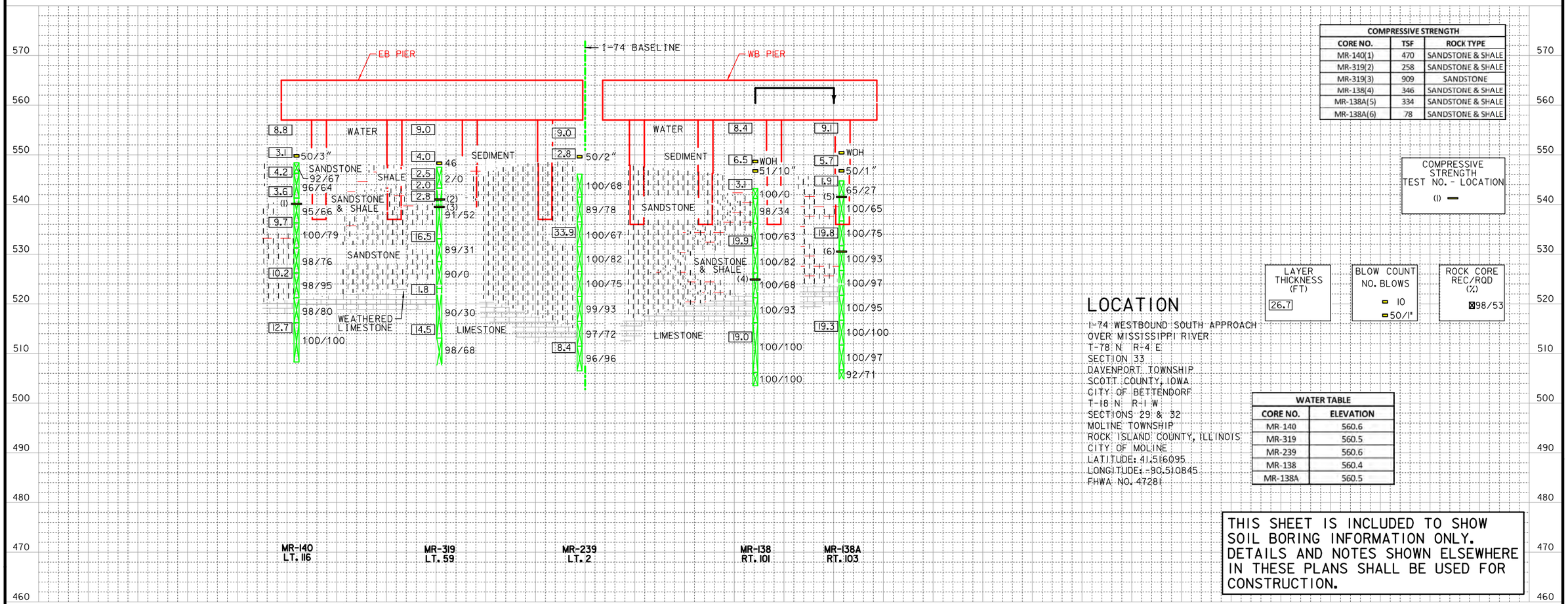

COMPRESSIVE STRENGTH		
CORE NO.	TSF	ROCK TYPE
MR-140(1)	470	SANDSTONE & SHALE
MR-319(2)	258	SANDSTONE & SHALE
MR-319(3)	909	SANDSTONE
MR-138(4)	346	SANDSTONE & SHALE
MR-138A(5)	334	SANDSTONE & SHALE
MR-138A(6)	78	SANDSTONE & SHALE

COMPRESSIVE STRENGTH TEST NO. - LOCATION
(1) —

LAYER THICKNESS (FT)
26.7

BLOW COUNT NO. BLOWS
10
50/1"

ROCK CORE REC/RQD (%)
98/53

LOCATION

I-74 WESTBOUND SOUTH APPROACH
OVER MISSISSIPPI RIVER
T-78 N R-4 E
SECTION 33
DAVENPORT TOWNSHIP
SCOTT COUNTY, IOWA
CITY OF BETTENDORF
T-18 N R-1 W
SECTIONS 29 & 32
MOLINE TOWNSHIP
ROCK ISLAND COUNTY, ILLINOIS
CITY OF MOLINE
LATITUDE: 41.516095
LONGITUDE: -90.510845
FHWA NO. 47281

WATER TABLE	
CORE NO.	ELEVATION
MR-140	560.6
MR-319	560.5
MR-239	560.6
MR-138	560.4
MR-138A	560.5

THIS SHEET IS INCLUDED TO SHOW SOIL BORING INFORMATION ONLY. DETAILS AND NOTES SHOWN ELSEWHERE IN THESE PLANS SHALL BE USED FOR CONSTRUCTION.

1/23/2014 6:23:23 AM tsorens pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\8207401003\BRFinal\100 Compiled Approved 2013 Files\Task 900\82074197.brg 822808SPS3 11x17_pdf.pltcfg
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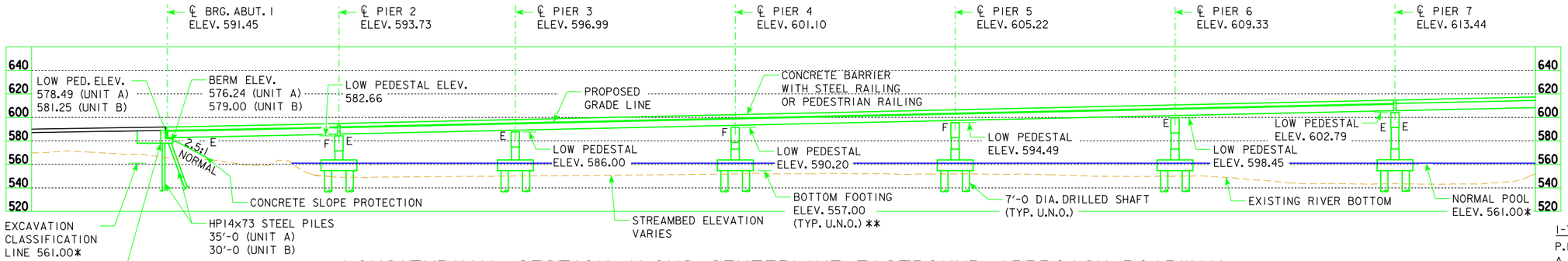
BENCH MARK NO.:500 STA. 6781+18.95 LT. 161.23'
ELEV. 575.797, CHISELED "X" IN BOLT E. SIDE
CONCRETE STRUCTURE

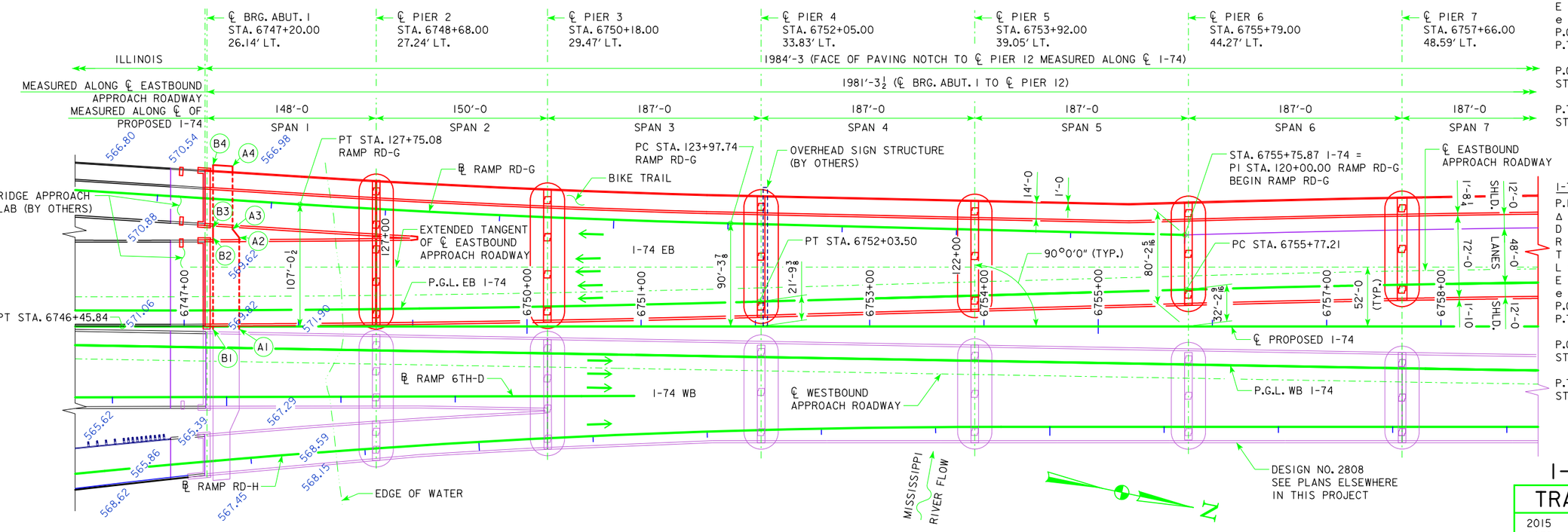


RAMP RD-G CURVE DATA
P.I. STA. = 125+86.43
Δ = 02°09'43" RT
D = 00°34'23"
R = 10,000.000'
T = 188.69'
L = 377.33'
E = 1.78'
e = N.C.
P.C. STA. = 123+97.74
P.T. STA. = 127+75.08

LONGITUDINAL SECTION ALONG CENTERLINE EASTBOUND APPROACH ROADWAY

NOTE: ELEVATIONS SHOWN ARE AT CENTERLINE EASTBOUND APPROACH ROADWAY.
** BOTTOM OF FOOTING ELEVATION IS TO THE BOTTOM OF THE CONCRETE STAY-IN-PLACE FORM SLAB.

I-74 EB P.G.L. CURVE DATA
P.I. STA. = 26747+52.49
Δ = 02°35'56" LT.
D = 00°17'12"
R = 19,986.00'
T = 453.35'
L = 906.55'
E = 5.14'
e = N.C.
P.C. STA. = 26742+99.14
P.T. STA. = 26752+05.69



I-74 EB P.G.L. CURVE DATA
P.I. STA. = 26758+58.62
Δ = 01°35'56" RT.
D = 00°17'11"
R = 20,000.00'
T = 279.08'
L = 558.12'
E = 1.95'
e = N.C.
P.C. STA. = 26755+79.54
P.T. STA. = 26761+37.66

P.C. STA. 26755+79.54 I-74 EB P.G.L.=
STA. 6755+77.21, 32.21' LT. ℄ I-74

P.T. STA. 26761+37.66 I-74 EB P.G.L.=
STA. 6761+35.26, 40.00' LT. ℄ I-74

SITUATION PLAN - SEGMENT 2

I-74 EASTBOUND TRAFFIC ESTIMATE

2015	AADT	44,020	V.P.D.
2035	AADT	52,160	V.P.D.
2035	DHV	4,850	V.P.H.
TRUCKS		5	%

BERM SLOPE LOCATION TABLE

	ABUTMENT NO. 1		
	STATION	OFFSET	ELEVATION
A1	6747+48.15	2.26' RT.	570.85
A2	6747+48.15	77.74' LT.	570.05
A3	6747+42.35	85.22' LT.	569.97
A4	6747+42.35	140.33' LT.	569.42
B1	6747+25.25	2.26' RT.	578.75
B2	6747+25.25	77.66' LT.	578.75
B3	6747+25.25	86.30' LT.	575.99
B4	6747+25.25	141.41' LT.	575.99

NOTES:

U.N.O. - DENOTES "UNLESS NOTED OTHERWISE"

E - DENOTES "EXPANSION BEARING"

F - DENOTES "FIXED BEARING"

WORK THIS SHEET WITH DESIGN SHEET 4.

FOR ADDITIONAL NOTES, SEE DESIGN SHEET 4.

LOCATION

I-74 EASTBOUND SOUTH APPROACH
OVER MISSISSIPPI RIVER
T-78 N R-4 E
SECTION 33
DAVENPORT TOWNSHIP
SCOTT COUNTY, IOWA
CITY OF BETTENDORF
T-18 N R-1 W
SECTIONS 29 & 32
MOLINE TOWNSHIP
ROCK ISLAND COUNTY, ILLINOIS
CITY OF MOLINE
LATITUDE = 41.515940
LONGITUDE = -90.510837
FHWA NO. 47291

DESIGN FOR 0° SKEW

1981'-0 x VARI. CONTINUOUS WELDED GIRDER BRIDGE W/14' BIKE TRAIL

148'-0 & 187'-0 END SPANS 150'-0 & 8-187'-0 INTERIOR SPANS

SITUATION PLAN

STA. 6757+10.50 - 47.49' LT. - I-74

100% APPROVED
JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 3 OF 350 FILE NO. 30253 DESIGN NO. 2908

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312-565-0450 Job No. 10061

DESIGN TEAM DMS/DMS/KWS | SCOTT COUNTY | PROJECT NUMBER BRFIM-074-1(197)5--05-82 | SHEET NUMBER 314

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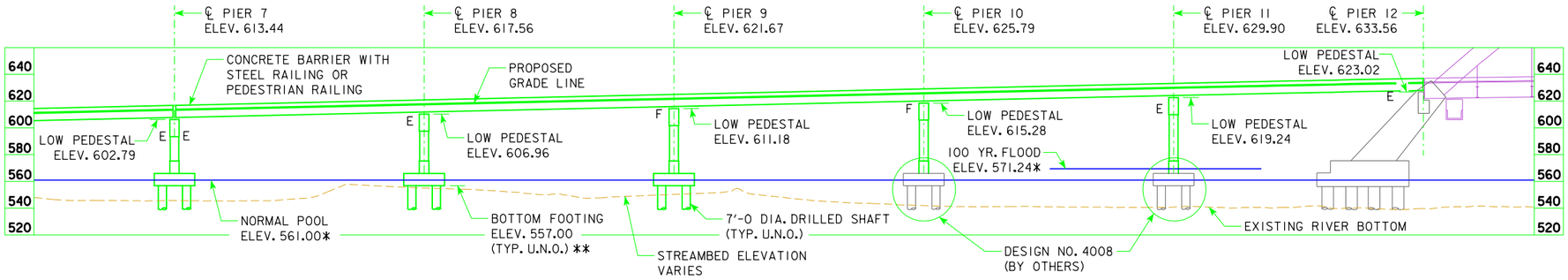
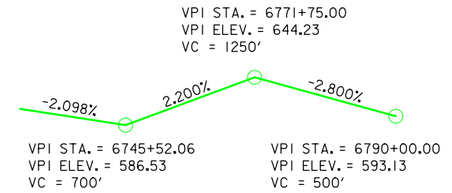
CHISELED "X" IN BOLT E. SIDE CONCRETE STRUCTURE.

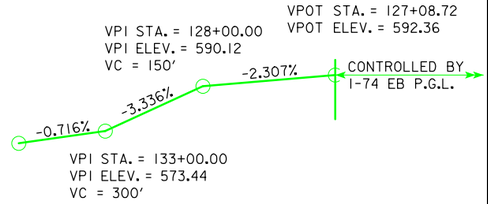


LONGITUDINAL SECTION ALONG CENTERLINE EASTBOUND APPROACH ROADWAY

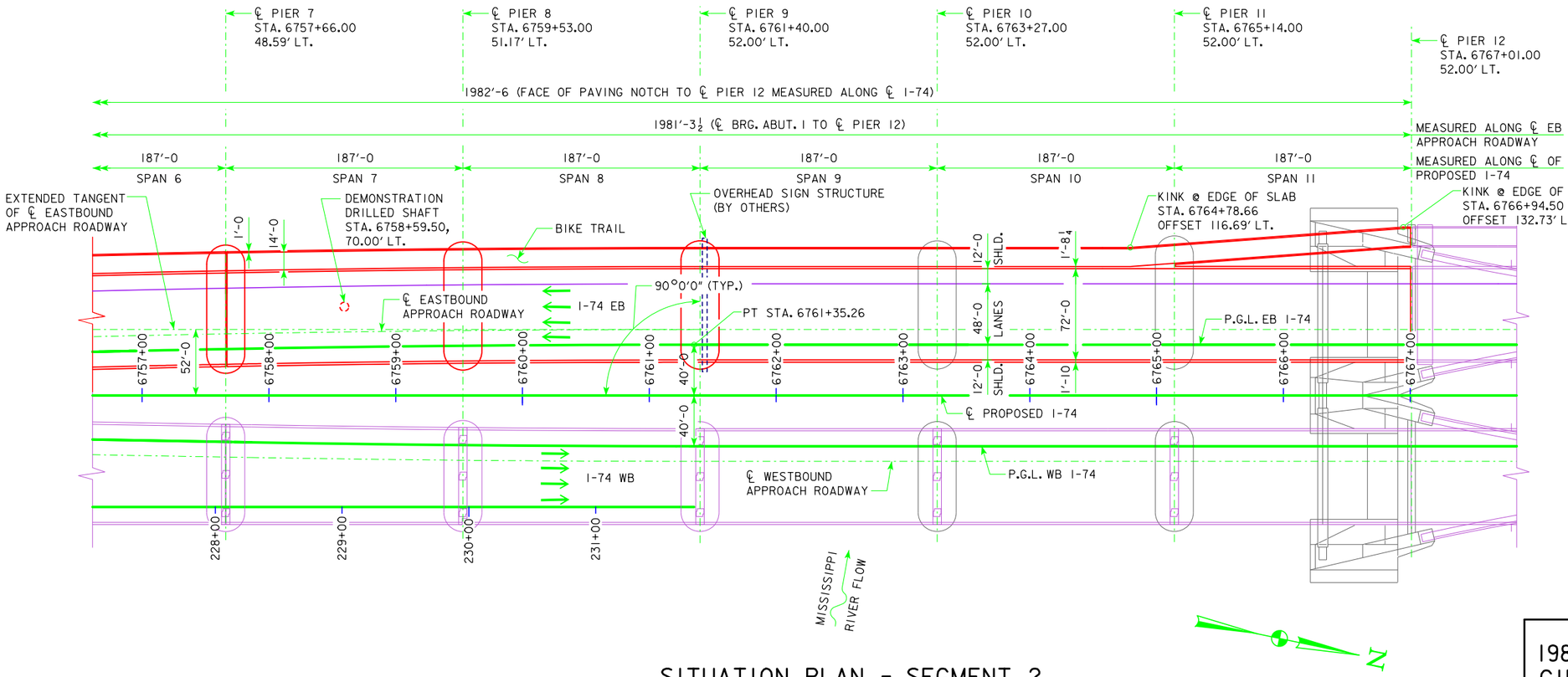
NOTE: ELEVATIONS SHOWN ARE AT CENTERLINE EASTBOUND APPROACH ROADWAY.
** BOTTOM OF FOOTING ELEVATION IS TO THE BOTTOM OF THE CONCRETE STAY-IN-PLACE FORM SLAB.



PROPOSED PROFILE GRADE I-74 EB



PROPOSED PROFILE GRADE RAMP RD-G



SITUATION PLAN - SEGMENT 2

NOTES:

ALL DIMENSIONS ARE SHOWN IN FEET.

WORK THIS SHEET WITH DESIGN SHEET 3.

STATIONS ARE MEASURED ALONG ℄ PROPOSED I-74.

FOR HYDRAULIC DATA SEE DESIGN SHEET 5.

FOR DRAIN LOCATIONS, SEE DESIGN SHEETS 315 AND 316.

FOR LOCATIONS AND DETAILS OF CONDUIT AND LIGHT POLES, SEE DESIGN SHEETS 272 THRU 283 .

FOR SOIL BORING LOCATIONS, SEE SHEETS SPS.10 THRU SPS.18.

ELEVATIONS AND OFFSETS ARE GIVEN TO THE CENTERLINE EASTBOUND APPROACH ROADWAY UNLESS NOTED OTHERWISE.

ELEVATIONS SHOWN ARE BASED ON NAVD 88 DATUM UNLESS NOTED OTHERWISE.

* ELEVATIONS BASED ON NGVD 1912 DATUM.

DESIGN FOR 0° SKEW

1981'-0 x VARI. CONTINUOUS WELDED GIRDER BRIDGE W/14' BIKE TRAIL

148'-0 & 187'-0 END SPANS 150'-0 & 8-187'-0 INTERIOR SPANS

SITUATION PLAN

STA. 6757+10.50 - 47.49' LT. - I-74

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SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 4 OF 350 FILE NO. 30253 DESIGN NO. 2908

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312-565-0450 Job No. 10061

DESIGN TEAM	DMS/DMS/KWS	SCOTT COUNTY	PROJECT NUMBER BRFIM-074-1(197)5--05-82	SHEET NUMBER 315

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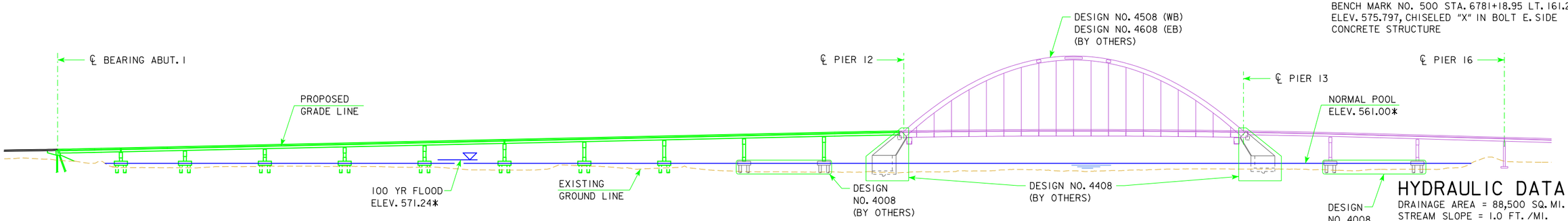
ELEV. 575.797, CHISELED "X" IN BOLT E. SIDE
CONCRETE STRUCTURE



LONGITUDINAL SECTION ALONG CENTERLINE EASTBOUND AND WESTBOUND APPROACH ROADWAY

NOTE: PIERS NOT SHOWN SKEWED FOR CLARITY.

ELEVATIONS SHOWN ARE BASED ON NAVD 88 DATUM UNLESS NOTED OTHERWISE.

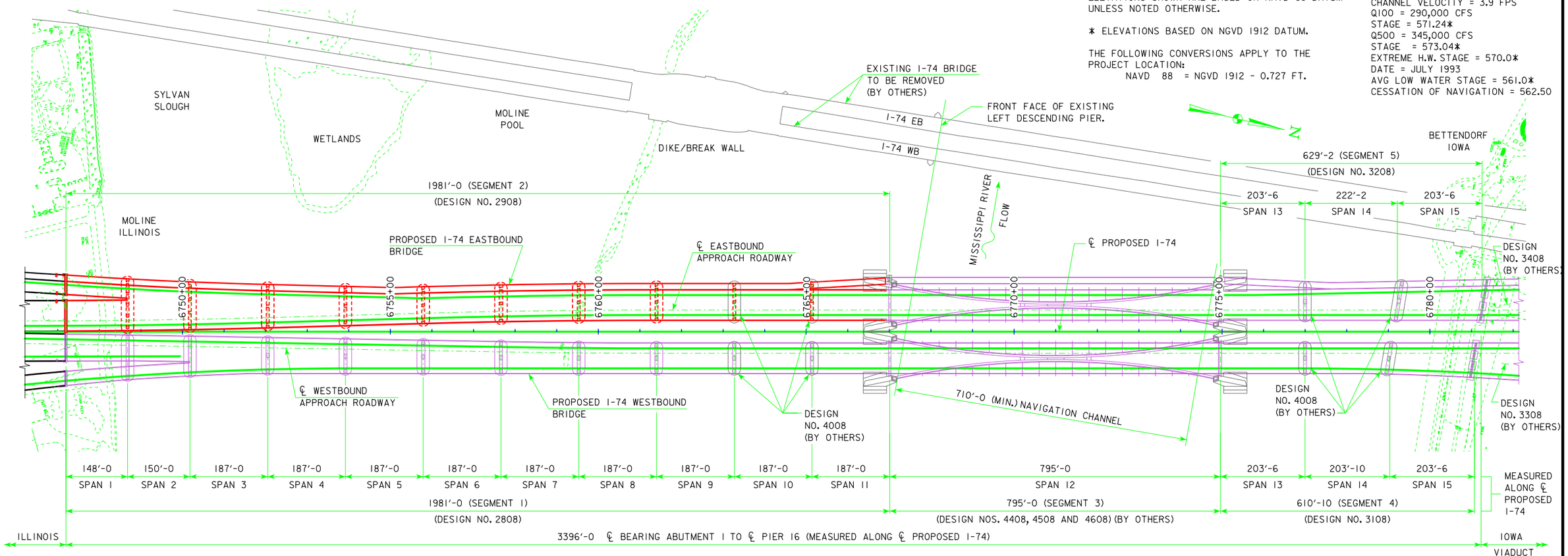
* ELEVATIONS BASED ON NGVD 1912 DATUM.

THE FOLLOWING CONVERSIONS APPLY TO THE PROJECT LOCATION:
NAVD 88 = NGVD 1912 - 0.727 FT.

HYDRAULIC DATA

DRAINAGE AREA = 88,500 SQ. MI.
STREAM SLOPE = 1.0 FT. /MI.

Q2 = 134,000 CFS
STAGE = 563.63*
CHANNEL VELOCITY = 3.9 FPS
Q100 = 290,000 CFS
STAGE = 571.24*
Q500 = 345,000 CFS
STAGE = 573.04*
EXTREME H.W. STAGE = 570.0*
DATE = JULY 1993
AVG LOW WATER STAGE = 561.0*
CESSATION OF NAVIGATION = 562.50



SCOUR DATA - EASTBOUND

CALC. SCOUR PIER 2 = 546.90
CALC. SCOUR PIER 3 = 546.40
CALC. SCOUR PIER 4 = 547.40
CALC. SCOUR PIER 5 = 548.90
CALC. SCOUR PIER 6 (E. END) = 546.40
CALC. SCOUR PIER 6 (W. END) = 543.90
CALC. SCOUR PIER 7 = 541.90
CALC. SCOUR PIER 8 = 539.40
CALC. SCOUR PIER 9 = 540.90
CALC. SCOUR PIER 10 = 537.90
CALC. SCOUR PIER 11 (E. END) = 529.90
CALC. SCOUR PIER 11 (W. END) = 535.90
CALC. SCOUR PIER 12 = 533.90
CALC. SCOUR PIER 13 (E. END) = 547.90
CALC. SCOUR PIER 13 (W. END) = 544.90
CALC. SCOUR PIER 14 (E. END) = 540.90
CALC. SCOUR PIER 14 (W. END) = 542.90
CALC. SCOUR PIER 15 = 546.40
CALCULATED SCOUR ELEV. (100 YR.) = MAXIMUM SCOUR ELEVATION (500 YR.)

GENERAL PLAN

SCOUR DATA - WESTBOUND

CALC. SCOUR PIER 2 = 546.90
CALC. SCOUR PIER 3 = 544.40
CALC. SCOUR PIER 4 = 547.40
CALC. SCOUR PIER 5 = 547.90
CALC. SCOUR PIER 6 (E. END) = 542.90
CALC. SCOUR PIER 6 (W. END) = 547.90
CALC. SCOUR PIER 7 = 543.40
CALC. SCOUR PIER 8 = 538.90
CALC. SCOUR PIER 9 = 538.90
CALC. SCOUR PIER 10 (E. END) = 534.90
CALC. SCOUR PIER 10 (W. END) = 537.90
CALC. SCOUR PIER 11 (E. END) = 539.90
CALC. SCOUR PIER 11 (W. END) = 534.90
CALC. SCOUR PIER 12 = 535.90
CALC. SCOUR PIER 13 = 546.90
CALC. SCOUR PIER 14 = 541.90
CALC. SCOUR PIER 15 = 543.90
CALCULATED SCOUR ELEV. (100 YR.) = MAXIMUM SCOUR ELEVATION (500 YR.)

HYDRAULIC NOTES:

1. ALL RIVER ELEVATIONS ARE NGVD 1912 DATUM AND TAKEN AT RIVER MILE 486, JUST UPSTREAM FROM THE PROPOSED BRIDGE. THE RIVER ELEVATIONS COME FROM THE PROPOSED BRIDGE CONFIGURATION MODELED WITH FESWMS, A 2D DEPTH-AVERAGED HYDRAULIC MODEL.

2. THE AVERAGE LOW WATER STAGE IS THE SAME AS THE NORMAL POOL STAGE IN THE LOCK AND DAM 15 NAVIGATION POOL.

3. THE SCOUR CALCULATIONS WERE COMPUTED FOLLOWING HEC-18 PROCEDURES INSIDE OF A HEC-RAS BACKWATER MODEL SEPARATE FROM THE FESWMS MODEL REFERENCED IN HYDRAULIC NOTE 1. THE ENGINEERS CERTIFICATION PERTAINING TO THE HYDRAULIC DATA DOES NOT COVER THE SCOUR DATA.

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DESIGN FOR 0° SKEW

1981'-0 x VARI. CONTINUOUS WELDED GIRDER BRIDGE W/14' BIKE TRAIL

148'-0 & 187'-0 END SPANS 150'-0 & 8-187'-0 INTERIOR SPANS

GENERAL PLAN

STA. 6757+10.50 - 47.49' LT. - I-74

100% APPROVED
JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 5 OF 350 FILE NO. 30253 DESIGN NO. 2908

DESIGN TEAM DMS/DMS/KWS | SCOTT COUNTY | PROJECT NUMBER BRFIM-074-1(197)5--05-82 | SHEET NUMBER 316

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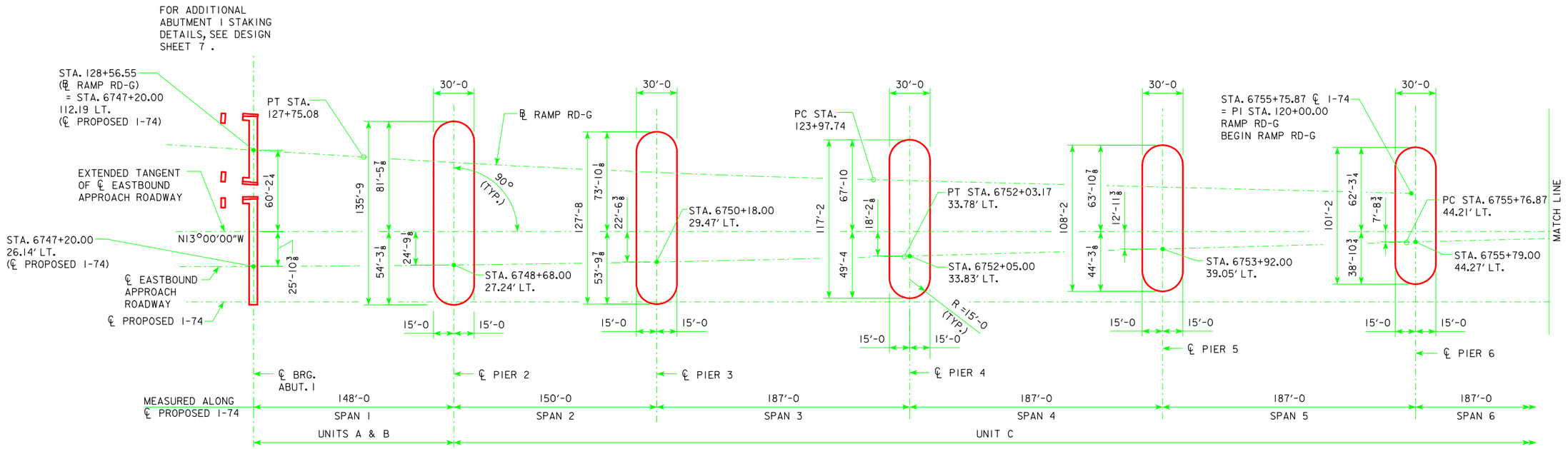

STAKING DIAGRAM

STATIONS ARE TAKEN WITH RESPECT TO ℄ PROPOSED I-74

DESIGN FOR 0° SKEW

1981'-0 x VARI. CONTINUOUS WELDED GIRDER BRIDGE W/14' BIKE TRAIL

148'-0 & 187'-0 END SPANS 150'-0 & 8-187'-0 INTERIOR SPANS

STAKING DIAGRAM

STA. 6757+10.50 - 47.49' LT. - I-74

100% APPROVED JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 6 OF 350 FILE NO. 30253 DESIGN NO. 2908

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DESIGN TEAM TJJ/TJJ/KMP	SCOTT COUNTY	PROJECT NUMBER BRFIM-074-1(197)5--05-82	SHEET NUMBER 317

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MODEL: $MODEL

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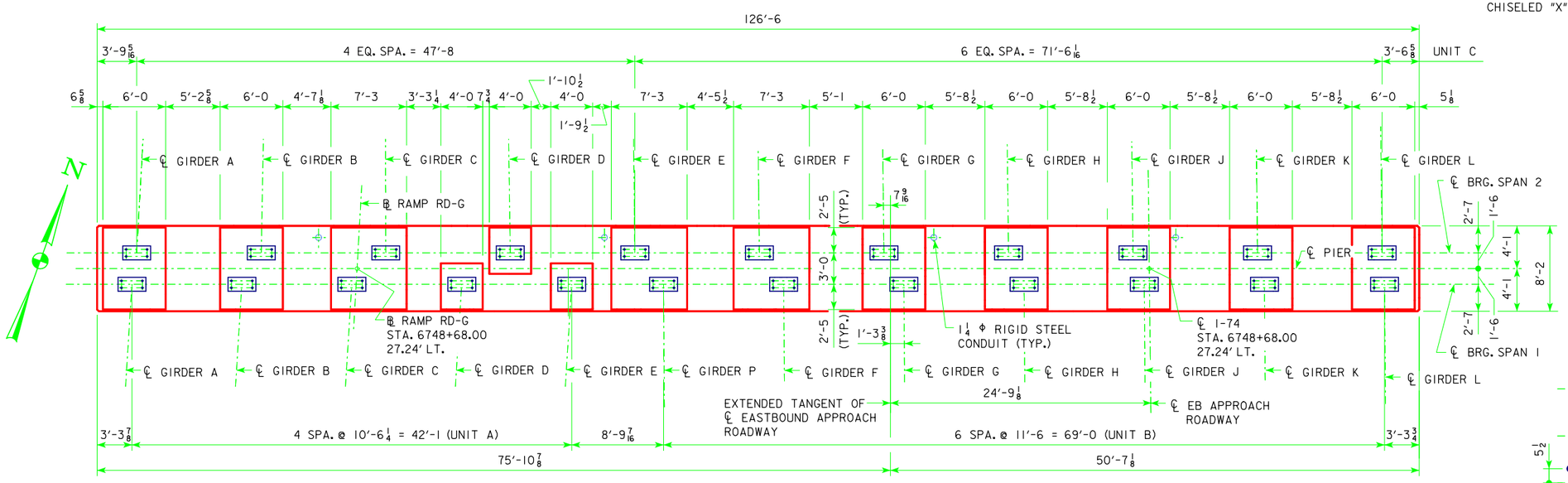
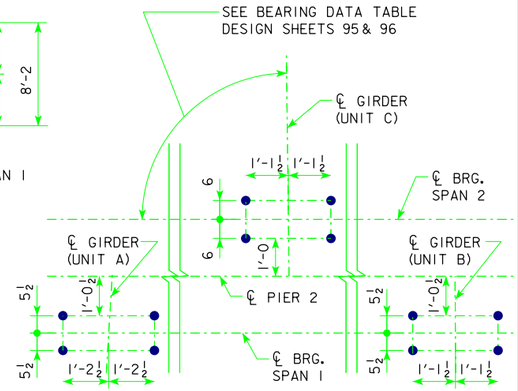
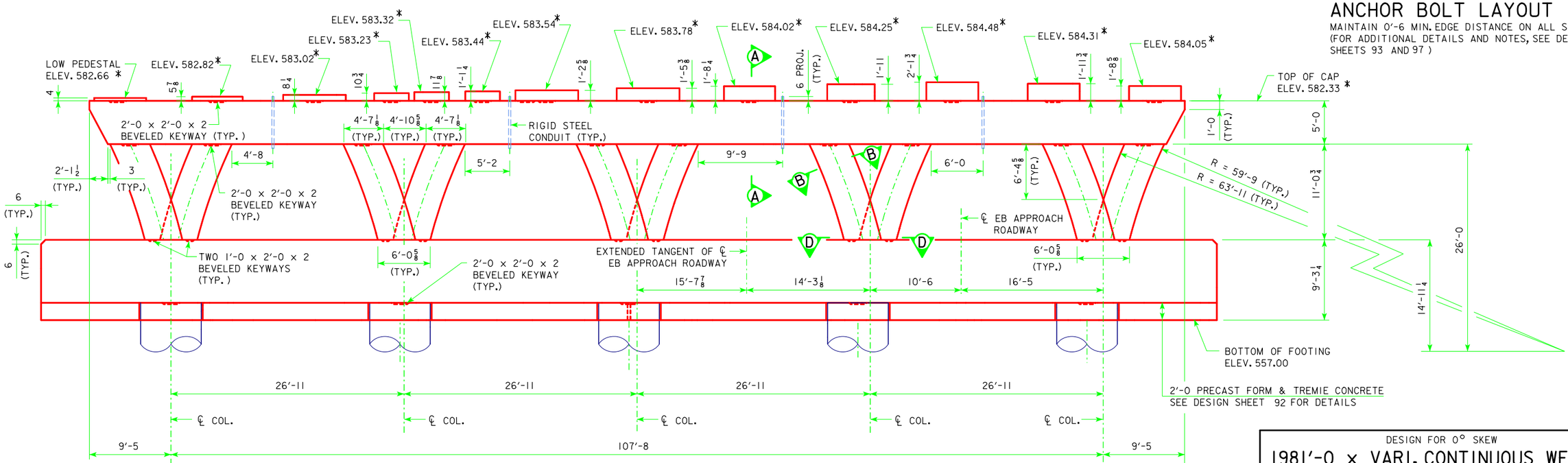


PLAN OF PIER CAP



ANCHOR BOLT LAYOUT

MAINTAIN 0'-6 MIN. EDGE DISTANCE ON ALL SIDES.
(FOR ADDITIONAL DETAILS AND NOTES, SEE DESIGN SHEETS 93 AND 97)



PIER 2 ELEVATION

LOOKING NORTH

NOTES:

1. FOR SECTIONS A-A, B-B & D-D, SEE DESIGN SHEET 27.
2. "*" REFERS TO NOTE 2 ON DESIGN SHEET 24.
3. FOR ADDITIONAL NOTES SEE DESIGN SHEET 24.

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DESIGN FOR 0° SKEW

1981'-0 x VARI. CONTINUOUS WELDED GIRDER BRIDGE W/14' BIKE TRAIL

148'-0 & 187'-0 END SPANS 150'-0 & 8-187'-0 INTERIOR SPANS

PIER 2 DETAILS

STA. 6757+10.50 - 47.49' LT. - I-74

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SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 25 OF 350 FILE NO. 30253 DESIGN NO. 2908

DESIGN TEAM TJJ/VH/KMP	SCOTT COUNTY	PROJECT NUMBER BRFIM-074-1(197)5--05-82	SHEET NUMBER 336

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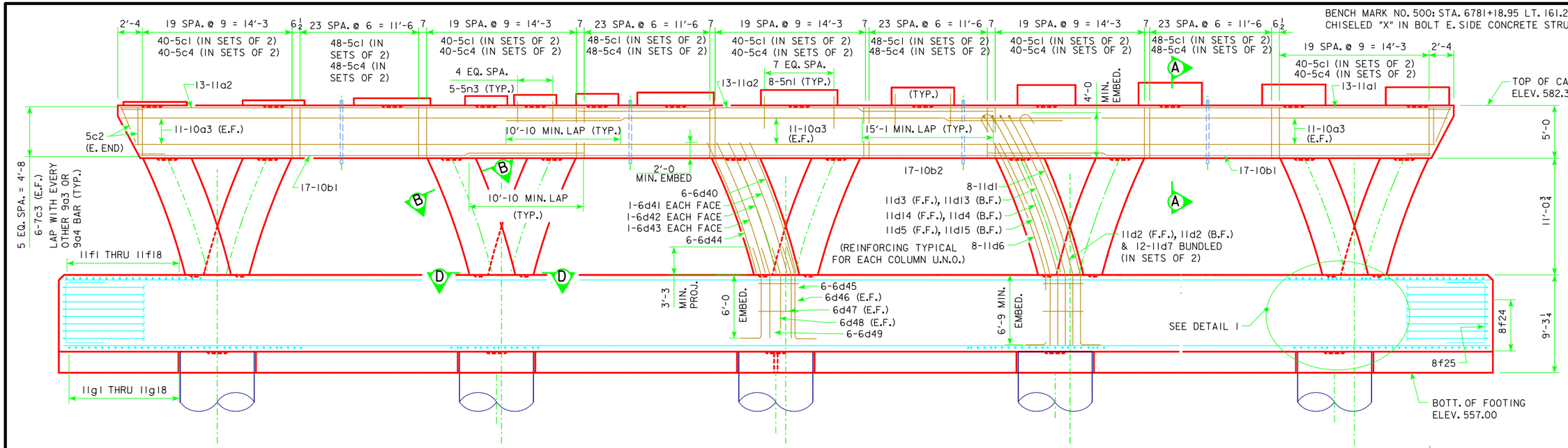
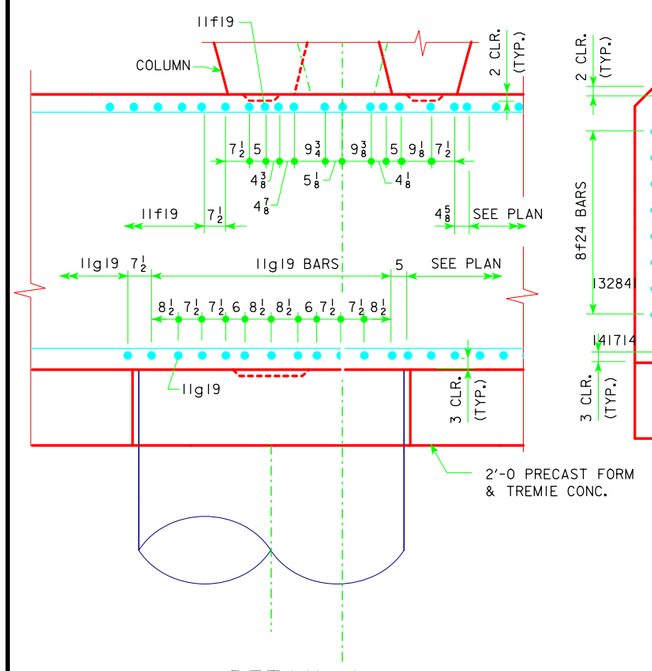
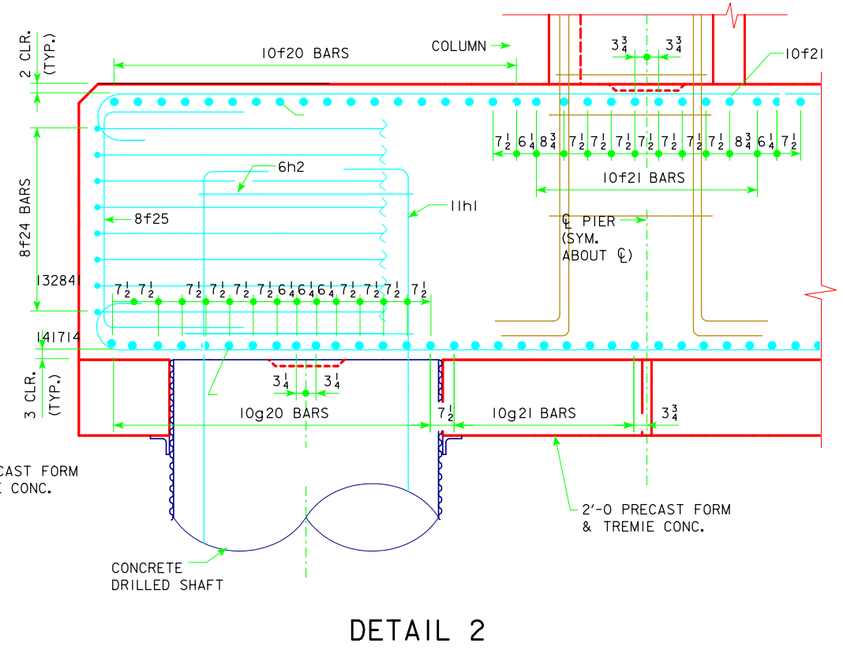


PIER 2 ELEVATION
LOOKING NORTH

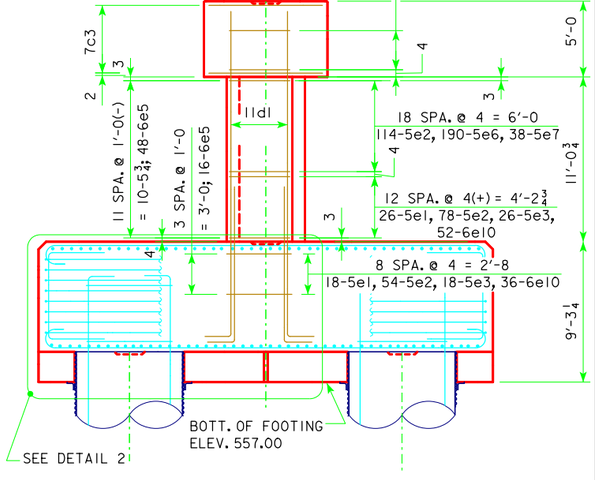
* REFER TO NOTE 2 ON DESIGN SHEET 24.



DETAIL 1



DETAIL 2



END VIEW
(OUTER VERTICAL 6d BARS NOT SHOWN FOR CLARITY)

NOTES:

LONGITUDINAL COLUMN BARS SHOWN IN ELEVATION ARE PER ONE ELEMENT OF EACH COLUMN (10 LOCATIONS). COLUMN TIES SHOWN IN END VIEW ARE PER COLUMN (5 LOCATIONS).

SEE DESIGN SHEET 25 FOR DIMENSIONS AND ELEVATIONS.

FOR FOOTING REINFORCING DETAILS SEE DESIGN SHEET 29.

SEE DESIGN SHEET 24 FOR ADDITIONAL NOTES.

DESIGN FOR 0° SKEW

1981'-0 x VARI. CONTINUOUS WELDED GIRDER BRIDGE W/14' BIKE TRAIL

148'-0 & 187'-0 END SPANS 150'-0 & 8-187'-0 INTERIOR SPANS

PIER 2 DETAILS

STA. 6757+10.50 - 47.49' LT. - I-74

100% APPROVED JANUARY 2014

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IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 26 OF 350 FILE NO. 30253 DESIGN NO. 2908

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312-565-0450 Job No. 10061

DESIGN TEAM TJJ/VH/KMP	SCOTT COUNTY	PROJECT NUMBER BRFIM-074-1(197)5--05-82	SHEET NUMBER 337

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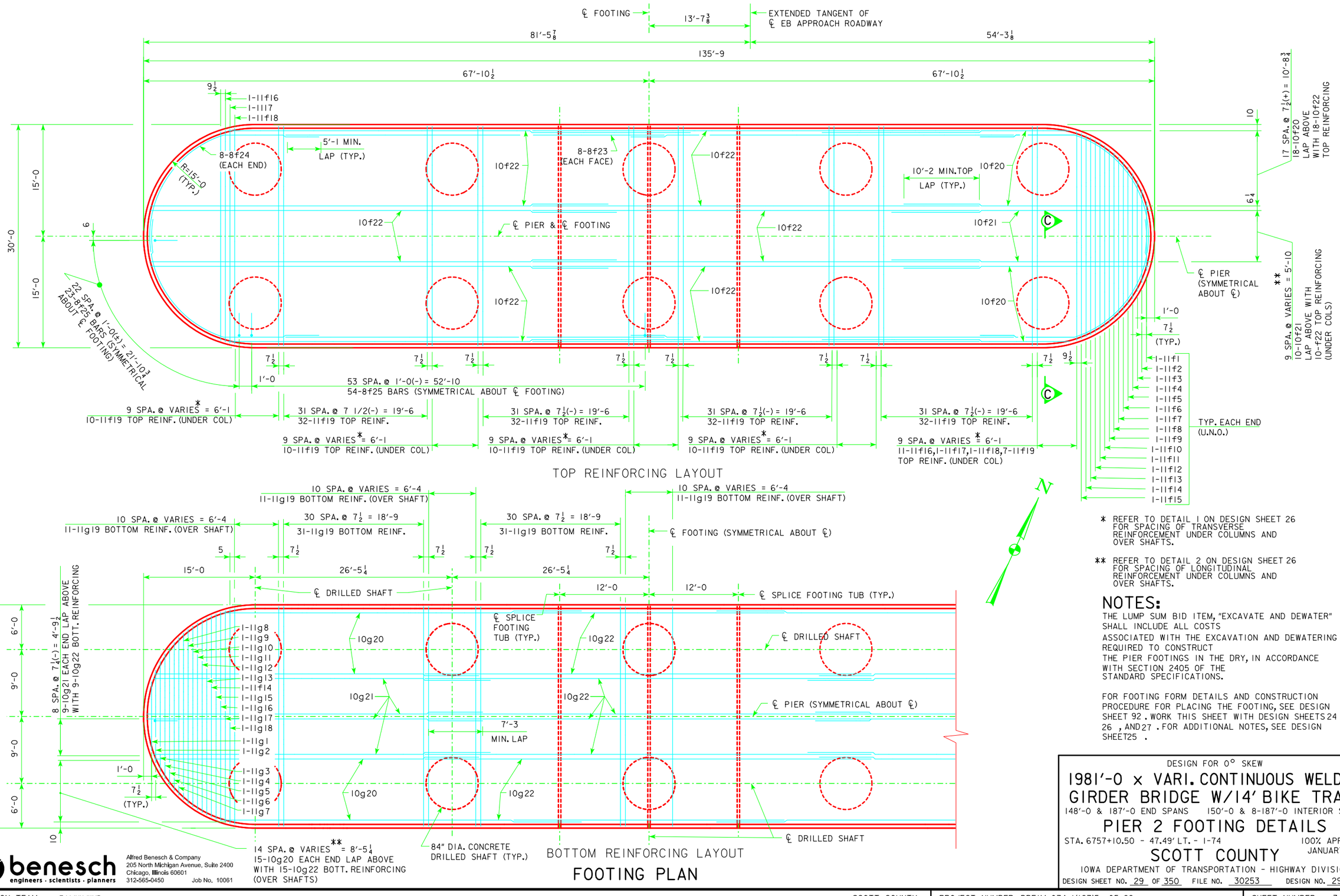

* REFER TO DETAIL 1 ON DESIGN SHEET 26 FOR SPACING OF TRANSVERSE REINFORCEMENT UNDER COLUMNS AND OVER SHAFTS.

** REFER TO DETAIL 2 ON DESIGN SHEET 26 FOR SPACING OF LONGITUDINAL REINFORCEMENT UNDER COLUMNS AND OVER SHAFTS.

NOTES:

THE LUMP SUM BID ITEM, "EXCAVATE AND DEWATER" SHALL INCLUDE ALL COSTS ASSOCIATED WITH THE EXCAVATION AND DEWATERING REQUIRED TO CONSTRUCT THE PIER FOOTINGS IN THE DRY, IN ACCORDANCE WITH SECTION 2405 OF THE STANDARD SPECIFICATIONS.

FOR FOOTING FORM DETAILS AND CONSTRUCTION PROCEDURE FOR PLACING THE FOOTING, SEE DESIGN SHEET 92 . WORK THIS SHEET WITH DESIGN SHEETS 24 , 26 , AND 27 . FOR ADDITIONAL NOTES, SEE DESIGN SHEET 25 .

DESIGN FOR 0° SKEW

1981′-0 × VARI. CONTINUOUS WELDED GIRDER BRIDGE W/14′ BIKE TRAIL

148′-0 & 187′-0 END SPANS 150′-0 & 8-187′-0 INTERIOR SPANS

PIER 2 FOOTING DETAILS

STA. 6757+10.50 - 47.49′ LT. - I-74

100% APPROVED JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 29 OF 350 FILE NO. 30253 DESIGN NO. 2908

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DESIGN TEAM TJJ/VH/KMP	SCOTT COUNTY	PROJECT NUMBER BRFIM-074-1(197)5--05-82	SHEET NUMBER 340

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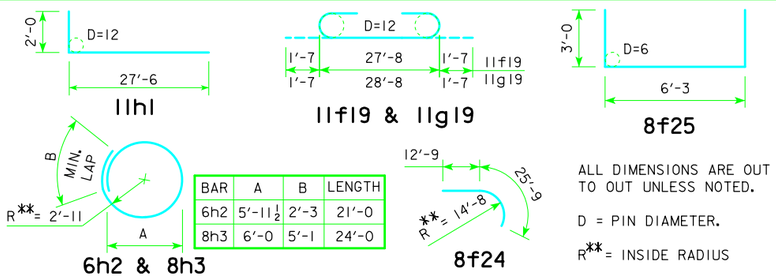
NON-COATED REINFORCING

REINFORCING STEEL - PIER 2 FTG.

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
11f1-2EB	FOOTING, TOP, TRANS.	——	2	4'-4	46
11f2-2EB	FOOTING, TOP, TRANS.	——	2	9'-4	99
11f3-2EB	FOOTING, TOP, TRANS.	——	2	12'-4	131
11f4-2EB	FOOTING, TOP, TRANS.	——	2	14'-8	156
11f5-2EB	FOOTING, TOP, TRANS.	——	2	16'-7	176
11f6-2EB	FOOTING, TOP, TRANS.	——	2	18'-2	193
11f7-2EB	FOOTING, TOP, TRANS.	——	2	19'-7	208
11f8-2EB	FOOTING, TOP, TRANS.	——	2	20'-9	220
11f9-2EB	FOOTING, TOP, TRANS.	——	2	21'-11	233
11f10-2EB	FOOTING, TOP, TRANS.	——	2	22'-10	243
11f11-2EB	FOOTING, TOP, TRANS.	——	2	23'-9	252
11f12-2EB	FOOTING, TOP, TRANS.	——	2	24'-6	260
11f13-2EB	FOOTING, TOP, TRANS.	——	2	25'-2	267
11f14-2EB	FOOTING, TOP, TRANS.	——	2	25'-9	274
11f15-2EB	FOOTING, TOP, TRANS.	——	2	26'-4	280
11f16-2EB	FOOTING, TOP, TRANS.	——	2	26'-9	284
11f17-2EB	FOOTING, TOP, TRANS.	——	2	27'-1	288
11f18-2EB	FOOTING, TOP, TRANS.	——	2	27'-4	290
11f19-2EB	FOOTING, TOP, TRANS.	⊂⊃	175	30'-10	28668
10f20-2EB	FOOTING, TOP, LONGIT.	——	36	33'-3	5151
10f21-2EB	FOOTING, TOP, LONGIT.	——	10	34'-5	1481
10f22-2EB	FOOTING, TOP, LONGIT.	——	92	60'-0	23753
8f23-2EB	FOOTING, SIDE, LONGIT.	——	32	47'-9	4080
8f24-2EB	FOOTING, SIDE, END	⊂	32	38'-6	3289
8f25-2EB	FOOTING, SIDE, VERT.	⊏⊐	308	12'-3	10074
11g1-2EB	FOOTING, BOTT., TRANS.	——	2	8'-9	93
11g2-2EB	FOOTING, BOTT., TRANS.	——	2	12'-0	128
11g3-2EB	FOOTING, BOTT., TRANS.	——	2	14'-6	154
11g4-2EB	FOOTING, BOTT., TRANS.	——	2	16'-6	175
11g5-2EB	FOOTING, BOTT., TRANS.	——	2	18'-2	193
11g6-2EB	FOOTING, BOTT., TRANS.	——	2	19'-8	209
11g7-2EB	FOOTING, BOTT., TRANS.	——	2	21'-0	223
11g8-2EB	FOOTING, BOTT., TRANS.	——	2	22'-2	236
11g9-2EB	FOOTING, BOTT., TRANS.	——	2	23'-2	246
11g10-2EB	FOOTING, BOTT., TRANS.	——	2	24'-1	256
11g11-2EB	FOOTING, BOTT., TRANS.	——	2	24'-11	265
11g12-2EB	FOOTING, BOTT., TRANS.	——	2	25'-8	273
11g13-2EB	FOOTING, BOTT., TRANS.	——	2	26'-4	280
11g14-2EB	FOOTING, BOTT., TRANS.	——	2	26'-11	286
11g15-2EB	FOOTING, BOTT., TRANS.	——	2	27'-5	291
11g16-2EB	FOOTING, BOTT., TRANS.	——	2	27'-10	296
11g17-2EB	FOOTING, BOTT., TRANS.	——	2	28'-1	298
11g18-2EB	FOOTING, BOTT., TRANS.	——	2	28'-4	301
11g19-2EB	FOOTING, BOTT., TRANS.	⊂⊃	179	31'-10	30274
10g20-2EB	FOOTING, BOTT., LONGIT.	——	60	43'-7	11252
10g21-2EB	FOOTING, BOTT., LONGIT.	——	36	44'-9	6932
10g22-2EB	FOOTING, BOTT., LONGIT.	——	48	60'-0	12393
11h1-2EB	DRILLED SHAFT, LONGIT.	└	360	29'-6	56424
6h2-2EB	DRILLED SHAFT TIES	○	40	21'-0	1262
8h3-2EB	DRILLED SHAFT TIES	○	200	24'-0	12816
	NO. 5 SHAFT SPIRAL	∿∿∿	10	452'-5	4719
	SPIRAL SPACERS, L$\frac{7}{8}\times\frac{7}{8}\times\frac{1}{8}$	——	40	10'-6	294
	REINFORCING STEEL - TOTAL (LBS.)				220966

BENT BAR DETAILS

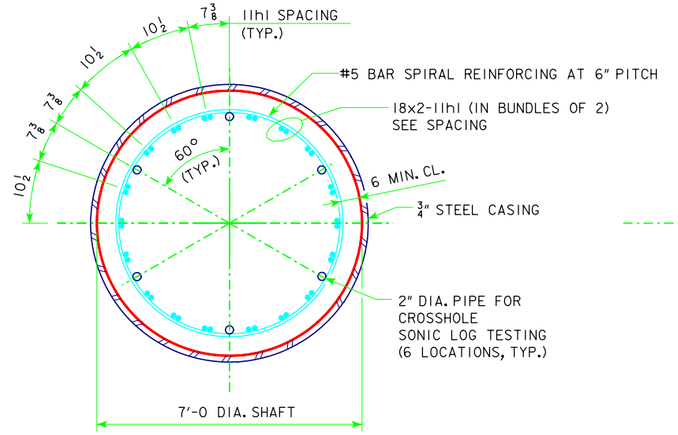


BAR	A	B	LENGTH
6h2	5'-11½	2'-3	21'-0
8h3	6'-0	5'-1	24'-0

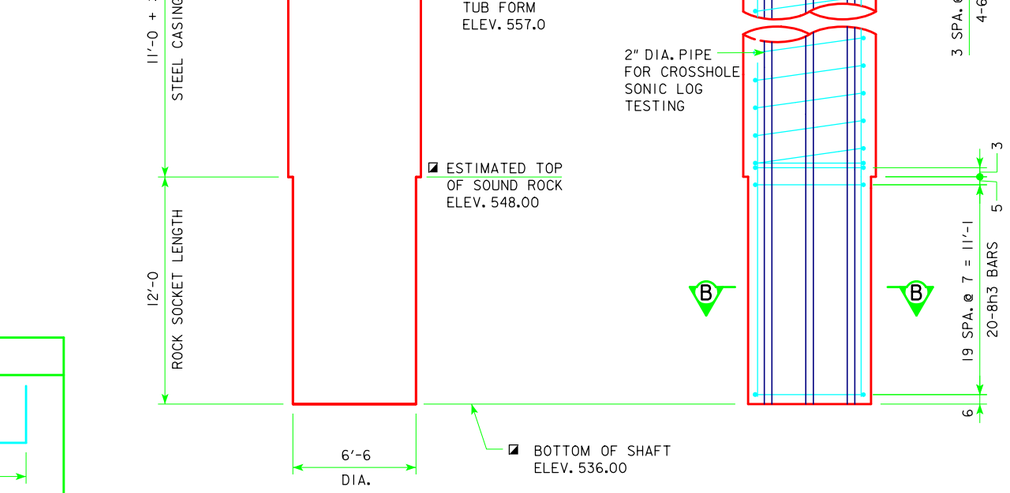
ALL DIMENSIONS ARE OUT TO OUT UNLESS NOTED.

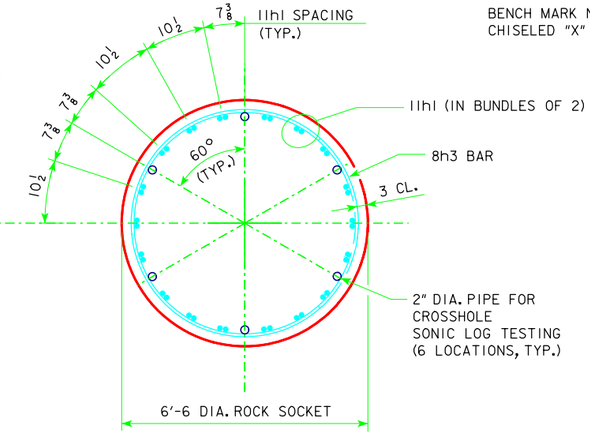
D = PIN DIAMETER.

R** = INSIDE RADIUS



SECTION A-A





SECTION B-B

(ROCK SOCKET)

BENCH MARK NO. 500: STA. 6781+18.95 LT. 161.23' ELEV. 575.797, CHISELED "X" IN BOLT E. SIDE CONCRETE STRUCTURE.

NOTES:

HOOKED 11h1 BARS SHALL BE PLACED WITH HOOKS POINTING INWARD TOWARD THE CENTER OF THE DRILLED SHAFT AS SHOWN SO THAT THEY SHALL NOT INTERFERE WITH PLACEMENT OF FOOTING TUB FORM.

SPIRAL REINFORCING IS TO BE NO. 5 BAR WITH 6'-0 OUTSIDE DIAMETER, 0'-6 PITCH WITH 4 EQUALLY SPACED L$\frac{7}{8}\times\frac{7}{8}\times\frac{1}{8}$ SPACERS PUNCHED TO HOLD SPIRALS. SPIRALS ARE TO HAVE 1½ EXTRA TURNS AT EACH END OF THE SPIRAL.

THE SPIRAL REINFORCING MAY BE SPLICED BY LAPPING 2'-2". THE LENGTH OF THE SPIRAL SHOWN DOES NOT INCLUDE THE LAPPED LENGTH OF THE SPLICES. THE COST OF THE LAPS AT SPLICES IS TO BE INCLUDED IN THE PRICE BID FOR OTHER REINFORCING.

6h2 BAR COLUMN TIES SPACED AT 0'-10 CENTERS MAY BE SUBSTITUTED FOR THE SPIRAL REINFORCING. PAYMENT WILL BE BASED ON THE WEIGHT OF SPIRAL REINFORCING. NO ADJUSTMENT IN REINFORCING STEEL PAY WEIGHT WILL BE ALLOWED. SEE BENT BAR DETAILS FOR SPLICE LAP LENGTHS.

IN ROCK SOCKET, TIES ARE TO BE NO. 8 BARS WITH 6'-0 OUTSIDE DIAMETER AT 7 INCH CENTERS. ROTATE LAP LOCATION 90° EVERY LAYER WHEN PLACING DRILLED SHAFT TIES. SUBSTITUTION OF SPIRAL REINFORCING IS NOT ALLOWED IN ROCK SOCKET.

MINIMUM DRILLED SHAFT EMBEDMENT INTO THE ROCK SHALL BE 12'-0.
◪ BOTTOM OF SHAFT ELEVATION, SHAFT LENGTHS AND SHAFT QUANTITIES ARE BASED ON 12'-0 SOCKET INTO SOUND ROCK. REFER TO DRILLED SHAFT SPECIAL PROVISIONS TO DETERMINE CASING LENGTHS. FINAL BOTTOM OF SHAFT ELEVATION, SHAFT LENGTHS AND SHAFT QUANTITIES ARE DEPENDENT ON ROCK ELEVATIONS DETERMINED IN THE FIELD.

DRILLED SHAFT ROCK SOCKET SHALL BE BRUSHED BUT NOT BE GROOVED. THE NOMINAL BEARING RESISTANCE FOR EACH DRILLED SHAFT IS 3318 TONS. THE NOMINAL SIDE RESISTANCE OF EACH DRILLED SHAFT IS 1822 TONS. CONSTRUCTION OF THE DRILLED SHAFTS SHALL BE DONE IN ACCORDANCE WITH SECTION 2433 OF THE STANDARD SPECIFICATIONS.

DESIGNATION "-2EB" SIGNIFIES BAR ASSOCIATED WITH PIER 2 OF THE EASTBOUND (SEGMENT 2, DESIGN NO. 2908) BRIDGE. "-2EB" NOT SHOWN IN DETAILS FOR CLARITY.

CONCRETE DRILLED SHAFT ELEVATION

DESIGN FOR 0° SKEW

1981'-0 x VARI. CONTINUOUS WELDED GIRDER BRIDGE W/14' BIKE TRAIL

148'-0 & 187'-0 END SPANS 150'-0 & 8-187'-0 INTERIOR SPANS

PIER 2 DRILLED SHAFT DETAILS

STA. 6757+10.50 - 47.49' LT. - I-74

100% APPROVED JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 30 OF 350 FILE NO. 30253 DESIGN NO. 2908

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DESIGN TEAM TJJ/VH/KMP	SCOTT COUNTY	PROJECT NUMBER BRFIM-074-1(197)5--05-82	SHEET NUMBER 341

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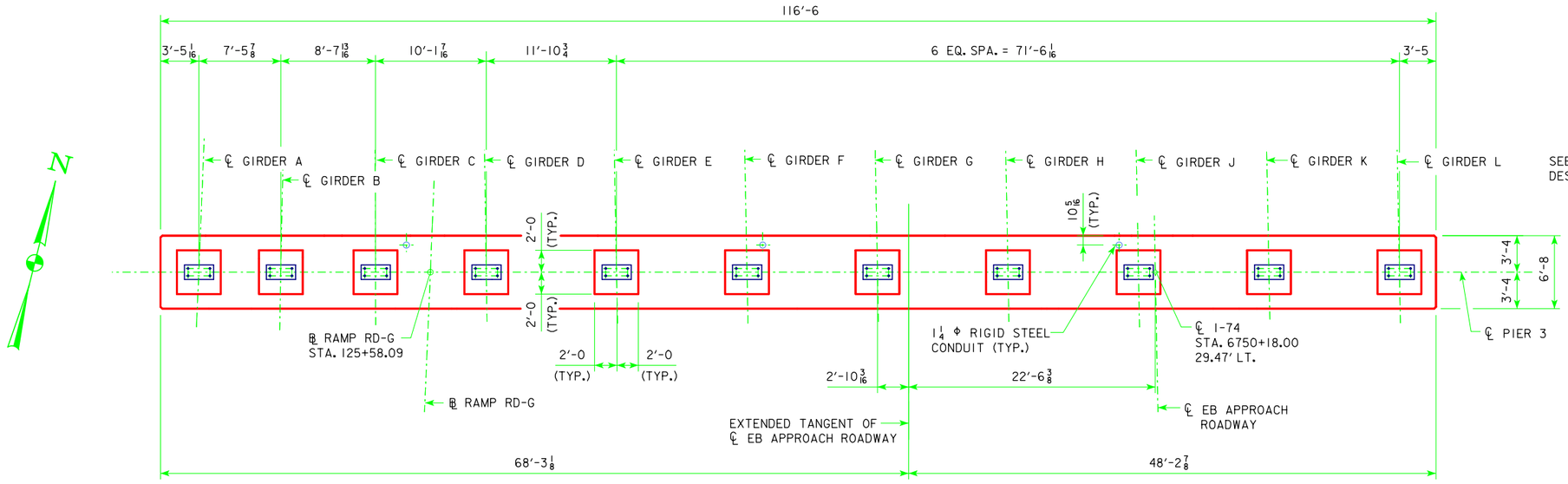
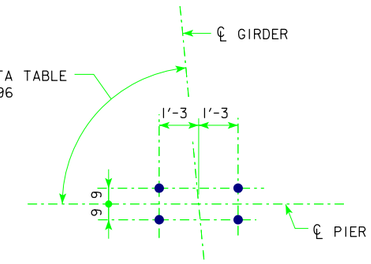
BENCH MARK NO. 500: STA. 6781+18.95 LT. 161.23' ELEV. 575.797, CHISELED "X" IN BOLT E. SIDE CONCRETE STRUCTURE.



PLAN OF PIER CAP

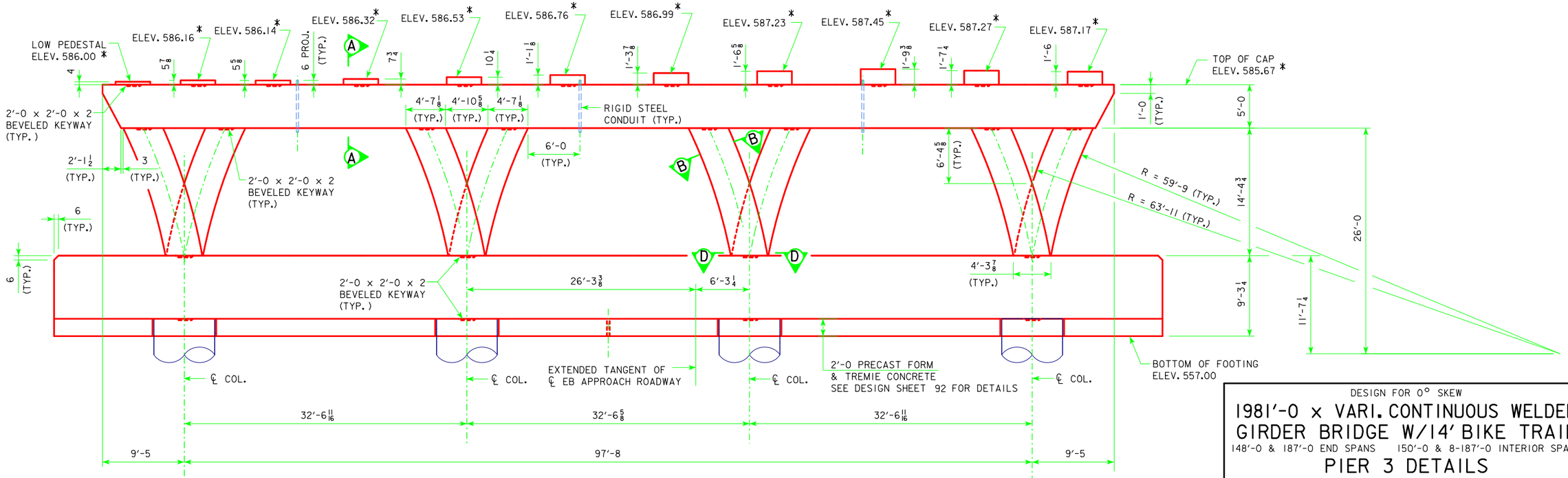


ANCHOR BOLT LAYOUT

(FOR ADDITIONAL DETAILS AND NOTES, SEE DESIGN SHEETS 93 AND 94)

NOTES:

1. FOR SECTIONS A-A, B-B & D-D SEE DESIGN SHEET 34.
2. "*" REFERS TO NOTE 2 ON DESIGN SHEET 24.
3. FOR ADDITIONAL NOTES SEE DESIGN SHEET 24.



PIER 3 ELEVATION

(LOOKING NORTH)

DESIGN FOR 0° SKEW

1981'-0 x VARI. CONTINUOUS WELDED GIRDER BRIDGE W/14' BIKE TRAIL

148'-0 & 187'-0 END SPANS 150'-0 & 8-187'-0 INTERIOR SPANS

PIER 3 DETAILS

STA. 6757+10.50 - 47.49' LT. - I-74

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SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 32 OF 350 FILE NO. 30253 DESIGN NO. 2908

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DESIGN TEAM TJJ/VH/KMP	SCOTT COUNTY	PROJECT NUMBER BRFIM-074-1(197)5--05-82	SHEET NUMBER 343

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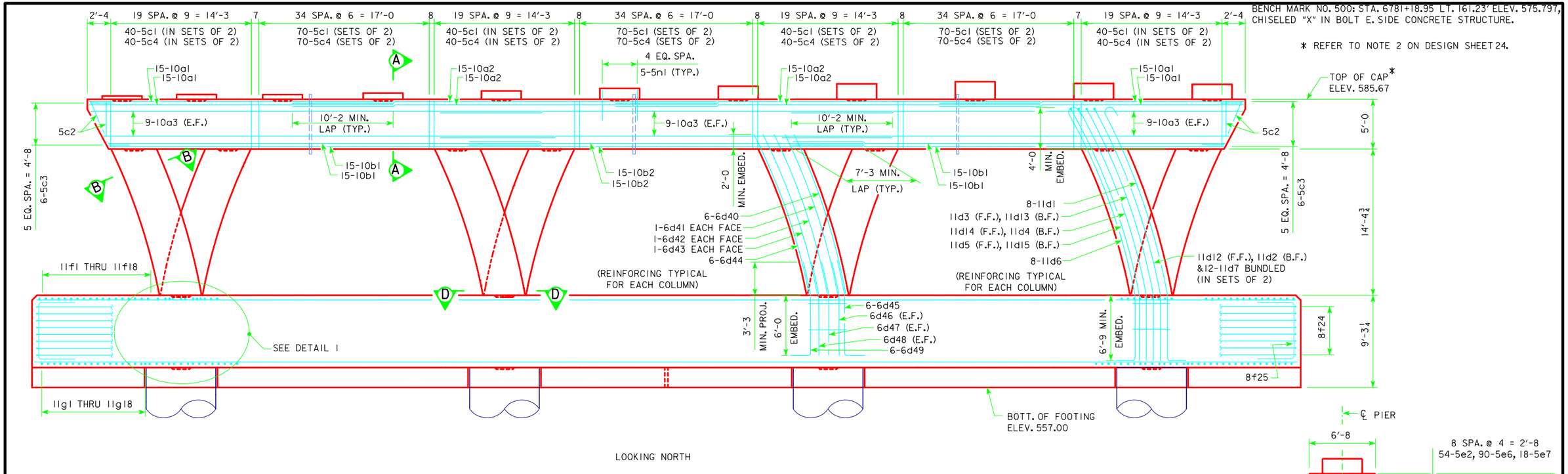
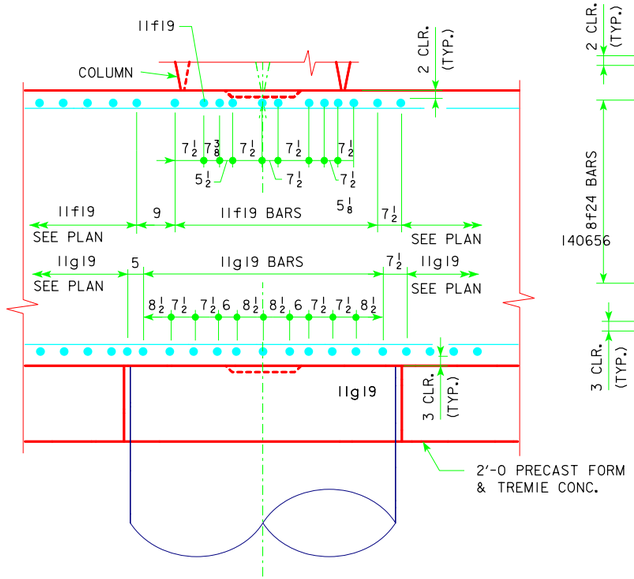
BENCH MARK NO. 500: STA. 6781+18.95 LT. 161.23' ELEV. 575.797, CHISELED "X" IN BOLT E. SIDE CONCRETE STRUCTURE.

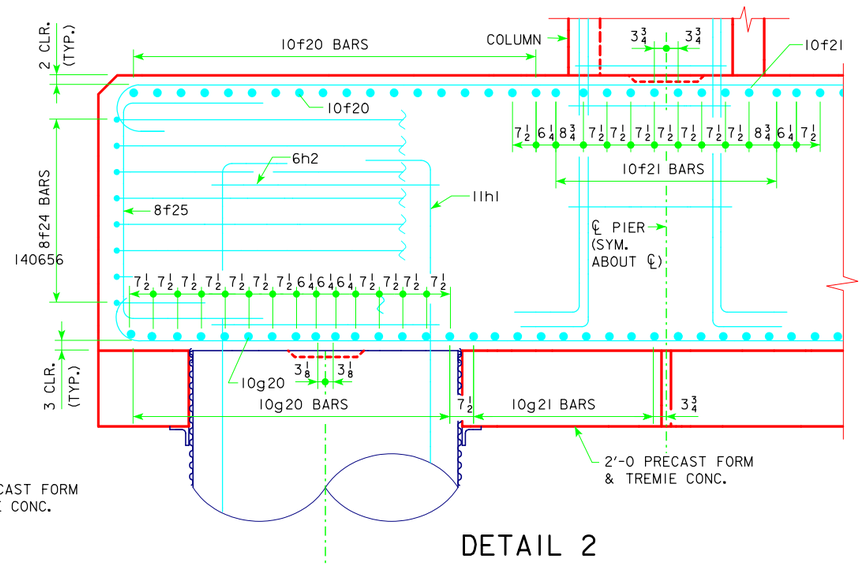
* REFER TO NOTE 2 ON DESIGN SHEET 24.



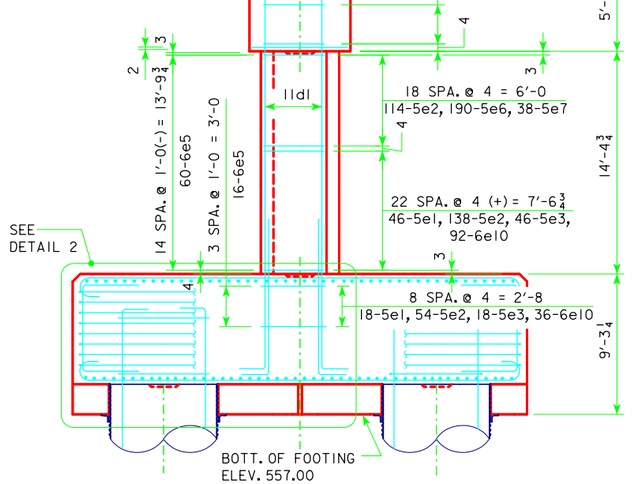
LOOKING NORTH



DETAIL 1



DETAIL 2



END VIEW

(OUTER VERTICAL 6d BARS NOT SHOWN FOR CLARITY)

NOTES:

LONGITUDINAL COLUMN BARS SHOWN IN ELEVATION ARE PER ONE ELEMENT OF EACH COLUMN (8 LOCATIONS). COLUMN TIES SHOWN IN END VIEW ARE PER COLUMN (4 LOCATIONS).

SEE DESIGN SHEET 32 FOR DIMENSIONS AND ELEVATIONS.

FOR FOOTING REINFORCING DETAILS SEE DESIGN SHEET 36.

SEE DESIGN SHEET 24 FOR ADDITIONAL NOTES.

DESIGN FOR 0° SKEW

1981'-0 x VARI. CONTINUOUS WELDED GIRDER BRIDGE W/14' BIKE TRAIL

148'-0 & 187'-0 END SPANS 150'-0 & 8-187'-0 INTERIOR SPANS

PIER 3 DETAILS

STA. 6757+10.50 - 47.49' LT. - I-74

100% APPROVED JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 33 OF 350 FILE NO. 30253 DESIGN NO. 2908

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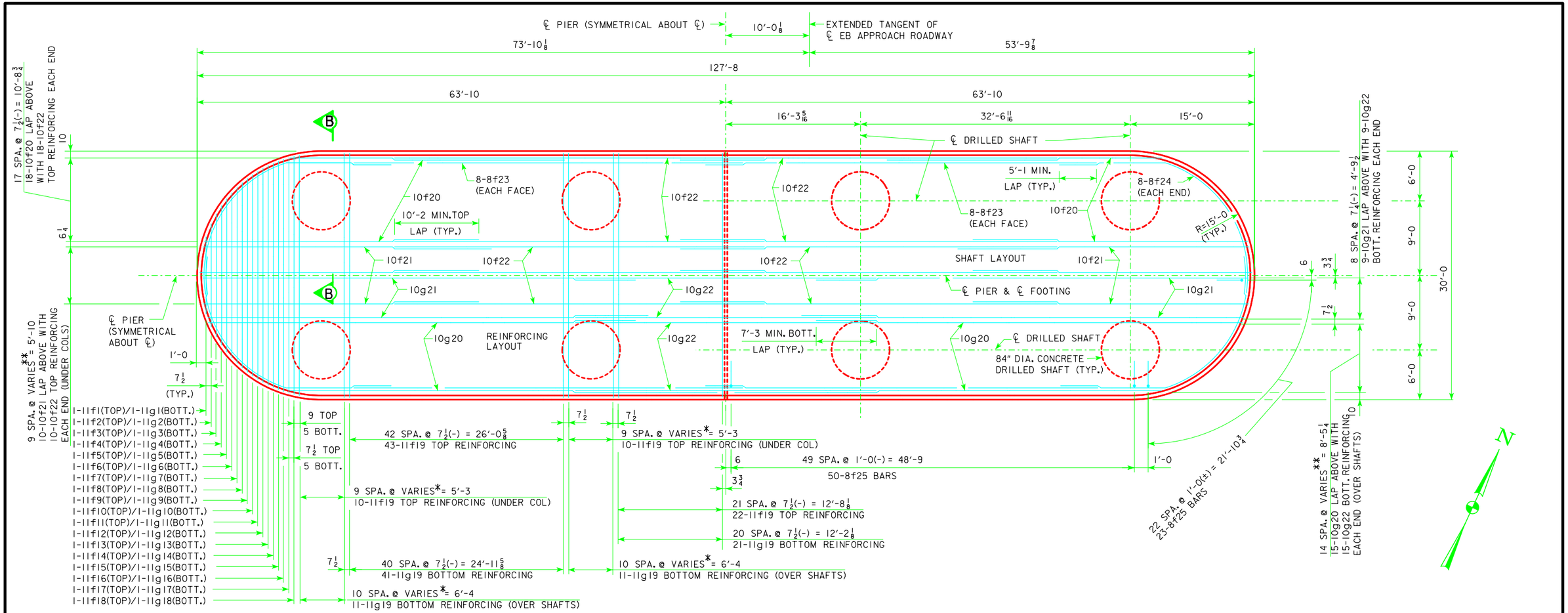
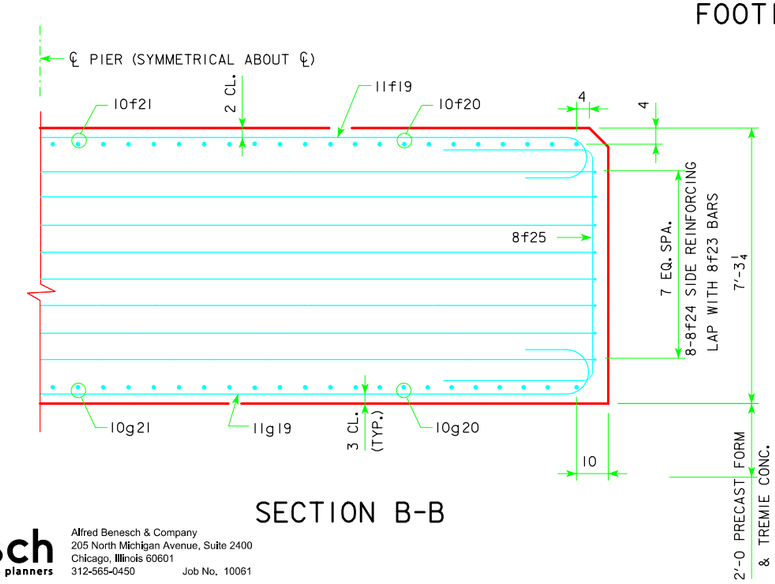


FOOTING PLAN



SECTION B-B

* REFER TO DETAIL 1 ON DESIGN SHEET 33 FOR SPACING OF TRANSVERSE REINFORCEMENT UNDER COLUMNS AND OVER SHAFTS.

** REFER TO DETAIL 2 ON DESIGN SHEET33 FOR SPACING OF LONGITUDINAL REINFORCEMENT UNDER COLUMNS AND OVER SHAFTS.

NOTES:

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FOR FOOTING FORM DETAILS AND CONSTRUCTION PROCEDURE FOR PLACING THE FOOTING, SEE DESIGN SHEET 92 .
WORK THIS SHEET WITH DESIGN SHEETS 32,33, AND 34.
FOR ADDITIONAL NOTES, SEE DESIGN SHEET 32.

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1981'-0 x VARI. CONTINUOUS WELDED GIRDER BRIDGE W/14' BIKE TRAIL

148'-0 & 187'-0 END SPANS 150'-0 & 8-187'-0 INTERIOR SPANS

PIER 3 FOOTING DETAILS

STA. 6757+10.50 - 47.49' LT. - I-74

100% APPROVED JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 36 OF 350 FILE NO. 30253 DESIGN NO. 2908

DESIGN TEAM TJJ/VH/KMP	SCOTT COUNTY	PROJECT NUMBER BRFIM-074-1(197)5--05-82	SHEET NUMBER 347

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NON-COATED REINFORCING

REINFORCING STEEL - PIER 3 FTG.

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
11f1-3EB	FOOTING, TOP, TRANS.	——	2	4'-4	46
11f2-3EB	FOOTING, TOP, TRANS.	——	2	9'-4	99
11f3-3EB	FOOTING, TOP, TRANS.	——	2	12'-4	131
11f4-3EB	FOOTING, TOP, TRANS.	——	2	14'-8	156
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11f9-3EB	FOOTING, TOP, TRANS.	——	2	21'-11	233
11f10-3EB	FOOTING, TOP, TRANS.	——	2	22'-10	243
11f11-3EB	FOOTING, TOP, TRANS.	——	2	23'-9	252
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11f13-3EB	FOOTING, TOP, TRANS.	——	2	25'-2	267
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11f15-3EB	FOOTING, TOP, TRANS.	——	2	26'-4	280
11f16-3EB	FOOTING, TOP, TRANS.	——	2	26'-9	284
11f17-3EB	FOOTING, TOP, TRANS.	——	2	27'-1	288
11f18-3EB	FOOTING, TOP, TRANS.	——	2	27'-4	290
11f19-3EB	FOOTING, TOP, TRANS.	⊂⊃	170	30'-10	27849
10f20-3EB	FOOTING, TOP, LONGIT.	——	72	33'-0	10224
10f21-3EB	FOOTING, TOP, LONGIT.	——	20	33'-7	2890
10f22-3EB	FOOTING, TOP, LONGIT.	——	92	44'-8	17682
8f23-3EB	FOOTING, SIDE, LONGIT.	——	32	43'-9	3738
8f24-3EB	FOOTING, SIDE, END	⌐	32	38'-6	3289
8f25-3EB	FOOTING, SIDE, VERT.	⌐	292	12'-3	9551
11g1-3EB	FOOTING, BOTT., TRANS.	——	2	8'-9	93
11g2-3EB	FOOTING, BOTT., TRANS.	——	2	12'-0	128
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11g5-3EB	FOOTING, BOTT., TRANS.	——	2	18'-2	193
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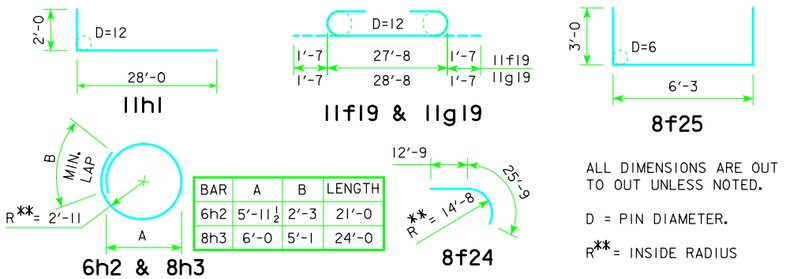
11g15-3EB	FOOTING, BOTT., TRANS.	——	2	27'-5	291
11g16-3EB	FOOTING, BOTT., TRANS.	——	2	27'-10	296
11g17-3EB	FOOTING, BOTT., TRANS.	——	2	28'-1	298
11g18-3EB	FOOTING, BOTT., TRANS.	——	2	28'-4	301
11g19-3EB	FOOTING, BOTT., TRANS.	⊂⊃	168	31'-10	28414
10g20-3EB	FOOTING, BOTT., LONGIT.	——	60	51'-4	13253
10g21-3EB	FOOTING, BOTT., LONGIT.	——	36	52'-6	8133
10g22-3EB	FOOTING, BOTT., LONGIT.	——	48	36'-5	7522
11h1-3EB	DRILLED SHAFT, LONGIT.	⌊	288	30'-0	45904
6h2-3EB	DRILLED SHAFT TIES	○	32	21'-0	1009
8h3-3EB	DRILLED SHAFT TIES	○	160	24'-0	10253
	NO. 5 SHAFT SPIRAL	wwwww	8	471'-3	3932
	SPIRAL SPACERS, L$\frac{7}{8}\times\frac{7}{8}\times\frac{1}{8}$	——	32	11'-0	246
	REINFORCING STEEL - TOTAL (LBS.)				201995

BENT BAR DETAILS

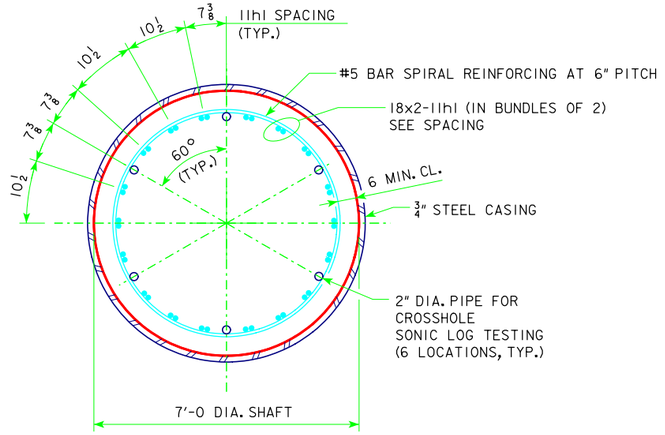


BAR	A	B	LENGTH
6h2	5'-11½	2'-3	21'-0
8h3	6'-0	5'-1	24'-0

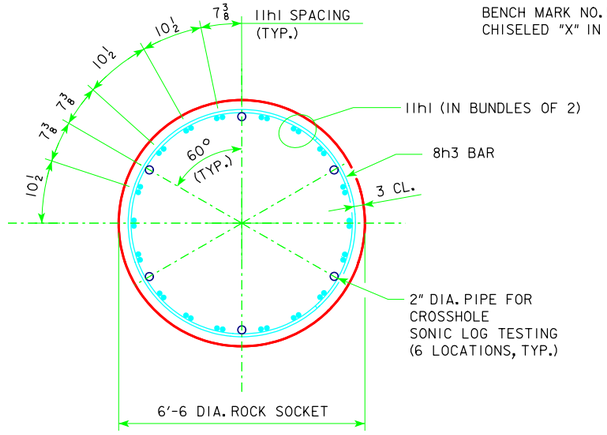
ALL DIMENSIONS ARE OUT TO OUT UNLESS NOTED.

D = PIN DIAMETER.

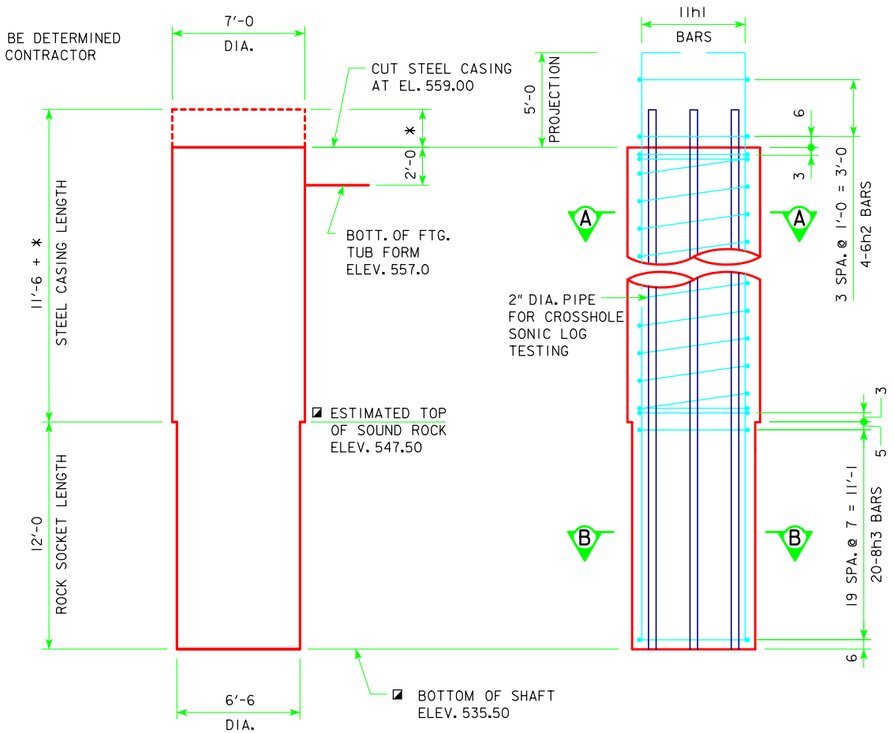
R** = INSIDE RADIUS



SECTION A-A



SECTION B-B
(ROCK SOCKET)



CONCRETE DRILLED SHAFT ELEVATION

BENCH MARK NO. 500: STA. 6781+18.95 LT. 161.23' ELEV. 575.797, CHISELED "X" IN BOLT E. SIDE CONCRETE STRUCTURE.

NOTES:

HOOKED 11h1 BARS SHALL BE PLACED WITH HOOKS POINTING INWARD TOWARD THE CENTER OF THE DRILLED SHAFT AS SHOWN SO THAT THEY SHALL NOT INTERFERE WITH PLACEMENT OF FOOTING TUB FORM.

SPIRAL REINFORCING IS TO BE NO. 5 BAR WITH 6'-0 OUTSIDE DIAMETER, 0'-6 PITCH WITH 4 EQUALLY SPACED L$\frac{7}{8}\times\frac{7}{8}\times\frac{1}{8}$ SPACERS PUNCHED TO HOLD SPIRALS. SPIRALS ARE TO HAVE 1½ EXTRA TURNS AT EACH END OF THE SPIRAL.

THE SPIRAL REINFORCING MAY BE SPLICED BY LAPPING 2'-2". THE LENGTH OF THE SPIRAL SHOWN DOES NOT INCLUDE THE LAPPED LENGTH OF THE SPLICES. THE COST OF THE LAPS AT SPLICES IS TO BE INCLUDED IN THE PRICE BID FOR OTHER REINFORCING.

6h2 BAR COLUMN TIES SPACED AT 0'-10 CENTERS MAY BE SUBSTITUTED FOR THE SPIRAL REINFORCING. PAYMENT WILL BE BASED ON THE WEIGHT OF SPIRAL REINFORCING. NO ADJUSTMENT IN REINFORCING STEEL PAY WEIGHT WILL BE ALLOWED. SEE BENT BAR DETAILS FOR SPLICE LAP LENGTHS.

IN ROCK SOCKET, TIES ARE TO BE NO. 8 BARS WITH 6'-0 OUTSIDE DIAMETER AT 7 INCH CENTERS. ROTATE LAP LOCATION 90° EVERY LAYER WHEN PLACING DRILLED SHAFT TIES. SUBSTITUTION OF SPIRAL REINFORCING IS NOT ALLOWED IN ROCK SOCKET.

MINIMUM DRILLED SHAFT EMBEDMENT INTO THE ROCK SHALL BE 12'-0.
◪ BOTTOM OF SHAFT ELEVATION, SHAFT LENGTHS AND SHAFT QUANTITIES ARE BASED ON 12'-0 SOCKET INTO SOUND ROCK. REFER TO DRILLED SHAFT SPECIAL PROVISIONS TO DETERMINE CASING LENGTHS. FINAL BOTTOM OF SHAFT ELEVATION, SHAFT LENGTHS AND SHAFT QUANTITIES ARE DEPENDENT ON ROCK ELEVATIONS DETERMINED IN THE FIELD.

DRILLED SHAFT ROCK SOCKET SHALL BE BRUSHED BUT NOT BE GROOVED. THE NOMINAL BEARING RESISTANCE FOR EACH DRILLED SHAFT IS 3318 TONS. THE NOMINAL SIDE RESISTANCE OF EACH DRILLED SHAFT IS 1822 TONS. CONSTRUCTION OF THE DRILLED SHAFTS SHALL BE DONE IN ACCORDANCE WITH SECTION 2433 OF THE STANDARD SPECIFICATIONS.

DESIGNATION "-3EB" SIGNIFIES BAR ASSOCIATED WITH PIER 3 OF THE EASTBOUND (SEGMENT 2, DESIGN NO. 2908) BRIDGE. "-3EB" NOT SHOWN IN DETAILS FOR CLARITY.

DESIGN FOR 0° SKEW

1981'-0 x VARI. CONTINUOUS WELDED GIRDER BRIDGE W/14' BIKE TRAIL

148'-0 & 187'-0 END SPANS 150'-0 & 8-187'-0 INTERIOR SPANS

PIER 3 DRILLED SHAFT DETAILS

STA. 6757+10.50 - 47.49' LT. - I-74

100% APPROVED JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 37 OF 350 FILE NO. 30253 DESIGN NO. 2908

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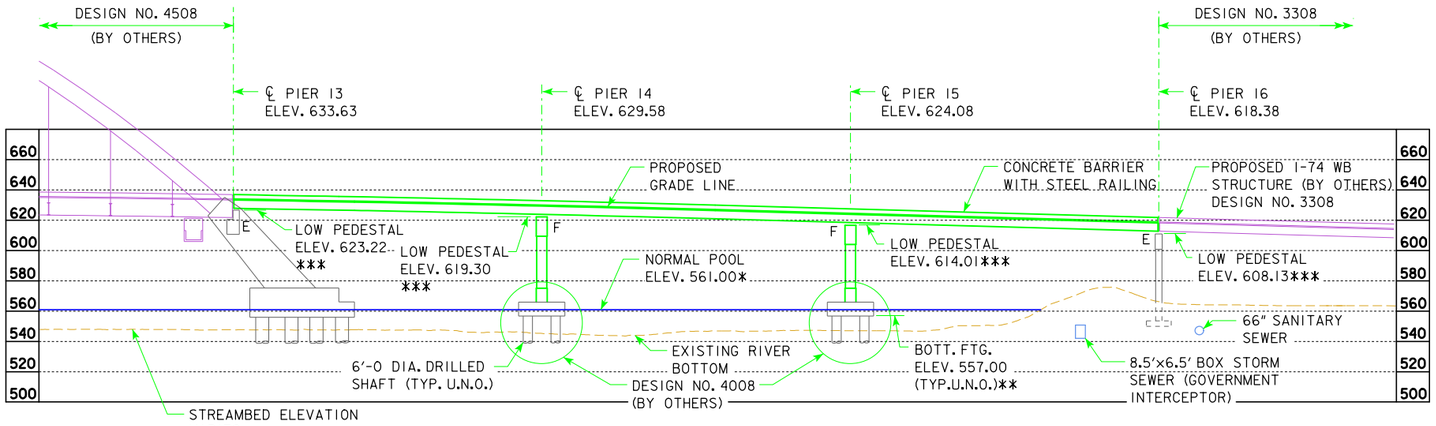
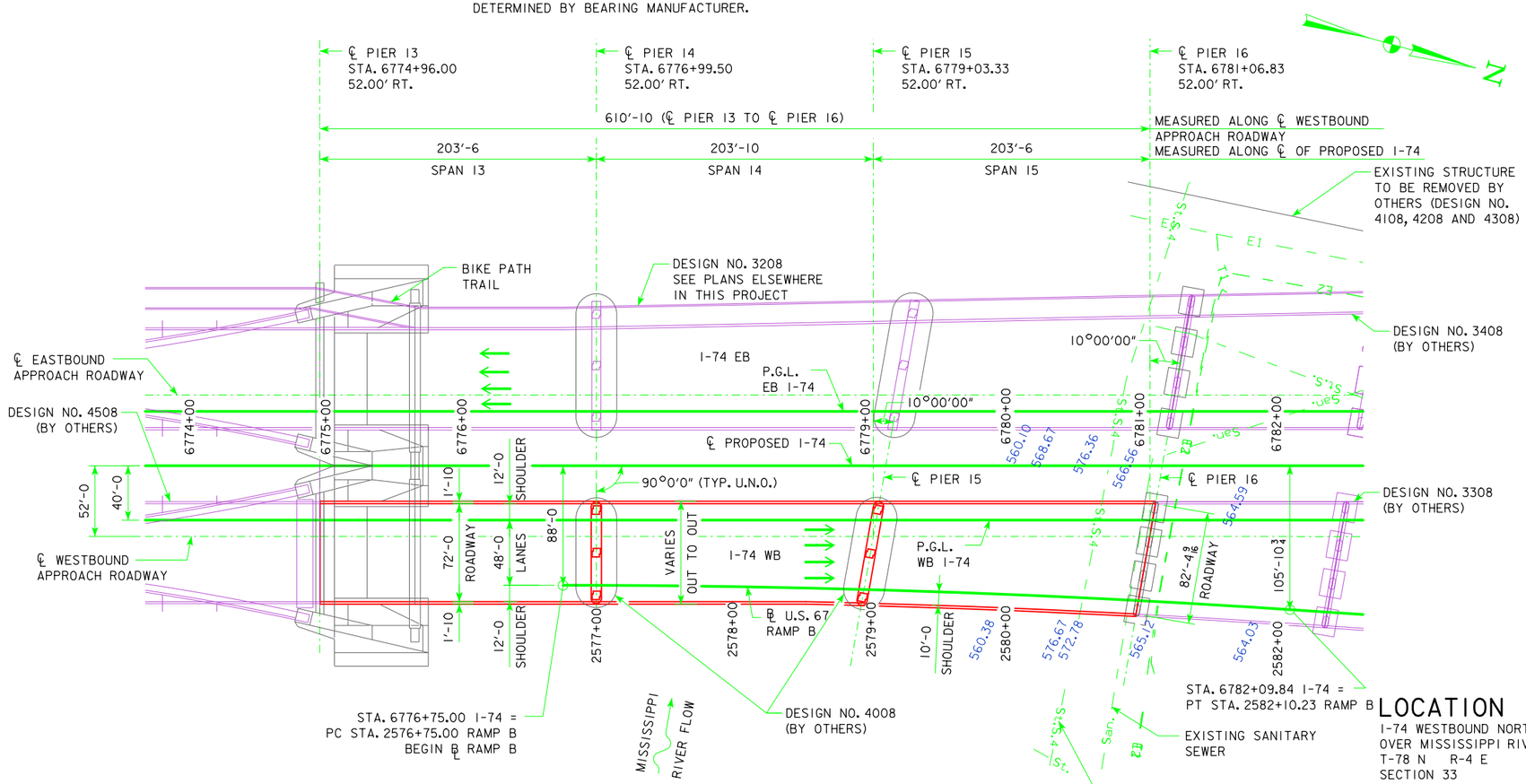


LONGITUDINAL SECTION ALONG CENTERLINE WESTBOUND APPROACH ROADWAY

NOTE: ELEVATIONS SHOWN ARE AT CENTERLINE WESTBOUND APPROACH ROADWAY.
** BOTTOM OF FOOTING ELEVATION SHOWN IS TO THE BOTTOM OF THE CONCRETE STAY-IN-PLACE FORM SLAB.
*** ELEVATION DEPENDENT ON FINAL BEARING HEIGHT. FINAL BEARING AND PEDESTAL ELEVATIONS TO BE DETERMINED BY BEARING MANUFACTURER.



SITUATION PLAN - SEGMENT 4

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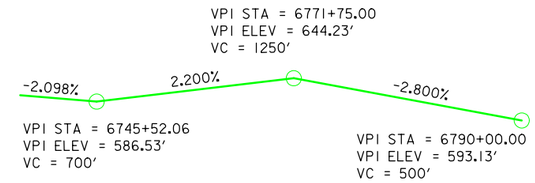
BENCH MARK NO. 500 STA. 6781+18.95 LT. 161.23'
ELEV. 575.797, CHISELED "X" IN BOLT E. SIDE
CONCRETE STRUCTURE

PROPOSED PROFILE GRADE I-74 WB



U.S. 67 RAMP B CURVE DATA

P.I. STA.=2579+42.72
Δ = 03° 50' 00"
D = 00° 42' 58.31"
T = 267.72'
L = 535.23'
E = 4.48'
R = 8,000.00'
e = N/C
P.C. STA.=2576+75.00
P.T. STA.=2582+10.23

NOTES:

ALL DIMENSIONS ARE SHOWN IN FEET.

STATIONS ARE MEASURED ALONG ℄ PROPOSED I-74.

FOR DRAIN LOCATIONS SEE DESIGN SHEET 80.

FOR HYDRAULIC DATA SEE DESIGN SHEET 4.

FOR LOCATIONS AND DETAILS OF LIGHT POLES, SEE DESIGN SHEETS 65 AND 66.

ELEVATIONS AND OFFSETS ARE GIVEN TO THE CENTERLINE WESTBOUND APPROACH ROADWAY.

ELEVATIONS SHOWN ARE BASED ON NAVD 88 DATUM UNLESS OTHERWISE NOTED.

* ELEVATIONS BASED ON NGVD 1912 DATUM.

U.N.O - DENOTES "UNLESS NOTED OTHERWISE"

E - DENOTES "EXPANSION BEARING"

F - DENOTES "FIXED BEARING"

I-74 WESTBOUND TRAFFIC ESTIMATE

2015	AADT	44,700	V.P.D.
2035	AADT	51,770	V.P.D.
2035	DHV	5,000	V.P.H.
TRUCKS		5	%

LOCATION

I-74 WESTBOUND NORTH APPROACH
OVER MISSISSIPPI RIVER
T-78 N R-4 E
SECTION 33
DAVENPORT TOWNSHIP
SCOTT COUNTY
CITY OF BETTENDORF
LATITUDE = 41.521624
LONGITUDE = -90.511941
FHWA NO. 47281

DESIGN FOR VARIABLE SKEW (LA)

610'-10 x VARIES CONTINUOUS WELDED GIRDER BRIDGE

2-203'-6 END SPANS 203'-10 INTERIOR SPAN

SITUATION PLAN

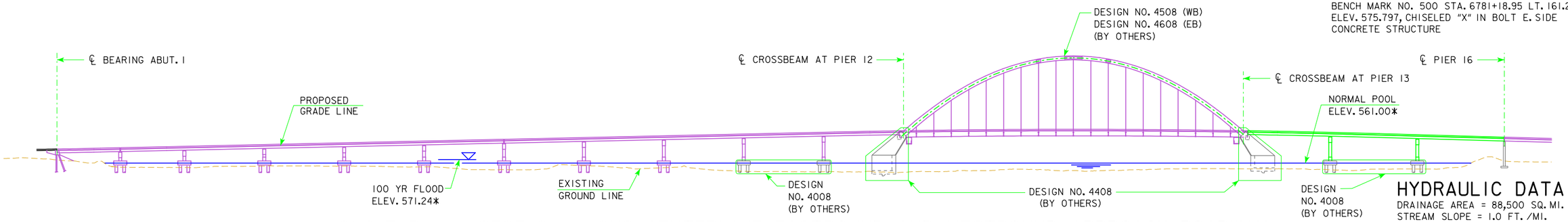
STA. 6778+01.41 52' RT. CL I-74

100% APPROVED
JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 3 OF 98 FILE NO. 30253 DESIGN NO. 3108



BENCH MARK NO. 500 STA. 6781+18.95 LT. 161.23'
ELEV. 575.797, CHISELED "X" IN BOLT E. SIDE
CONCRETE STRUCTURE

LONGITUDINAL SECTION ALONG CENTERLINE EASTBOUND AND WESTBOUND APPROACH ROADWAY

NOTE: PIERS NOT SHOWN SKEWED FOR CLARITY.

HYDRAULIC DATA

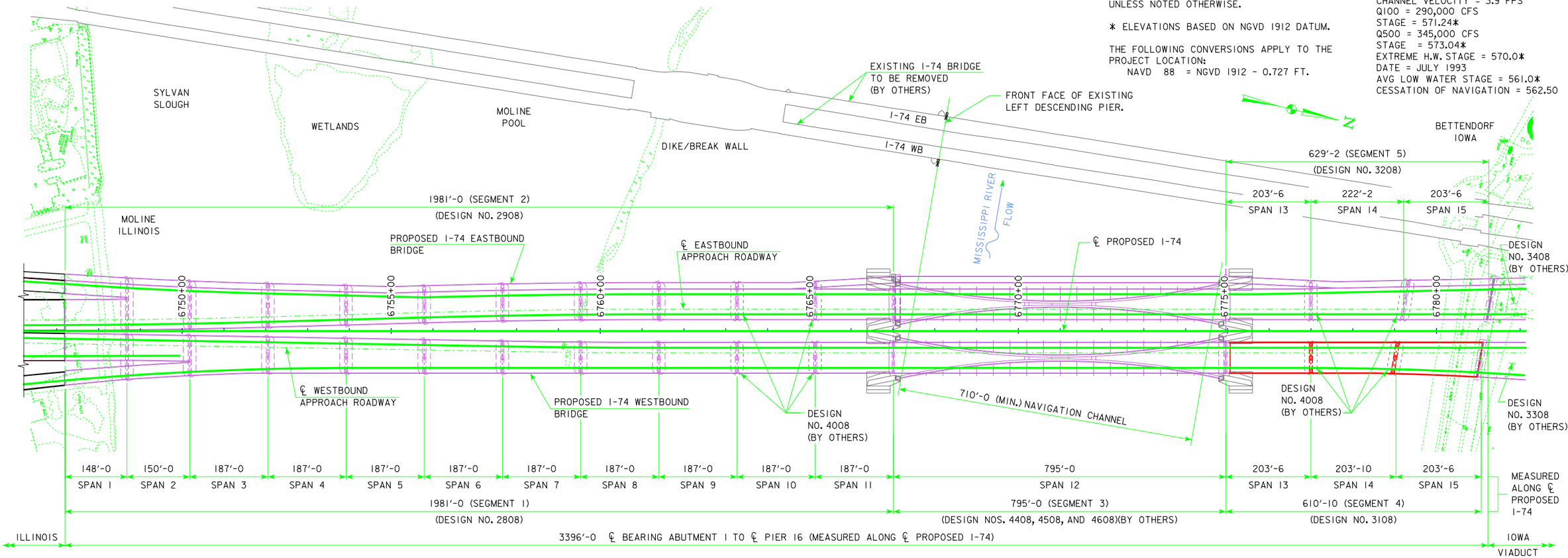
DRAINAGE AREA = 88,500 SQ. MI.
STREAM SLOPE = 1.0 FT. /MI.

Q2 = 134,000 CFS
STAGE = 563.63*
CHANNEL VELOCITY = 3.9 FPS
Q100 = 290,000 CFS
STAGE = 571.24*
Q500 = 345,000 CFS
STAGE = 573.04*
EXTREME H.W. STAGE = 570.0*
DATE = JULY 1993
AVG LOW WATER STAGE = 561.0*
CESSATION OF NAVIGATION = 562.50

ELEVATIONS SHOWN ARE BASED ON NAVD 88 DATUM UNLESS NOTED OTHERWISE.

* ELEVATIONS BASED ON NGVD 1912 DATUM.

THE FOLLOWING CONVERSIONS APPLY TO THE PROJECT LOCATION:
NAVD 88 = NGVD 1912 - 0.727 FT.



SCOUR DATA - EASTBOUND

CALC. SCOUR PIER 2 = 546.90
CALC. SCOUR PIER 3 = 546.40
CALC. SCOUR PIER 4 = 547.40
CALC. SCOUR PIER 5 = 548.90
CALC. SCOUR PIER 6 (E. END) = 546.40
CALC. SCOUR PIER 6 (W. END) = 543.90
CALC. SCOUR PIER 7 = 541.90
CALC. SCOUR PIER 8 = 539.40
CALC. SCOUR PIER 9 = 540.90
CALC. SCOUR PIER 10 = 537.90
CALC. SCOUR PIER 11 (E. END) = 529.90
CALC. SCOUR PIER 11 (W. END) = 535.90
CALC. SCOUR PIER 12 = 533.90
CALC. SCOUR PIER 13 (E. END) = 547.90
CALC. SCOUR PIER 13 (W. END) = 544.90
CALC. SCOUR PIER 14 (E. END) = 540.90
CALC. SCOUR PIER 14 (W. END) = 542.90
CALC. SCOUR PIER 15 = 546.40
CALCULATED SCOUR ELEV. (100 YR.) = MAXIMUM SCOUR ELEVATION (500 YR.)

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GENERAL PLAN

SCOUR DATA - WESTBOUND

CALC. SCOUR PIER 2 = 546.90
CALC. SCOUR PIER 3 = 544.40
CALC. SCOUR PIER 4 = 547.40
CALC. SCOUR PIER 5 = 547.90
CALC. SCOUR PIER 6 (E. END) = 542.90
CALC. SCOUR PIER 6 (W. END) = 547.90
CALC. SCOUR PIER 7 = 543.40
CALC. SCOUR PIER 8 = 538.90
CALC. SCOUR PIER 9 = 538.90
CALC. SCOUR PIER 10 (E. END) = 534.90
CALC. SCOUR PIER 10 (W. END) = 537.90
CALC. SCOUR PIER 11 (E. END) = 539.90
CALC. SCOUR PIER 11 (W. END) = 534.90
CALC. SCOUR PIER 12 = 535.90
CALC. SCOUR PIER 13 = 546.90
CALC. SCOUR PIER 14 = 541.90
CALC. SCOUR PIER 15 = 543.90
CALCULATED SCOUR ELEV. (100 YR.) = MAXIMUM SCOUR ELEVATION (500 YR.)

HYDRAULIC NOTES:

1. ALL RIVER ELEVATIONS ARE NGVD 1912 DATUM AND TAKEN AT RIVER MILE 486, JUST UPSTREAM FROM THE PROPOSED BRIDGE. THE RIVER ELEVATIONS COME FROM THE PROPOSED BRIDGE CONFIGURATION MODELED WITH FESWMS, A 2D DEPTH-AVERAGED HYDRAULIC MODEL.

2. THE AVERAGE LOW WATER STAGE IS THE SAME AS THE NORMAL POOL STAGE IN THE LOCK AND DAM 15 NAVIGATION POOL.

3. THE SCOUR CALCULATIONS WERE COMPUTED FOLLOWING HEC-18 PROCEDURES INSIDE OF A HEC-RAS BACKWATER MODEL SEPARATE THE FROM FESWMS MODEL REFERENCED IN HYDRAULIC NOTE 1. THE ENGINEERS CERTIFICATION PERTAINING TO THE HYDRAULIC DATA DOES NOT COVER THE SCOUR DATA.

DESIGN FOR VARIABLE SKEW (LA)

610'-10 x VARIES CONTINUOUS WELDED GIRDER BRIDGE

2-203'-6 END SPANS 203'-10 INTERIOR SPAN

GENERAL PLAN

STA. 6778+01.41 52' RT. CL I-74

100% APPROVED
JANUARY 2014

SCOTT COUNTY

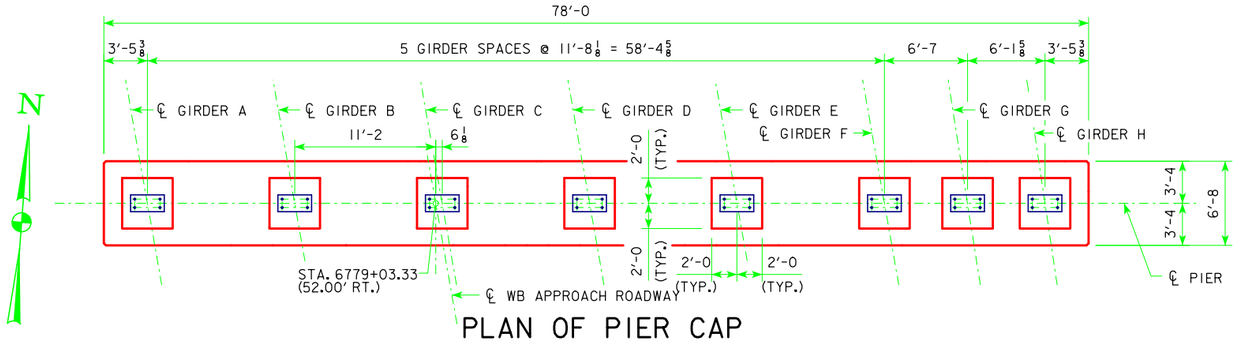
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 4 OF 98 FILE NO. 30253 DESIGN NO. 3108

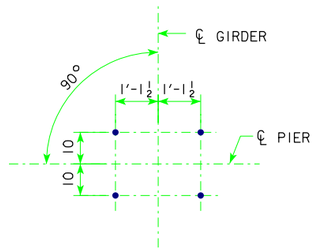
DESIGN TEAM EFS/BS/DJM | SCOTT COUNTY | PROJECT NUMBER BRFIM-074-1(197)5--05-82 | SHEET NUMBER 666

1/23/2014 6:40:14 AM tsorens pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\8207401003\BRFinal\100 Compiled Approved 2013 Files\Task 900\82074197.brg 823108S004 11x17_pdf.pltcfg

BENCH MARK NO. 500: STA. 6781+18.95 LT. 161.23' ELEV. 575.797, CHISELED "X" IN BOLT E. SIDE CONCRETE STRUCTURE.

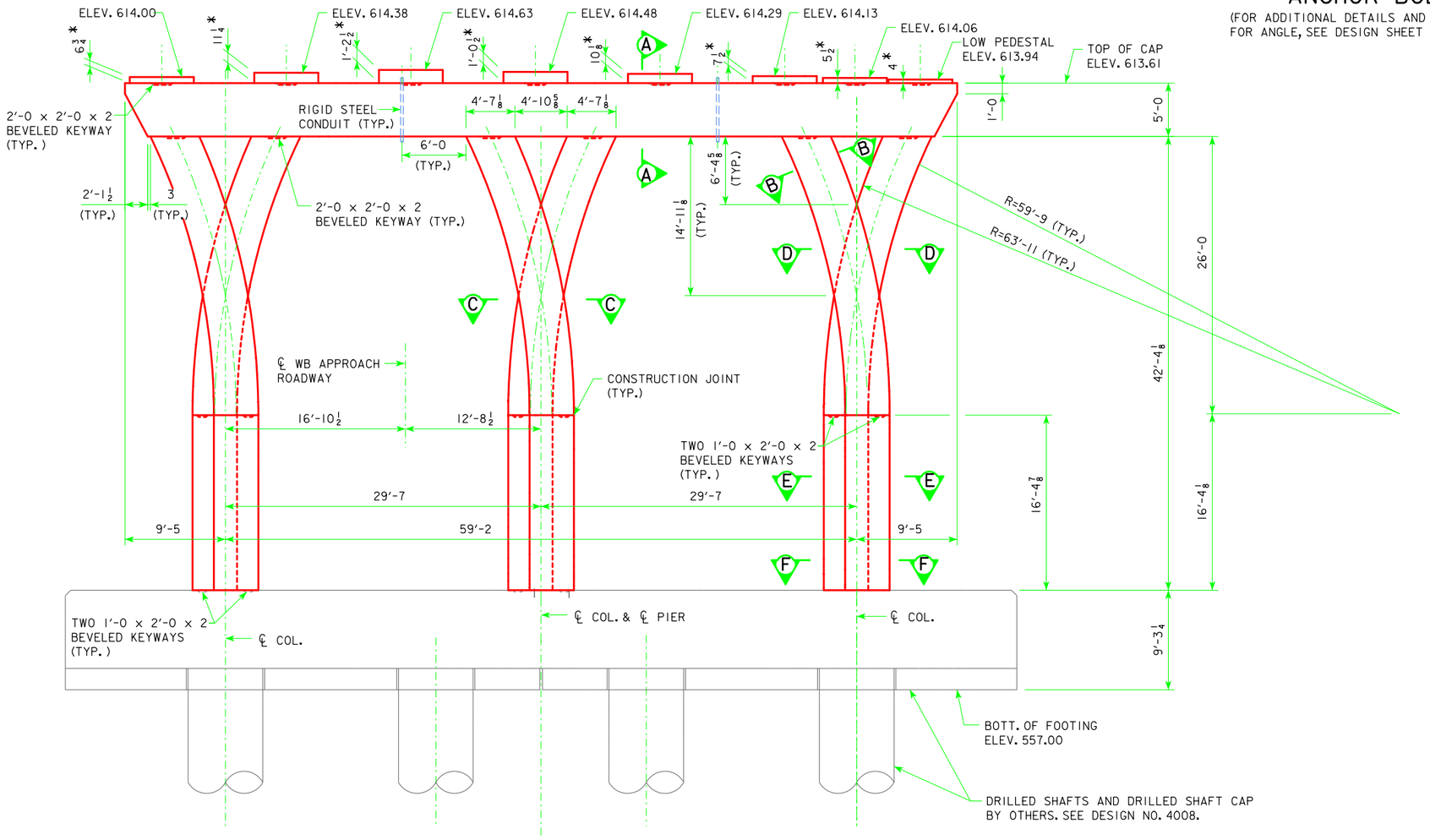


PLAN OF PIER CAP



ANCHOR BOLT LAYOUT

(FOR ADDITIONAL DETAILS AND NOTES, SEE DESIGN SHEETS 16 THRU 18. FOR ANGLE, SEE DESIGN SHEET 18).



PIER 15 ELEVATION

LOOKING NORTH

NOTES:

1. FOR SECTIONS B-B, C-C, D-D, E-E & F-F, SEE DESIGN SHEET 13.
2. FOR SECTION A-A, SEE DESIGN SHEET 14.
3. "*" REFERS TO NOTE 2 ON DESIGN SHEET 5.
4. FOR ADDITIONAL NOTES SEE DESIGN SHEET 5.
5. COLUMN REINFORCEMENT DETAILS IN THESE PLANS WERE DEVELOPED BASED ON THE EXISTING BRIDGE PLANS FROM DESIGN NO. 4008. THE BRIDGE CONTRACTOR SHALL REFER TO THE CONSTRUCTION SURVEY AND VERIFY THE DETAILS, DIMENSIONS AND SUBSTRUCTURE LOCATIONS BEFORE STARTING CONSTRUCTION OR FABRICATING STRUCTURAL STEEL AND STEEL REINFORCEMENT.

DESIGN FOR VARIABLE SKEW (LA)

610'-10 x VARIES CONTINUOUS WELDED GIRDER BRIDGE

2-203'-6 END SPANS 203'-10 INTERIOR SPAN

PIER 15 DETAILS

STA. 6778+01.41 52' RT. CL I-74

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IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 11 OF 98 FILE NO. 30253 DESIGN NO. 3108

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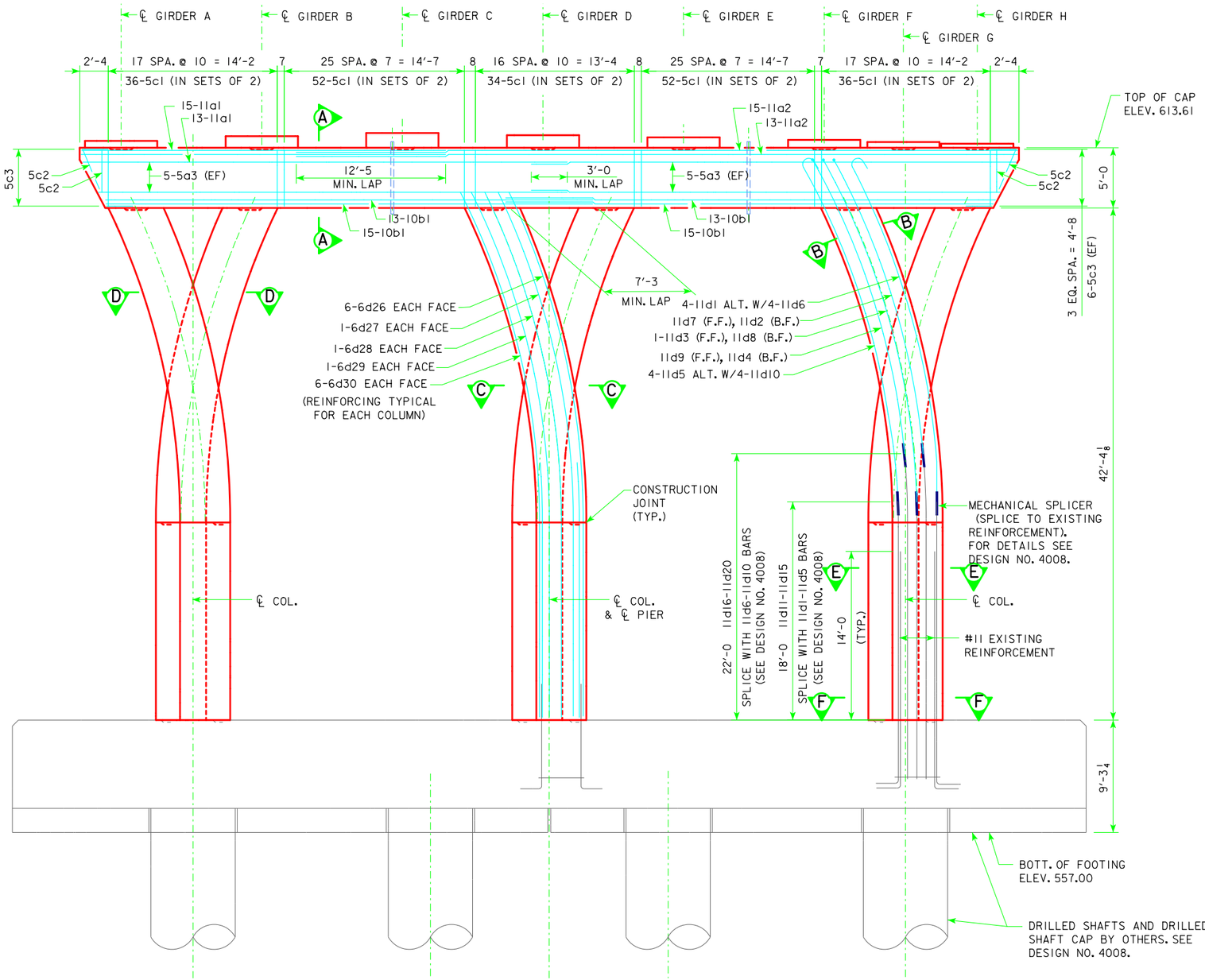
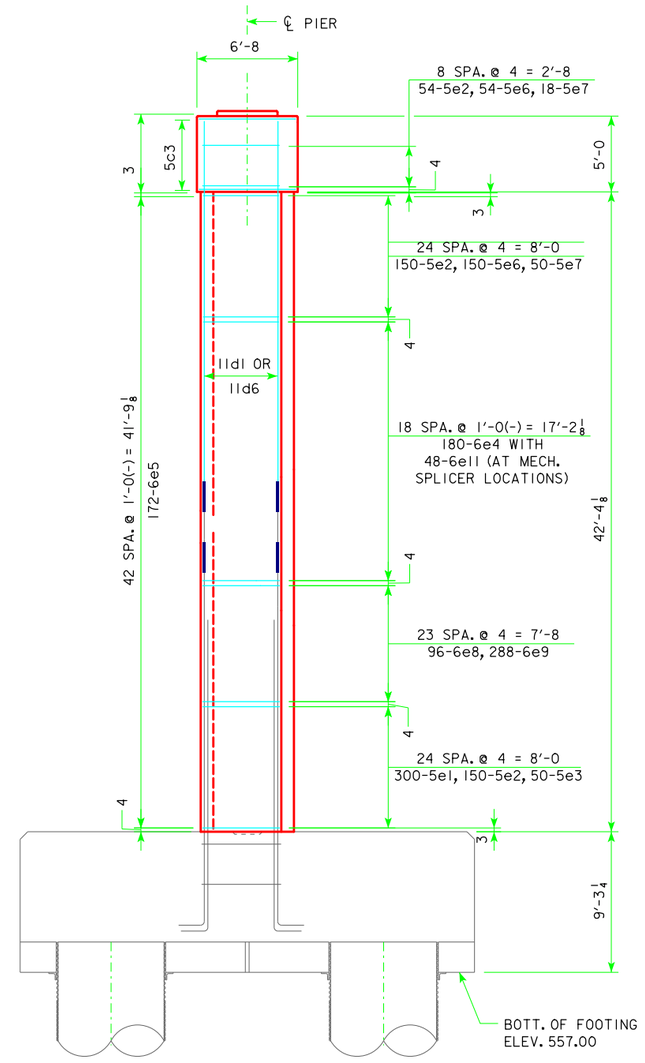
DESIGN TEAM RJT/VH/KMP	SCOTT COUNTY	PROJECT NUMBER BRFIM-074-1(197)5--05-82	SHEET NUMBER 673

BENCH MARK NO. 500: STA. 6781+18.95 LT. 161.23' ELEV. 575.797, CHISELED "X" IN BOLT E. SIDE CONCRETE STRUCTURE.



PIER 15 ELEVATION
LOOKING NORTH



END VIEW
(OUTER VERTICAL 6d BARS NOT SHOWN FOR CLARITY)

NOTES:

LONGITUDINAL COLUMN BARS SHOWN IN ELEVATION ARE PER ONE ELEMENT OF EACH COLUMN (6 LOCATIONS). COLUMN TIES SHOWN IN END VIEW ARE PER COLUMN (3 LOCATIONS).

11d1-11d10 BARS SHALL BE SPLICED WITH EXISTING #11 BARS AT THE LOCATION SHOWN.

SEE DESIGN SHEET 11 FOR DIMENSIONS AND ELEVATIONS

SEE DESIGN SHEET 5 FOR ADDITIONAL NOTES.

REFER TO NOTE 2 ON DESIGN SHEET 5.

DESIGN FOR VARIABLE SKEW (LA)

610'-10 x VARIES CONTINUOUS WELDED GIRDER BRIDGE

2-203'-6 END SPANS 203'-10 INTERIOR SPAN

PIER 15 DETAILS

STA. 6778+01.41 52' RT. CL I-74

100% APPROVED JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 12 OF 98 FILE NO. 30253 DESIGN NO. 3108

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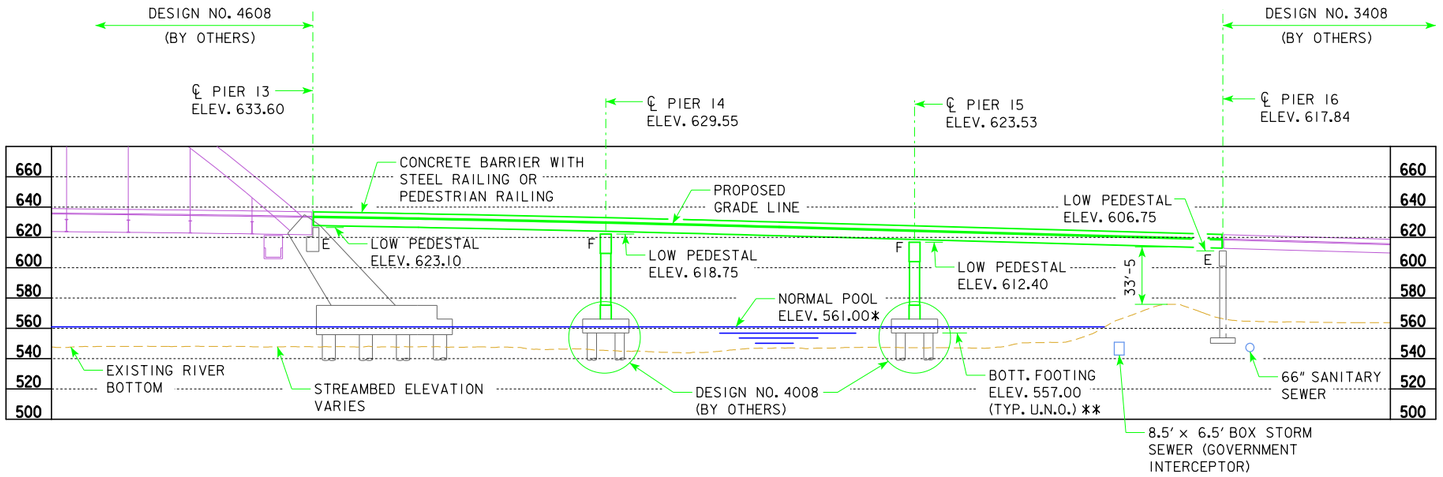
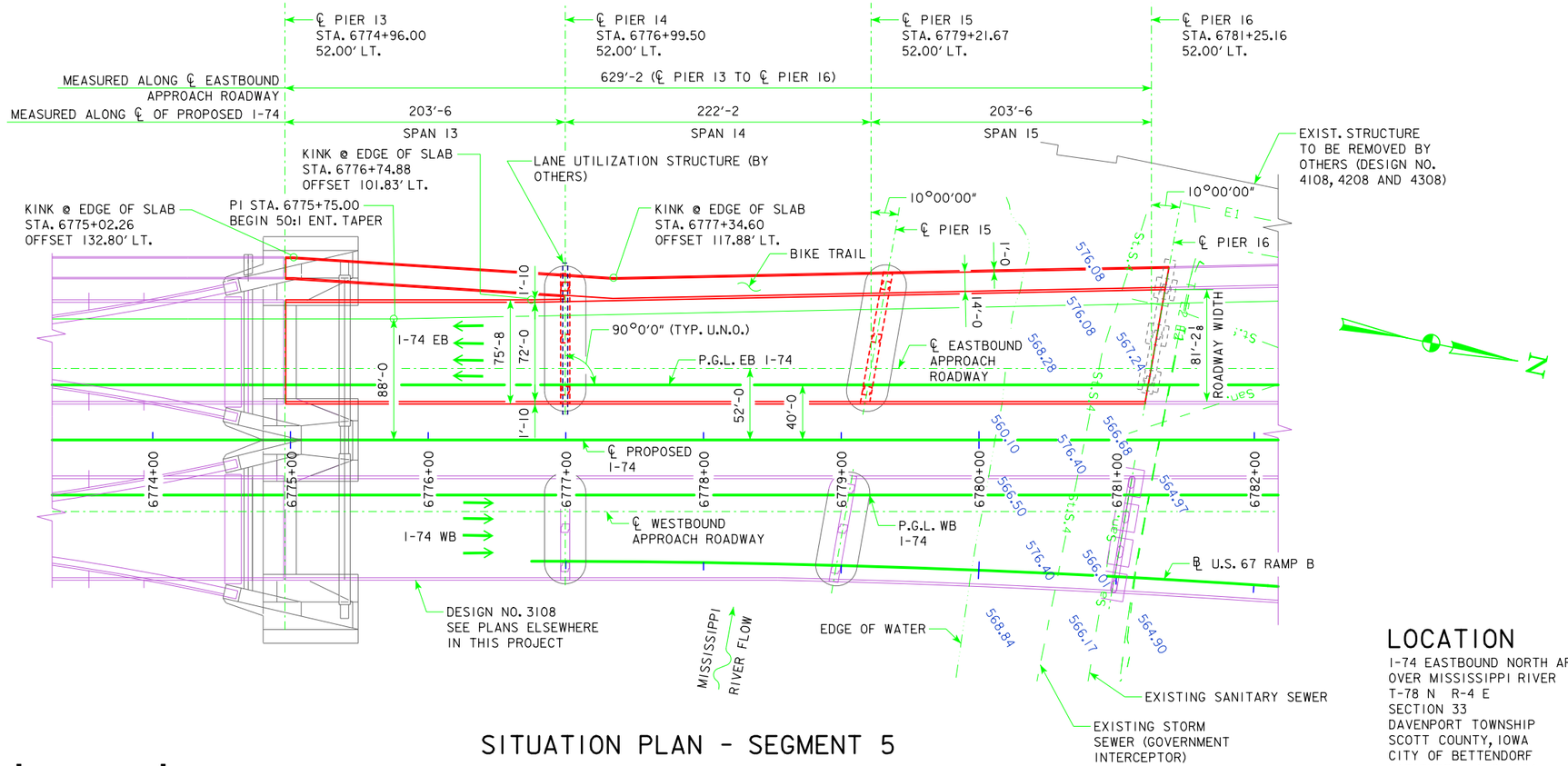
DESIGN TEAM RJT/VH/KMP | SCOTT COUNTY | PROJECT NUMBER BRFIM-074-1(197)5--05-82 | SHEET NUMBER 674



LONGITUDINAL SECTION ALONG CENTERLINE EASTBOUND APPROACH ROADWAY

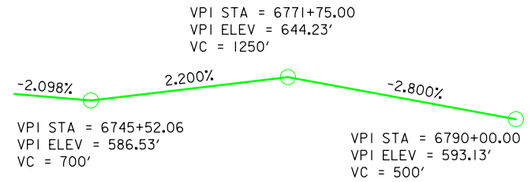
NOTE: ELEVATIONS SHOWN ARE AT CENTERLINE EASTBOUND APPROACH ROADWAY.
** BOTTOM OF FOOTING ELEVATION IS TO THE BOTTOM OF THE CONCRETE STAY-IN-PLACE FORM SLAB.



SITUATION PLAN - SEGMENT 5

BENCH MARK NO. 500: STA. 6781+18.95 LT. 161.23' ELEV. 575.797, CHISELED "X" IN BOLT E. SIDE CONCRETE STRUCTURE.

PROPOSED PROFILE GRADE I-74 EB



NOTES:

ALL DIMENSIONS ARE SHOWN IN FEET.

STATIONS ARE MEASURED ALONG ℄ PROPOSED I-74.

FOR HYDRAULIC DATA SEE DESIGN SHEET 4.

FOR DRAIN LOCATIONS, SEE DESIGN SHEET 111.

FOR LOCATIONS AND DETAILS OF CONDUIT AND LIGHT POLES, SEE DESIGN SHEETS 91 THRU 95.

ELEVATIONS AND OFFSETS ARE GIVEN TO THE CENTERLINE EASTBOUND APPROACH ROADWAY UNLESS NOTED OTHERWISE.

ELEVATIONS SHOWN ARE BASED ON NAVD 88 DATUM UNLESS NOTED OTHERWISE.

* ELEVATIONS BASED ON NGVD 1912 DATUM.

U.N.O. - DENOTES "UNLESS NOTED OTHERWISE"

E - DENOTES "EXPANSION BEARING"

F - DENOTES "FIXED BEARING"

I-74 EASTBOUND TRAFFIC ESTIMATE

2015	AADT	44,020	V.P.D.
2035	AADT	52,160	V.P.D.
2035	DHV	4,850	V.P.H.
TRUCKS		5	%

LOCATION

I-74 EASTBOUND NORTH APPROACH
OVER MISSISSIPPI RIVER
T-78 N R-4 E
SECTION 33
DAVENPORT TOWNSHIP
SCOTT COUNTY, IOWA
CITY OF BETTENDORF
LATITUDE = 41.521594
LONGITUDE = -90.512320
FHWA NO. 47291

DESIGN FOR VARIABLE SKEW (LA)

629'-2 x VARIES CONTINUOUS WELDED GIRDER BRIDGE W/14' BIKE TRAIL

2-203'-6 END SPANS 222'-2 INTERIOR SPAN

SITUATION PLAN

STA. 6778+10.58 52' LT. CL I-74

100% APPROVED JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 3 OF 133 FILE NO. 30253 DESIGN NO. 3208

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DESIGN TEAM DMS/DMS/KWS	SCOTT COUNTY	PROJECT NUMBER BRFIM-074-1(197)5--05-82	SHEET NUMBER 763

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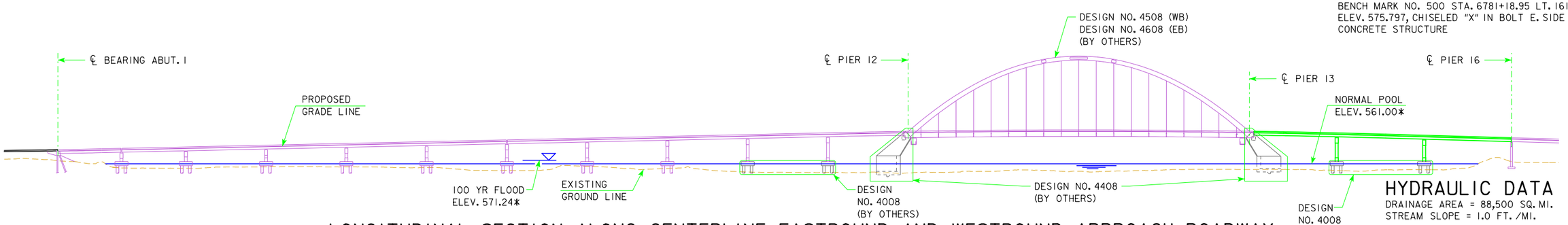
MODEL:$MODEL

BENCH MARK NO. 500 STA. 6781+18.95 LT. 161.23'
ELEV. 575.797, CHISELED "X" IN BOLT E. SIDE
CONCRETE STRUCTURE



LONGITUDINAL SECTION ALONG CENTERLINE EASTBOUND AND WESTBOUND APPROACH ROADWAY

NOTE: PIERS NOT SHOWN SKEWED FOR CLARITY.

HYDRAULIC DATA

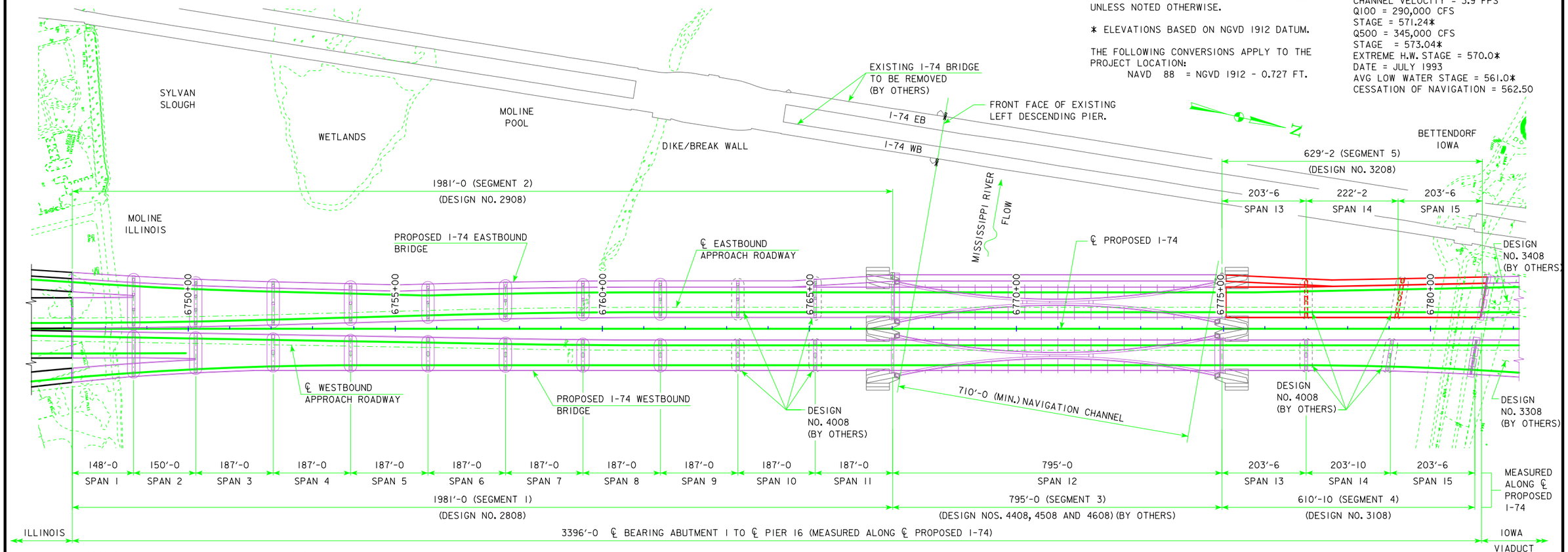
DRAINAGE AREA = 88,500 SQ. MI.
STREAM SLOPE = 1.0 FT. /MI.

Q2 = 134,000 CFS
STAGE = 563.63*
CHANNEL VELOCITY = 3.9 FPS
Q100 = 290,000 CFS
STAGE = 571.24*
Q500 = 345,000 CFS
STAGE = 573.04*
EXTREME H.W. STAGE = 570.0*
DATE = JULY 1993
AVG LOW WATER STAGE = 561.0*
CESSATION OF NAVIGATION = 562.50

ELEVATIONS SHOWN ARE BASED ON NAVD 88 DATUM UNLESS NOTED OTHERWISE.

* ELEVATIONS BASED ON NGVD 1912 DATUM.

THE FOLLOWING CONVERSIONS APPLY TO THE PROJECT LOCATION:
NAVD 88 = NGVD 1912 - 0.727 FT.



SCOUR DATA - EASTBOUND

CALC. SCOUR PIER 2 = 546.90
CALC. SCOUR PIER 3 = 546.40
CALC. SCOUR PIER 4 = 547.40
CALC. SCOUR PIER 5 = 548.90
CALC. SCOUR PIER 6 (E. END) = 546.40
CALC. SCOUR PIER 6 (W. END) = 543.90
CALC. SCOUR PIER 7 = 541.90
CALC. SCOUR PIER 8 = 539.40
CALC. SCOUR PIER 9 = 540.90
CALC. SCOUR PIER 10 = 537.90
CALC. SCOUR PIER 11 (E. END) = 529.90
CALC. SCOUR PIER 11 (W. END) = 535.90
CALC. SCOUR PIER 12 = 533.90
CALC. SCOUR PIER 13 (E. END) = 547.90
CALC. SCOUR PIER 13 (W. END) = 544.90
CALC. SCOUR PIER 14 (E. END) = 540.90
CALC. SCOUR PIER 14 (W. END) = 542.90
CALC. SCOUR PIER 15 = 546.40
CALCULATED SCOUR ELEV. (100 YR.) = MAXIMUM SCOUR ELEVATION (500 YR.)

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205 North Michigan Avenue, Suite 2400
Chicago, Illinois 60601
312-565-0450 Job No. 10061

GENERAL PLAN

SCOUR DATA - WESTBOUND

CALC. SCOUR PIER 2 = 546.90
CALC. SCOUR PIER 3 = 544.40
CALC. SCOUR PIER 4 = 547.40
CALC. SCOUR PIER 5 = 547.90
CALC. SCOUR PIER 6 (E. END) = 542.90
CALC. SCOUR PIER 6 (W. END) = 547.90
CALC. SCOUR PIER 7 = 543.40
CALC. SCOUR PIER 8 = 538.90
CALC. SCOUR PIER 9 = 538.90
CALC. SCOUR PIER 10 (E. END) = 534.90
CALC. SCOUR PIER 10 (W. END) = 537.90
CALC. SCOUR PIER 11 (E. END) = 539.90
CALC. SCOUR PIER 11 (W. END) = 534.90
CALC. SCOUR PIER 12 = 535.90
CALC. SCOUR PIER 13 = 546.90
CALC. SCOUR PIER 14 = 541.90
CALC. SCOUR PIER 15 = 543.90
CALCULATED SCOUR ELEV. (100 YR.) = MAXIMUM SCOUR ELEVATION (500 YR.)

HYDRAULIC NOTES:

1. ALL RIVER ELEVATIONS ARE NGVD 1912 DATUM AND TAKEN AT RIVER MILE 486, JUST UPSTREAM FROM THE PROPOSED BRIDGE. THE RIVER ELEVATIONS COME FROM THE PROPOSED BRIDGE CONFIGURATION MODELED WITH FESWMS, A 2D DEPTH-AVERAGED HYDRAULIC MODEL.

2. THE AVERAGE LOW WATER STAGE IS THE SAME AS THE NORMAL POOL STAGE IN THE LOCK AND DAM 15 NAVIGATION POOL.

3. THE SCOUR CALCULATIONS WERE COMPUTED FOLLOWING HEC-18 PROCEDURES INSIDE OF A HEC-RAS BACKWATER MODEL SEPARATE FROM THE FESWMS MODEL REFERENCED IN HYDRAULIC NOTE 1. THE ENGINEERS CERTIFICATION PERTAINING TO THE HYDRAULIC DATA DOES NOT COVER THE SCOUR DATA.

DESIGN FOR VARIABLE SKEW (LA)

629'-2 x VARIES CONTINUOUS WELDED GIRDER BRIDGE W/14' BIKE TRAIL

2-203'-6 END SPANS 222'-2 INTERIOR SPAN

GENERAL PLAN

STA. 6778+10.58 52' LT. CL I-74

100% APPROVED
JANUARY 2014

SCOTT COUNTY

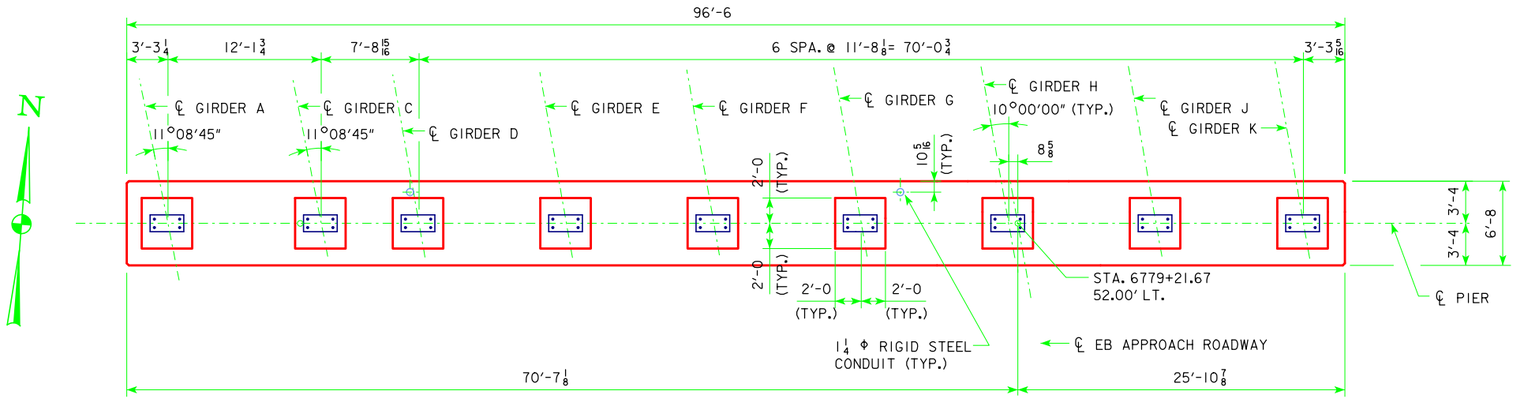
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 4 OF 133 FILE NO. 30253 DESIGN NO. 3208

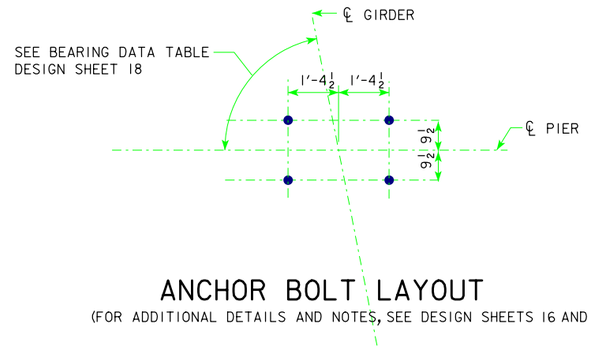
DESIGN TEAM DMS/DMS/KWS | SCOTT COUNTY | PROJECT NUMBER BRFIM-074-1(197)5--05-82 | SHEET NUMBER 764

1/23/2014 6:44:48 AM tsorens pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\8207401003\BRFinal\100 Compiled Approved 2013 Files\Task 900\82074197.brg 823208S004 11x17_pdf.pltcfg
MODEL: $MODEL

BENCH MARK NO. 500: STA. 6781+18.95 LT. 161.23' ELEV. 575.797, CHISELED "X" IN BOLT E. SIDE CONCRETE STRUCTURE.

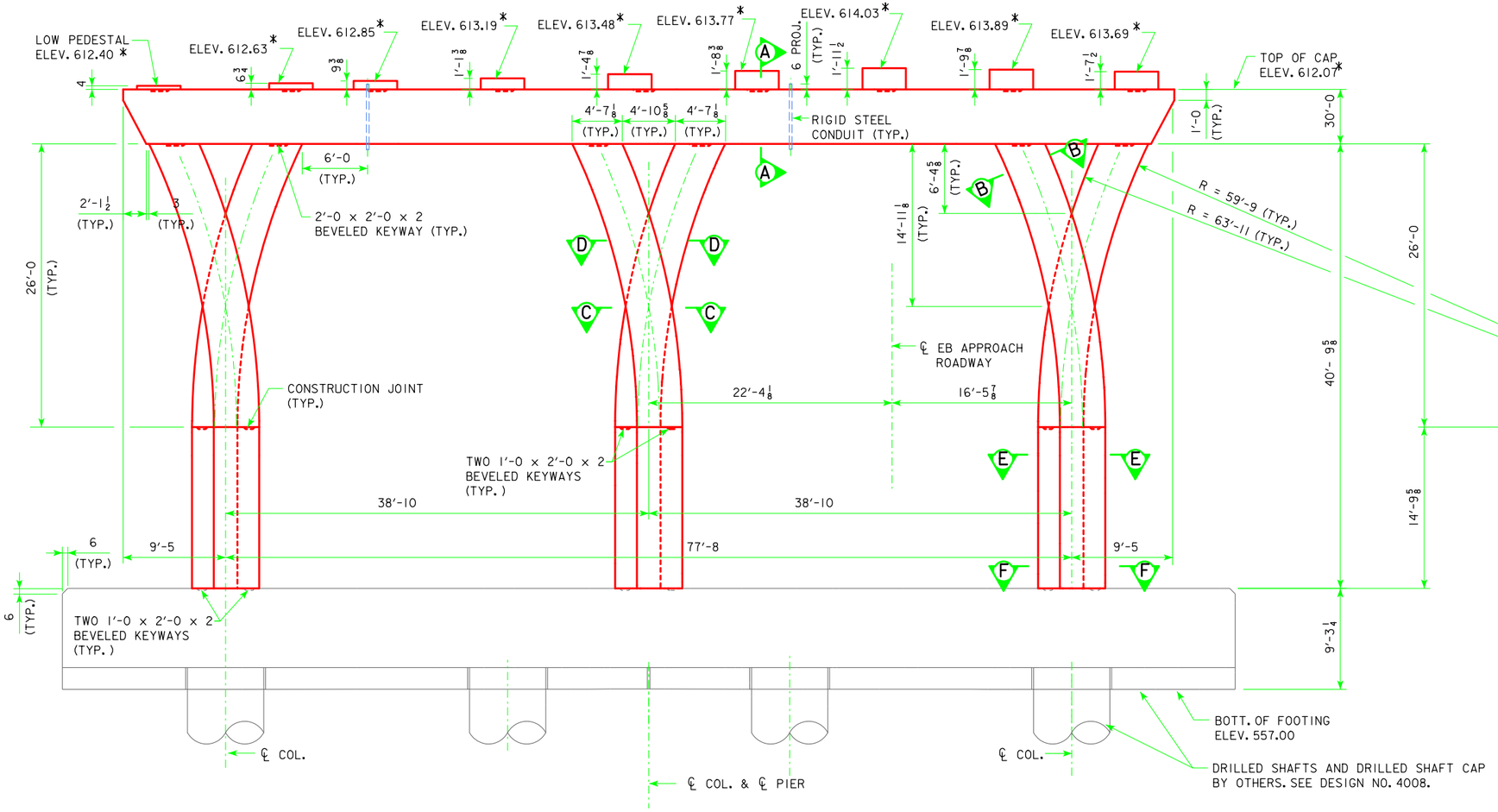


PLAN OF PIER CAP



ANCHOR BOLT LAYOUT

(FOR ADDITIONAL DETAILS AND NOTES, SEE DESIGN SHEETS 16 AND 18)



PIER 15 ELEVATION

LOOKING NORTH

NOTES:

1. FOR SECTIONS B-B, C-C, D-D, E-E & F-F, SEE DESIGN SHEET 13.
2. FOR SECTION A-A, SEE DESIGN SHEET 14.
3. "*" REFERS TO NOTE 2 ON DESIGN SHEET 5 .
4. FOR ADDITIONAL NOTES SEE DESIGN SHEET 5 .
5. COLUMN REINFORCEMENT DETAILS IN THESE PLANS WERE DEVELOPED BASED ON THE EXISTING BRIDGE PLANS FROM DESIGN NO. 4008. THE BRIDGE CONTRACTOR SHALL REFER TO THE CONSTRUCTION SURVEY AND VERIFY THE DETAILS, DIMENSIONS AND SUBSTRUCTURE LOCATIONS BEFORE STARTING CONSTRUCTION OR FABRICATING STRUCTURAL STEEL AND STEEL REINFORCEMENT.

DESIGN FOR VARIABLE SKEW (LA)

629'-2 x VARIES CONTINUOUS WELDED GIRDER BRIDGE W/14' BIKE TRAIL

2-203'-6 END SPANS 222'-2 INTERIOR SPAN

PIER 15 DETAILS

STA. 6778+10.58 52' LT. CL I-74

100% APPROVED JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 11 OF 133 FILE NO. 30253 DESIGN NO. 3208

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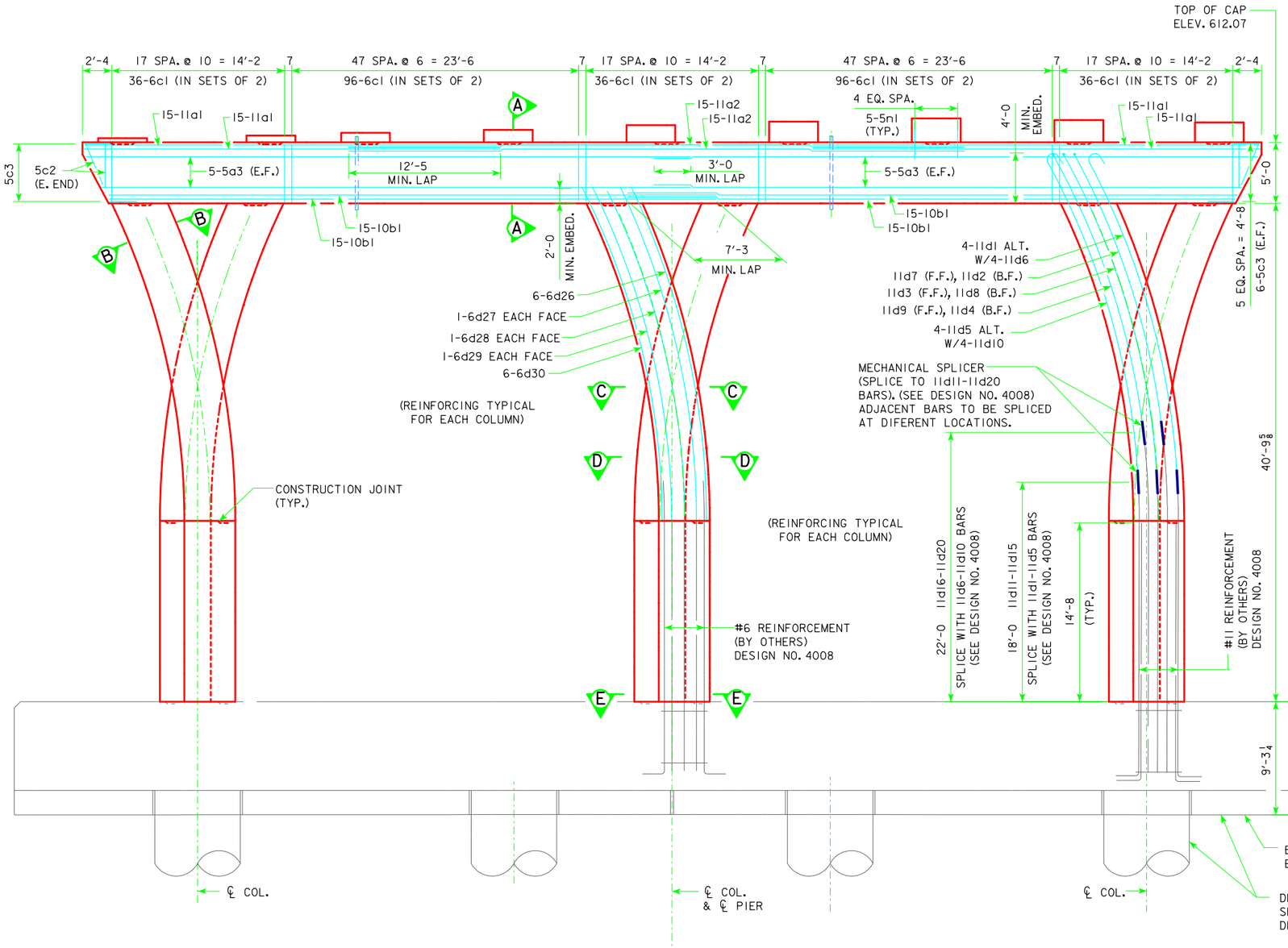
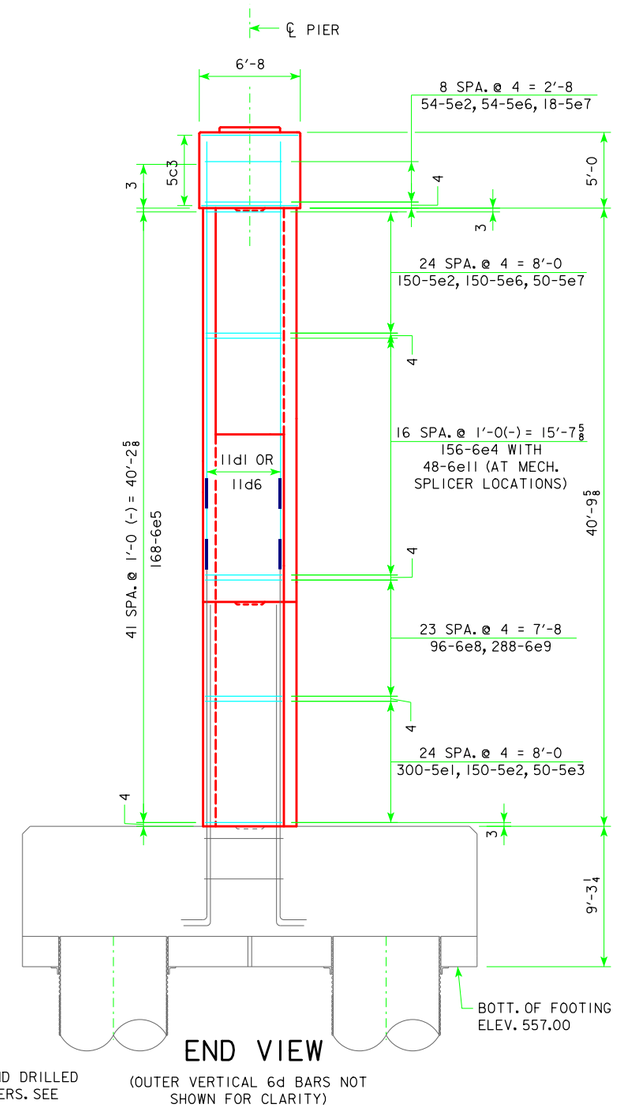
Chicago, Illinois 60601
312-565-0450 Job No. 10061

DESIGN TEAM TJJ/VH/KMP	SCOTT COUNTY	PROJECT NUMBER BRFIM-074-1(197)5--05-82	SHEET NUMBER 771

1/23/2014 6:45:02 AM tsorens pw:\\projectwise.dot.int.lan:PWMain\Documents\Projects\8207401003\BRFinal\100 Compiled Approved 2013 Files\Task 900\82074197.brg 823208S011 11x17_pdf.pltcfg
MODEL:$MODEL

BENCH MARK NO. 500: STA. 6781+18.95 LT. 161.23' ELEV. 575.797, CHISELED "X" IN BOLT E. SIDE CONCRETE STRUCTURE.





PIER 15 ELEVATION
LOOKING NORTH

END VIEW
(OUTER VERTICAL 6d BARS NOT SHOWN FOR CLARITY)

**FOR PEDESTAL HEIGHT GREATER THAN 1'-6 PROVIDE ONE ADDITIONAL SET OF 5n2 BARS.

NOTES:
LONGITUDINAL COLUMN BARS SHOWN IN ELEVATION ARE PER ONE ELEMENT OF EACH COLUMN (6 LOCATIONS). COLUMN TIES SHOWN IN END VIEW ARE PER COLUMN (3 LOCATIONS).

11d1-11d10 BARS SHALL BE SPLICED WITH EXISTING #11 BARS AT THE LOCATION SHOWN.

SEE DESIGN SHEET 11 FOR DIMENSIONS AND ELEVATIONS

SEE DESIGN SHEET 5 FOR ADDITIONAL NOTES.

*REFER TO NOTE 2 ON DESIGN SHEET 5.

DESIGN FOR VARIABLE SKEW (LA)

629'-2 x VARIES CONTINUOUS WELDED GIRDER BRIDGE W/14' BIKE TRAIL

2-203'-6 END SPANS — 222'-2 INTERIOR SPAN

PIER 15 DETAILS

STA. 6778+10.58 52' LT. CL I-74

100% APPROVED JANUARY 2014

SCOTT COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 12 OF 133 FILE NO. 30253 DESIGN NO. 3208

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Chicago, Illinois 60601
312-565-0450 Job No. 10061

DESIGN TEAM TJJ/VH/KMP | SCOTT COUNTY | PROJECT NUMBER BRFIM-074-1(197)5--05-82 | SHEET NUMBER 772

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MODEL:$MODEL

BRIDGE REMOVAL LETTING DATE
IM-074-1(214)5--13-82

ROCK ISLAND COUNTY

LEGEND

INTERSTATE ROUTE	29
FREEWAY OR EXPRESSWAY ROUTE	69
U.S. NUMBERED ROUTE	6
STATE NUMBERED ROUTE	44
COUNTY NUMBERED ROUTE	A13
LOCAL ROAD OR CITY STREET	
RAILROAD	
CORPORATION LINE	
SECTION LINE	
CUL DE SAC	
SECTION, TOWNSHIP & RANGE NUMBERS	9 , T-81N , R-30W
PIPELINE	
AIRPORT	
HYDROLOGY	
BRIDGE	
STATE BOUNDARY	
COUNTY BOUNDARY	
CORPORATE LIMIT LINE	
TOWNSHIP LINE	

IOWA DOT
Highway Division

PLANS OF PROPOSED IMPROVEMENTS ON THE

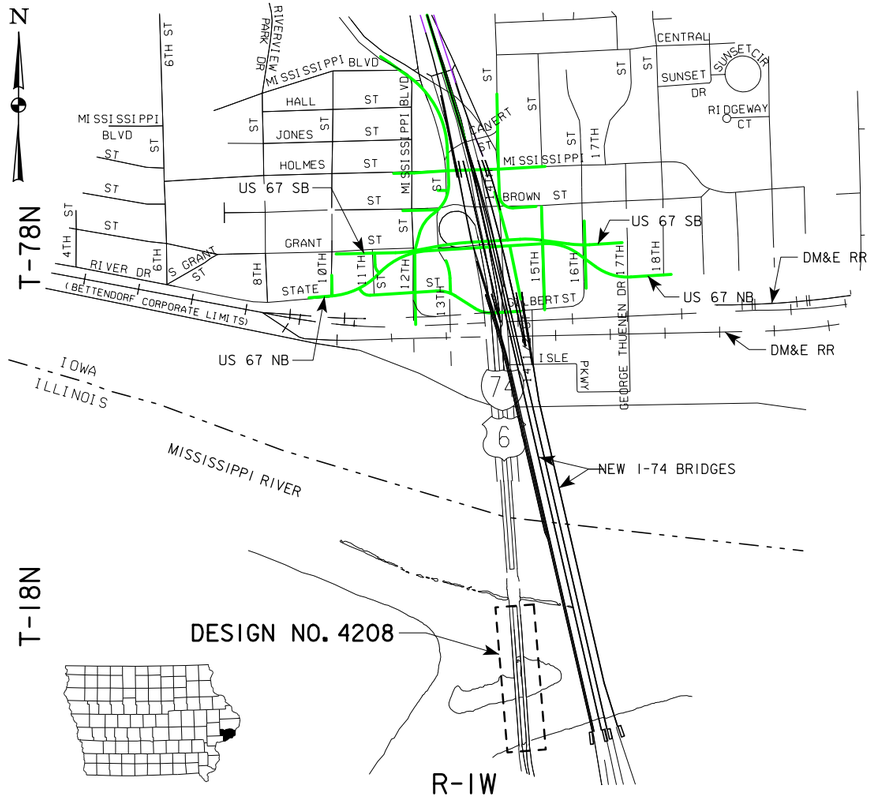
INTERSTATE ROAD SYSTEM

ROCK ISLAND COUNTY

BRIDGE REMOVAL
I-74 MISSISSIPPI RIVER BRIDGES
BETWEEN BETTENDORF, IA AND MOLINE, IL

THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2015, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

R-4E



LOCATION MAP - PART OF CITY OF BETTENDORF

PROJECT DIRECTORY NAME: P0022000/8207401003

IOWA ONE CALL
1-800-292-8989
www.iowaonecall.com
811
Know what's below. Call before you dig.

FINAL PLANS - FOR REVIEW
NOT FOR CONSTRUCTION
DECEMBER 2014

ALL WORKING DRAWINGS INCLUDING SHOP DRAWINGS AND FALSEWORK DRAWINGS WILL BE REVIEWED BY:

ALFRED BENESCH & COMPANY
205 NORTH MICHIGAN AVENUE, SUITE 2400
CHICAGO, IL 60601

ENGLISH STANDARD BRIDGE PLANS

STANDARD	ISSUED	REVISED

REVISIONS

TOTAL SHEETS
14
PROJECT NUMBER
IM-074-1(214)5-13-82
R.O.W. PROJECT NUMBER
PROJECT IDENTIFICATION NUMBER
03-82-074-010-03

INDEX OF SHEETS

NO.	DESCRIPTION
1	TITLE SHEET
2	ESTIMATE SHEET - DESIGN NO. 4208
3-12	DESIGN NO. 4208
C.1	POLLUTION PREVENTION PLAN
C.2	EROSION CONTROL

STANDARD ROAD PLANS

STANDARD ROAD PLANS ARE LISTED ON SHEET 2

INDEX OF SEALS

SHEET NO.	NAME	TYPE
1	DAVID J. MORRILL	STRUCTURAL/CIVIL

STRUCTURAL DESIGN

LICENSED PROFESSIONAL ENGINEER
David J. Morrill
11799
IOWA

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 Date

David J. Morrill
Printed or Typed Name

My license renewal date is December 31, 2015

Pages or sheets covered by this seal: SHEETS 1-12 AND C.1-C.2

DESIGN TEAM: ALFRED BENESCH	ENGLISH	IOWA DOT * OFFICE OF BRIDGES AND STRUCTURES	FILE NO.30253	ROCK ISLAND COUNTY	PROJECT NUMBER IM-074-1(214)5--13-82	SHEET NUMBER 1

ROCK ISLAND COUNTY - DESIGN NO. 4208

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SPECIFICATIONS:

DESIGN: AASHTO LRFD 5th EDITION, SERIES OF 2010 EXCEPT AS NOTED IN THE CURRENT IOWA BRIDGE DESIGN MANUAL.

CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2015, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT INCLUDING:

- DEVELOPMENTAL SPECIFICATION FOR FLOATING SILT CURTAIN (DS-15019)
- SPECIAL PROVISION FOR ENVIRONMENTAL PROTECTION (SP-150XXX)
- SPECIAL PROVISION FOR MUSSEL CONSERVATION (SP-150XXX)

GENERAL NOTES:

THIS DESIGN IS FOR THE REMOVAL OF THE OLD EXISTING I-74 BRIDGES OVER THE MISSISSIPPI RIVER FROM PIERS L TO PIERS E (BUILT IN 1934 AND 1958). PLANS AND SHOP DRAWINGS WILL BE AVAILABLE TO THE CONTRACTOR. CONTACT THE OFFICE OF CONTRACTS- HIGHWAY DIVISION - IOWA DOT- AMES. DIMENSIONS SHOWN ON THESE PLANS ARE BASED ON DESIGN PLANS.

THE LUMP SUM BID FOR "REMOVAL OF EXISTING BRIDGE" SHALL INCLUDE ALL COSTS ASSOCIATED WITH REMOVING AND DISPOSING OF ALL MATERIALS AND PORTIONS OF STRUCTURES AS INDICATED IN THESE PLANS. REMOVALS SHALL BE IN ACCORDANCE WITH SECTION 2401 OF THE STANDARD SPECIFICATIONS. ANY DAMAGE TO OTHER EXISTING STRUCTURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REPAIRED AT NO EXTRA COST TO THE STATE.

THE USE OF AN EXPANSIVE DEMOLITION AGENT (NON-EXPLOSIVE) SHALL BE REQUIRED FOR REMOVAL OF PORTIONS OF THE PIERS, AS INDICATED IN THE PLANS, TO MINIMIZE DISTURBANCE. DEMOLITION WITH EXPANSIVE AGENTS IS THE PROCESS OF USING A NON-TOXIC MATERIAL, PLACED INTO DRILLED HOLES WHICH EXPANDS WHEN HYDRATED TO BREAK UP CONCRETE. EXAMPLES OF SUCH AGENTS ARE THOSE PRODUCED BY DEXPAN, EXPANSIVE DEMOLITION CORPORATION, AND BUSTAR. THE EXPANSIVE DEMOLITION AGENT SELECTED SHALL BE NON-TOXIC, NOT HAZARDOUS, PROVIDE FOR SILENT REMOVAL AND BE APPROVED BY OSHA FOR USE IN A WATER ENVIRONMENT.

DURING DEMOLITION OF THIS PROJECT, THE BRIDGE CONTRACTOR WILL BE REQUIRED TO COORDINATE OPERATIONS WITH THOSE OF OTHER CONTRACTORS WORKING WITHIN THE SAME AREA. OTHER WORK IN PROGRESS DURING THE SAME PERIOD OF TIME INCLUDES, BUT IS NOT LIMITED TO, WORK OF THE FOLLOWING PROJECTS:

- PROJECT IM-074-1(210)5--13--82

ANY WORK OVER NAVIGABLE WATERWAYS MUST BE COORDINATED WITH THE US COAST GUARD 8TH DISTRICT BRIDGE MANAGEMENT SPECIALIST AT (314) 269-2380. THE CONTRACTOR SHALL SUBMIT TO THE UNITED STATES COAST GUARD FOR APPROVAL TWO COPIES OF THE PLANS AND SCHEDULE OF OPERATIONS FOR WORK OVER THE NAVIGATIONAL CHANNEL AT LEAST 15 DAYS PRIOR TO THE COMMENCEMENT OF ANY WORK OVER THE NAVIGATIONAL CHANNEL. THE IOWA DOT SHALL NOT BE HELD RESPONSIBLE FOR ANY DELAYS SUFFERED BY THE CONTRACTOR FOR FAILURE TO ADHERE TO THIS REQUIREMENT OR TO REQUIREMENTS OF THE COAST GUARD.

NOTE: THE ROADWAY WILL BE CLOSED TO THRU TRAFFIC. ROAD CLOSURE WILL BE THE RESPONSIBILITY OF OTHERS.

DURING ALL OPERATIONS THE CONTRACTOR SHALL NOT BE PERMITTED TO DROP ANY MATERIAL OR DEBRIS FROM THE BRIDGE.

THE CONTRACTOR SHALL PERFORM ALL WORK IN STRICT CONFORMANCE WITH ALL TRAFFIC CONTROL REQUIREMENTS FOR BOTH MARINE AND VEHICULAR TRAFFIC, AS SPECIFIED WITHIN THESE PLANS.

THE CONTRACTOR SHALL NOT DISTURB ANY EXISTING UTILITIES EXCEPT AS SPECIFICALLY DEFINED WITHIN THE SCOPE OF WORK FOR THIS CONTRACT. WHERE WORK AFFECTS OR IS AFFECTED BY THE EXISTING UTILITIES, THE WORK SHALL BE COORDINATED WITH THE UTILITY COMPANY AND/OR OWNER.

THE CITY AND UTILITY COMPANIES WHOSE FACILITIES ARE SHOWN ON THE PLANS, OR KNOWN TO BE WITHIN THE CONSTRUCTION LIMITS, SHALL BE NOTIFIED BY THE BRIDGE CONTRACTOR OF THE CONSTRUCTION STARTING DATE.

THE CONTRACTOR SHALL PROVIDE A DETAILED SCHEDULE AND COORDINATE WITH THE CITY OF MOLINE REGARDING THE WATER INTAKE LOCATED NEAR THE ILLINOIS SHORELINE, WEST OF THE EXISTING STRUCTURE. COORDINATION SHALL TAKE PLACE AT LEAST 30 DAYS PRIOR TO COMMENCING ANY WORK AND 60 DAYS PRIOR TO COMMENCING ANY WORK THAT WILL IMPACT THE RIVER BOTTOM.

THE CONTRACTOR SHALL OBTAIN HIS OWN ELECTRICAL POWER SOURCE FOR ALL CONSTRUCTION OPERATIONS AND SHALL NOT BE PERMITTED TO USE ANY EXISTING UTILITIES ON THE BRIDGE AS SOURCE OF POWER.

SCRAPE SAMPLES WERE TAKEN FROM VARIOUS AREAS OF THE EXISTING BRIDGES TO GET AN INDICATION OF THE EXISTENCE OF AND LEVEL OF TOTAL CHROMIUM AND TOTAL LEAD. ANALYSIS OF TOTAL LEAD IN THESE SAMPLES RANGED FROM 133,000 TO 241,000 PARTS PER MILLION (PPM). ANALYSIS OF TOTAL CHROMIUM IN THESE SAMPLES RANGED FROM 2,230 TO 10,500 PPM. THESE ANALYSES SHOW THE EXISTENCE OF THESE TWO TOXIC CONSTITUENTS. LEVELS INDICATED BY THESE TESTS COULD CREATE CONDITIONS ABOVE REGULATORY LIMITS FOR HEALTH AND SAFETY REQUIREMENTS. NO OTHER CONSTITUENTS WERE ANALYZED. THE BIDDER SHOULD NOT RELY ON THE DEPARTMENT'S TESTING AND ANALYSIS FOR ANY PURPOSE OTHER THAN AS AN INDICATION OF THE EXISTENCE OF THESE TWO TOXIC CONSTITUENTS.

ANALYSIS OF PAINT SCRAPE SAMPLES FROM NEW PAINTING DONE IN 2012 AND 2013 SHOWED TOTAL LEAD RANGING FROM 32 TO 54 PPM. CHROMIUM IN THE NEWLY PAINTED AREAS WAS MEASURED AT 6.3 TO 11 PPM. NEWLY PAINTED AREAS INCLUDE THE SUPERSTRUCTURE STEEL.

THE CONTRACTOR SHALL CONDUCT THEIR OPERATIONS IN SUCH A MANNER THAT ANY PAINT REMOVED DURING DEMOLITION IS CONTAINED, COLLECTED AND DISPOSED OF IN ACCORDANCE WITH STANDARD SPECIFICATION 2508, OF THE STANDARD SPECIFICATIONS. BEFORE DELIVERY OF ANY SCRAP STEEL, THE CONTRACTOR SHALL PROVIDE A WRITTEN NOTICE TO THE RECEIVING FACILITY. THIS NOTICE SHALL AT A MINIMUM INCLUDE:

1. A NOTICE THAT THE SCRAP STEEL IS COATED WITH PAINT THAT HAS REGULATED MATERIALS AT LEVELS WHICH COULD BE HAZARDOUS TO EMPLOYEES OR THE ENVIRONMENT.

2. A COPY OF THE SCRAPE SAMPLE PROVIDED IN THE CONTRACT DOCUMENTS.

3. A SIGNATURE BLOCK FOR THE RECEIVING FACILITY TO CONFIRM THEIR RECEIPT OF THIS INFORMATION.

A COPY OF THIS NOTICE, SIGNED BY THE RECEIVING FACILITY, SHALL BE RETURNED TO THE ENGINEER BEFORE ANY SCRAP STEEL IS REMOVED FROM THE PROJECT.

THE COST OF HANDLING AND DISPOSAL OF ANY PAINTED STEEL OR REMOVED PAINT IS INCIDENTAL TO THE REMOVAL BID ITEM.

SCOPE OF WORK:

OBTAIN ALL REQUIRED PERMITS FROM THE COAST GUARD FOR DEMOLITION WORK.

REMOVE THE EXISTING IOWA BOUND AND ILLINOIS BOUND I-74 BRIDGES OVER THE MISSISSIPPI RIVER BETWEEN PIER E AND PIER L INCLUDING:

REMOVAL AND SALVAGE OF BRIDGE ATTACHMENTS, LIGHTS, CAMERAS AND POLES.

REMOVAL OF THE TRUSS BRIDGE SUPERSTRUCTURES.

INSTALLATION AND REMOVAL OF A FLOATING SILT CURTAIN.

REMOVAL OF PIERS E, F, G, H, J AND L.

INSTALL TWO SOLAR POWERED LED NAVIGATION LIGHTING ASSEMBLIES, SUPPORT PLATFORMS, AND ACCESS LADDERS ON EXISTING PIER K TO REMAIN.

STANDARD ROAD PLANS

NUMBER	DATE	TITLE
EC-202	10-21-14	FLOATING SILT CURTAIN
EC-204	10-16-12	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICES
TC-1	04-16-13	WORK NOT AFFECTING TRAFFIC (TWO-LANE OR MULTI-LANE)
TC-273	04-20-10	CONSTRUCTION SITE ENTRANCE

DESIGN HISTORY AT THIS SITE

DESIGN NO.	WORK DESCRIPTION	YEAR
NA	ORIGINAL CONSTRUCTION - IOWA BOUND (WB) BRIDGE	1934
NA	ORIGINAL CONSTRUCTION - ILLINOIS BOUND (EB) BRIDGE	1958
171	MODIFICATION IN IOWA ILLINOIS BRIDGE	MARCH, 1972
373	MODIFICATION IN IOWA ILLINOIS BRIDGE	MAY, 1973
473	ALUMINUM HANDRAIL - IOWA ILLINOIS MEMORIAL BRIDGE	OCT., 1973
176	BRIDGE FLOOR OVERLAY	APRIL, 1976
584	BRIDGE DECK REPAIR	AUGUST, 1986
594/694	BRIDGE REPAIR ON I-74 E.B./W.B. OVER MISS.	NOV., 1993
596	BRIDGE PAINTING	DEC., 1996
696	BRIDGE PAINTING	DEC., 1996
401/501	REHABILITATION OF I-74 E.B. & W.B. BRIDGES	DEC., 2002
105/205	REHABILITATION OF I-74 E.B. & W.B. BRIDGES	DEC., 2004
110/210	REHABILITATION OF I-74 E.B. & W.B. BRIDGES	NOV., 2010
4208	EXISTING DECK TRUSS SPANS REMOVAL	TBD

ESTIMATED BRIDGE QUANTITIES

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QTY
1	2401-6745625	REMOVAL OF EXISTING BRIDGE	LS	1	
2	2408-7800000	STRUCTURAL STEEL	LB	1698	
3	2528-844510	TRAFFIC CONTROL	LS	1	
4	2533-4980005	MOBILIZATION	LS	1	
5	2599-9999010	NAVIGATION LIGHTING	LS	1	
6	2602-0000212	FLOATING SILT CURTAIN (HANGING)	LF	TBD	
7	2602-0000222	FLOATING SILT CURTAIN (CONTAINMENT)	LF	TBD	
8	2602-0000230	CLEAN-OUT OF FLOATING SILT CURTAIN (CONTAINMENT)	LF	TBD	
9	2602-0000240	MAINTENANCE OF FLOATING SILT CURTAIN	LF	TBD	
10	2602-0000312	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 12 IN. DIA.	LF	TBD	
11	2602-0000320	PERIMETER AND SLOPE SEDIMENT CONTROL DEVICE, 20 IN. DIA.	LF	TBD	

ITEM NO. — ESTIMATE REFERENCE INFORMATION

1 FOR EXCAVATION REQUIRED IN UPLAND AREAS THAT COULD ALLOW RUNOFF INTO THE WATERWAY, LOGS/WATTLES SHALL BE USED TO MITIGATE EROSION. ANY VEGETATED AREAS THAT ARE DISTURBED DURING EXCAVATION AND REMOVAL OF THE EXISTING STRUCTURE SHALL BE RE-SEEDED TO RETURN IN-KIND. THE COST OF THESE MEASURES SHALL BE INCLUDED WITH THIS ITEM. SEE SHEET C.2 FOR SEEDING NOTES.

2 INCLUDES COSTS FOR FURNISHING AND INSTALLING TWO NAVIGATION LIGHTING SUPPORT PLATFORMS AND TWO ACCESS LADDERS ON EXISTING PIER K.

5 INCLUDES TWO ASSEMBLIES CONSISTING OF 180° STEADY BURNING RED LED LANTERNS, SOLAR ARRAY MODULES, STORAGE BATTERIES, PHOTO CONTROLS, MOUNTING PEDESTALS AND BASE PLATES. INCLUDES COST OF FURNISHING AND INSTALLING FOUR (TWO AT EACH ASSEMBLY) HIGH INTENSITY RED RETRO REFLECTIVE PANELS ON EXISTING PIER K.

6 FLOATING SILT CURTAIN SHALL BE INSTALLED AS SHOWN IN THE PLANS TO MINIMIZE THE AMOUNT OF SEDIMENT AND EROSION INTRODUCED INTO THE WATERWAY UPSTREAM OF THE MOLINE WATER INTAKE.

POLLUTION PREVENTION PLAN PROVIDED ELSEWHERE IN THESE DRAWINGS

HAZARDOUS PAINT:

THIS WORK INVOLVES REMOVING HAZARDOUS PAINT. REFER TO NOTES.

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DESIGN FOR 0° SKEW

I-74 BRIDGES OVER THE MISSISSIPPI RIVER (ILLINOIS & IOWA BOUND)

4 @ 222'-3½, 2 @ 223'-6½ TRUSS SPANS

QUANTITIES AND GENERAL NOTES

STA. 6754+17.58 - 684.84' LT - I-74 DECEMBER 2014

ROCK ISLAND COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 11 FILE NO. 30253 DESIGN NO. 4208

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REMOVAL OF EXISTING BRIDGE:

DESCRIPTION: THIS WORK SHALL CONSIST OF THE REMOVAL OF THE EXISTING SUPERSTRUCTURES AND PORTIONS OF THE SUBSTRUCTURE OF THE IOWA BOUND AND ILLINOIS BOUND CONTINUOUS TRUSS SPANS OVER THE MISSISSIPPI RIVER, AS SHOWN IN THESE PLANS. CARE SHALL BE TAKEN DURING REMOVALS TO PROTECT PORTIONS OF THE ADJACENT EXISTING STRUCTURES AS NEEDED. REMOVAL WORK SHALL NOT BEGIN UNTIL THE SUSPENSION SPAN AND DECK TRUSS SUPERSTRUCTURES ARE REMOVED.

REMOVAL: THE CONTRACTOR MUST REMOVE ALL ELEMENTS OF THE EXISTING STEEL TRUSS SPANS, SUBSTRUCTURES AND ANY PARTS OF THE EXISTING PIERS TO THE EXTENT SPECIFIED. CONTRACTOR SHALL NOTIFY THE IOWA DOT PRIOR TO DEMOLITION TO FACILITATE THE REMOVAL OF CAMERAS, SENSORS, RWIS, CABINETS WIRELESS EQUIPMENT AND OTHER RELEVANT ITS EQUIPMENT BY THE ITS MAINTENANCE VENDOR.

THE USE OF EXPLOSIVES ARE PROHIBITED FOR THIS DEMOLITION. THE USE OF EXPANSIVE DEMOLTION AGENTS WILL BE ALLOWED AND REQUIRED IN LOCATIONS AS SHOWN IN THE PLANS. THE COST OF DISPOSAL SHALL BE CONSIDERED INCIDENTAL TO THE REMOVAL.

THE EXISTING PIERS AND FOUNDATION ELEMENTS SHALL BE REMOVED TO THE ELEVATIONS SHOWN ON THE PLANS. ANY TEMPORARY SHORING, SHEETING OR COFFERDAMS USED FOR DEMOLITION SHALL BE CONSIDERED INCIDENTAL TO THE REMOVAL.

BRIDGE DEMOLITION SCHEME: EXISTING BRIDGE DEMOLITION SCHEME AND MEANS AND METHODS ARE THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL, IN ACCORDANCE WITH ARTICLE 1105.03 OF THE STANDARD SPECIFICATIONS, SUBMIT A DETAILED DEMOLITION SCHEME TO ALFRED BENESCH AND COMPANY (BENESCH) FOR THE REVIEW. BENESCH WILL REVIEW THE PROCEDURE AND COORDINATE COMMENTS FROM THE IOWA DEPARTMENT OF TRANSPORTATION (OFFICE OF BRIDGES AND STRUCTURES, OFFICE OF CONSTRUCTION, OFFICE OF LOCATION AND ENRVIRONMENT, AND RESIDENT CONSTRUCTION ENGINEER), ILLINOIS DEPARTMENT OF TRANSPORTATION, U.S. COAST GUARD, AND BENESCH. THE DEMOLITION SCHEME MUST CLEARLY DEMONSTRATE THE FEASIBILITY OF ALL OPERATIONS PROPOSED AND SAFETY OF THE EXISTING STRUCTURE AND ALL EQUIPMENT, TEMPORARY SUPPORTS AND FALSEWORK FOR ALL STAGES OF THE PROPOSED SCHEME.

THE DEMOLITION PLANS, COMPUTATIONS AND ANY OTHER MATERIAL SUBMITTED FOR REVIEW MUST BE PREPARED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER IN IOWA WITH PRIOR EXPERIENCE ON SIMILAR PROJECTS. CONTRACTOR MAY NOT START OR PROCEED WITH ANY DEMOLITION ACTIVITY UNTIL ALL COMMENTS ARE SATISFACTORILY RESOLVED AND THE DEMOLITION SCHEME IS APPROVED. THE CONTRACTOR'S DEMOLITION SCHEME SHALL INCLUDE PLANS FOR THE PROTECTION OF TRAFFIC (VEHICULAR, PEDESTRIAN, BOAT, ETC.) ADJACENT TO AND/OR UNDER THE STRUCTURES. THESE PLANS SHALL INCLUDE PROVISIONS FOR ANY DEVICES AND STRUCTURES THAT MAY BE NECESSARY TO ENSURE PROTECTION.

THE DEMOLITION SCHEME MUST ALSO DEMONSTRATE THAT THE DEMOLITION OPERATIONS WILL MINIMIZE THE IMPACT ON WATER QUALITY AT THE CITY OF MOLINE WATER INTAKE STRUCTURE WHICH IS DOWNSTREAM OF THE EXISTING BRIDGE.

SUBMITTALS SHALL BE 2 HARD COPIES AND AN ELECTRONIC COPY FOR EACH REVIEWING AGENCY. PLANS AND DETAILS OF THE VARIOUS SUBMITTALS OUTLINED BELOW SHALL BE COORDINATED BY THE CONTRACTOR. SUMMARY OF SUBMISSIONS AND NOTIFICATIONS:

ACTIVITY	DUE
BRIDGE DECK REMOVAL PLAN	60 CALENDAR DAYS PRIOR TO REMOVAL
BRIDGE SUPERSTRUCTURE REMOVAL PLAN	60 CALENDAR DAYS PRIOR TO REMOVAL
BRIDGE SUBSTRUCTURE REMOVAL PLAN	60 CALENDAR DAYS PRIOR TO REMOVAL
NOTIFICATIONS	48 HOURS PRIOR TO ACTUAL DEMOLITION

THE CONTRACTOR'S DEMOLITION PLAN SHALL BE SUBJECT TO THE FOLLOWING U.S. COAST GUARD DEMOLITION CONDITIONS:

CONDITION 1: ALL WORK SHALL BE SO CONDUCTED THAT THE FREE NAVIGATION OF THE WATERWAY SHALL NOT BE UNREASONABLY INTERFERED WITH AND THE EXISTING NAVIGABLE DEPTHS ARE NOT IMPAIRED.

CONDITION 2: TWO WEEKS PRIOR TO THE SCHEDULED DEMOLITION, THE CONTRACTOR SHALL NOTIFY THE FOLLOWING PERSONS OF THE DEMOLITION SCHEDULE:

UNITED STATES COAST GUARD COMMANDER (DWB), BRIDGE BRANCH
ATTN: BRIDGE MANAGEMENT SPECIALIST
1222 SPRUCE ST, SUITE 2.107F
ST. LOUIS, MO 63103-2832

THESE OFFICES MUST BE KEPT INFORMED OF THE DEMOLITION PROGRESS SO CAUTIONARY NOTICES CAN BE ISSUED TO MARINERS. A PROJECT INFORMATION RECORD WILL BE SUPPLIED BY THE USCG TO BE COMPLETED AND RETURNED TO THEIR OFFICE SO THAT THEY CAN DIRECTLY CONTACT THE PERSON RESPONSIBLE FOR COMPLIANCE WITH THEIR CONDITIONS.

THE CONTRACTOR SHALL PROVIDE COPIES OF THE NOTIFICATIONS TO THE CORPS AND USCG AND THE PROJECT INFORMATION RECORD TO THE ENGINEER AND THE IOWA DOT OFFICE OF LOCATION AND ENVIRONMENT.

CONDITION 3: ONE WEEK PRIOR TO DEMOLITION, THE CONTRACTOR SHALL SCHEDULE A PRE-DEMOLITION MEETING WITH THE COAST GUARD AND ALL INVOLVED PARTIES TO ENSURE THAT ALL EQUIPMENT, MANPOWER AND MATERIALS ARE IN PLACE FOR THE IMPENDING DEMOLITION.

CONDITION 4: THE CONTRACTOR, IF AUTHORIZED IN WRITING TO ACT ON BEHALF OF THE STATE, SHALL FURNISH THE COMMANDER, EIGHTH COAST GUARD DISTRICT, HALE BOGGS FEDERAL BUILDING, 500 POYDRAS STREET, NEW ORLEANS, LA 70130, PRIOR TO COMMENCING OPERATIONS, EVIDENCE OF A GOOD AND SUFFICIENT BOND TO INSURE COMPLIANCE WITH ALL CONDITIONS RESULTING FROM THE COAST GUARD COORDINATION CONDUCTED UNDER CONDITION 2 ABOVE.

CONDITION 5: WHEN BRIDGE COMPONENTS ARE BEING REMOVED FROM EACH SPAN, PRECAUTIONS SHALL BE TAKEN TO ENSURE NOTHING FALLS INTO THE RIVER. SUCH A PRECAUTION COULD BE A CONTAINMENT SYSTEM WHICH COULD INCLUDE A "CATCH" BARGE BENEATH THE WORK SITE.

CONDITION 6: POSITIVE PRECAUTIONS SHALL BE TAKEN TO PREVENT THE DROPPING OF SPARK-PRODUCING, LIGHTED AND OTHER OBJECTS ON TOWS OR VESSELS. ALL FLAME-CUTTING, WELDING, AND SIMILAR SPARK-PRODUCING OPERATIONS SHALL BE CEASED OVER THE CHANNEL WHEN VESSELS ARE PASSING BENEATH THE BRIDGE.

CONDITION 7: ANY OBJECT ACCIDENTALLY DROPPED INTO THE RIVER WHICH MAY CONSTITUTE A HAZARD TO NAVIGATION SHALL BE PROMPTLY AND COMPLETELY REMOVED TO THE SATISFACTION OF THE APPROPRIATE U.S. ARMY CORPS OF ENGINEERS DISTRICT COMMANDER.

CONDITION 8: AFTER REMOVAL OF EACH RIVER SPAN AND ALL SUBSTRUCTURE COMPONENTS, A THOROUGH SWEEPING OF THE AREA MUST BE MADE AT THE CONTRACTOR'S EXPENSE. THE PROCEDURE USED TO SWEEP THE RIVER SHALL BE APPROVED BY THE U.S. ARMY CORPS OF ENGINEERS DISTRICT COMMANDER. THE SWEEP OPERATION SHALL BE PERFORMED WHILE AN AUTHORIZED REPRESENTATIVE OF THAT AGENCY IS PRESENT TO OBSERVE RESULTS. MUTUALLY AGREED UPON DATES FOR EACH SWEEP SHALL BE COORDINATED WITH THE CORPS OF ENGINEERS.

CONDITION 9: IF ANY OBJECTS CAUSING AN OBSTRUCTION TO NAVIGATION ARE PLACED OR ACCIDENTALLY DROPPED INTO THE RIVER, SUCH OBJECTS SHALL BE MARKED BY ONE OR MORE LIGHTED BUOYS. SUCH BUOYS SHALL BE HORIZONTALLY STRIPED ORANGE AND WHITE WITH THE TOP STRIPE ORANGE; THEY SHALL BE ALIGNED CROSS-RIVER AT INTERVALS OF ABOUT 25 FEET OR AS CLOSE AS PRACTICABLE TO THE OBSTRUCTION IN THE RIVER. EACH SUCH BUOY SHALL BE LIGHTED AT NIGHT WITH A QUICK FLASHING WHITE LIGHT (60 FLASHES PER MINUTE). PROVIDED THAT IF STEEL IS EXTENDING ABOVE WATER, ORANGE FLAGS BY DAY AND QUICK FLASHING WHITE LIGHTS BY NIGHT MAY BE DISPLAYED ON THE STEEL IN LIEU OF ANY BUOY.

CONDITION 10: THE COMMANDER, EIGHTH COAST GUARD DISTRICT; SHALL BE NOTIFIED AT LEAST 15 DAYS IN ADVANCE OF ANY ACTION THAT MAY IMPEDE NAVIGATION. ANY REVISION OF WORK SCHEDULE MAY REQUIRE A 15-DAY DELAY FOR ISSUANCE OF REVISED NOTICES. NOTIFICATION SHALL BE UPDATED BY TELEPHONE IF NECESSARY TO ASSURE THAT NAVIGATION INTERESTS ARE AWARE OF IMPENDING EVENTS THAT MAY AFFECT THE MOVEMENT OF RIVER TRAFFIC.

CONDITION 11: THE CONTRACTOR BY ACCEPTANCE HEREOF AGREES TO BE RESPONSIBLE FOR DAMAGES TO PERSONS OR PROPERTIES RESULTING FROM THE WORK AND SAVE AND HOLD HARMLESS THE UNITED STATES COAST GUARD FROM ANY CLAIM FOR DAMAGES RESULTING FROM THIS OPERATION.

CONDITION 12: REQUESTS TO TEMPORARILY BLOCK THE RIVER AND STOP RIVER TRAFFIC MUST BE SUBMITTED, IN WRITING, FOR APPROVAL TO THE COMMANDER, EIGHTH COAST GUARD DISTRICT IN ACCORDANCE WITH THESE CONDITIONS.

CONDITION 13: 60 DAYS PRIOR TO DEMOLITION, THE CONTRACTOR WILL COMPLETE AND ELECTRONICALLY SUBMIT A COAST GUARD CG-2554 APPLICATION IN ADOBE PDF FORMAT. THIS FORM CAN BE DOWNLOADED FROM THE USCG'S WEB SITE AT: HTTP://WWW.USCG.MIL/FORMS/CG/CG-2554.PDF. IN RESPONSE TO THIS SUBMISSION, THE COAST GUARD WILL PRESCRIBE NAVIGATIONAL LIGHTING REQUIREMENTS FOR THE PORTION OF THE STRUCTURE TO REMAIN AFTER DEMOLITION.

CONDITION 14: BARGES AND OTHER WATERCRAFT ENGAGED IN THIS DEMOLITION SHALL DISPLAY SUCH LIGHTS AND SIGNALS AS REQUIRED BY THE "INLAND NAVIGATIONAL RULES OF 1980."

CONDITION 15: ANY TEMPORARY FILLS, RUBBLE, SHORING OR SIMILAR MATERIAL DEPOSITED IN THE RIVER MUST BE APPROVED BY THE APPROPRIATE U.S. ARMY CORPS OF ENGINEERS DISTRICT COMMANDER PURSUANT TO SECTION 404 OF PUBLIC LAW 95-217.

CONDITION 16: THE PLANS FOR ANY TEMPORARY CAUSEWAYS, WORK BRIDGES OR OTHER FALSEWORK TO BE PLACED IN THE RIVER SHALL BE SUBMITTED TO THE COMMANDER, EIGHTH COAST GUARD DISTRICT FOR APPROVAL.

CONDITION 17: ALL RUBBLE SHALL BE SPOILED IN UPLAND, NON-WETLAND AREAS ABOVE ORDINARY HIGH WATER. DISPOSAL SITES MUST BE APPROVED BY THE APPROPRIATE U.S. ARMY CORPS OF ENGINEERS DISTRICT COMMANDER.

LEACH PARK AND THE BETTENDORF RIVERFRONT TRAIL:

LEACH PARK AND THE BETTENDORF RIVERFRONT TRAIL ARE SECTION 4(F) RESOURCES AS DEFINED BY SECTION 4(F) OF THE DEPARTMENT OF TRANSPORTATION (DOT) ACT OF 1966. THIS FEDERAL LAW PROTECTS PUBLICLY OWNED PARKS, RECREATION AREAS, WILDLIFE AND WATERFOWL REFUGES AND PUBLIC OR PRIVATELY-OWNED HISTORICAL RESOURCES. USE OF FEDERAL FUNDS SUBJECTS THE PROPOSED UNDERTAKING TO THE REQUIREMENTS OF THIS LAW. AS SUCH, THE CONTRACTOR SHALL NOT STAGE, STORE, OR REFUEL ANY EQUIPMENT OR VEHICLES ON PARK AND TRAIL PROPERTIES. THE CONTRACTOR SHALL NOT BORROW OR WASTE ANY MATERIAL FROM OR ON THE PARK AND TRAIL PROPERTIES AND SHALL ENSURE THAT NO ANCILLARY CONSTRUCTION ACTIVITIES TAKE PLACE ON THE PARK AND TRAIL PROPERTIES.

THE FOLLOWING LIMITATIONS APPLY TO WORK WITHIN THE RIVER AND ON RIVER BANKS:

REMOVAL AND DISPOSAL OF DEBRIS: CONTRACTOR MUST COORDINATE REMOVAL AND DISPOSAL OF DEMOLITION DEBRIS WITH IOWA DEPARTMENT OF TRANSPORTATION AND OTHER APPLICABLE AGENCIES AND SUBMIT THE REMOVAL AND DISPOSAL PLAN FOR APPROVAL BY THE IOWA DEPARTMENT OF TRANSPORTATION.

ACCESS ROAD AND TEMPORARY DOCKS: ACCESS ROAD TO WORK AREAS ON THE ILLINOIS BANKS MAY BE CONSTRUCTED IN THE EXISTING RIGHT OF WAY. COORDINATE TEMPORARY ACCESS TO WORK SITES WITH THE ILLINOIS DEPARTMENT OF TRANSPORTATION. CONTRACTOR MAY CONSTRUCT TEMPORARY DOCKS WITHIN THE EXISTING RIGHT OF WAY ON THE ILLINOIS AND IOWA BANKS FOR THEIR USE. THE DOCKS MUST BE PILE SUPPORTED AND PLACEMENT OF ANY FILL IS NOT ALLOWED. ANY ACCESS ROADS OR DOCKS CANNOT DAMAGE, OR ALTER IN ANY WAY, EXISTING DYKES, LEVEES AND FLOOD PROTECTION ELEMENTS.

SUGGESTED DEMOLITION SCHEME: THE SUGGESTED DEMOLITION SCHEMES ARE FOR THE CONTRACTOR'S INFORMATION ONLY. ADAPTATION OF THE SUGGESTED DEMOLITION SCHEME, OR PARTS OR A COMBINATION THEREOF IS AT CONTRACTOR'S DISCRETION AND BECOMES THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR MUST VERIFY AND PROVIDE COMPUTATIONS DEMONSTRATING THE SAFETY OF EXISTING BRIDGE ELEMENTS TO BE DEMOLISHED AND ANY TEMPORARY FALSEWORK DURING ALL STAGES OF DEMOLITION.

EXISTING STRUCTURE PLANS: THE REPRESENTATION OF THE EXISTING BRIDGES IN THE FOLLOWING SHEETS IS SCHEMATIC ONLY. THE CONTRACTOR IS REFERRED TO THE ORIGINAL PLANS FOR DETAILS.

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DESIGN FOR 0° SKEW

I-74 BRIDGES OVER THE MISSISSIPPI RIVER (ILLINOIS & IOWA BOUND)

4 @ 222'-3½, 2 @ 223'-6½ TRUSS SPANS

GENERAL NOTES

STA. 6754+17.58 - 684.84' LT - I-74 DECEMBER 2014

ROCK ISLAND COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 2 OF 11 FILE NO. 30253 DESIGN NO. 4208

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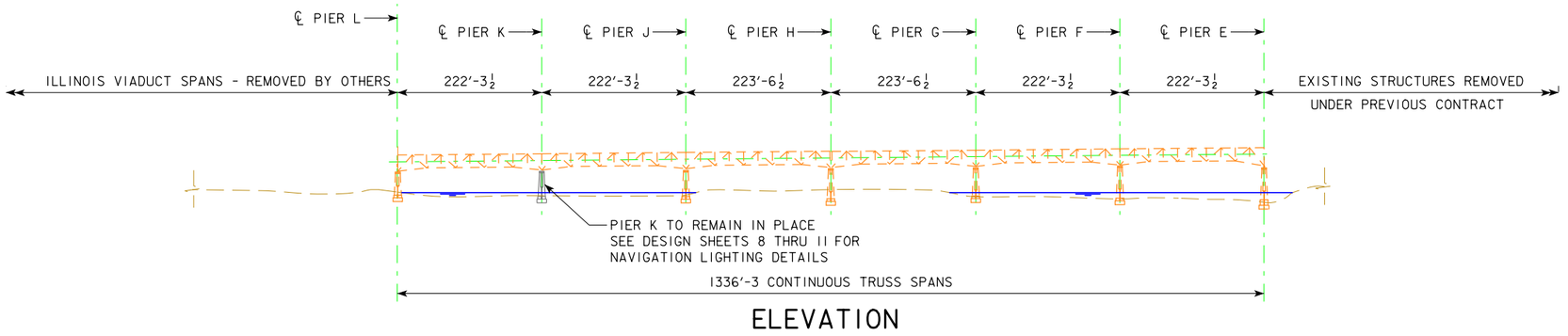

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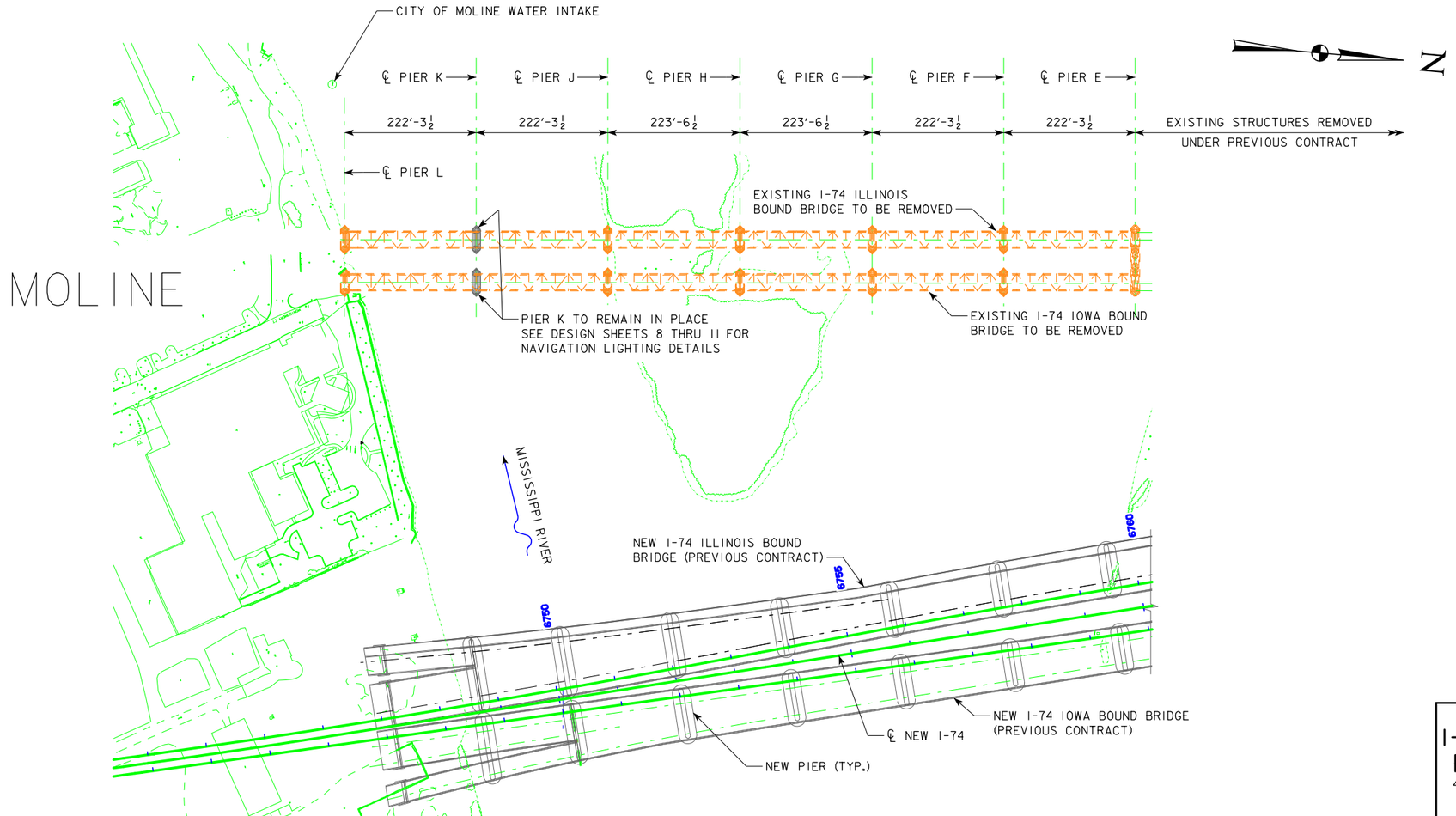

SITUATION PLAN

EXISTING STRUCTURES

TYPE: CONTINUOUS STEEL TRUSS

SPANS: 4 @ 222'-3½, 2 @ 223'-6½
(SPANS LISTED ABOVE ARE FOR 1 BRIDGE)

ROADWAY: 24'-0"± FACE TO FACE SAFETY CURB
ILLINOIS BOUND BRIDGE
23'-3"± FACE TO FACE SAFETY CURB
IOWA BOUND BRIDGE

SKEW: 0°00'00"

TYPE OF DECK: CAST-IN-PLACE CONCRETE

APPROACH SLABS: NONE

ALIGNMENT: TANGENT

BENCHMARK DATA (NAVD 1988)

BENCHMARK NO.: 500 STA. 6781+18.95 LT. 161.23'
ELEV. 575.797, CHISELED "X" IN BOLT E. SIDE
CONCRETE STRUCTURE

ALL ELEVATIONS BASED ON NGVD 1912 DATUM.

THE FOLLOWING CONVERSION APPLIES TO
THE PROJECT LOCATION:
NAVD 88 = NGVD 1912 - 0.727 FT.

I-74 EASTBOUND
& WESTBOUND OVER THE
MISSISSIPPI RIVER
MOLINE, IL
T-18 N R-1 W
SECTION 29
MOLINE TOWNSHIP
ROCK ISLAND COUNTY
IOWA BRIDGE MAINTENANCE NO. 8205.0L074 (W.B.)
IOWA BRIDGE MAINTENANCE NO. 8205.0R074 (E.B.)
IOWA FHWA NO. 47280 (W.B.)
IOWA FHWA NO. 47290 (E.B.)
LATITUDE = 41.513714
LONGTUDE = -90.512630

DESIGN FOR 0° SKEW

I-74 BRIDGES OVER THE MISSISSIPPI RIVER (ILLINOIS & IOWA BOUND)

4 @ 222'-3½, 2 @ 223'-6½ TRUSS SPANS

SITUATION PLAN

STA. 6754+17.58 - 684.84' LT - I-74 DECEMBER 2014

ROCK ISLAND COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 3 OF 11 FILE NO. 30253 DESIGN NO. 4208

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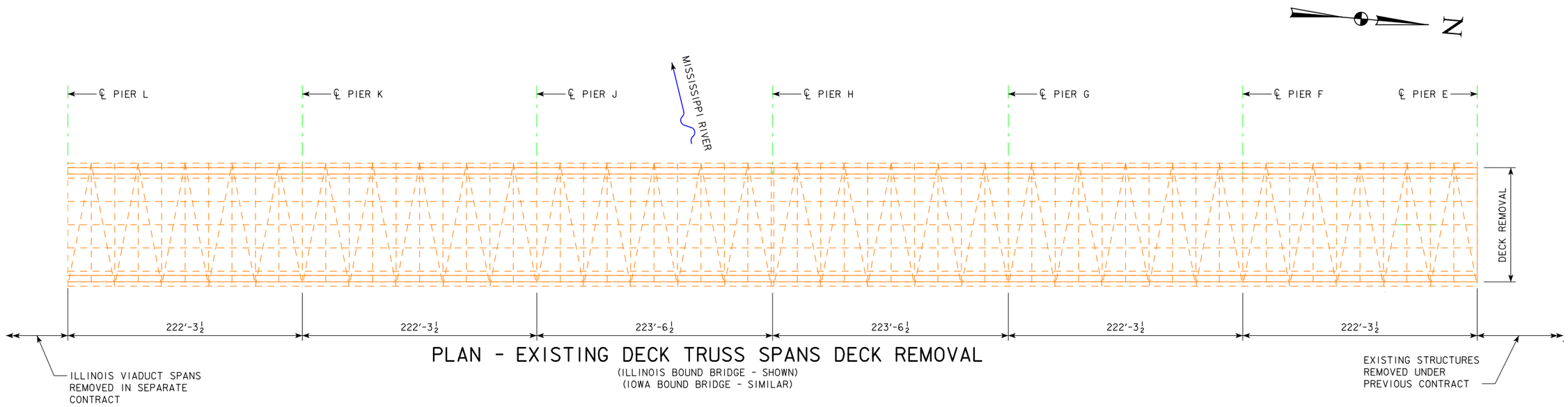
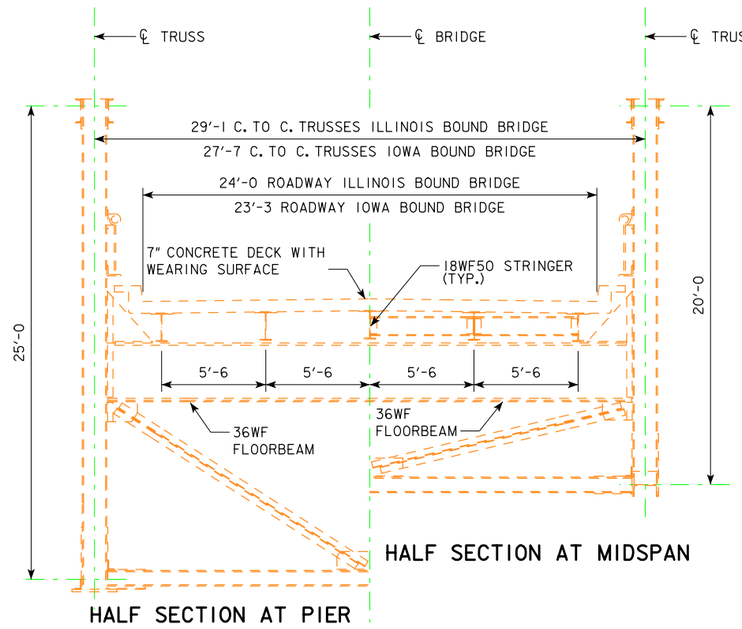


PLAN - EXISTING DECK TRUSS SPANS DECK REMOVAL

(ILLINOIS BOUND BRIDGE - SHOWN)
(IOWA BOUND BRIDGE - SIMILAR)



TRUSS DECK CROSS SECTION

(ILLINOIS BOUND BRIDGE - SHOWN)
(IOWA BOUND BRIDGE - SIMILAR)

DESIGN FOR 0° SKEW

I-74 BRIDGES OVER THE MISSISSIPPI RIVER (ILLINOIS & IOWA BOUND)

4 @ 222′-3½, 2 @ 223′-6½ TRUSS SPANS

BRIDGE DECK REMOVAL

STA. 6754+17.58 - 684.84′ LT - I-74 DECEMBER 2014

ROCK ISLAND COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 4 OF 11 FILE NO. 30253 DESIGN NO. 4208

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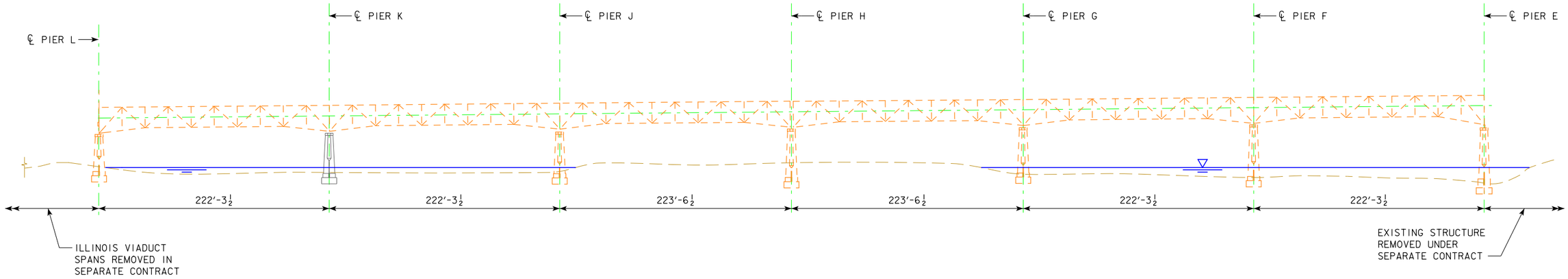
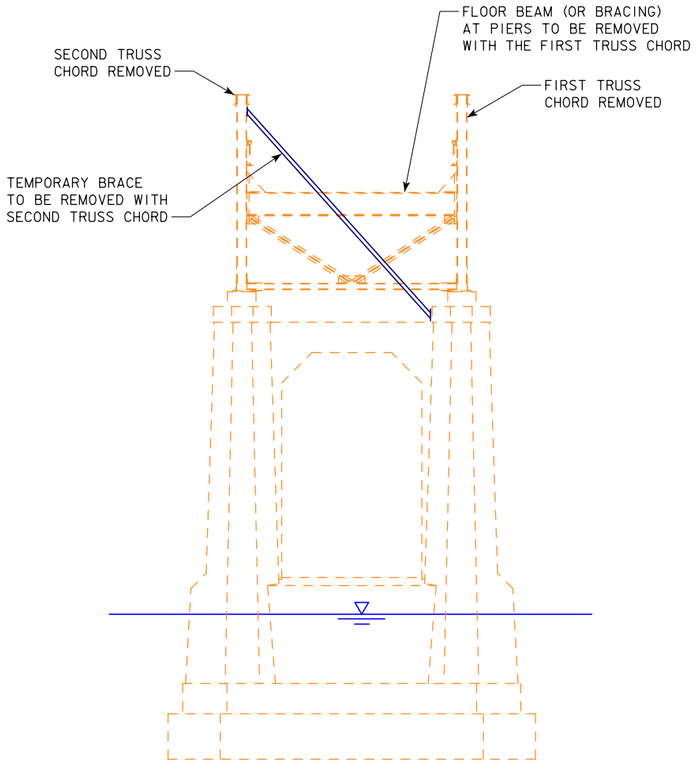


ELEVATION - SUPERSTRUCTURE DEMOLITION



SECTION AT PIER

SUGGESTED SUPERSTRUCTURE DEMOLITION PROCEDURE

STEP 1 REMOVE CONCRETE DECK AND ALL ATTACHED APPURTENANCES ON TRUSS SPANS.

STEP 2 CONSTRUCT TEMPORARY BRACE AT EACH PIER TO STABILIZE THE TRUSS CHORD THAT WILL BE THE SECOND TRUSS TO BE REMOVED FOR EACH SPAN.

STEP 3 REMOVE FLOOR BEAMS, BRACING AND STRINGERS. LEAVE SELECT MEMBERS AS REQUIRED TO BRACE THE TWO TRUSSES AGAINST EACH OTHER.

STEP 4 REMOVE FIRST TRUSS CHORD WITH REMAINING SELECT MEMBERS AS MENTIONED ABOVE. TRUSS CHORDS CAN BE CUT AND REMOVED ONE SPAN AT A TIME.

STEP 5 REMOVE SECOND TRUSS CHORD (WITH TEMPORARY BRACE) AND REPEAT FOR EACH SPAN.

ESTIMATED STEEL WEIGHTS

960	LB/FT	TRUSSES
60	LB/FT	RAILINGS
275	LB/FT	STRINGERS
260	LB/FT	FLOORBEAMS
210	LB/FT	BRACING
1,765	LB/FT	TOTAL STEEL WEIGHT PER FOOT OF BRIDGE (TRUSS SPANS)

TRUSS WEIGHTS TAKEN FROM ORIGINAL PLANS

DESIGN FOR 0° SKEW

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4 @ 222′-3½, 2 @ 223′-6½ TRUSS SPANS

SUPERSTRUCTURE DEMOLITION

STA. 6754+17.58 - 684.84′ LT - I-74 DECEMBER 2014

ROCK ISLAND COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 5 OF 11 FILE NO. 30253 DESIGN NO. 4208

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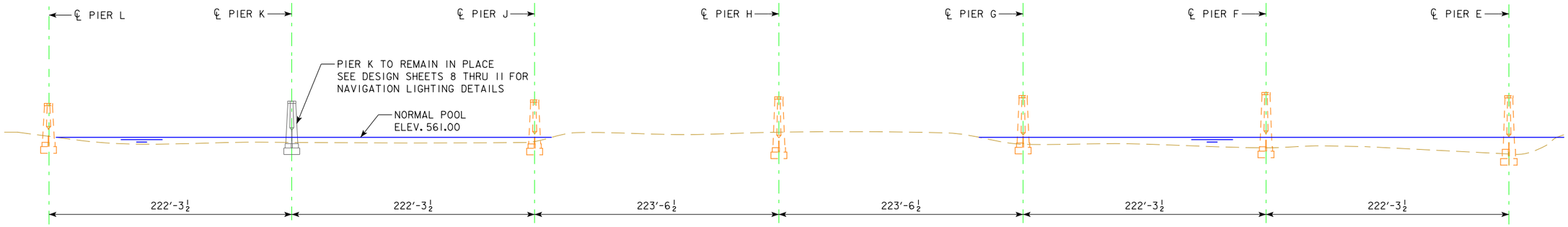
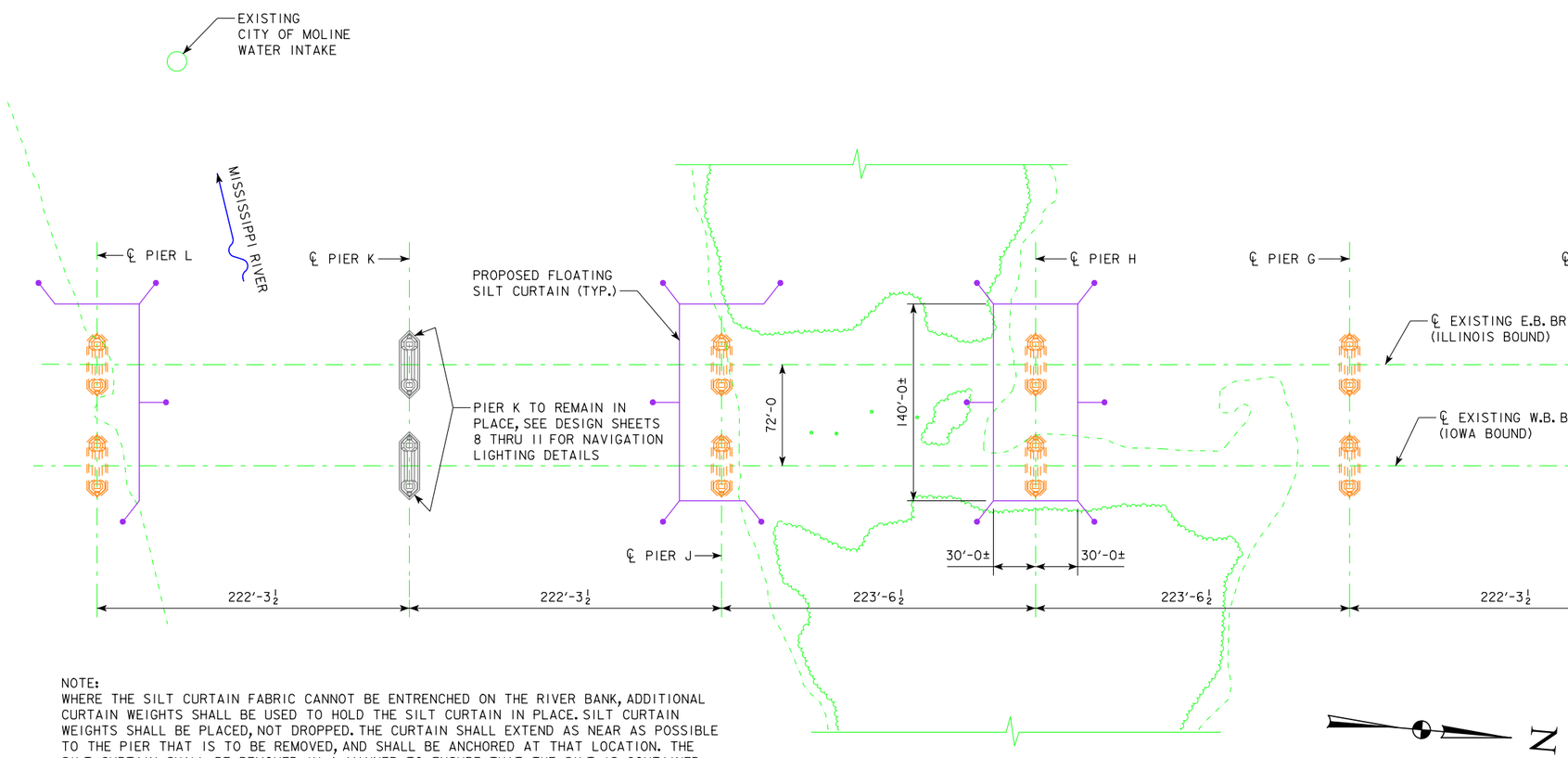


ELEVATION - REMOVAL OF SUBSTRUCTURE



NOTE:
WHERE THE SILT CURTAIN FABRIC CANNOT BE ENTRENCHED ON THE RIVER BANK, ADDITIONAL CURTAIN WEIGHTS SHALL BE USED TO HOLD THE SILT CURTAIN IN PLACE. SILT CURTAIN WEIGHTS SHALL BE PLACED, NOT DROPPED. THE CURTAIN SHALL EXTEND AS NEAR AS POSSIBLE TO THE PIER THAT IS TO BE REMOVED, AND SHALL BE ANCHORED AT THAT LOCATION. THE SILT CURTAIN SHALL BE REMOVED IN A MANNER TO ENSURE THAT THE SILT IS CONTAINED AND NOT RELEASED INTO THE RIVER.

PLAN - REMOVAL OF SUBSTRUCTURE

DESIGN FOR 0° SKEW

I-74 BRIDGES OVER THE MISSISSIPPI RIVER (ILLINOIS & IOWA BOUND)

4 @ 222'-3½, 2 @ 223'-6½ TRUSS SPANS

SUBSTRUCTURE DEMOLITION

STA. 6754+17.58 - 684.84' LT - I-74 DECEMBER 2014

ROCK ISLAND COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 6 OF 11 FILE NO. 30253 DESIGN NO. 4208

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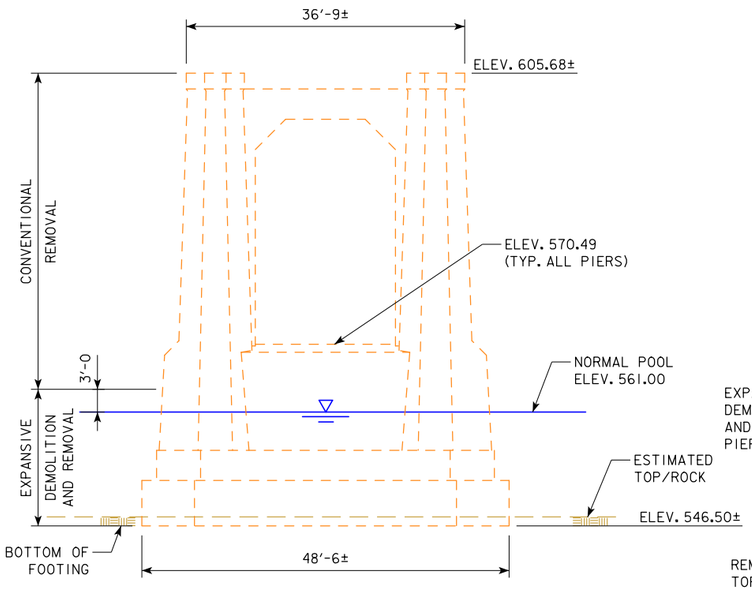
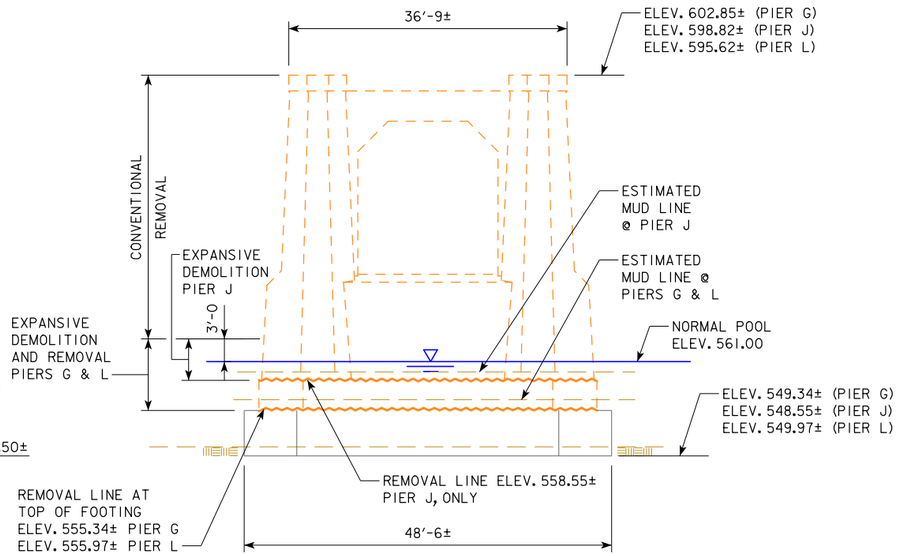
DESIGN TEAM: AJK/RMG/EHS | ROCK ISLAND COUNTY | PROJECT NUMBER IM-074-1(214)5--13-82 | SHEET NUMBER 7

BENCHMARK NO.: 500 STA. 6781+18.95 LT. 161.23'
ELEV. 575.797 (NAVD 1988), CHISELED "X" IN BOLT
E. SIDE CONCRETE STRUCTURE



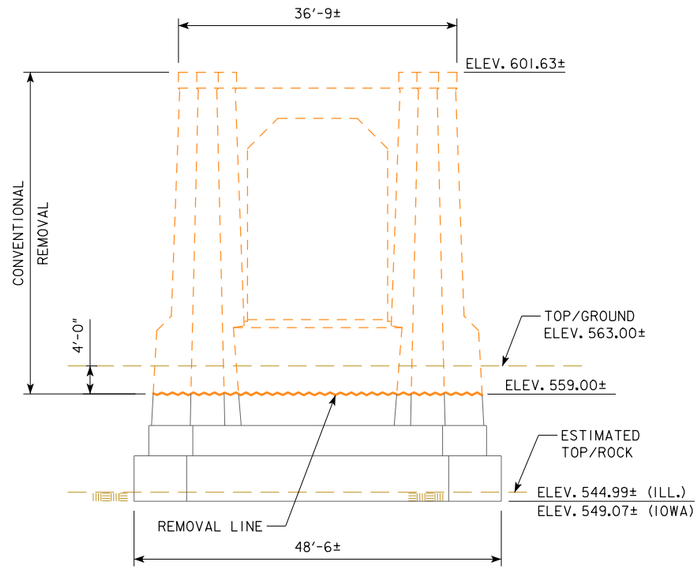
ELEVATION - PIER F

(ILLINOIS BOUND PIER ELEVATIONS - SHOWN)
(IOWA BOUND PIER - SIMILAR)
(LOOKING NORTH)



ELEVATION - PIERS G, J & L

(ILLINOIS BOUND PIER ELEVATIONS - SHOWN)
(IOWA BOUND PIER - SIMILAR)
(LOOKING NORTH)

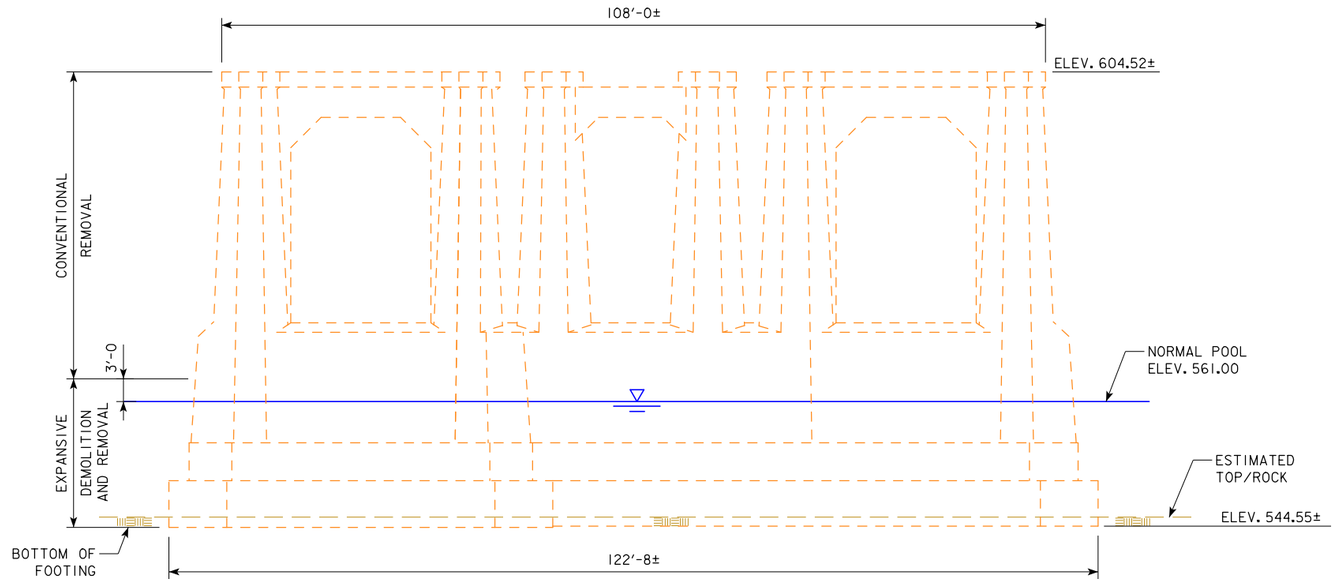


ELEVATION - PIER H

(ILLINOIS BOUND PIER ELEVATIONS - SHOWN)
(IOWA BOUND PIER - SIMILAR)
(LOOKING NORTH)

ALL ELEVATIONS BASED ON NGVD 1912 DATUM.

THE FOLLOWING CONVERSION APPLIES TO
THE PROJECT LOCATION:
NAVD 88 = NGVD 1912 - 0.727 FT.



ELEVATION - PIER E

(LOOKING SOUTH)

NOTES:

1. FOR PIERS J AND L, DEMOLITION BELOW ELEVATION 564.00 MUST BE DONE WITH EXPANSIVE DEMOLITION AGENTS TO MINIMIZE THE AMOUNT OF DUST AND DEBRIS INTRODUCED INTO THE WATERWAY.
2. THE ELEVATIONS OF THE REMOVAL LIMITS SHOWN AT PIERS J AND L ARE ESTIMATED. THE REMOVAL LIMIT AT PIERS J AND L SHALL BE 1'-0 BELOW THE MUD LINE AND THE RIVERBED SLOPE SHALL BE RE-MADE TO MEET THE EXISTING RIVERBED.
3. ALL EXCAVATION REQUIRED AT PIER H TO FACILITATE REMOVAL SHALL BE INCIDENTAL TO THE COST OF THE REMOVAL OF THE EXISTING BRIDGE.

DESIGN FOR 0° SKEW

I-74 BRIDGES OVER THE MISSISSIPPI RIVER (ILLINOIS & IOWA BOUND)

4 @ 222'-3½, 2 @ 223'-6½ TRUSS SPANS

SUBSTRUCTURE DEMOLITION

STA. 6754+17.58 - 684.84' LT - I-74 DECEMBER 2014

ROCK ISLAND COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 7 OF 11 FILE NO. 30253 DESIGN NO. 4208

benesch
engineers · scientists · planners
Alfred Benesch & Company
205 North Michigan Avenue, Suite 2400
Chicago, Illinois 60601
312-565-0450 Job No. 10061

DESIGN TEAM: AJK/RMG/EHS | ROCK ISLAND COUNTY | PROJECT NUMBER IM-074-1(214)5--13-82 | SHEET NUMBER 8

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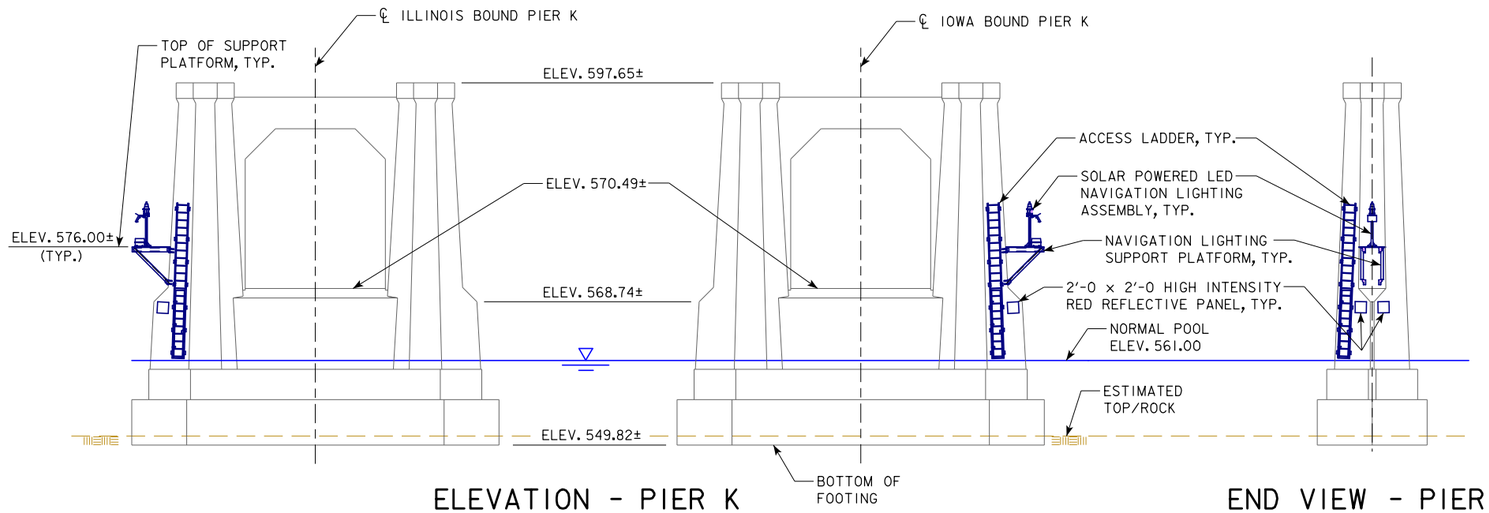
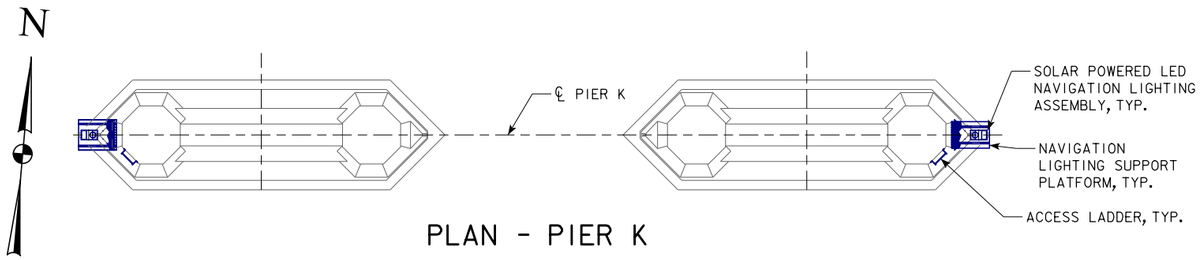
MODEL: $MODEL

BENCHMARK NO.: 500 STA. 6781+18.95 LT. 161.23' ELEV. 575.797
(NAVD 1988), CHISELED "X" IN BOLT, E. SIDE CONCRETE STRUCTURE

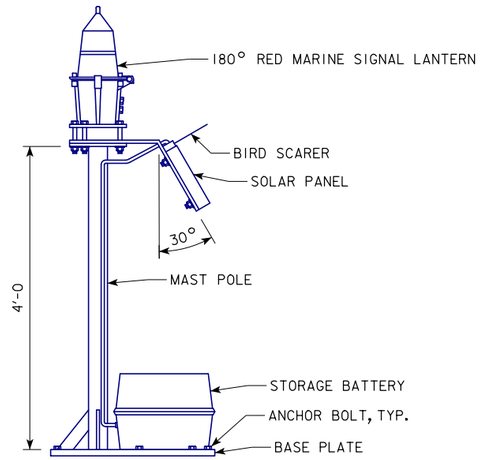


ELEVATION - PIER K
(LOOKING NORTH)

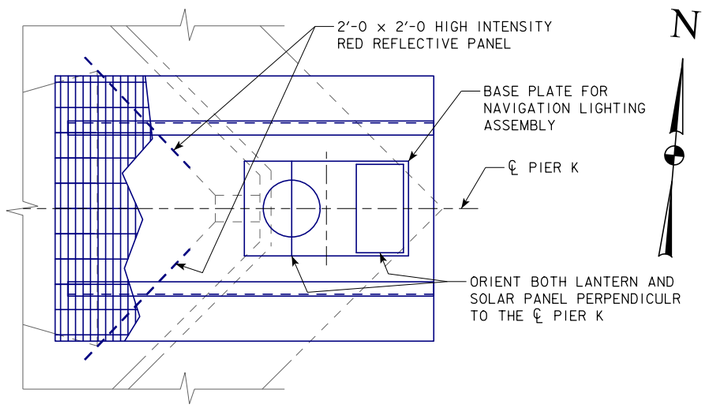
END VIEW - PIER K



PLAN - PIER K



SOLAR POWERED LED
NAVIGATION LIGHT DETAIL



NAVIGATION LIGHT ORIENTATION
(EAST PLATFORM SHOWN, WEST SIMILAR)

NOTES:

ALL ELEVATIONS BASED ON NGVD 1912 DATUM.

THE FOLLOWING CONVERSION APPLIES TO THE PROJECT LOCATION:
NAVD 88 = NGVD 1912 - 0.727 FT.

RETROFLECTIVE PANEL NOTES:

STEEL PLATE FOR RETROREFLECTIVE PANEL SHALL BE IN ACCORDANCE WITH ARTICLE 4186.02,B40F THE STANDARD SPECIFICATIONS EXCEPT THE PLATE THICKNESS SHALL BE $\frac{1}{8}$".

HIGH INTENSITY RETRO REFLECTIVE SHEETING SHALL BE IN ACCORDANCE WITH ARTICLE 4186.03,OF THE STANDARD SPECIFICATIONS.

THE COST OF FURNISHING AND THE INSTALLATION OF MATERIALS FOR THE HIGH INTENSITY RETROREFLECTIVE PANELS SHALL BE INCLUDED IN THE PRICE BID FOR "NAVIGATION LIGHTING."

NAVIGATION LIGHTING UNIT REQUIREMENTS:

GENERAL

NAVIGATION LIGHTING UNIT SHALL BE PROVIDED AS A SINGLE ASSEMBLY CONSISTING OF A LANTERN WITH STEADY-BURNING LED LAMP, SOLAR ARRAY MODULE,BATTERY,PHOTO-CONTROL,AND A MOUNTING PEDESTAL WITH BASE PLATE FOR THE LANTERN AND OTHER COMPONENTS. LIGHTING UNIT SHALL BE DESIGNATED FOR USE AS A MARINE SIGNAL LIGHT PER U.S COAST GUARD REQUIREMENTS AND COMPLY WITH USCG STANDARDS 33CFR118.60, 33CFR84.13,AND 33CFR84.15. RETROREFLECTIVE PANELS, AS SHOWN ON THIS DESIGN SHEET, ARE PRESCRIBED IN ACCORDANCE WITH PART 118.

LANTERN

LENS:

LENS SHALL BE TEMPERED FRESNEL GLASS OR A SINGLE PIECE ACRYLIC FRESNEL LENS. LENS SECTION SHALL PROVIDE 180 DEGREE CONTINUOUS RED ILLUMINATION AND INCLUDE A BIRD SPIKE TO PREVENT THE FOULING OF THE LENS.

LAMP:

LED LAMP SHALL CONSIST OF A DENSE ARRAY OF INDIVIDUAL LEDs WITH THE ENTIRE ASSEMBLY NEATLY POTTED INTO A STEM FITTED INTO A STANDARD MEDIUM BASE. EACH LED SHALL BE ENCASED IN A SOLID CLEAR EPDXY PER INDUSTRY STANDARD AND HAVE A MTBF RATING OF 100,000 HOURS. IN THE EVENT OF FAILURE OF A SINGLE OR MULTIPLE INDIVIDUAL LEDs, THE REMAINING LEDs SHALL CONTINUE TO OPERATE. THE LAMP SHALL BE DESIGNED TO OPERATE AT 12 VOLT OPERATION. LAMP POWER SHALL BE ADJUSTED AS REQUIRED TO PROVIDE A RANGE OF 41 NAUTICAL MILES AT AN ATMOSPHERE TRANSMISSION FACTOR OF 0.70. LAMP POWER DRAW AFTER ADJUSTMENT SHALL NOT EXCEED 1.4 WATTS. LED DRIVE CIRCUIT SHALL BE TEMPERATURE COMPENSATED TO ENSURE UNIFORM BRIGHTNESS WITH AMBIENT TEMPERATURE CHANGE.

HOUSING:

THE LOWER HOUSING SHALL BE CAST ALUMINUM OR A UV STABILIZED GLASS REINFORCED POLYESTER RESIN SUITABLE FOR A MARINE ENVIRONMENT. THE ENTIRE ASSEMBLY SHALL BE WEATHER-TIGHT, FULLY GASKETED, AND DESIGNED FOR LONG LIFE. LAMP SHALL BE READILY ACCESSIBLE FOR SERVICING.

SOLAR ARRAY MODULE AND BATTERY

GENERAL:

THE SOLAR ARRAY MODULE AND BATTERY SHALL BE SIZED AS REQUIRED TO PROVIDE ADEQUATE POWER TO THE NAVIGATION LIGHT THROUGHOUT THE YEAR WITH MINIMUM SIZES AS INDICATED BELOW. THE SYSTEM SHALL PROVIDE A MINIMUM OF 24 DAYS OF AUTONOMY.

SOLAR ARRAY MODULE:

SOLAR ARRAY MODULE SHALL CONSIST OF POLYCRYSTALLINE SOLAR CELLS SANDWICHED BETWEEN TEMPERED GLASS AND ETHYLENE VINYL ACETATE (EVA). THE ASSEMBLY SHALL BE WEATHERPROOF AND FRAMED WITH A CORROSION-RESISTANT, BRONZE ANODIZED ALUMINUM FRAME. PANEL SHALL BE PROVIDED WITH AN APPROPRIATE VOLTAGE REGULATOR. PANEL SHALL PROVIDE SUFFICIENT POWER FOR BATTERY CHARGING DURING DAYLIGHT HOURS WITH A MINIMUM SIZE OF 20 WATTS AT 12 VDC. PROVIDE MOUNTING BRACKET FOR SOLAR PANEL. EQUIP SOLAR ARRAY MODULE WITH BIRD SCARERS.SOLAR PANEL SHALL BE ORIENTED DUE SOUTH AT A 30 DEGREE TILT FROM VERTICAL.

BATTERY:

BATTERY SHALL BE A 12 V TYPE CAPABLE OF 50% DISCHARGE AND WIRED FOR 105AH TOTAL (MINIMUM). PROVIDE A STRUCTURAL PLASTIC BATTERY ENCLOSURE TO HOUSE THE BATTERIES.

PHOTO-CONTROL

PROVIDE INTEGRAL PHOTO-CONTROL WHICH PERMITS DUSK TO DAWN OPERATION.

MOUNTING PEDESTAL WITH BASE PLATE

PROVIDE ALL COMPONENTS INSTALLED AND PREWIRED ON A GALVANIZED STEEL MOUNTING PEDESTAL WITH GALVANIZED STEEL BASE PLATE. PEDESTAL SHALL BE 2" MINIMUM DIAMETER PIPE WHICH IS 4'-0" IN HEIGHT. LANTERN SHALL BE ATTACHED TO THE TOP OF PEDESTAL AND SOLAR ARRAY MODULE ATTACHED TO THE SIDE. THE PEDESTAL SHALL BE WELDED TO A BASE PLATE AND THE BATTERY ENCLOSURE SHALL BE ATTACHED TO THIS BASE PLATE. BASE PLATE SHALL BE ANCHORED TO THE STEEL GRATING OF THE SUPPORT PLATFORM WITH A MINIMUM OF FOUR ANCHOR BOLTS SIZED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

DESIGN FOR 0° SKEW

I-74 BRIDGES OVER THE MISSISSIPPI RIVER (ILLINOIS & IOWA BOUND)

4 @ 222'-3½, 2 @ 223'-6½ TRUSS SPANS

PIER K NAVIGATION LIGHTING

STA. 6754+17.58 - 684.84' LT - I-74 DECEMBER 2014

ROCK ISLAND COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 8 OF 11 FILE NO. 30253 DESIGN NO. 4208

benesch engineers · scientists · planners
Alfred Benesch & Company
205 North Michigan Avenue, Suite 2400
Chicago, Illinois 60601
312-565-0450 Job No. 10061

DESIGN TEAM: TJJ/TJJ/AJK | ROCK ISLAND COUNTY | PROJECT NUMBER IM-074-1(214)5--13-82 | SHEET NUMBER 9

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MODEL: $MODEL

SUPPORT PLATFORM NOTES:

DESIGN LIVE LOAD IS 100 PSF UNIFORM LOAD OR A SINGLE 500 LB CONCENTRATED LOAD, EQUIVALENT TO TWO WORKERS WEIGHING 250 POUNDS EACH, INCLUDING THEIR EQUIPMENT.

ALL STRUCTURAL STEEL OTHER THAN THE GRATING SHALL BE ASTM A709 GRADE 50.

ALL BOLTS SHALL BE HIGH STRENGTH. BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, ARTICLE 4153.06.

GRATING SHALL BE WELDED TYPE WITH $\frac{3}{16}$" BEARING BARS AT $1\frac{3}{16}$" CENTERS AND $\frac{1}{4}$"Φ CROSS RODS AT 4" MAXIMUM CENTERS. DEPTH OF BEARING BARS SHALL BE 1", AS SHOWN IN GRATING DETAIL. THE GRATING MATERIAL FOR BEARING BARS AND BANDING SHALL BE OF RECTANGULAR SECTION AND SHALL COMPLY WITH THE REQUIREMENTS OF ASTM A1011 TYPE 2. CROSS RODS SHALL COMPLY WITH THE REQUIREMENTS OF ASTM A510. THE MANUFACTURER SHALL CERTIFY THAT THE GRATING CAPACITY MEETS OR EXCEEDS THE DESIGN LIVE LOAD PLUS DEAD LOAD OF THE GRATING.

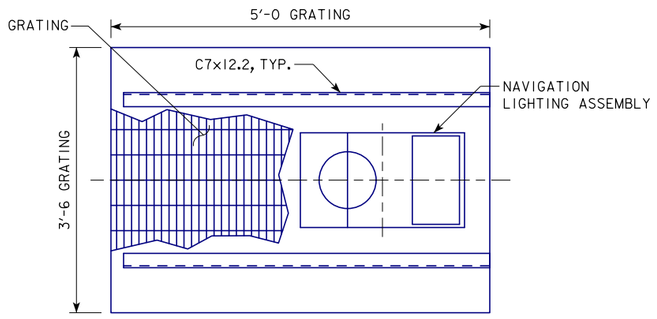
ALL STEEL SHALL BE GALVANIZED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS AFTER FABRICATION. GRATINGS SHALL BE GALVANIZED AFTER WELDING TO THE CHANNELS.

ALL BOLTS SHALL BE $\frac{5}{8}$" DIAMETER UNLESS OTHERWISE NOTED. HOLES FOR $\frac{5}{8}$" BOLTS SHALL BE $\frac{11}{16}$" DIAMETER. FOR BOLT SPACINGS AND EDGE CLEARANCES NOT SHOWN, AASHTO CRITERIA SHALL BE USED.

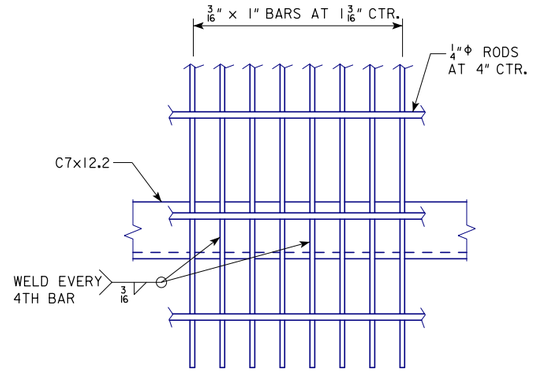
BOLTED STEEL CONNECTIONS MAY BE FABRICATED IN THE SHOP OR INSTALLED IN THE FIELD AT THE CONTRACTOR'S OPTION. USE OF FIELD-DRILLED BOLT HOLES IS PERMITTED FOR FIELD INSTALLATION.

NO FIELD WELDING WILL BE PERMITTED.

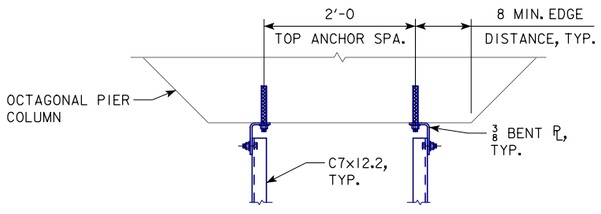
CONTRACTOR SHALL FIELD VERIFY EXISTING PIER END DIMENSIONS PRIOR TO FABRICATION TO INSURE PROPER STEEL FIT UP AND A MINIMUM EDGE DISTANCE OF 8 INCHES FOR THE CONCRETE ANCHORS.



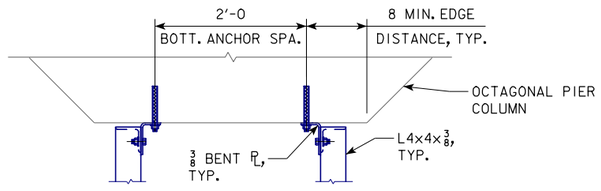
SUPPORT PLATFORM TOP PLAN



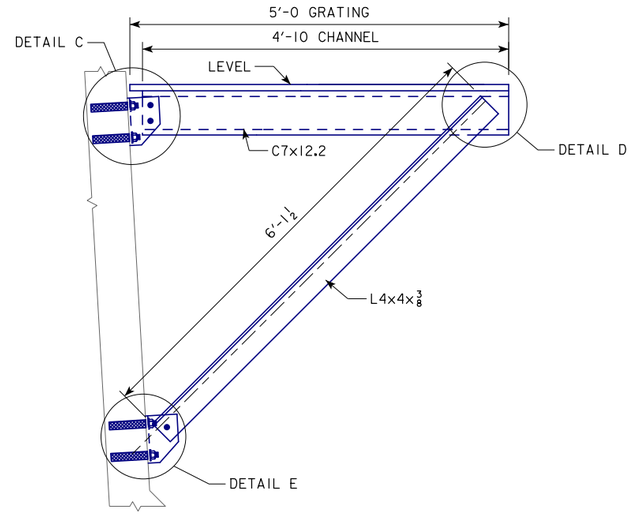
GRATING DETAIL
(PLAN VIEW)



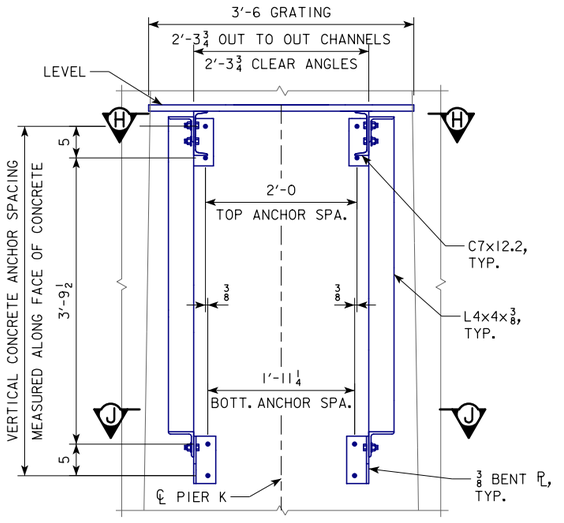
SECTION H-H



SECTION J-J



SUPPORT PLATFORM ELEVATION
(NAVIGATION LIGHTING ASSEMBLY NOT SHOWN FOR CLARITY)



SUPPORT PLATFORM END VIEW
(NAVIGATION LIGHTING ASSEMBLY NOT SHOWN FOR CLARITY)

NOTES:

FOR DETAILS C, D, & E, SEE DESIGN SHEET 10.

FOR CONCRETE ANCHOR NOTES, SEE DESIGN SHEET 10.

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DESIGN FOR 0° SKEW

I-74 BRIDGES OVER THE MISSISSIPPI RIVER (ILLINOIS & IOWA BOUND)

4 @ 222'-3$\frac{1}{2}$, 2 @ 223'-6$\frac{1}{2}$ TRUSS SPANS

PIER K NAVIGATION LIGHTING

STA. 6754+17.58 - 684.84' LT - I-74 DECEMBER 2014

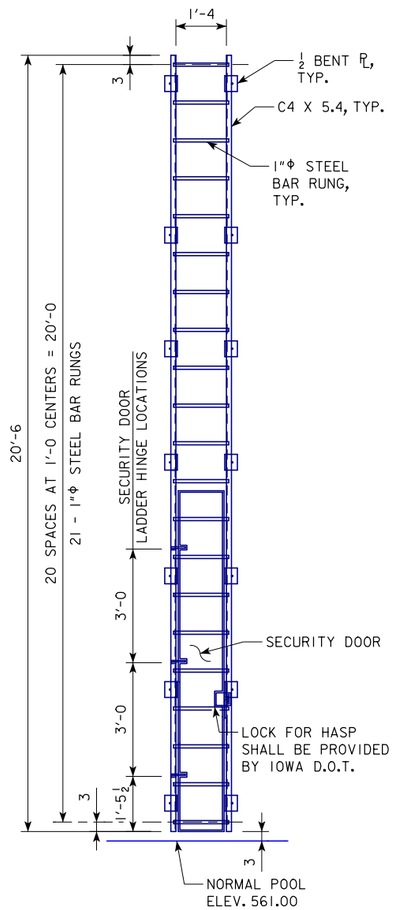
ROCK ISLAND COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 9 OF 11 FILE NO. 30253 DESIGN NO. 4208

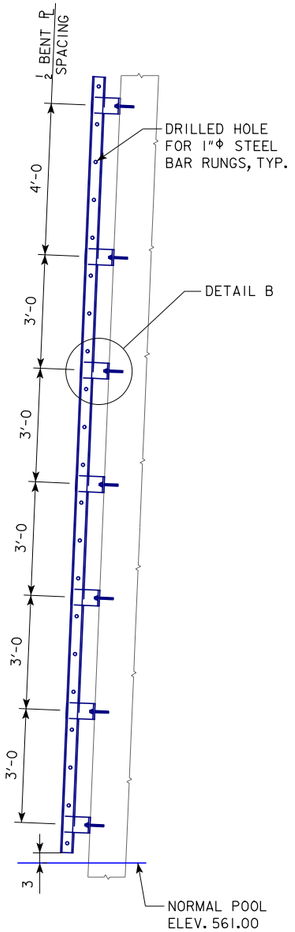
DESIGN TEAM: TJJ/TJJ/AJK	ROCK ISLAND COUNTY	PROJECT NUMBER IM-074-1(214)5--13-82	SHEET NUMBER 10

BENCHMARK NO.: 500 STA. 6781+18.95 LT. 161.23' ELEV. 575.797
(NAVD 1988), CHISELED "X" IN BOLT, E. SIDE CONCRETE STRUCTURE

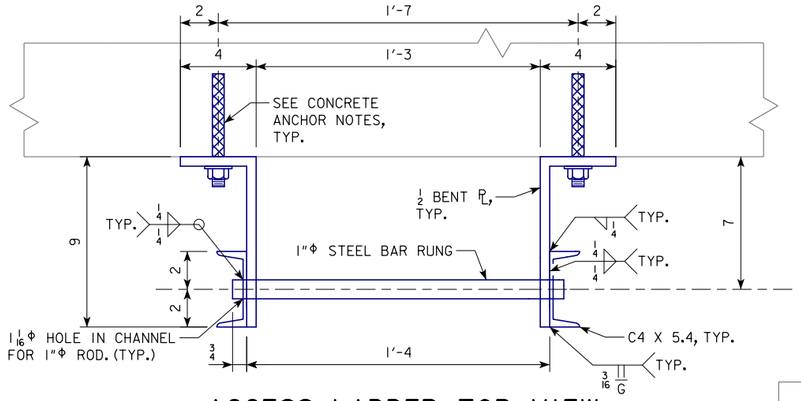


ACCESS LADDER ELEVATION

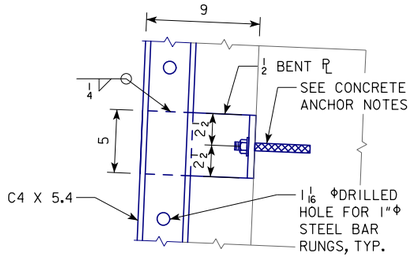
(VIEW PERPENDICULAR TO CONCRETE FACE)



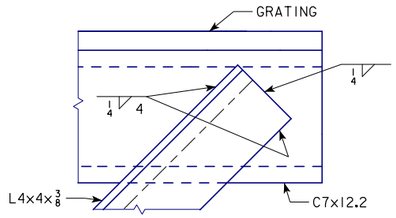
ACCESS LADDER SIDE VIEW



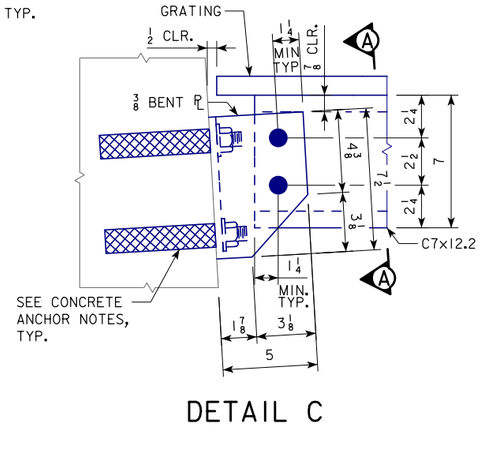
ACCESS LADDER TOP VIEW



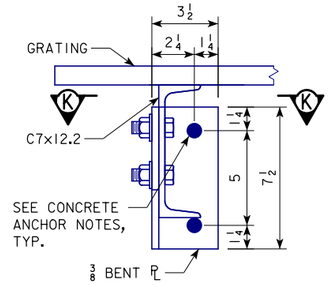
DETAIL B



DETAIL D

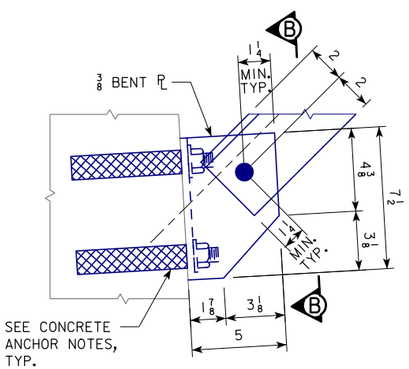


DETAIL C

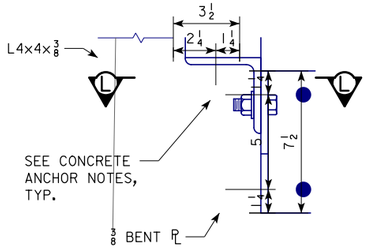


VIEW A-A

(VIEW PERPENDICULAR TO CONCRETE FACE)



DETAIL E



VIEW B-B

(VIEW PERPENDICULAR TO CONCRETE FACE)

CONCRETE ANCHOR NOTES:

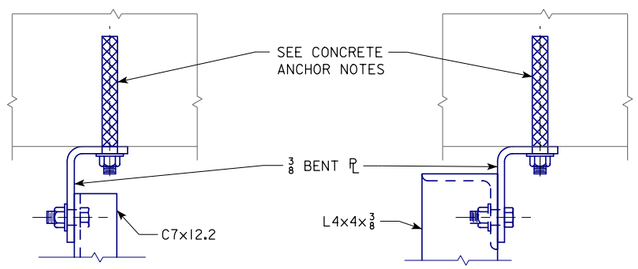
ALL CONCRETE ANCHORS SHALL BE MECHANICAL CONCRETE ANCHORS THAT CONFORM TO MATERIALS IM 453.09.

MECHANICAL CONCRETE ANCHORS SHALL BE HOT DIP OR MECHANICALLY GALVANIZED STEEL ONLY. ELECTRODEPOSITED ZINC COATING WILL NOT BE ALLOWED.

HOLES DRILLED FOR THE CONCRETE ANCHORS SHALL BE LOCATED SUCH THAT THEY MISS THE EXISTING PIER REINFORCING STEEL.

CONCRETE ANCHORS SHALL HAVE A MINIMUM ALLOWABLE SHEAR LOAD OF 5000 LBS, A MINIMUM ALLOWABLE TENSION LOAD OF 2500 LBS. CONCRETE ANCHORS SHALL BE ⅝"Φ, HAVE A MINIMUM EMBEDMENT OF 4⅜", AND BE PLACED A MINIMUM OF 8" FROM THE NEAREST CONCRETE EDGE.

THE COST FOR FURNISHING ALL THE MATERIAL, EQUIPMENT & LABOR REQUIRED TO INSTALL THE CONCRETE ANCHORS SHALL BE INCLUDED WITH THE PRICE BID FOR "STRUCTURAL STEEL".



SECTION K-K

(SECTION PARALLEL TO CONCRETE FACE)

SECTION L-L

(SECTION PARALLEL TO CONCRETE FACE)

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4 @ 222'-3½, 2 @ 223'-6½ TRUSS SPANS

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ROCK ISLAND COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 10 OF 11 FILE NO. 30253 DESIGN NO. 4208

DESIGN TEAM: TJJ/TJJ/AJK | ROCK ISLAND COUNTY | PROJECT NUMBER IM-074-1(214)5--13-82 | SHEET NUMBER 11

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BENCHMARK NO.: 500 STA. 6781+18.95 LT. 161.23' ELEV. 575.797
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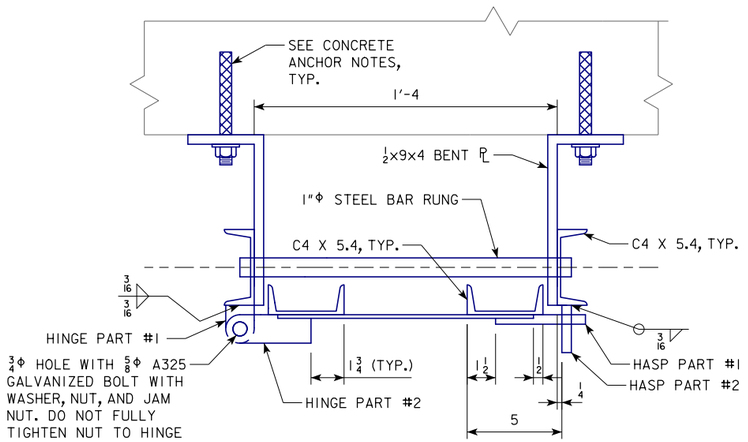

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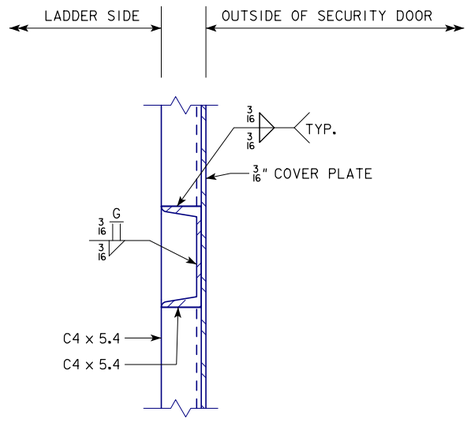

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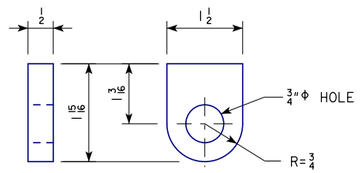
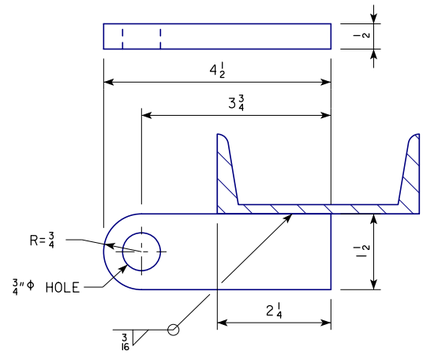
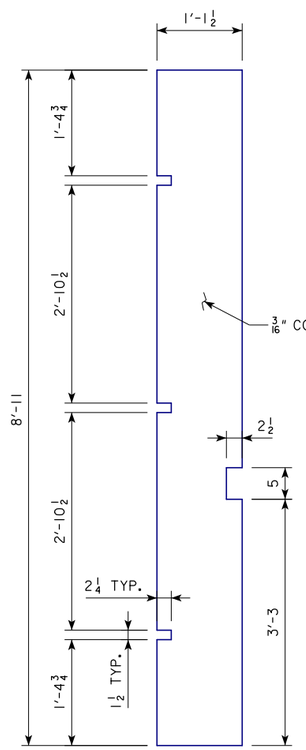


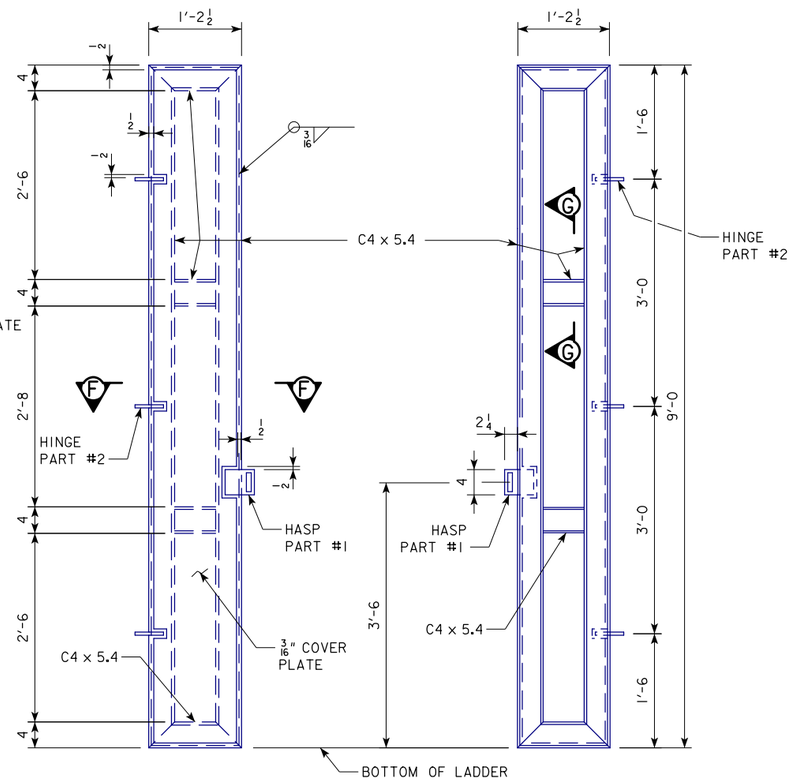
HINGE PART #1



HINGE PART #2

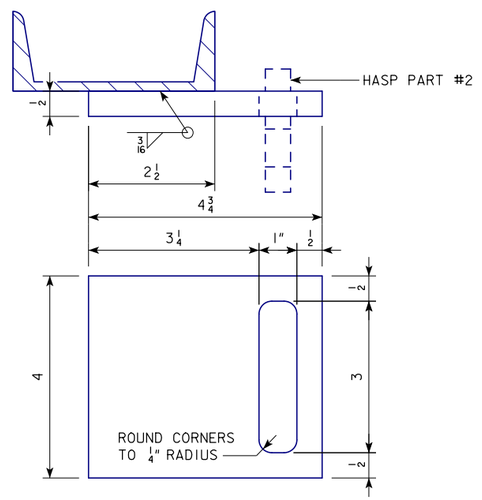


3/16" COVER PL DETAIL

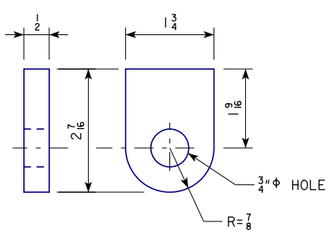


SECURITY DOOR ELEV.
FRONT SIDE OF DOOR

SECURITY DOOR ELEV.
BACK (LADDER) SIDE OF DOOR



HASP PART #1



HASP PART #2

DESIGN FOR 0° SKEW

I-74 BRIDGES OVER THE MISSISSIPPI RIVER (ILLINOIS & IOWA BOUND)

4 @ 222'-3½, 2 @ 223'-6½ TRUSS SPANS

PIER K NAVIGATION LIGHTING

STA. 6754+17.58 - 684.84' LT - I-74 DECEMBER 2014

ROCK ISLAND COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 11 OF 11 FILE NO. 30253 DESIGN NO. 4208

benesch engineers · scientists · planners
Alfred Benesch & Company
205 North Michigan Avenue, Suite 2400
Chicago, Illinois 60601
312-565-0450 Job No. 10061

DESIGN TEAM: TJJ/TJJ/AJK	ROCK ISLAND COUNTY	PROJECT NUMBER IM-074-1(214)5--13-82	SHEET NUMBER 12

POLLUTION PREVENTION PLAN

This Base Pollution Prevention Plan (PPP) includes information on Roles and Responsibilities, Project Site Description, Controls, Maintenance Procedures, Inspection Requirements, Non-Storm Water Controls, Potential Sources of Off Right-of-Way Pollution, and Definitions. This plan references other documents rather than repeating the information contained in the documents. A copy of this Base Pollution Prevention Plan, amended as needed per plan revisions or by contract modification, will be readily available for review.

All contractors shall conduct their operations in a manner that controls pollutants, minimizes erosion, and prevents sediments from entering waters of the state and leaving the highway right-of-way. The prime contractor shall be responsible for compliance and implementation of the PPP for their entire contract. This responsibility shall be further shared with subcontractors whose work is a source of potential pollution as defined in this PPP.

I. ROLES AND RESPONSIBILITES

A. Designer:
1. Prepares Base PPP included in the project plan.
2. Prepares Notice of Intent (NOI) submitted to Iowa DNR.
3. Signature authority on the Base PPP and NOI.

B. Contractor/Subcontractor:
1. Affected contractors/subcontractors are co-permittees with the IDOT and will sign a certification statement adhering to the requirements of the NPDES permit and this PPP plan. All co-permittees are legally required under the Clean Water Act and the Iowa Administrative Code to ensure compliance with the terms and conditions of this PPP.
2. Submit a detailed schedule according to Article 2602 of the Specifications and any additional plan notes.
3. Install and maintain appropriate controls.
4. Supervise and implement good housekeeping practices.
5. Conduct joint required inspections of the site with inspection staff.
6. Signature authority on Co-Permittee Certification Statements and storm water inspection reports.

C. RCE/Inspector:
1. Update PPP whenever there is a change in design, construction, operation or maintenance, which has a significant effect on the discharge of pollutants from the project.
2. Maintain an up-to-date list that identifies contractors and subcontractors as co-permittees.
3. Make these plans available to the DNR upon their request.
4. Conduct joint required inspections of the site with the contractor/subcontractor.
5. Complete an inspection report after each inspection.
6. Signature authority on storm water inspection reports and Notice of Discontinuation (NOD).

II. PROJECT SITE DESCRIPTION

A. This Pollution Prevention Plan (PPP) is for the construction of I-74 mainline, ramps, and local roads.

B. This PPP covers approximately 52 acres with an estimated 41 acres being disturbed. The portion of the PPP covered by this contract has 1.4 acres disturbed.

C. The PPP is located in an area of one soil association Kenyon-Floyd-Clyde.
The estimated average SCS runoff curve number for this PPP after completion will be 86.

D. Storm Water Site Map - Multiple sources of information comprise the base storm water site map including:
1. Drainage patterns – Plan and Profile sheets and Situation plans.
2. Proposed Slopes – Cross Sections.
3. Areas of Soil Disturbance – construction limits shown on Plan and Profile sheets.
4. Location of Structural Controls – Tabulations on C sheets.
5. Locations of Non-structural Controls – Tabulations on C sheets.
6. Locations of Stabilization Practices – generally within construction limits shown on Plan and Profile sheets.
7. Surface Waters (including wetlands) – Plan and Profile sheets.
8. Locations where storm water is discharged – Plan and Profile sheets.

E. The base site map is amended by contract modifications and progress payments of completed erosion control work.

F. Runoff from this work will flow into Mississippi River.

III. CONTROLS

A. The contractor's work plan and sequence of operations specified in Article 2602.03 for accomplishment of storm water controls should clearly describe the intended sequence of major activities and for each activity define the control measure and the timing during the construction process that the measure will be implemented.

B. Preserve vegetation in areas not needed for construction.

C. Section 2601 and 2602 of the Standard Specifications define requirements to implement erosion and sediment control measures. Actual quantities used may vary from the Base PPP and amendment of the plan will be documented via fieldbook entries or by contract modification. Additional erosion and sediment control items may be required as determined by the inspector and/or contractor during storm water monitoring inspections. If the work involved is not applicable to any contract items, the work will be paid for according to Article 1109.03 paragraph B.

1. EROSION AND SEDIMENT CONTROLS

a. Stabilization Practices
1) Site plans will ensure that existing vegetation is preserved where attainable and disturbed portions of the site will be stabilized.
2) Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased.
3) Temporary stabilizing seeding shall be completed as the disturbed areas are constructed. If construction activity is not planned to occur in a disturbed area for at least 21 days, the area shall be stabilized by temporary seeding or mulching within 14 days. Other stabilizing methods shall be used outside the seeding time period.
4) Stabilization measures to be used for this project are located in the Estimated Project Quantities (100-1A) and Estimate Reference Information (100-4A) located on the C sheets of the plan. Additional items may be found in the Inspector's Daily Reports (IDR) or Contract Modifications.

b. Structural Practices
1) Structural practices will be implemented to divert flows from exposed soils and detain or otherwise limit runoff and the discharge of pollutants from exposed areas of the site.
2) Structural items to be used for this project are located in the Estimated Project Quantities (100-1A) and Estimate Reference Information (100-4A) located on the C sheets of the plan, as well as all other item specific Tabulations. Typical drawings detailing construction of the devices to be used on this project can be found on the B sheets of the plan or are referenced in the Standard Road Plans Tabulation.

c. Storm Water Management
1) Measures shall be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. The installation of these devices may be subject to Section 404 of the Clean Water Act.

110-12A
04-21-15

POLLUTION PREVENTION PLAN

2. OTHER CONTROLS

a. Contractor disposal of unused construction materials and construction material wastes shall comply with applicable state and local waste disposal, sanitary sewer, or septic system regulations. In the event of a conflict with other governmental laws, rules and regulations, the more restrictive laws, rules or regulations shall apply.
1) Vehicle Entrances and Exits - Construct and maintain entrances and exits to prevent tracking of sediments onto roadways.
2) Material Delivery, Storage and Use - Implement practices to prevent discharge of construction materials during delivery, storage, and use.
3) Stockpile Management - Install controls to reduce or eliminate pollution of storm water from stockpiles of soil and paving.
4) Waste Disposal - Do not discharge any materials, including building materials, into waters of the state, except as authorized by a Section 404 permit.
5) Spill Prevention and Control - Implement procedures to contain and clean-up spills and prevent material discharges to the storm drain system and waters of the state.
6) Concrete Residuals and Washout Wastes - Designate temporary concrete washout facilities for rinsing out concrete trucks. Provide directions to truck drivers where designated washout facilities are located.
7) Vehicle and Equipment Cleaning - Employ washing practices that prevent contamination of surface and ground water from wash water.
8) Vehicle and Equipment Fueling and Maintenance - Perform on site fueling and maintenance in accordance with all environment laws such as proper storage of onside fuels and proper disposal of used engine oil or other fluids on site.
9) Litter Management - Ensure employees properly dispose of litter.

3. APPROVED STATE OR LOCAL PLANS
During the course of this construction, it is possible that situations will arise where unknown materials will be encountered. When such situations are encountered, they will be handled according to all federal, state, and local regulations in effect at the time.

IV. MAINTENANCE PROCEDURES

The contractor is required to maintain all temporary erosion and sediment control measures in proper working order, including cleaning, repairing, or replacing them throughout the contract period. This shall begin when the features have lost 50% of their capacity.

V. INSPECTION REQUIREMENTS

A. Inspections shall be made jointly by the contractor and the contracting authority at least once every seven calendar days. Storm water monitoring inspections will include:
1. Date of the inspection.
2. Summary of the scope of the inspection.
3. Name and qualifications of the personnel making the inspection.
4. Rainfall amount.
5. Review erosion and sediment control measures within disturbed areas for the effectiveness in preventing impacts to receiving waters.
6. Major observations related to the implementation of the PPP.
7. Identify corrective actions required to maintain or modify erosion and sediment control measures.

B. Include storm water monitoring inspection reports in the Amended PPP. Incorporate any additional erosion and sediment control measures determined as a result of the inspection. Immediately begin corrective actions on all deficiencies found and complete all actions within 3 calendar days of the inspection.

VI. NON-STORM WATER DISCHARGES

This includes subsurface drains (i.e. longitudinal and standard subdrains) and slope drains. The velocity of the discharge from these features may be controlled by the use of patio blocks, Class A stone, erosion stone or other appropriate materials.

VII. POTENTIAL SOURCES OF OFF RIGHT-OF-WAY (ROW) POLLUTION

Silts, sediment, and other forms of pollution may be transported onto highway right-of-way (ROW) as a result of a storm event. Potential sources of pollution located outside highway ROW are beyond the control of this PPP. Pollution within highway ROW will be conveyed and controlled per this PPP.

VIII. DEFINITIONS

A. Base PPP - Initial Pollution Prevention Plan.

B. Amended PPP - May include Plan Revisions or Contract Modifications for new items and fieldbook entries made by the inspector.

C. IDR - Inspector's Daily Report – this contains the inspector's daily diary and item postings.

D. Controls - Methods, practices, or measures to minimize or prevent erosion, control sedimentation, control storm water, or minimize contaminants from other types of waste or materials.

E. Signature Authority - Representative from Designer, Contractor/Subcontractor, or RCE/Inspector authorized to sign various storm water documents.

CERTIFICATION STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____
Signature

Jeffrey J. Tardy
Printed or Typed Name

232-3B
10-20-15

EROSION CONTROL
(URBAN SEEDING)

Following the completion of work in a disturbed area, place seed, fertilizer, and mulch on the disturbed area as follows:

Use seed mix and fertilizer meeting the requirements of Article 2601.03,C,4 and Section 4169 of the Standard Specifications.

Use mulch meeting the requirements of Articles 2601.03,E,2,a and 4169.07,A of the Standard Specifications.

Preparing the seedbed and furnishing and applying seed, fertilizer, and mulch is incidental to mobilization and will not be paid for separately.

BRIDGE REMOVAL LETTING DATE

IM-074-1(210)5--13-82

SCOTT COUNTY

LEGEND

INTERSTATE ROUTE	29
FREEWAY OR EXPRESSWAY ROUTE	69
U.S. NUMBERED ROUTE	6
STATE NUMBERED ROUTE	44
COUNTY NUMBERED ROUTE	A13
LOCAL ROAD OR CITY STREET	
RAILROAD	
CORPORATION LINE	
SECTION LINE	
CUL DE SAC	
SECTION, TOWNSHIP & RANGE NUMBERS	9 , T-81N , R-30W
PIPELINE	
AIRPORT	
HYDROLOGY	
BRIDGE	
STATE BOUNDARY	
COUNTY BOUNDARY	
CORPORATE LIMIT LINE	
TOWNSHIP LINE	

IOWA DOT

Highway Division

PLANS OF PROPOSED IMPROVEMENTS ON THE

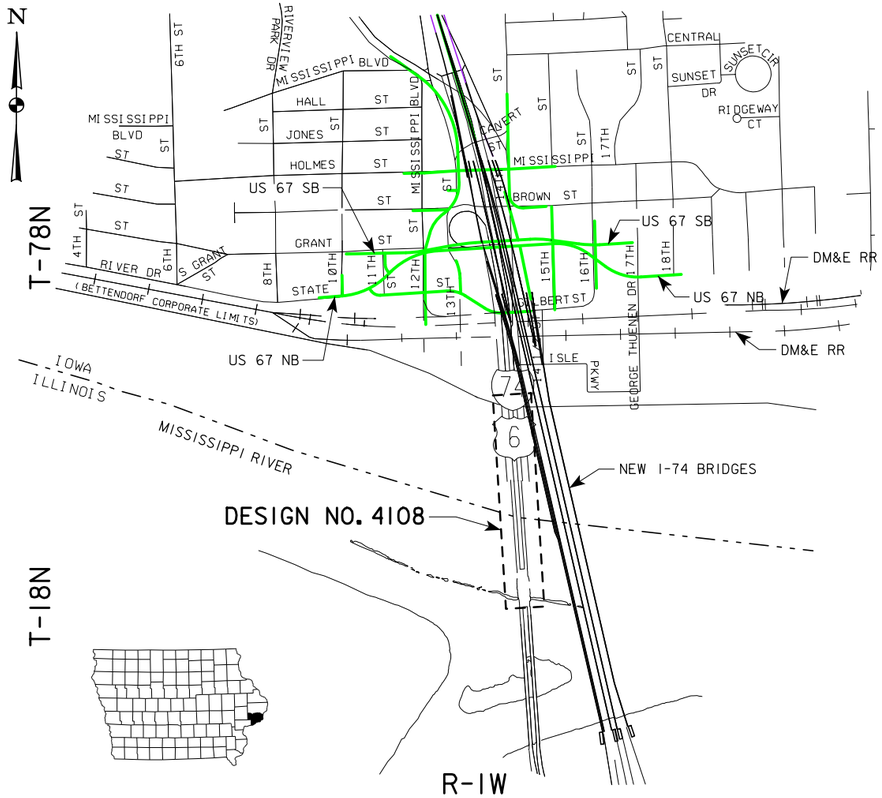
INTERSTATE ROAD SYSTEM

SCOTT & ROCK ISLAND COUNTIES

BRIDGE REMOVAL
I-74 MISSISSIPPI RIVER BRIDGES
BETWEEN BETTENDORF, IA AND MOLINE, IL

THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2015, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

R-4E



LOCATION MAP - PART OF CITY OF BETTENDORF

PROJECT DIRECTORY NAME: 8207401003

IOWA ONE CALL
1-800-292-8989
www.iowaonecall.com
811
Know what's below. Call before you dig.

FINAL PLANS - FOR REVIEW
NOT FOR CONSTRUCTION
DECEMBER 2014

ALL WORKING DRAWINGS INCLUDING SHOP DRAWINGS AND FALSEWORK DRAWINGS WILL BE REVIEWED BY:

ALFRED BENESCH & COMPANY
205 NORTH MICHIGAN AVENUE, SUITE 2400
CHICAGO, IL 60601

ENGLISH STANDARD BRIDGE PLANS

STANDARD	ISSUED	REVISED

REVISIONS

	TOTAL SHEETS
	11
PROJECT NUMBER	
IM-074-1(210)5-13-82	
R.O.W. PROJECT NUMBER	
PROJECT IDENTIFICATION NUMBER	
03-82-074-010-03	

INDEX OF SHEETS

STANDARD ROAD PLANS

STANDARD ROAD PLANS ARE LISTED ON SHEET 2.

INDEX OF SEALS

SHEET NO.	NAME	TYPE
1	DAVID J. MORRILL	STRUCTURAL/CIVIL

STRUCTURAL DESIGN

LICENSED PROFESSIONAL ENGINEER
David J. Morrill
11799
IOWA

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 Date

David J. Morrill
Printed or Typed Name

My license renewal date is December 31, 2015

Pages or sheets covered by this seal: SHEETS 1-10 AND C.1

SCOTT COUNTY - DESIGN NO. 4108

DESIGN TEAM: ALFRED BENESCH	ENGLISH	IOWA DOT * OFFICE OF BRIDGES AND STRUCTURES	FILE NO.30253	SCOTT & ROCK ISLAND COUNTIES	PROJECT NUMBER IM-074-1(210)5--13-82	SHEET NUMBER 1

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SPECIFICATIONS:

DESIGN: AASHTO LRFD 5th EDITION, SERIES OF 2010 EXCEPT AS NOTED IN THE CURRENT IOWA BRIDGE DESIGN MANUAL.

CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2015, PLUS APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT, INCLUDING:

- DEVELOPMENTAL SPECIFICATION FOR FLOATING SILT CURTAIN (DS-15019)
- SPECIAL PROVISION FOR VIBRATION MONITORING (SP-150XXX)
- SPECIAL PROVISION FOR ENVIRONMENTAL PROTECTION (SP-150XXX)
- SPECIAL PROVISION FOR MUSSEL CONSERVATION (SP-150XXX)

GENERAL NOTES:

THIS DESIGN IS FOR THE REMOVAL OF THE OLD EXISTING I-74 BRIDGES OVER THE MISSISSIPPI RIVER BETWEEN THE BETTENDORF ANCHORAGES AND PIERS E (BUILT IN 1934 AND 1958). PLANS AND SHOP DRAWINGS WILL BE AVAILABLE TO THE CONTRACTOR. CONTACT THE OFFICE OF CONTRACTS- HIGHWAY DIVISION - IOWA DOT- AMES. DIMENSIONS SHOWN ON THESE PLANS ARE BASED ON DESIGN PLANS.

THE LUMP SUM BID FOR "REMOVAL OF EXISTING BRIDGE" SHALL INCLUDE ALL COSTS ASSOCIATED WITH REMOVING THE MATERIALS AND PORTIONS OF STRUCTURES INDICATED. REMOVALS SHALL BE IN ACCORDANCE WITH SECTION 2401 OF THE STANDARD SPECIFICATIONS. ANY DAMAGE TO OTHER EXISTING STRUCTURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REPAIRED AT NO EXTRA COST TO THE STATE.

DURING DEMOLITION OF THIS PROJECT, THE BRIDGE CONTRACTOR WILL BE REQUIRED TO COORDINATE OPERATIONS WITH THOSE OF OTHER CONTRACTORS WORKING WITHIN THE SAME AREA. OTHER WORK IN PROGRESS DURING THE SAME PERIOD OF TIME INCLUDES, BUT IS NOT LIMITED TO, WORK ON THE FOLLOWING PROJECTS:

- PROJECT IM-074-1(214)5--13--82
- PROJECT IM-074-1(215)5--13--82

SOVEREIGN LANDS CONSTRUCTION PERMIT XXXXXX SHALL APPLY TO WORK ON THIS PROJECT. THE IOWA DNR CONSERVATION OFFICER FOR THE AREA SHALL BE CONTACTED AT LEAST 48 HOURS PRIOR TO COMMENCING WORK, CONTACT XXXXX XXXXXXX AT XXX XXX-XXXX.

ANY WORK OVER NAVIGABLE WATERWAYS MUST BE COORDINATED WITH THE US COAST GUARD 8TH DISTRICT BRIDGE MANAGEMENT SPECIALIST PETER SAMBOR AT (314) 269-2380. THE CONTRACTOR SHALL SUBMIT TO THE UNITED STATES COAST GUARD FOR APPROVAL TWO COPIES OF THE PLANS AND SCHEDULE OF OPERATIONS FOR WORK OVER THE NAVIGATIONAL CHANNEL AT LEAST 15 DAYS PRIOR TO THE COMMENCEMENT OF ANY WORK OVER THE NAVIGATIONAL CHANNEL. THE IOWA DOT SHALL NOT BE HELD RESPONSIBLE FOR ANY DELAYS SUFFERED BY THE CONTRACTOR FOR FAILURE TO ADHERE TO THIS REQUIREMENT OR TO REQUIREMENTS OF THE COAST GUARD.

DURING ALL OPERATIONS, EXCEPT BLASTING, THE CONTRACTOR SHALL NOT BE PERMITTED TO DROP MATERIAL OR DEBRIS FROM THE BRIDGE.

NOTE: THE ROADWAY WILL BE CLOSED TO THRU TRAFFIC. ROAD CLOSURE WILL BE THE RESPONSIBILITY OF OTHERS.

THE CONTRACTOR SHALL PERFORM ALL WORK IN STRICT CONFORMANCE WITH ALL TRAFFIC CONTROL REQUIREMENTS FOR BOTH MARINE AND VEHICULAR TRAFFIC, AS SPECIFIED WITHIN THESE PLANS.

THE CONTRACTOR SHALL NOT DISTURB ANY EXISTING UTILITIES EXCEPT AS SPECIFICALLY DEFINED WITHIN THE SCOPE OF WORK FOR THIS CONTRACT. WHERE WORK AFFECTS OR IS AFFECTED BY THE EXISTING UTILITIES, THE WORK SHALL BE COORDINATED WITH THE UTILITY COMPANY AND/OR OWNER. KNOWN UTILITIES INCLUDE, BUT ARE NOT LIMITED TO, MEDIACOM FIBER OPTIC IN CONDUIT ALONG THE IOWA BOUND BRIDGE, CITY OF BETTENDORF CAMERAS, IOWA DOT LIGHTING AND ILLINOIS DOT LIGHTING ALONG BOTH BRIDGES.

THE CITY AND UTILITY COMPANIES WHOSE FACILITIES ARE SHOWN ON THE PLANS OR KNOWN TO BE WITHIN THE CONSTRUCTION LIMITS SHALL BE NOTIFIED BY THE BRIDGE CONTRACTOR OF THE CONSTRUCTION STARTING DATE.

THE CONTRACTOR SHALL OBTAIN HIS OWN ELECTRICAL POWER SOURCE FOR ALL CONSTRUCTION OPERATIONS AND SHALL NOT BE PERMITTED TO USE ANY EXISTING UTILITIES ON THE BRIDGE AS SOURCE OF POWER.

THE CONTRACTOR SHALL PROVIDE A DETAILED SCHEDULE AND COORDINATE WITH THE CITY OF MOLINE REGARDING THE WATER INTAKE LOCATED NEAR THE ILLINOIS SHORELINE, WEST OF THE EXISTING STRUCTURE. COORDINATION SHALL TAKE PLACE AT LEAST 30 DAYS PRIOR TO COMMENCING ANY WORK AND 60 DAYS PRIOR TO COMMENCING ANY WORK THAT WILL IMPACT THE RIVER BOTTOM.

THE CONTRACTOR SHALL CONTACT THE TRAFFIC OPERATIONS OFFICE PRIOR TO DISABLING OR REMOVING ANY EXISTING ITS DEVICE.

SCRAPE SAMPLES WERE TAKEN FROM VARIOUS AREAS OF THE EXISTING BRIDGES TO GET AN INDICATION OF THE EXISTENCE OF AND LEVEL OF TOTAL CHROMIUM AND TOTAL LEAD. ANALYSIS OF TOTAL LEAD IN THESE SAMPLES RANGED FROM 133,000 TO 241,000 PARTS PER MILLION (PPM). ANALYSIS OF TOTAL CHROMIUM IN THESE SAMPLES RANGED FROM 2,230 TO 10,500 PPM. THESE ANALYSES SHOW THE EXISTENCE OF THESE TWO TOXIC CONSTITUENTS. LEVELS INDICATED BY THESE TESTS COULD CREATE CONDITIONS ABOVE REGULATORY LIMITS FOR HEALTH AND SAFETY REQUIREMENTS. NO OTHER CONSTITUENTS WERE ANALYZED. THE BIDDER SHOULD NOT RELY ON THE DEPARTMENT'S TESTING AND ANALYSIS FOR ANY PURPOSE OTHER THAN AS AN INDICATION OF THE EXISTENCE OF THESE TWO TOXIC CONSTITUENTS.

ANALYSIS OF PAINT SCRAPE SAMPLES FROM NEW PAINTING DONE IN 2012 AND 2013 SHOWED TOTAL LEAD RANGING FROM 32 TO 54 PPM. CHROMIUM IN THE NEWLY PAINTED AREAS WAS MEASURED AT 6.3 TO 11 PPM. NEWLY PAINTED AREAS INCLUDE THE SUPERSTRUCTURE AS WELL AS THE PORTIONS OF THE TOWERS THAT ARE WITHIN 15' OF THE BRIDGE DECK.

THE CONTRACTOR SHALL CONDUCT THEIR OPERATIONS IN SUCH A MANNER THAT ANY PAINT REMOVED DURING DEMOLITION IS CONTAINED, COLLECTED AND DISPOSED OF IN ACCORDANCE WITH SECTION 2508, OF THE STANDARD SPECIFICATIONS. BEFORE DELIVERY OF ANY SCRAP STEEL THE CONTRACTOR SHALL PROVIDE A WRITTEN NOTICE TO THE RECEIVING FACILITY. THIS NOTICE SHALL AT A MINIMUM INCLUDE:

1. A NOTICE THAT THE SCRAP STEEL IS COATED WITH PAINT THAT HAS REGULATED MATERIALS AT LEVELS WHICH COULD BE HAZARDOUS TO EMPLOYEES OR THE ENVIRONMENT.

2. A COPY OF THE SCRAPE SAMPLE PROVIDED IN THE CONTRACT DOCUMENTS.

3. A SIGNATURE BLOCK FOR THE RECEIVING FACILITY TO CONFIRM THEIR RECEIPT OF THIS INFORMATION.

A COPY OF THIS NOTICE, SIGNED BY THE RECEIVING FACILITY, SHALL BE RETURNED TO THE ENGINEER BEFORE ANY SCRAP STEEL IS REMOVED FROM THE PROJECT.

THE COST OF HANDLING AND DISPOSAL OF ANY PAINTED STEEL OR REMOVED PAINT IS INCIDENTAL TO THE REMOVAL BID ITEM.

SCOPE OF WORK:

OBTAIN ALL REQUIRED PERMITS FROM THE COAST GUARD AND ARMY CORPS FOR THE REQUIRED WORK.

REMOVE THE EXISTING IOWA BOUND AND ILLINOIS BOUND I-74 BRIDGES OVER THE MISSISSIPPI RIVER BETWEEN THE BETTENDORF ANCHORAGES AND PIER E INCLUDING:

- REMOVAL OF THE BRIDGE SUPERSTRUCTURES
- REMOVAL AND SALVAGE OF BRIDGE ATTACHMENTS SUCH AS SIGN TRUSSES AND LIGHT POLES
- REMOVAL OF PIERS A, B, C AND D AND THE MOLINE ANCHORAGES TO BEDROCK
- VIBRATION MONITORING
- REMOVAL OF BETTENDORF ANCHORAGE STRUCTURES TO 2 FEET BELOW GROUND LINE.

THIS WORK DOES NOT INCLUDE REMOVAL OF PIER E.

ESTIMATED BRIDGE QUANTITIES

ITEM NO.	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QTY
1	2401-6745625	REMOVAL OF EXISTING BRIDGE	LS	1	
2	2528-8445110	TRAFFIC CONTROL	LS	1	
3	2528-8445113	FLAGGERS	EACH	SEE PROPOSAL	
4	2533-4980005	MOBILIZATION	LS	1	
5	2599-9999010	VIBRATION MONITORING	LS	1	

ITEM NO. ESTIMATE REFERENCE INFORMATION

1 THIS ITEM INCLUDES ALL WORK REQUIRED TO REMOVE AND DISPOSE OF THE BRIDGE TO THE LIMITS SHOWN IN THESE PLANS. THIS ITEM ALSO INCLUDES THE COST OF HANDLING AND DISPOSAL OF ANY HAZARDOUS PAINT WASTE ASSOCIATED WITH THE EXISTING BRIDGE.

2 THIS ITEM INCLUDES ALL WORK ASSOCIATED WITH THE TEMPORARY TRAFFIC STOPPAGES OF I-74 REQUIRED DURING BLASTING. THIS INCLUDES ALL SIGNAGE AND COORDINATION WITH LOCAL LAW ENFORCEMENT.

5 SEE SPECIAL PROVISION FOR VIBRATION MONITORING REQUIREMENTS.

STANDARD ROAD PLANS

NUMBER	DATE	TITLE
TC-1	04-16-13	WORK NOT AFFECTING TRAFFIC (TWO-LANE OR MULTI-LANE)
TC-273	04-20-10	CONSTRUCTION SITE ENTRANCE
TC-402	04-21-15	WORK WITHIN 15 FT OF TRAVELED WAY
TC-418	10-15-13	LANE CLOSURE ON DIVIDED HIGHWAY
TC-451	04-21-15	TEMPORARY ROAD CLOSURE ON A DIVIDED HIGHWAY

DESIGN HISTORY AT THIS SITE

DESIGN NO.	WORK DESCRIPTION	YEAR
NA	ORIGINAL CONSTRUCTION - IOWA BOUND (WB) BRIDGE	1934
NA	ORIGINAL CONSTRUCTION - ILLINOIS BOUND (EB) BRIDGE	1958
568	BETTENDORF APPROACHES TO IOWA ILLINOIS BRIDGES	MAY, 1970
171	MODIFICATION IN IOWA-ILLINOIS BRIDGE	MARCH, 1972
373	MODIFICATION IN IOWA-ILLINOIS BRIDGE	MAY, 1973
473	ALUMINUM HANDRAIL FOR IOWA ILLINOIS MEM. BRIDGE	OCTOBER, 1973
176	BRIDGE FLOOR OVERLAY	APRIL, 1976
283	BRIDGE REPAIR ON WESTBOUND I-74	JUNE, 1983
584	BRIDGE DECK REPAIR	AUGUST, 1986
684	BRIDGE DECK REPAIR	AUGUST, 1986
784	BRIDGE DECK REPAIR	AUGUST, 1986
1090	BRIDGE REPAIR ON I-74 E.B. IN BETTENDORF	JUNE, 1990
1190	BRIDGE REPAIR ON WESTBOUND I-74	DEC., 1990
594	BRIDGE REPAIR ON I-74 E.B. OVER MISS.	NOV., 1993
694	BRIDGE REPAIR ON I-74 W.B. OVER MISS.	NOV., 1993
596	BRIDGE PAINTING	DEC., 1996
696	BRIDGE PAINTING	DEC., 1996
401 & 501	REHABILITATION OF I-74 E.B. & W.B. BRIDGES	DEC., 2002
105 & 205	REHABILITATION OF I-74 E.B. & W.B. BRIDGES	DEC., 2004
110 & 210	REHABILITATION OF I-74 E.B. & W.B. BRIDGES	NOV., 2010
4108	REMOVAL OF SUSPENSION SPANS AND DECK TRUSSES	TBD

POLLUTION PREVENTION PLAN PROVIDED ELSEWHERE IN THESE DRAWINGS

HAZARDOUS PAINT:

THIS WORK INVOLVES REMOVING HAZARDOUS PAINT. REFER TO NOTES.

benesch
Alfred Benesch & Company
205 North Michigan Avenue, Suite 2400
Chicago, Illinois 60601
312-565-0450 Job No. 10061

DESIGN FOR REMOVALS TO THE 0° SKEW

I-74 BRIDGES OVER THE MISSISSIPPI RIVER (ILLINOIS & IOWA BOUND)

QUANTITIES AND GENERAL NOTES

STA. 6771+73.17 - 406.38' LT - I-74 DECEMBER 2014

SCOTT & ROCK ISLAND COUNTIES

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 9 FILE NO. 30253 DESIGN NO. 4108

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MODEL: $MODEL

REMOVAL OF EXISTING STRUCTURES:

DESCRIPTION: THIS WORK SHALL CONSIST OF THE REMOVAL OF THE EXISTING SUPERSTRUCTURES AND PORTIONS OF THE SUBSTRUCTURE OF THE IOWA-ILLINOIS SUSPENSION BRIDGES AND DECK TRUSS APPROACH SPANS OVER THE MISSISSIPPI RIVER, AS SHOWN IN THESE PLANS. CARE SHALL BE TAKEN DURING REMOVALS TO PROTECT PORTIONS OF THE ADJACENT STRUCTURE.

REMOVAL: THE CONTRACTOR MUST REMOVE ALL ELEMENTS OF THE EXISTING SUSPENSION BRIDGES, THEIR PIERS, APPROACH SPANS, SUBSTRUCTURES AND ANY PARTS OF THE EXISTING PIERS AND ANCHORAGES TO THE EXTENT SPECIFIED. THE COST OF DISPOSAL OF DEMOLITION DEBRIS IS INCIDENTAL TO THE REMOVAL.

THE EXISTING PIERS AND FOUNDATION ELEMENTS SHALL BE REMOVED TO THE ELEVATIONS SHOWN ON THE PLANS. SHEETING OR COFFERDAMS SHALL BE CONSIDERED INCIDENTAL TO THE REMOVAL.

BRIDGE DEMOLITION SCHEME: EXISTING BRIDGE DEMOLITION SCHEME AND MEANS AND METHODS ARE THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL, IN ACCORDANCE WITH ARTICLE 1105.03 OF THE STANDARD SPECIFICATIONS, SUBMIT A DETAILED DEMOLITION SCHEME TO ALFRED BENESCH AND COMPANY (BENESCH) FOR THE REVIEW. BENESCH WILL REVIEW THE PROCEDURE AND COORDINATE COMMENTS FROM THE IOWA DEPARTMENT OF TRANSPORTATION (OFFICE OF BRIDGES AND STRUCTURES, OFFICE OF CONSTRUCTION, OFFICE OF LOCATION AND ENRVIRONMENT, AND RESIDENT CONSTRUCTION ENGINEER), ILLINOIS DEPARTMENT OF TRANSPORTATION AND U.S. COAST GUARD. THE DEMOLITION SCHEME MUST CLEARLY DEMONSTRATE THE FEASIBILITY OF ALL OPERATIONS PROPOSED AND SAFETY OF THE EXISTING STRUCTURE AND ALL EQUIPMENT, TEMPORARY SUPPORTS AND FALSEWORK FOR ALL STAGES OF THE PROPOSED SCHEME.

THE DEMOLITION PLANS, COMPUTATIONS AND ANY OTHER MATERIAL SUBMITTED FOR REVIEW MUST BE PREPARED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF IOWA WITH PRIOR EXPERIENCE ON SIMILAR PROJECTS. CONTRACTOR MAY NOT START OR PROCEED WITH ANY DEMOLITION ACTIVITY UNTIL ALL COMMENTS ARE SATISFACTORILY RESOLVED AND THE DEMOLITION SCHEME IS APPROVED. THE CONTRACTOR'S DEMOLITION SCHEME SHALL INCLUDE PLANS FOR THE PROTECTION OF TRAFFIC (VEHICULAR, PEDESTRIAN, BOAT, ETC.) ADJACENT TO AND/OR UNDER THE STRUCTURE. THESE PLANS SHALL INCLUDE PROVISIONS FOR ANY DEVICES AND STRUCTURES THAT MAY BE NECESSARY TO ENSURE SUCH PROTECTION.

THE EXISTING NAVIGATION CHANNEL MUST BE KEPT CLEAR AT ALL TIMES. THE CONTRACTOR SHALL COORDINATE ANY TEMPORARY INTERRUPTIONS OF RIVER TRAFFIC WITH THE U.S. COAST GUARD. THE CONTRACTOR IS RESPONSIBLE FOR ADHERING TO ALL PROVISIONS SET FORTH BY THE U.S. COAST GUARD FOR THIS WORK.

SUBMITTALS SHALL BE 2 HARD COPIES AND AN ELECTRONIC COPY FOR EACH REVIEWING AGENCY. SUMMARY OF SUBMISSIONS AND NOTIFICATIONS IS AS FOLLOWS:

BRIDGE DECK REMOVAL PLAN	45 CALENDAR DAYS PRIOR TO REMOVAL
SUPERSTRUCTURE REMOVAL PLAN	45 CALENDAR DAYS PRIOR TO REMOVAL
SUBSTRUCTURE REMOVAL PLAN	45 CALENDAR DAYS PRIOR TO REMOVAL

PLANS AND DETAILS OF THE VARIOUS SUBMITTALS OUTLINED ABOVE SHALL BE COORDINATED BY THE CONTRACTOR.

THE CONTRACTOR'S DEMOLITION SCHEME SHALL INCLUDE, AT A MINIMUM, THE FOLLOWING DETAILS:

1) THE BRIDGE REMOVAL SEQUENCE FOR THE ENTIRE STRUCTURE, INCLUDING STAGING OF THE BRIDGE REMOVAL.
2) DESIGN CALCULATIONS WHICH ARE ADEQUATE TO DEMONSTRATE THE STABILITY OF THE STRUCTURE DURING ALL STAGES OF THE REMOVAL OPERATIONS. CALCULATIONS SHALL BE PROVIDED FOR EACH STAGE OF BRIDGE REMOVAL.
3) THE TYPE OF EQUIPMENT AND LOCATIONS ON AND/OR ADJACENT TO THE STRUCTURE DURING REMOVAL.
4) TEMPORARY SUPPORT SHORING OR TEMPORARY BRACING, WITH CALCULATIONS, IF REQUIRED.
5) CONTACT NAMES, AND OFFICE AND MOBILE PHONE NUMBERS FOR INDIVIDUALS RESPONSIBLE FOR THE DEMOLITION

PROVIDE A BLASTING PLAN WHICH INCLUDES THE FOLLOWING:

1) LIST OF AT LEAST THREE PROJECTS WITHIN THE LAST TEN YEARS ON WHICH THE CONTRACTOR HAS REMOVED SIMILAR BRIDGE STRUCTURES USING EXPLOSIVES. THE LIST SHALL CONTAIN NAMES AND PHONE NUMBERS OF OWNER'S REPRESENTATIVES WHO CAN VERIFY THE CONTRACTOR'S PARTICIPATION ON THOSE PROJECTS.
2) NAME AND EXPERIENCE RECORD OF THE CONTRACTOR'S SUPERINTENDENT IN CHARGE OF THE BRIDGE REMOVAL OPERATIONS AND EXPLOSIVES PERSONNEL.
3) PROVISIONS FOR TRANSPORT, SECURITY, AND USE OF EXPLOSIVES INCLUDING LOCATIONS. APPLICATION OF EXPLOSIVES FOR STRUCTURE REMOVAL SHALL BE IDENTIFIED AS IN ACCORDANCE WITH EXPLOSIVE MANUFACTURER'S INSTRUCTIONS.
4) DETAILED PLANS SHOWING HOW THE STRUCTURE WILL BE PREPARED FOR DEMOLITION INCLUDING THE TYPE AND AMOUNT OF EXPLOSIVES TO BE USED.
5) SECURING OF ANY, AND ALL, REQUIRED PERMITS.

THE CONTRACTOR SHALL COORDINATE THE SCHEDULING OF ALL EXPLOSIVE DEMOLITIONS WITH THE IOWA DOT, ILLINOIS DOT AND LOCAL LAW ENFORCEMENT AGENCIES. TRAFFIC ON THE NEW I-74 MISSISSIPPI RIVER CROSSING SHALL BE TEMPORARILY STOPPED PRIOR TO BLASTING SEQUENCE. VEHICLES SHALL BE PROHIBITED FROM ENTERING A PRE-ESTABLISHED "DANGER ZONE" UNTIL THE BLASTING SEQUENCE IS COMPLETE AND IT IS DETERMINED THAT TRAFFIC CAN SAFELY RESUME.

THE CONTRACTOR'S DEMOLITION PLAN SHALL BE SUBJECT TO THE FOLLOWING U.S. COAST GUARD DEMOLITION CONDITIONS:

CONDITION 1: ALL WORK SHALL BE SO CONDUCTED THAT THE FREE NAVIGATION OF THE WATERWAY SHALL NOT BE UNREASONABLY INTERFERED WITH AND THE EXISTING NAVIGABLE DEPTHS ARE NOT IMPAIRED.

CONDITION 2: TWO WEEKS PRIOR TO THE SCHEDULED DEMOLITION, THE CONTRACTOR SHALL NOTIFY THE FOLLOWING PERSONS OF THE DEMOLITION SCHEDULE:

UNITED STATES COAST GUARD COMMANDER (DWB), BRIDGE BRANCH
ATTN: BRIDGE MANAGEMENT SPECIALIST
1222 SPRUCE ST, SUITE 2.107F
ST. LOUIS, MO 63103-2832

THESE OFFICES MUST BE KEPT INFORMED OF THE DEMOLITION PROGRESS SO CAUTIONARY NOTICES CAN BE ISSUED TO MARINERS. A PROJECT INFORMATION RECORD WILL BE SUPPLIED BY THE USCG TO BE COMPLETED AND RETURNED TO THEIR OFFICE SO THAT THEY CAN DIRECTLY CONTACT THE PERSON RESPONSIBLE FOR COMPLIANCE WITH THEIR CONDITIONS.

THE CONTRACTOR SHALL PROVIDE COPIES OF THE NOTIFICATIONS TO THE CORPS AND USCG AND THE PROJECT INFORMATION RECORD TO THE ENGINEER AND THE IOWA DOT OFFICE OF LOCATION AND ENVIRONMENT.

CONDITION 3: ONE WEEK PRIOR TO DEMOLITION, THE CONTRACTOR SHALL SCHEDULE A PRE-DEMOLITION MEETING WITH THE COAST GUARD AND ALL INVOLVED PARTIES TO ENSURE THAT ALL EQUIPMENT, MANPOWER AND MATERIALS ARE IN PLACE FOR THE IMPENDING DEMOLITION.

CONDITION 4: THE CONTRACTOR, IF AUTHORIZED IN WRITING TO ACT ON BEHALF OF THE STATE, SHALL FURNISH THE COMMANDER, EIGHTH COAST GUARD DISTRICT, HALE BOGGS FEDERAL BUILDING, 500 POYDRAS STREET, NEW ORLEANS, LA 70130, PRIOR TO COMMENCING OPERATIONS, EVIDENCE OF A GOOD AND SUFFICIENT BOND TO INSURE COMPLIANCE WITH ALL CONDITIONS RESULTING FROM THE COAST GUARD COORDINATION CONDUCTED UNDER CONDITION 2 ABOVE.

CONDITION 5: THE BRIDGE DECK, GUARDRAIL, SIGN TRUSSES, LAMP POSTS, CONDUIT, EXCESS STEEL MEMBERS AND SIMILAR MATERIALS SHALL BE REMOVED FROM EACH SPAN, PRIOR TO DROPPING THE SPAN INTO THE RIVER.

CONDITION 6: WHEN BRIDGE COMPONENTS LISTED IN CONDITION 5 ARE BEING REMOVED FROM EACH SPAN, PRECAUTIONS SHALL BE TAKEN TO ENSURE NOTHING FALLS INTO THE RIVER. SUCH A PRECAUTION COULD BE A CONTAINMENT SYSTEM WHICH COULD INCLUDE A "CATCH" BARGE BENEATH THE WORK SITE.

CONDITION 7: POSITIVE PRECAUTIONS SHALL BE TAKEN TO PREVENT THE DROPPING OF SPARK-PRODUCING, LIGHTED AND OTHER OBJECTS ON TOWS OR VESSELS. ALL FLAME-CUTTING, WELDING, AND SIMILAR SPARK-PRODUCING OPERATIONS SHALL BE CEASED OVER THE CHANNEL WHEN VESSELS ARE PASSING BENEATH THE BRIDGE.

CONDITION 8: ANY OBJECT ACCIDENTALLY DROPPED INTO THE RIVER WHICH MAY CONSTITUTE A HAZARD TO NAVIGATION SHALL BE PROMPTLY AND COMPLETELY REMOVED TO THE SATISFACTION OF THE APPROPRIATE U.S. ARMY ENGINEER DISTRICT COMMANDER.

CONDITION 9: DATES SCHEDULED FOR DROPPING SPANS WILL DEPEND ON WEATHER, ICE AND RIVER CONDITIONS AND MUST BE APPROVED BY THE COMMANDER, EIGHTH COAST GUARD DISTRICT.

CONDITION 10: IMMEDIATELY PRIOR TO THE DETONATION OF ANY EXPLOSIVES, THE CONTRACTOR SHALL EXPLODE TWO OR THREE BLASTING CAPS TO FRIGHTEN FISH AWAY FROM THE DEMOLITION SITE.

CONDITION 11: THE ILLINOIS-BOUND SUSPENSION SPANS SHALL BE DROPPED FIRST AND IMMEDIATELY REMOVED BEFORE THE IOWA-BOUND SUSPENSION SPANS ARE DROPPED. THE WORK OF REMOVING A SPAN SHALL COMMENCE IMMEDIATELY AFTER IT IS DROPPED. THE ADJACENT STRUCTURE SHALL NOT BE DROPPED INTO THE RIVER UNTIL ALL DEBRIS FROM THE FIRST STRUCTURE HAS BEEN REMOVED FROM THE RIVER.

CONDITION 12: AFTER EACH OF THE MAIN NAVIGATION CHANNEL SPANS IS DETONATED AND DROPPED INTO THE RIVER, THE CHANNEL SHALL BE PROMPTLY CLEARED AND SWEPT WITHIN 24 HOURS.

CONDITION 13: AFTER THE OTHER RIVER SPANS ARE DETONATED AND DROPPED INTO THE RIVER, ALL DEBRIS SHALL BE REMOVED AND THE RIVER SWEPT WITHIN 48 HOURS.

CONDITION 14: IMMEDIATELY AFTER REMOVAL OF EACH RIVER SPAN AND OTHER DEBRIS, A THOROUGH SWEEPING OF THE AREA MUST BE MADE AT THE CONTRACTOR'S EXPENSE. THE PROCEDURE USED TO SWEEP THE RIVER SHALL BE APPROVED BY THE U.S. ARMY ENGINEER DISTRICT COMMANDER. THE SWEEP OPERATION SHALL BE PERFORMED WHILE AN AUTHORIZED REPRESENTATIVE OF THAT AGENCY IS PRESENT TO OBSERVE RESULTS. MUTUALLY AGREED UPON DATES FOR EACH SWEEP SHALL BE COORDINATED WITH THE CORPS OF ENGINEERS PRIOR TO DROPPING EACH RIVER SPAN.

CONDITION 15: IF ANY OBJECTS CAUSING AN OBSTRUCTION TO NAVIGATION ARE PLACED OR ACCIDENTALLY DROPPED INTO THE RIVER, SUCH OBJECTS SHALL BE MARKED BY ONE OR MORE LIGHTED BUOYS. SUCH BUOYS SHALL BE HORIZONTALLY STRIPED ORANGE AND WHITE WITH THE TOP STRIPE ORANGE; THEY SHALL BE ALIGNED CROSS-RIVER AT INTERVALS OF ABOUT 25 FEET OR AS CLOSE AS PRACTICABLE TO THE OBSTRUCTION IN THE RIVER. EACH SUCH BUOY SHALL BE LIGHTED AT NIGHT WITH A QUICK FLASHING WHITE LIGHT (60 FLASHES PER MINUTE). PROVIDED THAT IF STEEL IS EXTENDING ABOVE WATER, ORANGE FLAGS BY DAY AND QUICK FLASHING WHITE LIGHTS BY NIGHT MAY BE DISPLAYED ON THE STEEL IN LIEU OF ANY BUOY.

CONDITION 16: THE COMMANDER, EIGHTH COAST GUARD DISTRICT; SHALL BE NOTIFIED AT LEAST 15 DAYS IN ADVANCE OF ANY ACTION THAT MAY IMPEDE NAVIGATION. ANY REVISION OF WORK SCHEDULE MAY REQUIRE A 15-DAY DELAY FOR ISSUANCE OF REVISED NOTICES. NOTIFICATION SHALL BE UPDATED BY TELEPHONE IF NECESSARY TO ASSURE THAT NAVIGATION INTERESTS ARE AWARE OF IMPENDING EVENTS THAT MAY AFFECT THE MOVEMENT OF RIVER TRAFFIC.

CONDITION 17: THE CONTRACTOR BY ACCEPTANCE HEREOF AGREES TO BE RESPONSIBLE FOR DAMAGES TO PERSONS OR PROPERTIES RESULTING FROM THE WORK AND SAVE AND HOLD HARMLESS THE UNITED STATES COAST GUARD FROM ANY CLAIM FOR DAMAGES RESULTING FROM THIS OPERATION.

CONDITION 18: THE PRESENT NAVIGATION LIGHTING (AERIAL AND WATERWAY) SHALL BE MAINTAINED ON THE BRIDGE UNTIL ALL WORK IS COMPLETED, AND ANY TEMPORARY NAVIGATION LIGHTS PRESCRIBED BY THE COAST GUARD ARE INSTALLED AND PLACED INTO OPERATION.

CONDITION 19: BARGES AND OTHER WATERCRAFT ENGAGED IN THIS DEMOLITION SHALL DISPLAY SUCH LIGHTS AND SIGNALS AS REQUIRED BY THE "INLAND NAVIGATIONAL RULES OF 1980."

CONDITION 20: FLAGMEN SHALL BE USED TO WARN RIVER TRAFFIC BEFORE BLASTING. NOT LESS THAN ONE HOUR PRIOR TO AND DURING THE DETONATION OF EXPLOSIVES, FLAGMEN SHALL BE STATIONED IN A RADIO-EQUIPPED BOAT ABOUT ONE-HALF MILE UPSTREAM AND DOWNSTREAM OF THE BRIDGE TO WARN APPROACHING RIVER TRAFFIC OF THE IMPENDING ACTION AND OBSTRUCTIONS IN THE RIVER. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE SUCH WARNING DEVICES AS MAY BE NECESSARY TO KEEP BOATS OUT OF THE IMMEDIATE DANGER AREA.

CONDITION 21: ANY TEMPORARY FILLS, RUBBLE, OR SIMILAR MATERIAL DEPOSITED IN THE RIVER MUST BE APPROVED BY THE APPROPRIATE U.S. ARMY ENGINEER DISTRICT COMMANDER PURSUANT TO SECTION 404 OF PUBLIC LAW 95-217.

CONDITION 22: THE PLANS FOR ANY TEMPORARY CAUSEWAYS, WORK BRIDGES OR OTHER FALSEWORK TO BE PLACED IN THE RIVER SHALL BE SUBMITTED TO THE COMMANDER, EIGHTH COAST GUARD DISTRICT FOR APPROVAL.

CONDITION 23: ALL RUBBLE SHALL BE SPOILED IN UPLAND, NON-WETLAND AREAS ABOVE ORDINARY HIGH WATER. DISPOSAL SITES MUST BE APPROVED BY THE APPROPRIATE U.S. ARMY ENGINEER DISTRICT COMMANDER.

CONDITION 24: REQUESTS TO TEMPORARILY BLOCK THE RIVER AND STOP RIVER TRAFFIC MUST BE SUBMITTED, IN WRITING, FOR APPROVAL TO THE COMMANDER, EIGHTH COAST GUARD DISTRICT IN ACCORDANCE WITH CONDITIONS ABOVE.

CONDITION 25: IF, IN THE OPINION OF THE PERSON IN CHARGE OF THE EXPLOSIVE DETONATION, THE USE OF RADIOTELEPHONE OR OTHER ELECTRONIC EQUIPMENT IN THE AREA SHOULD BE PROHIBITED, AT ANY TIME, THE COAST GUARD SHOULD BE SO ADVISED WELL IN ADVANCE SO THAT TIMELY NOTICES CAN BE PUBLISHED.

CONDITION 26: IF EXPLOSIVES ARE TO BE TRANSPORTED BY WATER, PERMITS MUST BE OBTAINED IN ACCORDANCE WITH TITLE 49, CODE OF FEDERAL REGULATIONS. APPLICATIONS SHOULD BE SUBMITTED TO THE U.S. COAST GUARD MARINE SAFETY OFFICE.

CONDITION 27: WHEN THE COMMANDER, EIGHTH COAST GUARD DISTRICT DETERMINES THAT HAZARDOUS CONDITIONS EXIST, A TOWBOAT (TUG) SHALL BE PROVIDED TO ASSIST VESSELS THROUGH THE BRIDGE ON DEMAND. THE VESSEL SHALL BE OF ADEQUATE CAPACITY AND DESIGN TO ASSIST TOWS THROUGH THE WORK AREA. IT SHALL BE AVAILABLE 24 HOURS A DAY, SEVEN DAYS A WEEK. THE BOAT MAY ALSO BE USED AS THE CONTRACTOR'S WORK TUG, PROVIDED THAT THE ASSISTANCE OF COMMERCIAL TOWS THROUGH THE AREA TAKES PRIORITY OVER THE CONTRACTOR'S NORMAL USAGE.

CONDITION 28: 60 DAYS PRIOR TO DEMOLITION, THE CONTRACTOR WILL COMPLETE AND ELECTRONICALLY SUBMIT (TO THE IOWA DOT OFFICE OF LOCATION AND ENVIRONMENT) A COAST GUARD CG-2554 APPLICATION IN ADOBE PDF FORMAT. THIS FORM CAN BE DOWNLOADED FROM THE USCG'S WEB SITE AT: HTTP://WWW.USCG.MIL/FORMS/CG/CG-2554.PDF. IOWA DOT OFFICE OF LOCATION AND ENVIRONMENT WILL SUBMIT THE CG-2554 APPLICATION TO THE COAST GUARD. IN RESPONSE TO THIS SUBMISSION, THE COAST GUARD WILL PRESCRIBE NAVIGATIONAL LIGHTING REQUIREMENTS FOR THE PORTION OF THE STRUCTURE TO REMAIN AFTER DEMOLITION.

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DESIGN FOR REMOVALS TO THE 0° SKEW

I-74 BRIDGES OVER THE MISSISSIPPI RIVER (ILLINOIS & IOWA BOUND)

GENERAL NOTES 1

STA. 6771+73.17 - 406.38' LT - I-74 DECEMBER 2014

SCOTT & ROCK ISLAND COUNTIES

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 2 OF 9 FILE NO. 30253 DESIGN NO. 4108

ADDITIONAL CONDITIONS:

AERIAL BEACON LIGHTING:

ALL AERIAL BECON LIGHTING AT THE TOPS OF THE TOWERS SHALL BE MAINTAINED UNTIL THE TOWERS ARE REMOVED. WHEN ONE OF THE TOWERS IS REMOVED, THEN AERIAL BEACON SHALL BE RELOCATED TO THE OTHER PEAK OF THE ADJACENT TOWER.

LEACH PARK AND THE BETTENDORF RIVERFRONT TRAIL:

LEACH PARK AND THE BETTENDORF RIVERFRONT TRAIL ARE SECTION 4(F) RESOURCES AS DEFINED BY SECTION 4(F) OF THE DEPARTMENT OF TRANSPORTATION (DOT) ACT OF 1966. THIS FEDERAL LAW PROTECTS PUBLICLY OWNED PARKS, RECREATION AREAS, WILDLIFE AND WATERFOWL REFUGES AND PUBLIC OR PRIVATELY-OWNED HISTORICAL RESOURCES. USE OF FEDERAL FUNDS SUBJECTS THE PROPOSED UNDERTAKING TO THE REQUIREMENTS OF THIS LAW. AS SUCH, THE CONTRACTOR SHALL NOT STAGE, STORE, OR REFUEL ANY EQUIPMENT OR VEHICLES ON PARK AND TRAIL PROPERTIES. THE CONTRACTOR SHALL NOT BORROW OR WASTE ANY MATERIAL FROM OR ON THE PARK AND TRAIL PROPERTIES AND SHALL ENSURE THAT NO ANCILLARY CONSTRUCTION ACTIVITIES TAKE PLACE ON THE PARK AND TRAIL PROPERTIES.

TO PROTECT THE GENERAL PUBLIC AND THE AREA SURROUNDING LEACH PARK AND THE BETTENDORF RIVERFRONT TRAIL A TEMPORARY "SAFE ZONE" WILL BE ESTABLISHED WITH CONSTRUCTION FENCING PRIOR TO THE START OF DEMOLITION ACTIVITIES. THE DESIGNATED "SAFE ZONE" WILL NOT IMPAIR THE INTENDED USE OR PRIMARY FUNCTIONS OF KNOWN RECREATIONAL ACTIVITIES ASSOCIATED WITH THE PARK AND TRAIL, IN WHOLE OR IN PART. NO CHANGE IN OWNERSHIP WILL OCCUR AND THE AREA UNDERNEATH THE IOWA-ILLINOIS BRIDGE (IF DISTURBED) WILL BE RESTORED TO A CONDITION AT LEAST AS GOOD AS OR BETTER THAN EXISTING PRIOR TO DEMOLITION ACTIVITIES.

LIMITATIONS:

THE FOLLOWING LIMITATIONS APPLY TO WORK WITHIN THE RIVER AND ON RIVER BANKS:

REMOVAL AND DISPOSAL OF DEBRIS: CONTRACTOR MUST COORDINATE REMOVAL AND DISPOSAL OF DEMOLITION DEBRIS WITH IOWA DEPARTMENT OF TRANSPORTATION AND OTHER APPLICABLE AGENCIES AND SUBMIT THE REMOVAL AND DISPOSAL PLAN FOR APPROVAL BY THE IOWA DEPARTMENT OF TRANSPORTATION.

ACCESS ROAD AND TEMPORARY DOCKS: ACCESS ROAD TO WORK AREAS ON THE ILLINOIS AND IOWA BANKS MAY BE CONSTRUCTED IN THE EXISTING RIGHT OF WAY. COORDINATE TEMPORARY ACCESS TO WORK SITES WITH THE IOWA DEPARTMENT OF TRANSPORTATION. CONTRACTOR MAY CONSTRUCT TEMPORARY DOCKS WITHIN THE EXISTING RIGHT OF WAY ON THE ILLINOIS AND IOWA BANKS FOR THEIR USE. THE DOCKS MUST BE PILE SUPPORTED AND PLACEMENT OF ANY FILL IS NOT ALLOWED.

THE CONTRACTOR IS NOT ALLOWED TO ALTER OR DAMAGE ANY LEVEES OR DYKES. ANY ACCESS ROAD THAT IS NEAR A DYKE OR LEVEE SHALL BE SUBMITTED TO THE US ARMY CORPS OF ENGINEERS FOR APPROVAL.

SUGGESTED DEMOLITION SCHEME: THE SUGGESTED DEMOLITION SCHEMES ARE FOR THE CONTRACTOR'S INFORMATION ONLY. ADAPTATION OF THE SUGGESTED DEMOLITION SCHEME, OR PARTS OR A COMBINATION THEREOF IS AT CONTRACTOR'S DISCRETION AND BECOMES THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR MUST VERIFY AND PROVIDE COMPUTATIONS DEMONSTRATING THE SAFETY OF EXISTING BRIDGE ELEMENTS TO BE DEMOLISHED AND ANY TEMPORARY FALSEWORK DURING ALL STAGES OF DEMOLITION. A 10% INCREASE OF ALLOWABLE STRESSES DURING TEMPORARY CONDITIONS ARE PERMITTED.

EXISTING STRUCTURE PLANS: THE REPRESENTATION OF THE EXISTING BRIDGES IN THE FOLLOWING SHEETS IS SCHEMATIC ONLY. THE CONTRACTOR IS REFERRED TO THE ORIGINAL PLANS FOR DETAILS.

IT SHOULD BE NOTED THAT THE DETAILS AND DIMENSIONS SHOWN PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE. CONSEQUENTLY THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO PURCHASE AND/OR FABRICATION OF ALL MATERIAL. ALL PROJECT WORK SHALL BE BASED UPON ACTUAL DETAILS AND DIMENSIONS VERIFIED BY THE CONTRACTOR ON THE FIELD.

BLASTING: IF THE CONTRACTOR CHOOSES TO USE BLASTING FOR THE DEMOLITION OF ANY COMPONENTS OF THE BRIDGE, SPECIAL ATTENTION SHALL BE GIVEN TO REQUIREMENTS FOR BLASTING IN THE VICINITY OF HIGH PRESSURE GAS LINES OR OTHER SENSITIVE UTILITIES.

BETTENDORF ANCHORAGE REMOVAL NOTES:

BETTENDORF ANCHORAGE STRUCTURES SHALL BE REMOVED TO 2 FEET BELOW GROUND LINE. ALL VOIDS ENCOUNTERED DURING REMOVAL SHALL BE BACKFILLED WITH IMPERVIOUS FILL. IMPERVIOUS FILL SHALL CONSIST OF COHESIVE MATERIALS HAVING AT LEAST 50% PASSING THE U.S. STANDARD 200 MESH SIEVE SIZE. COHESIVE MATERIALS CONSIST OF MATERIALS CLASSIFYING AS LEAN (CL), HAVING A PLASTICITY INDEX OF 10 OR GREATER, AND FALLING BETWEEN THE "U" LINE AND THE "A" LINE ON FIGURE 3 IN ASTM D 2487-STANDARD TESTS FOR CLASSIFICATIONS OF SOILS FOR ENGINEERING PURPOSES AND A LIQUID LIMIT LESS THAN 50. FILL MATERIAL SHALL BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT. CONTRACTOR SHALL RESHAPE GRADE TO EXISTING GROUNDLINE AFTER REMOVAL.

REMOVAL OF THE BETTENDORF ANCHORAGE STRUCTURES SHALL OCCUR OUTSIDE OF THE FLOOD SEASON.

THE CONTRACTOR SHALL DEVELOP A PLAN TO FULLY MAINTAIN THE INTEGRITY AND FUNCTIONALITY OF THE EXISTING LEVEE IN THE EVENT OF FLOODING OCCURING DURING DEMOLITION OR CONSTRUCTION. THIS PLAN SHALL BE SUBMITTED FOR APPROVAL BY THE ENGINEER PRIOR TO BEGINNING DEMOLITION.

NO DEEP ROOTED VEGETATION SHALL BE INSTALLED ON OR NEAR THE EXISTING LEVEE. FOR GUIDANCE ON LANDSCAPING THAT SHOULD BE DONE, REFER TO THE US ARMY CORPS OF ENGINEERS DOCUMENT ETL 1110-2-583 "GUIDELINES FOR LANDSCAPE PLANTING AND VEGETATION MANAGEMENT AT LEVEES, FLOODWALLS, EMBANKMENT DAMNS, AND APPURTENANT STRUCTURES"

DESIGN FOR REMOVALS TO THE 0° SKEW

I-74 BRIDGES OVER THE MISSISSIPPI RIVER (ILLINOIS & IOWA BOUND)

GENERAL NOTES II

STA. 6771+73.17 - 406.38' LT - I-74 DECEMBER 2014

SCOTT & ROCK ISLAND COUNTIES

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 3 OF 9 FILE NO. 30253 DESIGN NO. 4108

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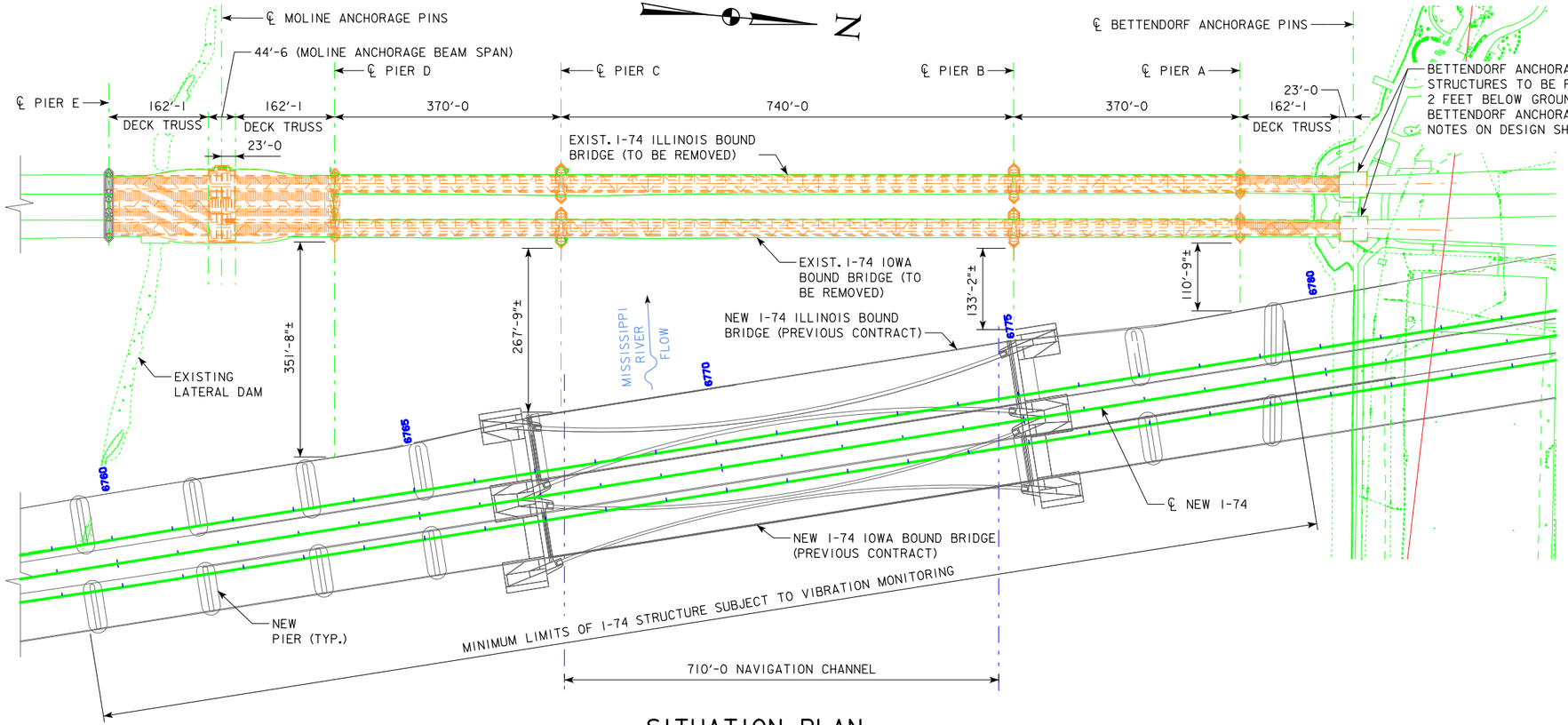
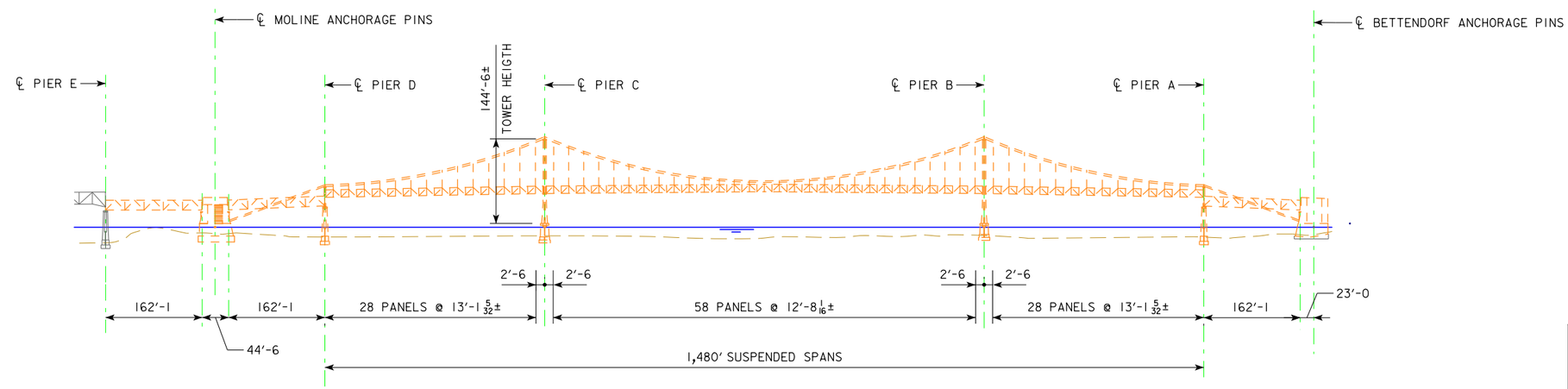
DESIGN TEAM: AJK/RMG/EHS | SCOTT & ROCK ISLAND COUNTIES | PROJECT NUMBER IM-074-1(210)5--13-82 | SHEET NUMBER 4



SITUATION PLAN



ELEVATION

EXISTING STRUCTURES

TYPE: SUSPENSION WITH STEEL TRUSS APPROACHES

SPANS: 2 DECK TRUSS SPANS @ 162'-1±
1 MOLINE ANCHORAGE BEAM SPAN @ 44'-6
3 SUSPENSION @ 370'-0±, 740'-0±, AND 370'-0±
1 DECK TRUSS SPAN @ 162'-1±
(SPANS LISTED ABOVE ARE FOR ONE BRIDGE)

ROADWAY: ILLINOIS BOUND: 24'-0±
IOWA BOUND: 23'-3±
FACE TO FACE SAFETY CURB

SKEW: 0°00'00"

TYPE OF DECK: CAST-IN-PLACE CONCRETE

APPROACH SLABS: NONE

ALIGNMENT: TANGENT

BENCHMARK DATA (NAVD 1988 DATUM)

BENCHMARK NO.: 500 STA. 6781+18.95 LT. 161.23'
ELEV. 575.797, CHISELED "X" IN BOLT E. SIDE CONCRETE STRUCTURE

ELEVATIONS BASED ON NGVD 1912 DATUM.

THE FOLLOWING CONVERSION APPLIES TO THE PROJECT LOCATION:
NAVD 88 = NGVD 1912 - 0.727 FT.

LOCATION

I-74 OVER THE MISSISSIPPI RIVER
MOLINE, IL
T-18 N R-1 W
SECTION 29
MOLINE TOWNSHIP
ROCK ISLAND COUNTY
LATITUDE = 41.519667
LONGITUDE = -90.513139

I-74 OVER THE MISSISSIPPI RIVER
BETTENDROF, IA
T-78 N R-4 E
SECTION 33
DAVENPORT TOWNSHIP
SCOTT COUNTY
BRIDGE MAINT. NO. 8205.0L074 (WB), 8205.0R074 (EB)
FHWA NO. 47280 (WB), 47290 (EB)
LATITUDE = 41.519667
LONGITUDE = -90.513139

DESIGN FOR REMOVALS TO THE 0° SKEW

I-74 BRIDGES OVER THE MISSISSIPPI RIVER (ILLINOIS & IOWA BOUND)

SITUATION PLAN

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SCOTT & ROCK ISLAND COUNTIES

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DESIGN SHEET NO. 4 OF 9 FILE NO. 30253 DESIGN NO. 4108

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DESIGN TEAM: AJK/RMG/EHS | SCOTT & ROCK ISLAND COUNTIES | PROJECT NUMBER IM-074-1(210)5--13-82 | SHEET NUMBER 5

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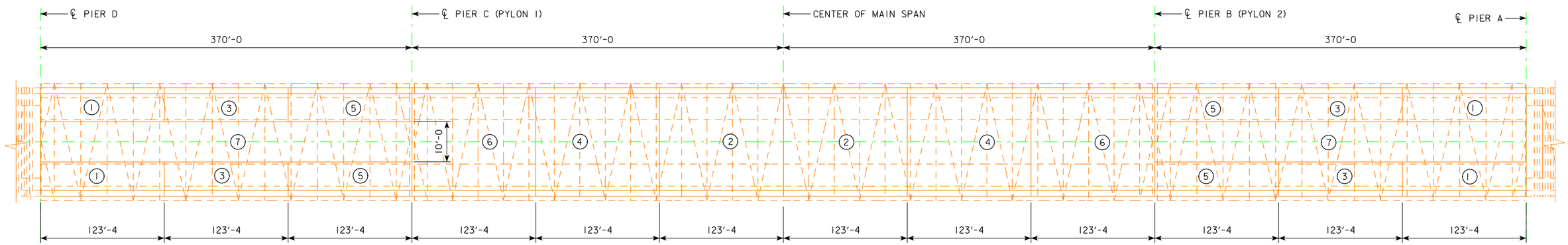


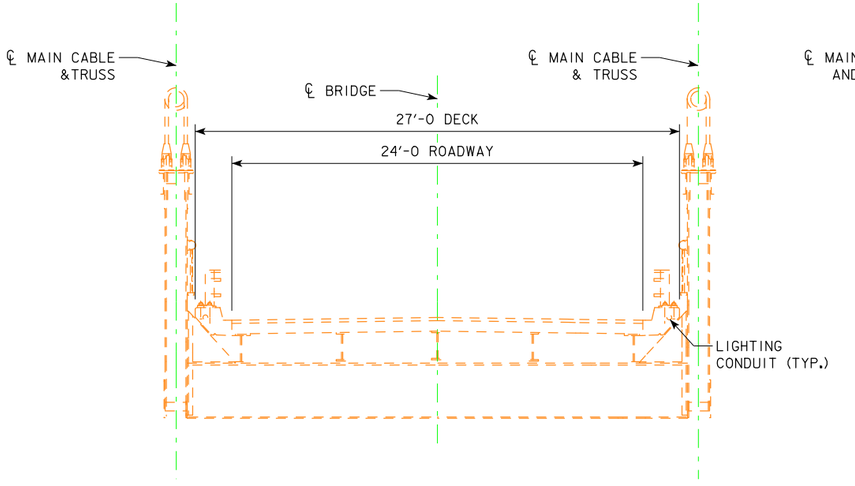
PLAN - EXISTING SUSPENSION BRIDGE DECK REMOVAL

(IOWA BOUND BRIDGE - SHOWN)
(ILLINOIS BOUND BRIDGE - SIMILAR)

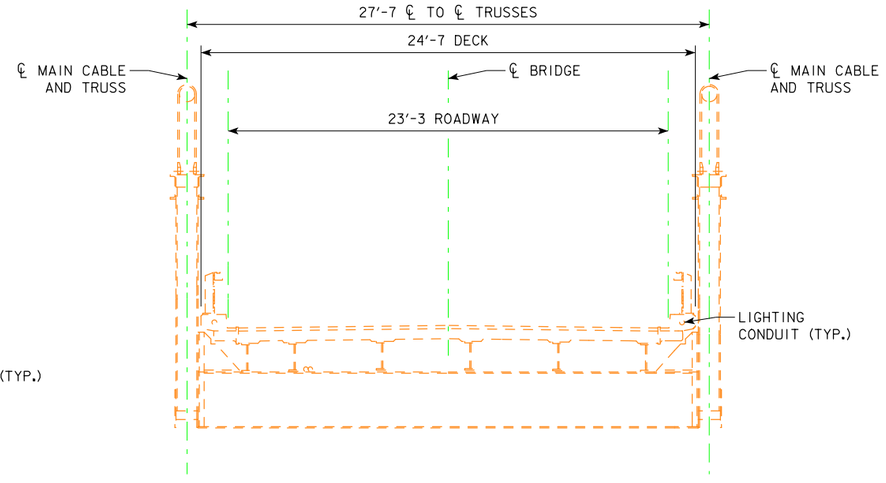
SUGGESTED DECK REMOVAL PROCEDURE

REMOVE CONCRETE DECK AND OVERLAY FROM STRUCTURE FOLLOWING THE SEQUENCE OF SEGMENTS SHOWN ON BRIDGE DEMOLITION PLAN VIEW SO AS NOT TO OVERSTRESS THE TOWER MEMBERS. ALL DECK SEGMENTS OF A GIVEN NUMERIC DESIGNATION SHALL BE REMOVED PRIOR TO PROCEEDING TO THE FOLLOWING SEGMENTS.

DECK REMOVAL AT THE ANCHORAGES AND APPROACH DECK TRUSSES MAY PROCEED VIA CONVENTIONAL METHODS.



DECK CROSS SECTION (EASTBOUND)



DECK CROSS SECTION (WESTBOUND)

DESIGN FOR REMOVALS TO THE 0° SKEW

I-74 BRIDGES OVER THE MISSISSIPPI RIVER (ILLINOIS & IOWA BOUND)

BRIDGE DECK REMOVAL

STA. 6771+73.17 - 406.38' LT - I-74 DECEMBER 2014

SCOTT & ROCK ISLAND COUNTIES

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 5 OF 9 FILE NO. 30253 DESIGN NO. 4108

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Alfred Benesch & Company
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Chicago, Illinois 60601
312-565-0450 Job No. 10061

DESIGN TEAM: AJK/RMG/EHS | SCOTT & ROCK ISLAND COUNTIES | PROJECT NUMBER IM-074-1(210)5--13-82 | SHEET NUMBER 6

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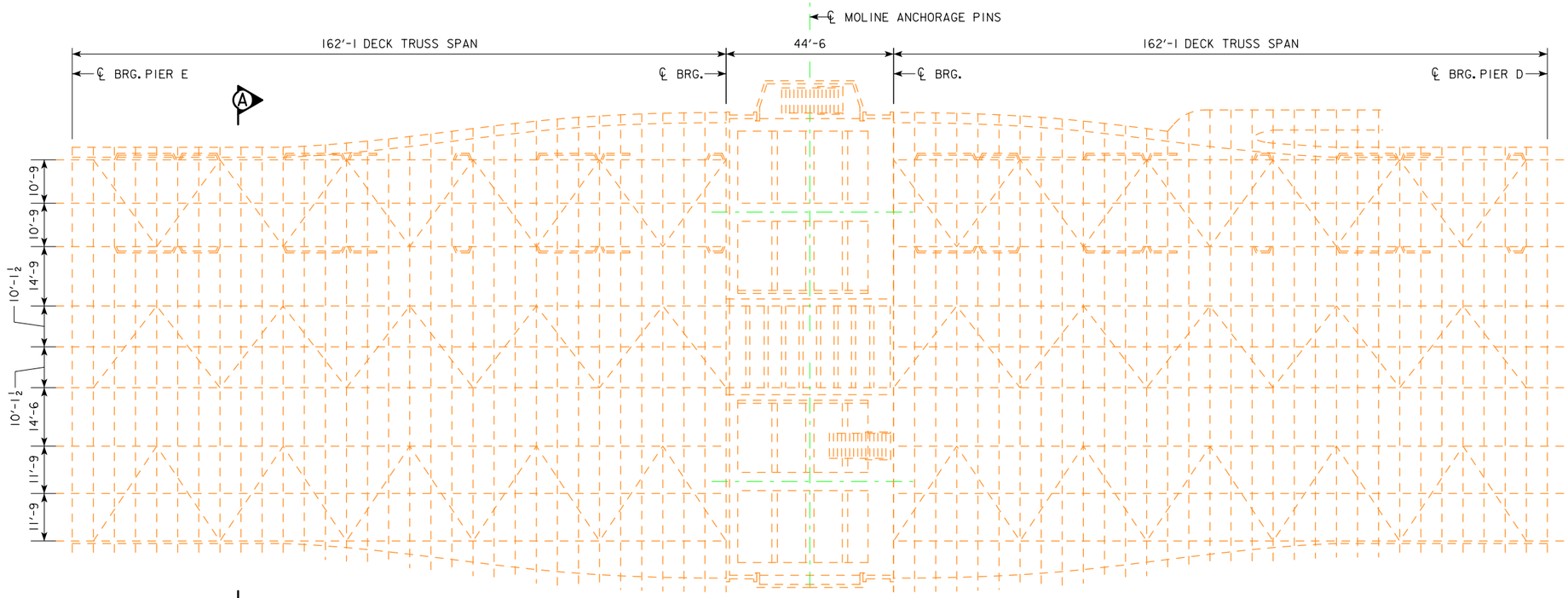
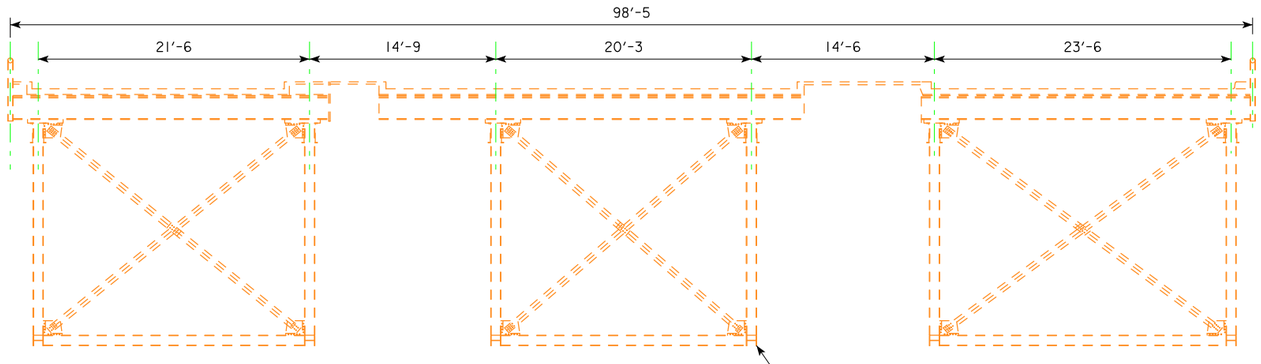


PLAN - EXISTING FRAMING PLAN @ MOLINE ANCHORAGE

N



SECTION A-A

NOTES:

PLAN VIEW AND SECTION A-A ARE FOR THE MOLINE ANCHORAGE. BETTENDORF ANCHORAGE IS SIMILAR BUT WITH ONLY A SINGLE SPAN FOR EACH BOUND AND NO CENTER DECK TRUSS FOR THE PLAZA.

SEE DESIGN SHEET 4 FOR THE SITUATION PLAN.

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DESIGN FOR REMOVALS TO THE 0° SKEW

I-74 BRIDGES OVER THE MISSISSIPPI RIVER (ILLINOIS & IOWA BOUND)

BRIDGE DECK REMOVAL

STA. 6771+73.17 - 406.38' LT - I-74 DECEMBER 2014

SCOTT & ROCK ISLAND COUNTIES

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 6 OF 9 FILE NO. 30253 DESIGN NO. 4108

DESIGN TEAM: AJK/RMG/EHS | SCOTT & ROCK ISLAND COUNTIES | PROJECT NUMBER IM-074-1(210)5--13-82 | SHEET NUMBER 7

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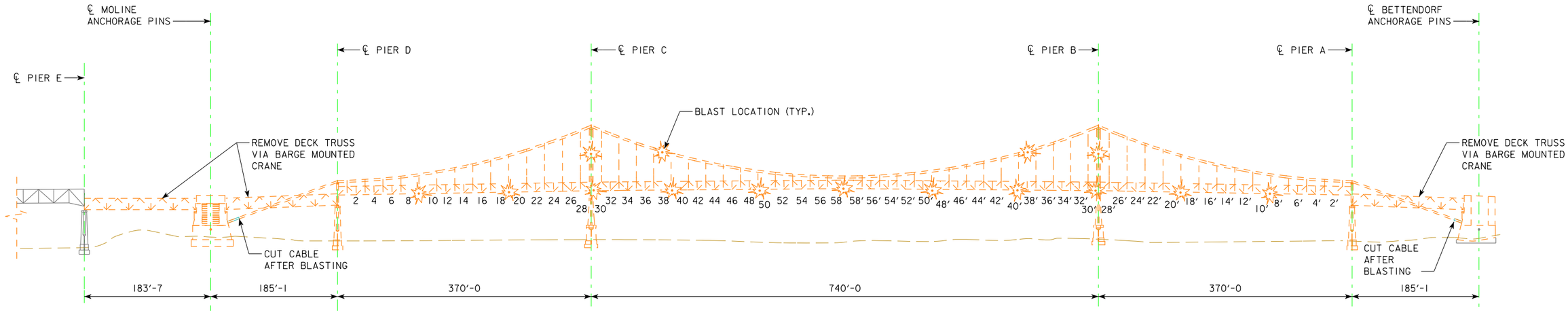

ELEVATION - SUPERSTRUCTURE DEMOLITION

SUPERSTRUCTURE DEMOLITION NOTES

1) ILLINOIS BOUND (EASTBOUND) STRUCTURE TO BE REMOVED FIRST.

2) PYLONS SHALL FALL OUTWARD, AWAY FROM THE NAVIGATION CHANNEL.

3) TRUSS SEGMENTS WERE CHOSEN TO BE APPROXIMATELY 200,000 POUNDS.

4) DO NOT REMOVE CABLE BANDS AND WRAPPING WIRE.

SUGGESTED SUPERSTRUCTURE DEMOLITION PROCEDURE

STEP 1 ONCE ENTIRE DECK HAS BEEN REMOVED, TRUSSES AND CABLES SHALL BE PRE-CUT TO PREPARE FOR BLASTING.
- A) PRIOR TO BLASTING, FLOATS SHALL BE ATTACHED TO RIGGING ON TRUSS SEGMENTS, SUSPENSION CABLES, AND PYLONS TO AID IN REMOVAL FROM RIVER.
- B) PRE-CUT TRUSS AT BLAST LOCATIONS.
- C) HANGERS CAN BE SELECTIVELY CUT PRIOR TO BLASTING. IT IS RECOMMENDED THAT EVERY OTHER HANGER BE CUT. REMAINING HANGERS SHALL BE BLASTED.
- D) PIERS B AND C SHALL BE PRE-CUT IN 2 OR 3 LOCATIONS.

STEP 2 CHARGES ARE TO BE PLACED ON MAIN CABLES, TOWERS, REMAINING HANGERS AND AT REQUIRED STIFFENING TRUSS BREAK POINTS.

STEP 3 AFTER STRUCTURE BLASTING HAS BEEN COMPLETED, SEGMENTS SHALL BE REMOVED FROM RIVER VIA BARGE-MOUNTED CRANE.
- A) ALL RESTRICTIONS ON BLOCKING THE NAVIGABLE CHANNEL SHALL BE ADHERED TO.
- B) MAIN SPAN SEGMENTS SHALL BE REMOVED FROM RIVER PRIOR TO SIDE SPAN SEGMENTS.

STEP 4 THE DECK TRUSS APPROACH SPANS SHALL BE REMOVED VIA BARGE MOUNTED CRANE.

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DESIGN FOR REMOVALS TO THE 0° SKEW

I-74 BRIDGES OVER THE MISSISSIPPI RIVER (ILLINOIS & IOWA BOUND)

SUPERSTRUCTURE DEMOLITION

STA. 6771+73.17 - 406.38' LT - I-74 DECEMBER 2014

SCOTT & ROCK ISLAND COUNTIES

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 7 OF 9 FILE NO. 30253 DESIGN NO. 4108

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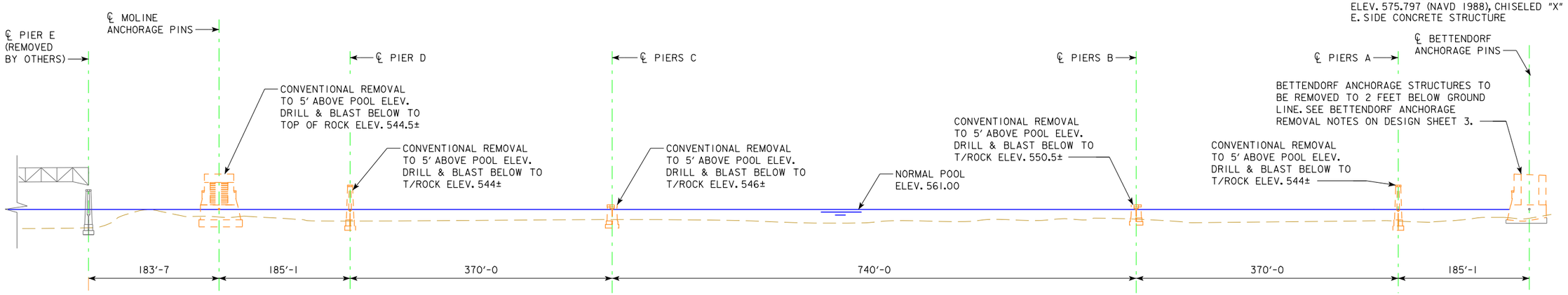
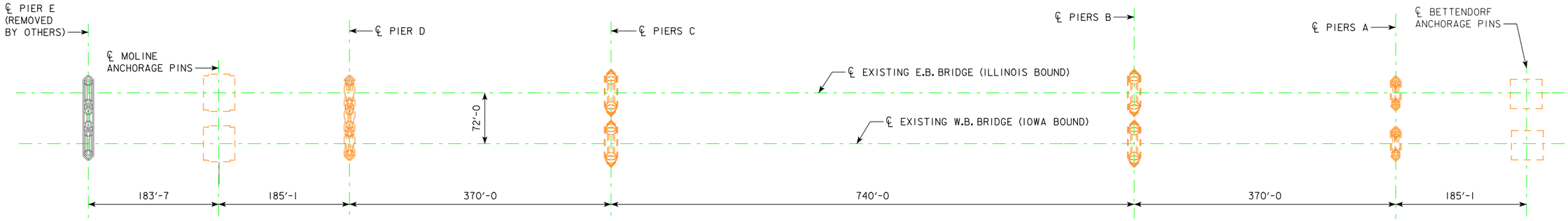
BENCHMARK NO.: 500 STA. 6781+18.95 LT. 161.23'
ELEV. 575.797 (NAVD 1988), CHISELED "X" IN BOLT
E. SIDE CONCRETE STRUCTURE



ELEVATION - REMOVAL OF SUBSTRUCTURES



PLAN - REMOVAL OF SUBSTRUCTURES

DESIGN FOR REMOVALS TO THE 0° SKEW

I-74 BRIDGES OVER THE MISSISSIPPI RIVER (ILLINOIS & IOWA BOUND)

SUBSTRUCTURE DEMOLITION

STA. 6771+73.17 - 406.38' LT - I-74 DECEMBER 2014

SCOTT & ROCK ISLAND COUNTIES

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 8 OF 9 FILE NO. 30253 DESIGN NO. 4108

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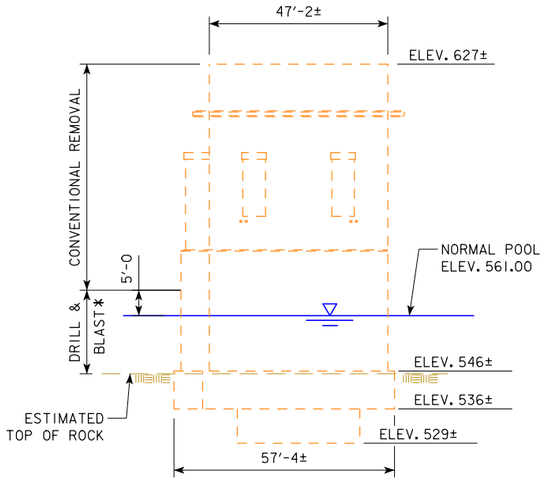
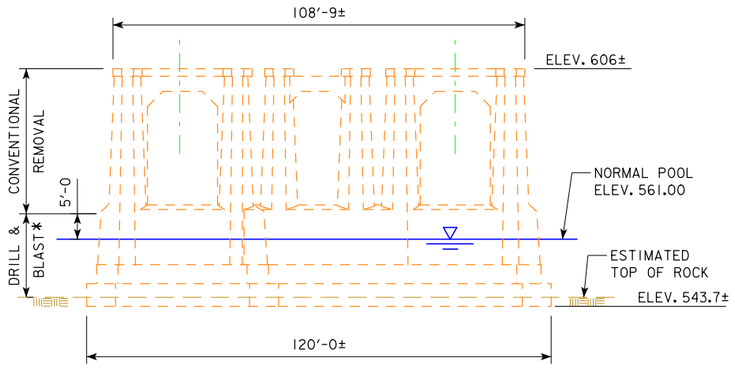
BENCHMARK NO.: 500 STA. 6781+18.95 LT. 161.23'
ELEV. 575.797 (NAVD 1988), CHISELED "X" IN BOLT
E. SIDE CONCRETE STRUCTURE



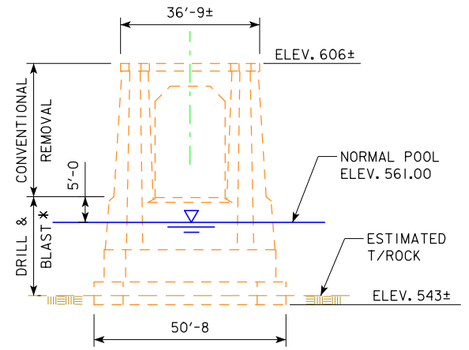
ELEVATION - MOLINE ANCHORAGE

(LOOKING NORTH)
(W.B. ANCHORAGE - SHOWN)
(E.B. ANCHORAGE - SIMILAR)



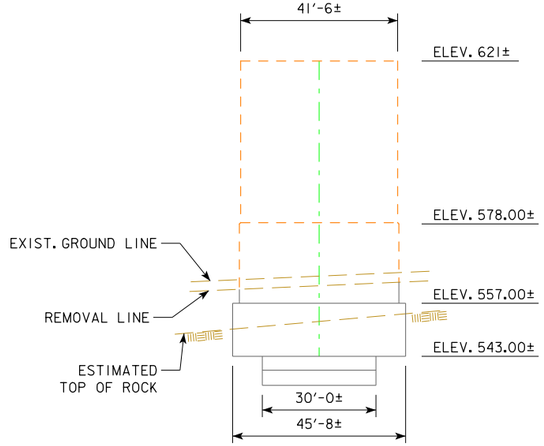
ELEVATION - PIER D

(LOOKING NORTH)



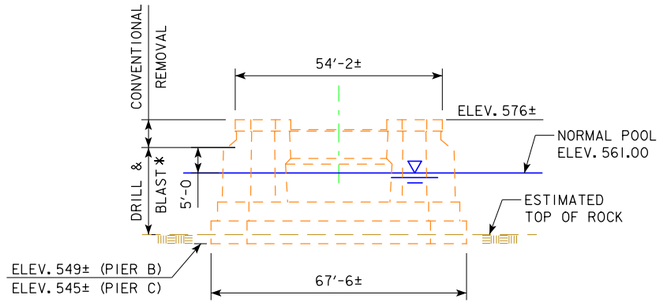
ELEVATION - PIER A

(LOOKING NORTH)
(W.B. PIER - SHOWN)
(E.B. PIER - SIMILAR)



ELEVATION - BETTENDORF ANCHORAGE

(LOOKING NORTH)
(W.B. ANCHORAGE - SHOWN)
(E.B. ANCHORAGE - SIMILAR)



ELEVATION - PIERS B & C

(LOOKING NORTH)
(W.B. PIER - SHOWN)
(E.B. PIER - SIMILAR)

* ALL PIERS SHALL BE REMOVED TO TOP OF EXISTING BEDROCK

DESIGN FOR REMOVALS TO THE 0° SKEW

I-74 BRIDGES OVER THE MISSISSIPPI RIVER (ILLINOIS & IOWA BOUND)

SUBSTRUCTURE DEMOLITION

STA. 6771+73.17 - 406.38' LT - I-74 DECEMBER 2014

SCOTT & ROCK ISLAND COUNTIES

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 9 OF 9 FILE NO. 30253 DESIGN NO. 4108

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POLLUTION PREVENTION PLAN

This Base Pollution Prevention Plan (PPP) includes information on Roles and Responsibilities, Project Site Description, Controls, Maintenance Procedures, Inspection Requirements, Non-Storm Water Controls, Potential Sources of Off Right-of-Way Pollution, and Definitions. This plan references other documents rather than repeating the information contained in the documents. A copy of this Base Pollution Prevention Plan, amended as needed per plan revisions or by contract modification, will be readily available for review.

All contractors shall conduct their operations in a manner that controls pollutants, minimizes erosion, and prevents sediments from entering waters of the state and leaving the highway right-of-way. The prime contractor shall be responsible for compliance and implementation of the PPP for their entire contract. This responsibility shall be further shared with subcontractors whose work is a source of potential pollution as defined in this PPP.

I. ROLES AND RESPONSIBILITES

A. Designer:
1. Prepares Base PPP included in the project plan.
2. Prepares Notice of Intent (NOI) submitted to Iowa DNR.
3. Signature authority on the Base PPP and NOI.

B. Contractor/Subcontractor:
1. Affected contractors/subcontractors are co-permittees with the IDOT and will sign a certification statement adhering to the requirements of the NPDES permit and this PPP plan. All co-permittees are legally required under the Clean Water Act and the Iowa Administrative Code to ensure compliance with the terms and conditions of this PPP.
2. Submit a detailed schedule according to Article 2602 of the Specifications and any additional plan notes.
3. Install and maintain appropriate controls.
4. Supervise and implement good housekeeping practices.
5. Conduct joint required inspections of the site with inspection staff.
6. Signature authority on Co-Permittee Certification Statements and storm water inspection reports.

C. RCE/Inspector:
1. Update PPP whenever there is a change in design, construction, operation or maintenance, which has a significant effect on the discharge of pollutants from the project.
2. Maintain an up-to-date list that identifies contractors and subcontractors as co-permittees.
3. Make these plans available to the DNR upon their request.
4. Conduct joint required inspections of the site with the contractor/subcontractor.
5. Complete an inspection report after each inspection.
6. Signature authority on storm water inspection reports and Notice of Discontinuation (NOD).

II. PROJECT SITE DESCRIPTION

A. This Pollution Prevention Plan (PPP) is for the construction of I-74 mainline, ramps, and local roads.

B. This PPP covers approximately 52 acres with an estimated 41 acres being disturbed. The portion of the PPP covered by this contract has 0.4 acres disturbed.

C. The PPP is located in an area of one soil association Kenyon-Floyd-Clyde. The estimated average SCS runoff curve number for this PPP after completion will be 86.

D. Storm Water Site Map - Multiple sources of information comprise the base storm water site map including:
1. Drainage patterns – Plan and Profile sheets and Situation plans.
2. Proposed Slopes – Cross Sections.
3. Areas of Soil Disturbance – construction limits shown on Plan and Profile sheets.
4. Location of Structural Controls – Tabulations on C sheets.
5. Locations of Non-structural Controls – Tabulations on C sheets.
6. Locations of Stabilization Practices – generally within construction limits shown on Plan and Profile sheets.
7. Surface Waters (including wetlands) – Plan and Profile sheets.
8. Locations where storm water is discharged – Plan and Profile sheets.

E. The base site map is amended by contract modifications and progress payments of completed erosion control work.

F. Runoff from this work will flow into Mississippi River.

III. CONTROLS

A. The contractor's work plan and sequence of operations specified in Article 2602.03 for accomplishment of storm water controls should clearly describe the intended sequence of major activities and for each activity define the control measure and the timing during the construction process that the measure will be implemented.

B. Preserve vegetation in areas not needed for construction.

C. Section 2601 and 2602 of the Standard Specifications define requirements to implement erosion and sediment control measures. Actual quantities used may vary from the Base PPP and amendment of the plan will be documented via fieldbook entries or by contract modification. Additional erosion and sediment control items may be required as determined by the inspector and/or contractor during storm water monitoring inspections. If the work involved is not applicable to any contract items, the work will be paid for according to Article 1109.03 paragraph B.

1. EROSION AND SEDIMENT CONTROLS

a. Stabilization Practices
1) Site plans will ensure that existing vegetation is preserved where attainable and disturbed portions of the site will be stabilized.
2) Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased.
3) Temporary stabilizing seeding shall be completed as the disturbed areas are constructed. If construction activity is not planned to occur in a disturbed area for at least 21 days, the area shall be stabilized by temporary seeding or mulching within 14 days. Other stabilizing methods shall be used outside the seeding time period.
4) Stabilization measures to be used for this project are located in the Estimated Project Quantities (100-1A) and Estimate Reference Information (100-4A) located on the C sheets of the plan. Additional items may be found in the Inspector's Daily Reports (IDR) or Contract Modifications.

b. Structural Practices
1) Structural practices will be implemented to divert flows from exposed soils and detain or otherwise limit runoff and the discharge of pollutants from exposed areas of the site.
2) Structural items to be used for this project are located in the Estimated Project Quantities (100-1A) and Estimate Reference Information (100-4A) located on the C sheets of the plan, as well as all other item specific Tabulations. Typical drawings detailing construction of the devices to be used on this project can be found on the B sheets of the plan or are referenced in the Standard Road Plans Tabulation.

c. Storm Water Management
1) Measures shall be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. The installation of these devices may be subject to Section 404 of the Clean Water Act.

110-12A
04-21-15

POLLUTION PREVENTION PLAN

2. OTHER CONTROLS

a. Contractor disposal of unused construction materials and construction material wastes shall comply with applicable state and local waste disposal, sanitary sewer, or septic system regulations. In the event of a conflict with other governmental laws, rules and regulations, the more restrictive laws, rules or regulations shall apply.
1) Vehicle Entrances and Exits - Construct and maintain entrances and exits to prevent tracking of sediments onto roadways.
2) Material Delivery, Storage and Use - Implement practices to prevent discharge of construction materials during delivery, storage, and use.
3) Stockpile Management - Install controls to reduce or eliminate pollution of storm water from stockpiles of soil and paving.
4) Waste Disposal - Do not discharge any materials, including building materials, into waters of the state, except as authorized by a Section 404 permit.
5) Spill Prevention and Control - Implement procedures to contain and clean-up spills and prevent material discharges to the storm drain system and waters of the state.
6) Concrete Residuals and Washout Wastes - Designate temporary concrete washout facilities for rinsing out concrete trucks. Provide directions to truck drivers where designated washout facilities are located.
7) Vehicle and Equipment Cleaning - Employ washing practices that prevent contamination of surface and ground water from wash water.
8) Vehicle and Equipment Fueling and Maintenance - Perform on site fueling and maintenance in accordance with all environment laws such as proper storage of onside fuels and proper disposal of used engine oil or other fluids on site.
9) Litter Management - Ensure employees properly dispose of litter.

3. APPROVED STATE OR LOCAL PLANS
During the course of this construction, it is possible that situations will arise where unknown materials will be encountered. When such situations are encountered, they will be handled according to all federal, state, and local regulations in effect at the time.

IV. MAINTENANCE PROCEDURES

The contractor is required to maintain all temporary erosion and sediment control measures in proper working order, including cleaning, repairing, or replacing them throughout the contract period. This shall begin when the features have lost 50% of their capacity.

V. INSPECTION REQUIREMENTS

A. Inspections shall be made jointly by the contractor and the contracting authority at least once every seven calendar days. Storm water monitoring inspections will include:
1. Date of the inspection.
2. Summary of the scope of the inspection.
3. Name and qualifications of the personnel making the inspection.
4. Rainfall amount.
5. Review erosion and sediment control measures within disturbed areas for the effectiveness in preventing impacts to receiving waters.
6. Major observations related to the implementation of the PPP.
7. Identify corrective actions required to maintain or modify erosion and sediment control measures.

B. Include storm water monitoring inspection reports in the Amended PPP. Incorporate any additional erosion and sediment control measures determined as a result of the inspection. Immediately begin corrective actions on all deficiencies found and complete all actions within 3 calendar days of the inspection.

VI. NON-STORM WATER DISCHARGES

This includes subsurface drains (i.e. longitudinal and standard subdrains) and slope drains. The velocity of the discharge from these features may be controlled by the use of patio blocks, Class A stone, erosion stone or other appropriate materials.

VII. POTENTIAL SOURCES OF OFF RIGHT-OF-WAY (ROW) POLLUTION

Silts, sediment, and other forms of pollution may be transported onto highway right-of-way (ROW) as a result of a storm event. Potential sources of pollution located outside highway ROW are beyond the control of this PPP. Pollution within highway ROW will be conveyed and controlled per this PPP.

VIII. DEFINITIONS

A. Base PPP - Initial Pollution Prevention Plan.

B. Amended PPP - May include Plan Revisions or Contract Modifications for new items and fieldbook entries made by the inspector.

C. IDR - Inspector's Daily Report – this contains the inspector's daily diary and item postings.

D. Controls - Methods, practices, or measures to minimize or prevent erosion, control sedimentation, control storm water, or minimize contaminants from other types of waste or materials.

E. Signature Authority - Representative from Designer, Contractor/Subcontractor, or RCE/Inspector authorized to sign various storm water documents.

CERTIFICATION STATEMENT

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

_____
Signature

Jeffrey J. Tardy
Printed or Typed Name

ATTACHMENT D

DIRECT/INDIRECT EFFECTS TO MUSSEL SPECIES

DIRECT AND INDIRECT EFFECTS BY SPECIES

Higgins Eye Pearlymussel

Direct and Indirect Effects

Relocation

Prior to construction activities, all mussels, will be relocated from a 32.8-foot (10-meter) buffer around Piers 1 through 5 (Illinois side of the river) (Figure 3). Mussels will also be relocated from the proposed storm sewer outfall project areas (see Attachment B). Due to the number of mussels to be relocated, the relocation effort is anticipated to take approximately 60 days. Therefore, mussels will be relocated from the removal areas between July and August 2016 (the year prior to the start of construction). The relocation plan is found in Appendix G. Take estimates by species and activity are summarized below and in Attachment E.

The mussel removal areas will be searched by divers until at least 90% of all mussels ≥1 inch in length are collected. Although the area will be extensively searched, it is estimated that up to 10% of mussels >1 inch in length could be missed resulting in mortality up to 86 adult Higgins eye pearlymussels. In addition, mortality of 51 adults is expected during relocation, and 207 individuals less than 1 inch (25 millimeters (mm)) in size would likely be missed during the relocation efforts for a total of 344 Higgins eye pearlymussels (see Attachment E). These calculations include mortality as a result of relocation for the storm sewer outfall projects. It is estimated that approximately 741 Higgins eye pearlymussels will be successfully relocated from the action area prior to construction and would be considered harassed.

Prior to construction activities, an anchored silt curtain will be placed downstream of the proposed bridge corridor to minimize sedimentation downstream of construction. The need for and placement of silt curtains prior to demolition activities will be determined prior to commencement of those activities and will be based on the effectiveness of the silt curtains used during construction activities. Prior to placement of the silt curtain anchors, a diver will be present to move any mussels that may be present at the proposed anchor locations. Relocation of individuals would consist of moving them a short distance away from the proposed anchor locations. Mussels would not be removed from the water for relocation as a result of the proposed silt curtain; therefore, effects of this activity are expected to be minor.

Mussel relocation will also occur prior to demolition of the existing bridge following the general relocation plan identified in Attachment H. It is assumed that mussels will be relocated from existing riprap around the existing bridge piers, with the exception of Pier K in Sylvan Slough. Given that demolition is not anticipated to begin until November 2020, a more specific relocation plan will be developed prior to demolition activities and in coordination with the USFWS.

Construction

Direct effects of construction include mortality of individuals left behind following the relocation efforts (see discussion above). Take estimates for construction activities and the silt curtain placement are summarized in this section and detailed in Attachment E. It is estimated that mortality of up to 1,131 Higgins eye pearlymussels that remain in the potential dredging area on the Illinois side of the river (Figure 3) could occur, as well as 8 individuals left behind at Piers 6 through 8. Approximately 44 individuals of this species (Illinois side of the river) will not be removed in water deeper than 8 feet may be disturbed (i.e., harass) (Appendix E). Temporary effects to the riverbed, and subsequent effects to mussel species, as a result of placement of the silt curtain anchors is expected to be discountable.

Fish hosts may be temporarily displaced from the area due to increased activity associated with construction; however, no host fish habitat will be permanently destroyed. Though effects to fish hosts are expected temporary and minor, construction and relocation activities may indirectly result in the loss of up to one year of reproduction due to stress and/or disturbance to mussels. At water depths greater than 6 feet, the effects to mussels as a result of propeller wash due to construction barges are expected to be discountable. Construction of coffer dams for the storm sewer outfall projects may result in noise or sound waves that may disturb fish or mussel species. It is expected these effects will be short-term (i.e., when sheet pile is driven into the riverbed) and may have a minimum effect on fish species and/or mussels that have not been relocated.

Indirect effects to this species as a result of construction activities also include the potential for increased sedimentation. These effects are expected to be minimized by the installation of an anchored silt curtain that will be placed downstream from the proposed bridge corridor prior to construction of the bridge (Attachment F). The need for and placement of silt curtains prior to demolition activities will be determined prior to commencement of those activities and will be based on the effectiveness of the silt curtains used during construction.

Hydraulic modeling (HDR 2015) was conducted to determine if changes to water velocity would occur as a result of construction of the new bridge piers upstream of Sylvan Slough (Piers 2, 3, and 4; see plan in Attachment C). Specifically, the Iowa DOT wanted to determine if scour would occur at the proposed bridge piers that could result in increased sedimentation downstream of the existing bridge which includes Sylvan Slough. The results of the modeling indicate the differences in velocity are limited to wake zones associated with the piers and extend as far as 300 feet downstream of the piers; however, the velocity upstream of the piers is insufficient to move medium sand when compared to critical velocity (the minimum velocity needed to pick up medium sand grains and move them) (HDR 2015). Therefore, the results of the modeling indicate scour will not occur at the proposed bridge piers and would not result in increased sedimentation downstream of the new bridge.

Dredging will result in a change to the substrate, though the extent and duration of these changes are not entirely known. Little information exists specifically regarding the return of substrate to pre-dredging conditions (ESI, personal communication). The post-dredging substrate will likely remain unstable for some time after dredging, as organic matter, biofilms, etc. require time to return to the substrate. Several studies have reported recolonization of dredged areas by mussels, which may be an indicator of substrate recovery. Eckblad (1999) surveyed sites in the Upper Mississippi River that had been dredged ≤5 years previously, and collected mussels from 4 of the 12 sites; a total of 14 species was observed at all sites dredged in the past 5 years. Mussels were also recovered from nearly half of sites that had been dredged ≤10 years previously and ≥15 years previously (Eckblad 1999). Recolonization does appear to include listed species; live Higgins eye pearlymussels were found by Miller and Payne (1992) near Prairie du Chien, Wisconsin, in an area dredged 8 years earlier, and by Fuller (1980) in the St. Croix River (Minnesota) near a frequently dredged channel (USFWS 2000).

Ecological Specialists, Inc. has been monitoring a small dredged area in Pool 19 of the Mississippi River since 2014 to determine the rate of recovery of mussels relative to a nearby undisturbed reference area (Heidi Dunn, personal communication). The dredge area was divided into two segments, one of which was dredged in 2012, while the other was dredged in November 2013. Care was taken to restore bottom contours after dredging. The dredged area recolonized quickly with juveniles; juvenile density in October 2015 (2 years after the last dredging event) was 12.7 m^2 (95% CI: 8.2 to 17.2). Although adult density remains low (1.8 ± 0.8 unionids/m^2), it has steadily increased across all sampling events, suggesting more mussels are becoming established in the

dredged area. In addition, the average length of mapleleaf (*Quadrula quadrula)* juveniles (the most abundant species) has increased across all sample events, suggesting that the juveniles that initially colonized the area are remaining in the area and growing (ESI, unpublished data). Results of this project thus far suggest that mussels may begin to move into disturbed areas in as little as a few years, though additional time will likely be needed for the community to return to pre-dredging conditions (Heidi Dunn, personal communication).

Several factors may contribute to the time it takes for mussels to recolonize dredged areas within the action area, including post-dredging contours and how closely they match pre-dredging conditions. Dredged areas near the bridge may also be repopulated via downstream movement of mussels from known upstream aggregations (e.g. the upstream relocation area identified in ESI 2015). In addition, some mussels are present downstream of the bridge in Sylvan Slough that could provide a source of glochidia/juveniles to be dispersed via host fish movement (ESI, personal communication).

Demolition

Direct effects of demolition include mortality to individuals left behind following the relocation efforts; however, the specifics of the relocation effort prior to demolition will be determined closer to that phase of the project. Mortality of individuals that remain may result from dredging activities that will occur within the action area to accommodate demolition of the existing bridge (Figure 2). Mortality of individuals could also occur as a result of demolition of the existing piers. It is estimated that total mortality of the Higgins eye pearlymussel as a result of demolition activities could include up to 397 individuals located within the action area for demolition (Figure 2). Methods used in the take estimate are included in Attachment E.

Indirect effects to mussels as a result of demolition activities are similar to those discussed above for construction and include changes to substrate as a result of dredging within the action area and sedimentation. Fish hosts may be temporarily displaced from the area due to increased activity associated with demolition; however, no host fish habitat will be permanently destroyed. Though effects to fish hosts are temporary, demolition and relocation activities may indirectly result in the loss of up to one year of reproduction due to stress and/or disturbance to mussels.

Spectaclecase Mussel

Direct and Indirect Effects

Relocation

Prior to demolition activities, all mussels, will be relocated from a portion of the action area of the existing bridge (Figure 2) using collection and handling methods described in the relocation plan (Attachment H). It is assumed that mussels will be relocated from existing riprap around the existing bridge piers, with the exception of Pier K in Sylvan Slough. Given that demolition is not anticipated to begin until November 2020, a relocation plan that will include the spatial extent of the mussel removal area will be developed prior to demolition activities and in coordination with the USFWS and IDNR.

Relocation efforts prior to demolition could result in mortality of up to approximately 59 individual spectaclecase mussels on the Illinois side of the river (see Attachment E). Based on a 90% relocation effort, approximately 347 individuals will be successfully relocated from the action area prior to demolition and would be disturbed (i.e., harass) (Attachment E). Mussels will not be relocated from Pier K (Figure 2).

Construction
No direct effects to this species as a result of construction are expected because of the specific habitat requirements of this species which differ from the Higgins eye pearlymussel. Take estimates provided in Attachment E indicate no take of this species as a result of construction.

Demolition
The direct effects to this species as a result of demolition include mortality as a result of relocation, dredging and pier removal (see Attachment B). Given the specific habitat requirements of the spectaclecase (rocks, boulders, etc.), removal of the existing piers may have a greater effect on this species when compared to other mussel species. To avoid and minimize effects to this species, Pier K (located within Sylvan Slough; Figure 2), which provides habitat for the spectaclecase mussel, will not be removed as a result of demolition of the existing bridge, and no mussels will be relocated from this pier. During demolition activities, the contractor will be restricted from impacting the river bottom within a 16.4-foot (5-meter) buffer of Pier K. Total mortality to this species as a result of demolition activities of other existing piers is estimated to be up to approximately 59 individuals as a result of relocation efforts; approximately 347 individuals will be successfully relocated prior to demolition activities and would be disturbed (i.e., harass) (see Attachment E).

Sheepnose Mussel

Direct and Indirect Effects

Relocation
Relocation activities will be the same as those described for the Higgins eye pearlymussel above. Although the area will be extensively searched, it is estimated that up to 10% of mussels >1 inch in length could be missed resulting in mortality of 21 adult sheepnose mussels. In addition, mortality of 10 adults is expected during relocation, and 53 individuals less than 1 inch (25 mm) in size would likely be missed during the relocation efforts for a total of 84 individuals (see Appendix E). These calculations include take as a result of the storm sewer outfall projects. Approximately 186 individuals will be successfully relocated from the action area prior to construction and would be disturbed (i.e., harass) (Appendix E).

Construction
The direct effects to this species as a result of construction are expected to be the same as those described above for the Higgins eye pearlymussel, and include mortality as a result of construction activities, including dredging, pier placement and construction of the storm sewer outfalls (see Attachments B and E).

It is estimated that mortality of up to 283 individuals that remain in the potential dredging area located outside of the mussel removal area on the Illinois side of the river (Figure 3) will occur, as well as 2 individuals left behind at the Pier 6 through 8 locations. It is estimated that up to 11 individuals (Illinois) will be left behind in water deeper than 8 feet and would be disturbed (i.e., harass) (Appendix E).

Demolition
The direct effects to this species as a result of demolition are expected to be the same as those described above for the Higgins eye pearlymussel, and include mortality as a result of dredging

and pier removal (Attachment B). Total mortality to this species as a result of demolition activities is estimated to be up to 115 individuals (Attachment E).

Butterfly, Ebonyshell, Black Sandshell, Purple Wartyback, and Spike

Direct and Indirect Effects

Relocation

Relocation activities will be the same as those described above for the Higgins eye pearlymussel. Take estimates by species are summarized in Appendix E.

Construction

The direct effects to these state-listed species as a result of construction are expected to be the same as those described above for the Higgins eye pearlymussel, and include mortality as a result of construction activities, including dredging, pier placement and construction of the storm sewer outfalls (Attachments B and E). Given that one weathered, dead shell and no live specimens of the Illinois state-threatened ebonyshell were found (ESI 2014), effects to this species are expected to discountable. This species is not included in the takes estimates found in Appendix E because take of this species is unlikely to occur.

Demolition

The direct effects to this species as a result of demolition are expected to be the same as those described above for the Higgins eye pearlymussel, and include mortality as a result of dredging and pier removal (see Attachment B). Take estimates by species are summarized in Appendix E. Given that one weathered, dead shell and no live specimens of the Illinois state-threatened ebonyshell were found (ESI 2014), effects to this species are expected to be discountable.

Literature Cited

Eckblad, J. 1999. Evaluation of unionid mussel colonization of dredge cuts and dredged material placement sites in Pools 11-22 of the Upper Mississippi River. Prepared for U.S. Army Corps of Engineers, Rock Island District. 42pp + appendices.

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Fuller, S. L. H. 1980. Freshwater mussels (Mollusca: Bivalvia: Native musselae) of the Upper Mississippi River: observations at selected sites within the 9-foot navigation channel project for the St. Paul District, U.S. Army Corps of Engineers, 1977-1979. Vols. I and II. Academy of Natural Sciences, Philadelphia, Pennsylvania.

Miller, A. C., and B. S. Payne. 1992. The effects of increased commercial navigation traffic on freshwater mussels in the Upper Mississippi River: 1989 studies. Technical Report EL-91-3, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.

U.S. Fish and Wildlife Service (USFWS). 2000. Biological opinion for the operation and maintenance of the 9-foot navigation channel on the Upper Mississippi River system. 244pp.

ATTACHMENT E

TAKE ESTIMATES

Take Estimates

Methods

Methods used to calculate take estimate for all federal and state-listed mussel species are described in this section. This attachment also provides tables that summarize the take estimate by species.

Total Mussels

ESI calculated the estimated number of total mussels, including common species, found within the action area on the Illinois side of the river using the following methods:

- Using a shapefile of the action area provided by the Iowa DOT, ESI used "Calculate Geometry" in ArcGIS to obtain the area (in square meters) of the action area on the Illinois side of the river.
- Using a shapefile of the 2014 quadrat survey locations to calculate average mussel density (number of mussels per square meter) within the action area, an average density was calculated using data collected from each quadrat location.
- None of the survey quadrats fell within the action area of the storm sewer outfalls; therefore, average density of the outfall area was calculated by selecting all Area A (ESI 2014) quadrat points within 50 feet of the bank, and excluding points on the downstream end that were on a mud flat and not consistent with habitat within the outfall area.
- Average densities were multiplied by the area to get an estimated total number of animals within the action area on the Illinois side of the river.
- For the purposes of estimating take as a result of placement of the silt curtain anchors, an approximate 66-foot (20-meter) buffer was placed around the curtain to calculate the average density of mussels.

ESI then calculated a take estimate for individual species using the following methods:

- Using quantitative data from the 2014 survey, ESI calculated the relative abundance of each species and multiplied that by the estimated total number mussels to obtain an estimated number of each species. Data collected from Area A were used for the existing bridge and storm sewer outfall locations on the Illinois bank; data collected from Area B were used for the riverward section of the existing bridge; and, data from Areas A, B, and C were combined to calculate an estimated take from the proposed bridge corridor on the Illinois bank.

- The 2014 quantitative data were also used to calculate the proportion of mussels ≤1 inch in size for each of the surveyed areas. The proportion of mussels ≤1 inch was multiplied by the estimated number mussels of each species to split out the mussels ≥1 inch in size from those that are small and may be missed during the relocation effort. The overall proportion of individuals ≤1 inch in size, rather than the species-specific proportions of juveniles, was used because there were several species for which small individuals were not collected. The intent was to account for the fact that there are likely small individuals of those species present even if they were not found during the survey.

  In some areas, there were some species that were not collected in quantitative samples, but were collected in qualitative samples. For those species, the assumption was made that the relative abundance is equal to half the relative abundance of the least common species found in the quantitative samples.

Spectaclecase Mussels

Take estimates for the spectaclecase mussel were calculated differently than all other species. Given that this species is primarily found adjacent to existing bridge piers, and suitable habitat is not present in the proposed bridge alignment, the assumption was made that this species would only occur near piers in the existing bridge alignment within the action area. A shapefile was created of the existing bridge piers using plans provided by the Iowa DOT, an approximately 16.4-foot (5-meter) buffer was added around each pier (treating each pair of piers as a single unit), the area of the piers themselves was subtracted out of the total area, and the resulting buffer was clipped to the survey areas to eliminate any buffer areas that ended up on land. The Calculate Geometry feature was used to obtain the area of each resulting 16.4-foot (5-meter) pier buffer. The buffered pier area was multiplied by the average density in the action area to estimate the number of mussels in the pier areas. That number was then multiplied by the relative abundance of spectaclecase mussels collected in qualitative samples (ESI 2014) to get an estimate of the number of spectaclecase mussels around the piers.

Take Estimates by Species

Detailed results of the take calculations for federal and state-listed mussel species is found at the end of this attachment. The total take estimates as a result of construction and demolition activities (with the exception of the silt curtain placement) for each of the federal and state-listed mussel species are summarized in the table below. Construction estimates include estimated take as a result of the storm sewer outfall projects.

Species	Take Estimate – Illinois		Species Total
	Construction	Demolition	
Higgins eye pearlymussel	2,219	1,115	**3,334**
Spectaclecase Mussel	0	406	**406**
Sheepnose Mussel	557	298	**855**
Butterfly[1]	11,045	3,707	**14,752**
Ebonyshell[1]	0	0	**0**
Black Sandshell[1]	37,567	15,694	**53,261**
Purple Wartyback[1]	225	204	**429**
Spike[1]	225	204	**429**

[1]State-listed species – Illinois
[2]No live specimens found during 2015 survey; one weathered dead shell collected

The following table summarizes the results of take calculations for federal and state-listed mussel species as a result of silt curtain anchor placement.

Species	Take Estimate – Illinois	Species Total
Higgins eye pearlymussel	3	**3**
Spectaclecase Mussel	0	**0**
Sheepnose Mussel	1	**1**
Butterfly[1]	12	**13**
Ebonyshell[1,2]	0	**0**
Black Sandshell[1]	51	**51**
Purple Wartyback[1]	1	**1**
Spike[1]	1	**1**

[1]State-listed species – Illinois
[2]No live specimens found during 2015 survey; one weathered dead shell collected

Table 1. Estimated take of unionids within the outfall Action Area.

Species	Total Est. No. Live [1]	Est. No. Live >25mm	Est. No. Live ≤25mm [2]	90% relocated: Adults left behind [3]	90% relocated: Relocated [4]	90% relocated: Relocation Mortality [3]	90% relocated: Total mortality [3]	90% relocated: Total successfully relocated [4]
Plethobasus cyphyus	**7**	**5**	**2**	**0**	**4**	**0**	**3**	**4**
Ellipsaria lineolata	**52**	**38**	**15**	**4**	**34**	**2**	**20**	**32**
Lampsilis higginsii	**20**	**14**	**6**	**1**	**13**	**1**	**8**	**12**
Ligumia recta	**190**	**137**	**53**	**14**	**123**	**6**	**73**	**117**

[1] Estimated total number of animals = area of Action Area segment (193 m^2) * average density in Action Area segment (23.4/m^2). Estimated number of each species = relative abundance of each species in 2014 quantitative samples (Area A within 50 m of bank) * estimated total number of animals in Action Area segment.

[2] Considered "harmed," as animals this small will likely be missed in relocation. Calculated by multiplying overall proportion of individuals ≤25mm (2014 data) by estimated number of each species in Action Area segment.

[3] Considered "harmed:" No. ≤25mm + some individuals will be missed during relocation (10%) + some individuals may not survive relocation (5% of relocated mussels).

[4] Individuals successfully relocated; considered "harassed."

Table 2. Estimated take of unionids at IL Piers 1-5 plus 10 m buffers.

Species	Total Est. No. Live [1]	Est. No. Live >25mm	Est. No. Live ≤25mm [2]	90% relocated: Adults left behind [3]	90% relocated: Relocated	90% relocated: Relocation Mortality [3]	90% relocated: Total mortality [3]	90% relocated: Total successfully relocated [4]	Total in IL bank AA	Total no. live in area not relocated	Left behind in direct impact areas (Piers 6-8)	Left behind in direct impact areas (<8 ft [dredging]) [5]	Left behind in secondary impact areas [6]
Elliptio dilatata [7]	**132**	**107**	**25**	**11**	**96**	**5**	**41**	**91**	**225**	**93**	**1**	**92**	**6**
Plethobasus cyphyus	**263**	**213**	**50**	**21**	**192**	**10**	**81**	**182**	**550**	**286**	**2**	**283**	**11**
Cyclonaias tuberculata [7]	**132**	**107**	**25**	**11**	**96**	**5**	**41**	**91**	**225**	**93**	**1**	**92**	**6**
Ellipsaria lineolata	**5,268**	**4,265**	**1,003**	**427**	**3,839**	**192**	**1,621**	**3,647**	**10,993**	**5,725**	**40**	**5,657**	**219**
Lampsilis higginsii	**1,054**	**853**	**201**	**85**	**768**	**38**	**324**	**729**	**2,199**	**1,145**	**8**	**1,131**	**44**
Ligumia recta	**17,911**	**14,501**	**3,409**	**1,450**	**13,051**	**653**	**5,512**	**12,399**	**37,377**	**19,466**	**134**	**19,235**	**746**

[1] Estimated total number of animals = area of Action Area segment (12,146 m^2) * average density in Action Area segment (31.9/m^2). Estimated number of each species = relative abundance of each species in 2014 quantitative samples (Areas A, B, and C combined) * estimated total number of animals in Action Area segment.

[2] Considered "harmed," as animals this small will likely be missed in relocation. Calculated by multiplying overall proportion of individuals ≤25mm (2014 data) by estimated number of each species in Action Area segment.

[3] Considered "harmed:" No. ≤25mm + some individuals will be missed during relocation (10%) + some individuals may not survive relocation (5% of relocated mussels).

[4] Individuals successfully relocated; considered "harassed."

[5] Based on 2009 bathymetric data from the Corps of Engineers.

[6] Secondary impact areas = portions of the Illinois bank Action Area (bank to edge of Pier 8) that will not be directly affected by pier construction or dredging (depths >8 ft).

[7] Species not collected in 2014 survey; assigned half the relative abundance of the least common species collected in 2014 survey.

Table 3. Estimated take of unionids within the old bridge Action Area, total Illinois segment.

Species	Total Est. No. Live [1]	Est. No. Live >25mm	Est. No. Live ≤25mm [2]	90% relocated: Adults left behind [3]	90% relocated: Relocated [4]	90% relocated: Relocation Mortality [3]	90% relocated: Total mortality [3]	90% relocated: Total successfully relocated [4]
Cumberlandia monodonta [5]	**406**	**406**	**0**	**41**	**365**	**18**	**59**	**347**
Elliptio dilatata [6]	**204**	**158**	**46**	**16**	**142**	**7**	**69**	**135**
Plethobasus cyphyus	**298**	**215**	**84**	**21**	**193**	**10**	**115**	**184**
Cyclonaias tuberculata [6]	**204**	**158**	**46**	**16**	**142**	**7**	**69**	**135**
Ellipsaria lineolata	**3,707**	**2,949**	**758**	**295**	**2,654**	**133**	**1,186**	**2,521**
Lampsilis higginsii	**1,115**	**849**	**266**	**85**	**764**	**38**	**389**	**726**
Ligumia recta	**15,694**	**12,794**	**2,899**	**1,279**	**11,515**	**576**	**4,755**	**10,939**

[1] Estimated total number of animals = IL old bridge bank + IL old bridge RW. Estimated number of each species = IL old bridge bank + IL old bridge RW

[2] Considered "harmed," as animals this small will likely be missed in relocation. IL old bridge bank + IL old bridge RW

[3] Considered "harmed:" No. ≤25mm + some individuals will be missed during relocation (10%) + some individuals may not survive relocation (5% of relocated mussels).

[4] Individuals successfully relocated; considered "harassed."

[5] Calculated as IL old bridge bank + IL old bridge RW

[6] Species not collected in 2014 survey; assigned half the relative abundance of the least common species collected in 2014 survey.

[7] Species not collected in quantitative samples; assigned half the relative abundance of the least common species in quantitative samples.

ATTACHMENT F

IOWA DOT SPECIAL PROVISIONS

SP- 150XXX
(New)

SPECIAL PROVISIONS
FOR
ENVIRONMENTAL PROTECTION

Scott and Rock Island Counties

Effective Date
[Insert Effective Date]

THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

150XXX.01 DESCRIPTION

A. The work under this contract is located in an environmentally sensitive area within or near the Mississippi River (the River). The Contractor's work area shall be restricted to the minimum to construct the project and to accomplish related work. Contractor shall make every reasonable effort to execute the construction in a manner so as to minimize any adverse impact of the construction or work on fish, mussels, wildlife, or natural areas.

B. Areas disturbed by excavation for construction of haul roads, docks and other permanent or temporary structures, shall be restored to original contours as noted in contract documents. Areas required for equipment movement, offices, stockpiling, service repairs, and storage shall be kept to a minimum and shall be restricted to the boundaries noted in the plans and contract documents.

150.XXX.02 WORK ZONE REQUIREMENTS

A. The I-74 corridor project area crosses the Mississippi River which is an environmentally sensitive resource. All construction activity in the Mississippi River, along its riverbank, and within the area that drains into the Mississippi River should be considered work in an environmentally sensitive area. Work on the Illinois side of the river should be considered work in a particularly sensitive area.

B. Any construction related conditions deemed to be potentially damaging to environmentally sensitive resources by the Engineer shall be rectified immediately or construction will cease until such time as the condition is rectified. At the discretion of the Engineer, construction activities may resume once provisions to rectify the situation are made. The Contractor shall confine equipment and operations to the project right-of-way shown in the contract documents. These designated construction zones shall be protected with temporary sediment control measures in accordance with the details in the contract documents. No work shall commence on this contract until temporary erosion control and sediment control measures identified in the plans have been installed.

C. Any erosion control and sediment control measures implemented, on land or water, shall remain in place and maintained until construction in the area is completed.

D. No tributaries, oxbows or other backwater areas will be "cut off" or blocked from normal flow conditions. Recreational boat traffic closures may be necessary in the area of Sylvan Slough due to construction activities. The contractor is required to secure necessary permits and clearances for closure of any portion of the River.

E. Any sediment control measures implemented, on land or water, shall remain in place and maintained until construction in the area is completed. For areas on the river bank, sediment control measures shall remain in place and be maintained until the area has been stabilized with temporary or permanent seeding. All earthwork operations on shore will be carried out in such a manner to ensure no sediment runoff and soil erosion will enter the river.

F. Temporary sediment control measures removed or damaged due to construction activities or high water levels shall be replaced or repaired, where possible, within the emergency mobilization time of 8 hours or within standard mobilization time of 72 hours. If it is not possible to meet the designated time frames, sediment controls shall be replaced prior to recommencing work that would cause turbidity issues in the water.

G. The clearing of vegetation will be limited to that which is absolutely necessary for construction and operation of the project. All areas disturbed by construction activities and not covered with riprap shall be re-seeded with native grass mix according to Article 2601.03.C,5, of the Standard Specifications, unless otherwise specified in the contract documents. All re-vegetated areas shall be monitored to make certain they succeed.

H. Removal and replacement of any revetment stone placed as part of the project should yield a structure with no significant change in gradation. Any damaged stone shall be replaced with new stone to ensure proper gradation.

I. Any and all barges and other water craft used for construction activities, shall be inspected for the presence of zebra mussels prior to placing the barges into the Mississippi River. Barges shall be completely out of the water for 10 days with all compartments opened that could potentially contain water and therefore harbor adult, larval or juvenile zebra mussel. This will ensure proper drying of the barge(s) and reduction of potential infestation. If the barge is obtained from a local source, United States Fish and Wildlife Service, Illinois Department of Natural Resources and Iowa Department of Natural Resources staff must still be contacted to discuss previous locations at which the barge has been used.

J. The U.S. Army Corps of Engineers (USACE) shall be notified if temporary work is constructed and when it is removed from the river. All temporary construction required shall be removed from the River in its entirety once it is no longer needed for construction of the project. If dredging is needed around the temporary slips to convey barges and the discharge will be placed back into the Mississippi River, the USACE shall be notified of the location of dredging, amount to be dredged, and any required Section 401 water quality testing prior to any discharge of dredged material. Should dredged or excavated material be deposited on the shore before being hauled away, silt fences, perimeter and slope sediment control devices, or low silt berms shall be required to limit the reentry of sediments into the river. In addition, the materials shall be placed in a confined area, not classified as a wetland. All temporary construction required shall be removed from the Mississippi River in its entirety once it is no longer needed for construction of the project.

K. Temporary construction in the River may include an appropriate combination of barges, temporary slips, temporary supports (falsework), and temporary cofferdams. **An elevated earthen/sand/rock work platform (causeway or equipment pad) shall not be used for any**

construction; fills in the River for temporary crossings, causeway, or equipment pad structures are not permitted.

L. A plan for all temporary construction needed shall be submitted to and approved by the USACE and the Office of Location and Environment (OLE) prior to installation. The plan must include but is not limited to the location identified on an aerial photo, the dimensions, construction methods, duration of use and measures that will be used to control turbidity and/or sedimentation. The Contractor shall submit the plan for all temporary construction to the Engineer prior to commencing work. Once approved by the USACE and/or the OLE, the Engineer will notify the Contractor of approval.

M. The substantial girder lengths may require the girders be constructed in segments; therefore, temporary supports may be required. These supports could essentially consist of temporary piers necessary to support girder segments prior to final assembly. Any temporary support work outside of the navigation channel shall be restricted to the work area identified in Special Provision for Mussel Conservation. Temporary supports shall be promptly removed from the River following final girder assembly.

N. If dredging is needed to convey barges the discharge will not be placed back into the River. The USACE shall be notified of the location of dredging, amount to be dredged, and any Section 401 water quality testing required by the Iowa Department of Natural Resources prior to any discharge of dredged material. Should dredged or excavated material be deposited on the shore before being hauled away, silt fences, perimeter and slope sediment control devices, or low silt berms shall be required to limit the reentry of sediments into the river. In addition, the materials shall be placed in a confined area, not classified as a wetland.

O. Prior to commencement of hydraulic dredging, the applicant shall perform a modified elutriate test procedure to predict the effluent quality or the total concentration of contaminants in the effluent. This test simulates the processes occurring during confined disposal and provides information on the dissolved and particulate contaminant concentrations. Results of the elutriate test shall be forwarded to the Iowa Department of Natural Resources and Illinois Department of Natural Resources when available. Should test results prove unsatisfactory, the Iowa Department of Natural Resources or Illinois Department of Natural Resources may amend this Certification to assure that effluent water quality requirements are met. Please note that if mechanical dredging is performed, the testing will not be required.

P. Native materials removed from cofferdams may be replaced in the cofferdam. Other than replacing native materials, any fill materials introduced into the River must be clean (meaning less than 10% fines that would pass through a #200 sieve). Areas disturbed by dredging shall be backfilled with special revetment. Dredging and backfill is included in project BRFIM-074-1(197)5—05-82 and project BRFIM-074-1(198)5—05-82.

Q. The Contractor shall remove any debris from the water or the river bed as soon as practicable during the same work day in order to prevent the accumulation of unsightly, deleterious, and /or potentially polluted materials, as directed by the Engineer. The Contractor shall also implement measures to prevent debris from falling into the river. Should debris enter the river, it shall be retrieved immediately. Debris will not be allowed to collect on the bottom of the river.

R. No materials, including cleared and grubbed vegetation or construction debris, shall be disposed of in such a way that it could enter a wetland or waterway.

S. The contractor shall perform his work in such a way to ensure that no wet or dried concrete shall enter the River, any waterway or wetlands. If concrete does enter these areas the Contractor shall be solely responsible for any remediation necessary. Wash concrete trucks out in such a manner that wash water cannot enter the River, waterway, or wetlands. If a designated area is constructed or identified, that location shall be included in the temporary construction plans.

T. Care shall be taken to prevent materials spilled or stored on site from washing into any wetland or waterway as a result of cleanup activities, natural runoff, or flooding, and that, during construction, any materials, which are accidentally spilled into these areas, will be retrieved.

U. No fuels, lubricants, form oil, or similar products shall be stored in an area that has not been protected by a berm or other spill materials within the project area. All handling and storage of these materials must be done in such a manner as to comply with federal Spill Prevention Control and Countermeasure regulations and protect all water bodies from accidental spills and leaks.

V. The contractor shall perform his work in such a way as to prevent materials spilled or stored on site from washing into the River or any wetland or waterway as a result of cleanup activities, natural runoff, or flooding. If, during construction, any materials are accidentally spilled into these areas, the materials will be retrieved and/or remediated immediately.

W. Spill protection material (i.e., spill kit) shall be readily available at the project site, and on work barges, to contain and absorb accidental spills of fluids from construction equipment. Personnel trained in the implementation of the spill kit shall be readily available onsite to respond to accidental spills.

X. The Iowa Department of Natural Resources regulates open burning and administers regulations that pertain to fugitive dust and opacity (visible emissions). In general “open burning” is prohibited except for the special exemptions listed in the state open burning rules. The open burning rules are contained in 567 IAC rule 23.2(455B). In addition there are a number of definitions in 567 Chapter 20 that are applicable to open burning. The IAC is available on-line at www.legis.state.ia.us/IAChtml. In general, owners or operators must take reasonable precautions to prevent fugitive dust from becoming airborne and crossing the property line. These regulations are contained in 567 IAC paragraph 23.3(2)”c”, and can be found at the website above. In general, visible emissions in excess of 40 percent opacity are not allowed unless specifically exempted under rule. The rules for opacity are under paragraph 567 IAC 23.3(2)”d”, and can be found at the website above.

150XXX.03 PROTECTED SPECIES

A. Sylvan Slough, downstream of the project area, has been identified by the US Fish and Wildlife service as an Essential Habitat Area for the federally endangered Higgins eye pearly mussels. In addition, Sylvan Slough is inhabited by two other federally endangered mussels, spectacle case mussel and sheepnose mussel. Please refer to Special Provision for Mussel Conservation for more information on protecting threatened and endangered species.

B. Attention is directed to the Migratory Bird Treaty Act (15 USC 703-711) 50 CFR Part 21 and 50 CFR Part 10 that protect migratory birds, their occupied nests, and their eggs from disturbance or destruction. Activities that are likely to result in disturbance or destruction of migratory birds include but are not limited to clearing and grubbing, as well as structure cleaning, painting, demolition or reconstruction where bird nests are present. To protect migratory birds, do not conduct construction activities where active nests are present between the dates April 1 and July 15 inclusive or until the birds have fledged and left the structure. If evidence of migratory bird nesting is discovered after beginning work or in the event that migratory bird nests become established, immediately stop work and notify the Engineer.

C. Removal of trees is prohibited between the dates of April 1 to September 30 inclusive to avoid Indiana bat and northern long-eared bat habitat.

D. Removal of trees is prohibited between the dates of December 15 to February 20 to protect bald eagles.

E. If during the course of construction, any discoveries of protected plant or animals are made in the project area, the Contractor should notify the Engineer immediately.

150XXX.04 CLEAN WATER ACT COMPLIANCE

A. A Clean Water Act Section 404 Permit has been obtained by the Contracting Authority that authorizes all construction-related activities affecting waters of the U.S. The 404 Permit contains numerous special conditions, all of which may not have been included in this Special Provision. Failure to follow the provisions of the 404 Permit or this Special Provision may result in enforcement actions being initiated by the USACE. Enforcement actions may include an order to immediately cease all construction activity and/or fines.

B. It will be the Contractor's responsibility to ensure that the day-to-day operations of the project comply with this Special Provision. The Engineer will be available throughout the project to offer guidance to the Contractor regarding compliance with this Special Provision and the Clean Water Act.

C. Included with the Clean Water Act Section 404 Permit are Section 401 Water Quality Certifications from Iowa Department of Natural Resources and the Illinois Department of Natural Resources, which contain numerous special conditions are included by reference in this Special Provision.

D. It is the goal of Iowa's and Illinois' Water Quality Standards that all uses of the Mississippi River be maintained and protected. The dredging will cease if the water quality standards of either the State of Iowa or the State of Illinois are violated.

150XXX.05 PAYMENT

A. No separate payment will be made for costs incurred due to compliance with this Special Provision.

B. No additional time will be provided to the contract unless approved in writing by the Engineer.

SP- 150XXX
(New)

SPECIAL PROVISIONS
FOR
MUSSEL CONSERVATION

Scott and Rock Island Counties
BRFIM-074-1(197)5—05-82
BRFIM-074-1(198)5—05-82

Effective Date
[Insert Effective Date]

THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

150XXX.01 DESCRIPTION

A. The work under this contract is located in an environmentally sensitive area within the Mississippi River (the River). This work has the potential to impact state and federally threatened and endangered mussels living in the River. In environmentally sensitive areas of the River the Contractor's work area shall be restricted to the areas shown on Figure 1 to construct the project and to accomplish related work. Contractor shall make every reasonable effort to execute the construction in a manner so as to minimize any adverse impact of the construction or work on fish, mussels, wildlife, or natural areas. Contractor's work is not restricted outside of the work areas identified on Figure 1 and the restricted areas on Figure 2.

B. Areas required for equipment movement, stockpiling, service repairs, and storage shall be kept to a minimum and shall be restricted to occur within the boundaries noted in Figure 1 in the River and outside of the areas noted on Figure 2 on the Illinois and Iowa banks of the River.

150XXX.02 WORK ZONE REQUIREMENTS

A. The project area crosses the Mississippi River which is an environmentally sensitive resource. All construction activity in the Mississippi River, along its riverbank, and within the area that drains into the Mississippi River should be considered work in an environmentally sensitive area. Work on the Illinois side of the river should be considered work in a particularly sensitive area. The specific project area addressed in this Special Provision is within the River. All of these areas are environmentally sensitive resources.

B. Any construction related conditions deemed to be potentially damaging to environmentally sensitive resources by the Engineer shall be rectified immediately or construction will cease until such time as the condition is rectified. At the discretion of the Engineer, construction activities may resume once provisions to rectify the situation are made.

C. The Contractor shall confine equipment and operations in the River to the project areas shown in Figure 1. These designated construction zones shall be protected with temporary sediment control measures in accordance with the details in the contract documents. No work shall commence on this contract until temporary sediment control measures identified in the plans have been installed.

D. Concurrently with construction, prior to work in the water, silt curtains shall be deployed as depicted in Figure 1 and as detailed in projects BRFIM-074-1(197)5—05-82 and BRFIM-074-1(198)5—05-82. Any additional sediment control measures will be employed as needed, and at the Engineer's discretion, to protect waters of the U.S., threatened and endangered mussels and the City of Moline drinking water intake.

E. Construction in the River will require access to the River via the Iowa or Illinois bank. Figure 2 identifies areas that are restricted from being used as River access due to endangered mussel inhabitation. No river access will be allowed within the restricted areas identified on Figure 2.

F. Areas disturbed by dredging shall be backfilled with special revetment.

G. It is the goal of Iowa's and Illinois' Water Quality Standards that all uses of the River be maintained and protected. The dredging will cease if the water quality standards of either the State of Iowa or the State of Illinois are violated.

150XXX-03 PROTECTED SPECIES

A. Sylvan Slough, downstream of the project area, has been identified by the US Fish and Wildlife service as an Essential Habitat Area for the federally endangered Higgins eye pearly mussels. In addition, Sylvan Slough is inhabited by two other federally endangered mussels: spectacle case mussel and sheepnose mussel.

B. If during the course of construction, any discoveries of additional protected plant or animals are made in the project area, the Contractor shall notify the Engineer immediately.

C. It will be the Contractor's responsibility to ensure that the day-to-day operations of the project comply with this Special Provision. The Engineer will be available throughout the project to offer guidance to the Contractor regarding compliance with this Special Provision. Any environmental monitoring, required by the US Fish and Wildlife Service, of environmentally sensitive areas or areas where mussels could be present will be performed by the contracting authority or its designee and coordinated with the contractor through the Engineer.

150XXX.04 MATERIALS

A. Backfill for areas disturbed by dredging (special revetment) is included in project BRFIM-074-1(197)—05-82 and project BRFIM-074-1(198)—05-82.

B. Silt curtain is included in project BRFIM-074-1(197)5—05-82 and project BRFIM-074-1(198)—05-82.

150XXX.05 PAYMENT

A. Except as specified in the Material Section above, no separate payment will be made for costs incurred due to compliance with this Special Provision.

B. No additional time will be provided to the contract unless approved in writing by the Engineer.

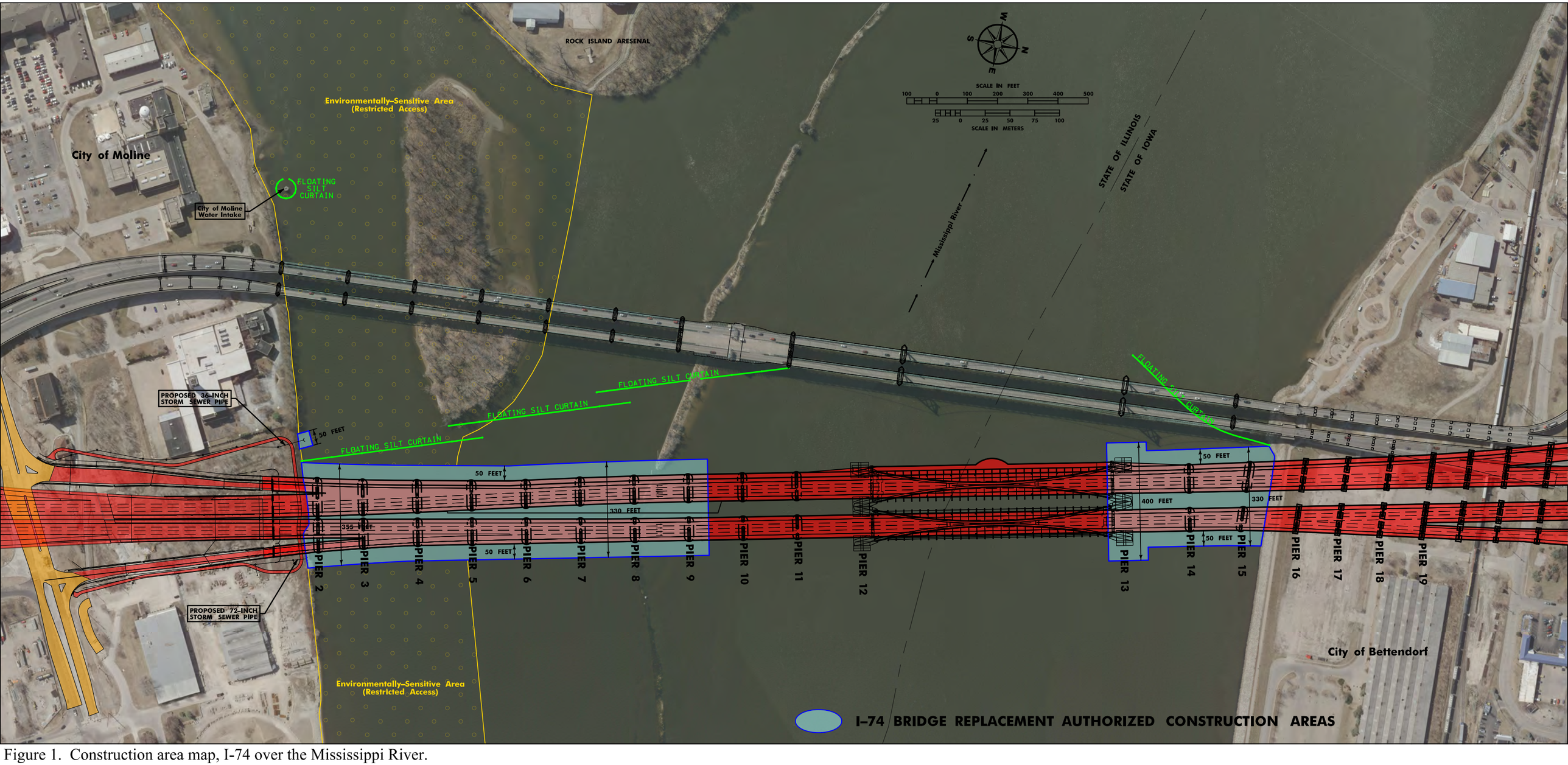

Figure 1. Construction area map, I-74 over the Mississippi River.

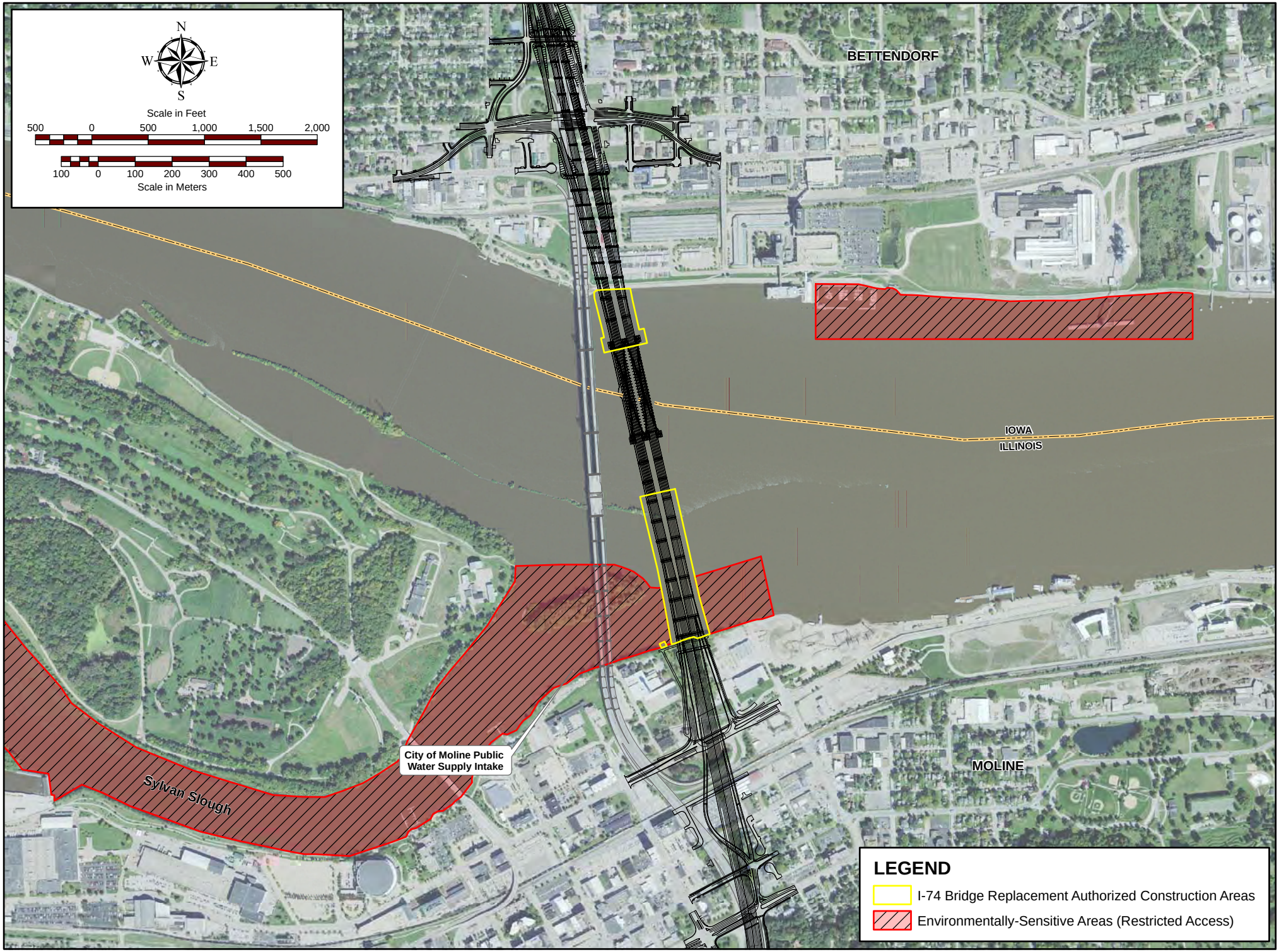

Figure 2. Project constraints map, I-74 over the Mississippi River.

ATTACHMENT G

RELOCATION PLAN

I-74 Relocation Plan

New bridge - Illinois bank

Eleven piers will be constructed on the Illinois bank. Mussel density was high near the bank, averaging 31.9 mussels/m^2 from the Illinois bank to halfway between Piers 5 and 6. Density decreased sharply to 0.4 mussels/m^2 riverward of this point. Much of the area from the bank to Pier 5 is <6 ft deep (based on bathymetry data from the Corps of Engineers) and may need to be dredged to allow barge access. Although these mussels may be affected by construction, to reduce the relocation effort to a more manageable level, mussels will only be relocated from around the first 5 piers on the Illinois bank, plus 10-m buffers around each pier footprint. Each pier + buffer area will therefore be approximately 90 m long and 30 m wide. Based on the estimated density, approximately 387,447 mussels could occur in the pier construction zones. The construction area and buffer zone will be delineated with lines and buoys, and will be divided into 3 m x 10 m (10 ft x 30 ft) cells. A diver will search each cell by hand, disturbing the top 10 cm of substrate, and collecting all mussels encountered. The number of mussels collected in each cell will be recorded. To ensure that at least 90% of mussels are removed, additional searches of each cell will be conducted until the final search yields <10% of the cumulative number of mussels collected in that cell.

Collected mussels will be brought to the surface, counted, and placed in mesh bags suspended in flowing water or in holding tanks equipped with well pumps and aerators to refresh the water before being transported to the processing area by boat (proposed processing location is on the Illinois bank, under and adjacent to the existing bridge). Mussels may be briefly (<5 min) exposed to air during transport, but will be replaced in flowing river water or holding tanks while awaiting processing. Common species will be identified, categorized as adult (>5 years old) or juvenile (≤5 years old), and etched with a slash on the anterior edge of the shell. State-listed species will be identified, measured (length in mm), aged (external annuli count), and etched with a slash on the anterior edge of the shell. Federally listed species will be identified, measured (length, width, and height in mm), aged, and marked with a unique ID number; *Lampsilis higginsii* and *Plethobasus cyphyus* will be marked with a Dremel tool, while PIT tags will be affixed to *Cumberlandia monodonta* (if encountered). Exposure to air will be limited to 5 min or less during processing.

Common and state-listed species will be placed in quadrants doubling and tripling resident density at 3 of the recipient sites (Illiniwek Park, Eagle's Landing, and Upstream). Each mussel's placement location will be randomly selected by rolling dice or drawing a number from a hat. *Lampsilis higginsii* and *P. cyphyus* will be placed in grids at the same 3 recipient sites; the site and grid cell will be randomly selected for each mussel. *Cumberlandia monodonta* will be placed at previously selected *C. monodonta* recipient sites (ESI, 2015). Monitoring of previously relocated *C. monodonta* suggests that the Sylvan Slough recipient site is most suitable for placement of additional individuals; therefore, any *C. monodonta* encountered in this relocation will be placed at the Sylvan Slough site. Processed mussels will be transported by boat to their respective placement locations. Mussels will be sorted into bags by placement location; bags will be placed in a holding tank in the transport boat to minimize exposure to air. Common and state-listed species will be distributed throughout their respective placement locations from the surface. *Lampsilis higginsii* and *P. cyphyus* will be

hand-placed in their respective grid cells, and *C. monodonta* will be hand-placed at the Sylvan Slough site near the previously relocated individuals. The transport boat will make frequent trips to the recipient sites to minimize the total holding time.

New bridge - Iowa bank

Three piers will be constructed on the Iowa bank. Mussel density along the Iowa bank averaged 2.1 mussels/m^2. Substrate in the proposed pier construction areas (determined during the 2014 survey; ESI, 2014) was primarily bedrock or sand, and most mussels were found in small patches of sand, silt, and clay. Additionally, most of the area between the piers is >8 ft deep and should not be affected by construction equipment. We therefore propose to relocate mussels from the new pier construction areas within a 5-m buffer around each proposed pier footprint. The 2 shoreward piers plus buffers are approximately 80 m long x 20 m wide, while the riverward pier plus buffer is approximately 100 m long x 40 m wide. Based on this density, approximately 14,350 mussels could occur in the pier construction zones. The construction area and buffer zone will be delineated with lines and buoys. Divers will conduct an initial reconnaissance within each delineated pier polygon to determine areas with suitable habitat (i.e., heterogeneous mix of silt, sand, clay, gravel). Collecting effort will be concentrated within suitable habitat areas. At least one dive day of effort per pier will be spent relocating mussels from each of the 3 piers in the Iowa bank channel border. One day should be sufficient to collect the majority of mussels at each pier; however, if density is greater than anticipated, a second dive day may be required. A dive day will consist of 6-8 hours of diving with one diver in the water.

Collected mussels will be transported to the processing area and processed as described above. Placement locations for federally listed species will be the same as those used for the Illinois bank (randomized grid cells for *L. higginsii* and *P. cyphyus*, Sylvan Slough site for *C. monodonta*). A denser assemblage of mussels (8/m^2) was found within 70 m of the Iowa bank between the new bridge corridor and the existing casino boat upstream. Common and state-listed mussels collected from the Iowa piers will be distributed from the surface throughout this area.

Existing bridge

Although detailed plans have not yet been developed, it is assumed that mussels will need to be relocated from at least a portion of the existing bridge action area prior to demolition. Approximately 308,800 mussels may occur in the Illinois portion of the action area, and an additional 3,500 may occur in the Iowa portion. Collection areas will be divided into cells and searched until at least 90% of mussels have been removed, as described above.

Collected mussels will be transported to the processing area and processed as described above. Placement of federally listed species will likely follow the methods proposed for relocation in the new bridge corridor (grids for *L. higginsii* and *P. cyphyus*, previously identified recipient sites for *C. monodonta*); the site(s) to be used will be determined at a later date. Common and state-listed species will be distributed among portions of the Illiniwek Park, Eagle's Landing, or Upstream sites that were not used in the new bridge relocation, or at the Buffalo and/or Fairport sites.

ATTACHMENT H

MONITORING PLAN

I-74 Mussel Relocation and Monitoring

1) Density Study at Recipient Sites

Relocation of unionids from the I-74 bridge footprint provides an opportunity to investigate the effects of increasing resident unionid density at varying rates in recipient sites. Anecdotal evidence suggests that unionid communities often return to pre-relocation densities over time, and that increasing density by a large percentage may be detrimental. To examine the effects of density increases in resident unionid communities, a subset of unionids relocated from the I-74 bridge will be placed in recipient sites in varying numbers, and will be monitored over time.

The proposed density study will take place in 3 different recipient sites to determine if different unionid beds may have different carrying capacities, and to allow results to be replicated. Each recipient site will be divided into 4 quadrants of approximately equal area. One quadrant will be reserved for monitoring of federally endangered species (described below). The remaining 3 quadrants will be used for the density study. Prior to the relocation effort, 80 quantitative samples will be conducted in each of the 3 quadrants at the 3 recipient sites (240 samples at each site; 720 total samples) to estimate density with 15-20% precision. Samples will be randomly distributed in each quadrant.

During the relocation effort, mussels will be placed at the recipient sites in varying densities. One quadrant will serve as a control; no mussels will be placed in this quadrant. Mussel density will be doubled in the second quadrant, and tripled in the third quadrant. The number of mussels that can be placed in each quadrant is presented in Table 1. Mussel placement in the recipient site quadrants will be randomized. Each potential placement site (2 quadrants each at 3 recipient sites) will be assigned a unique number from 1 to 6. The number of the placement site for each relocated mussel will be selected using dice or by drawing numbers (1-6) from a hat.

Monitoring will be conducted in subsequent years to quantify changes in density over time. Random quantitative samples will be collected as in the initial sampling event. Sampling will occur annually for 2 years following the relocation (2017 and 2018), and at Years 5, 10, and 15 (2021, 2026, 2031).

2) Construction Area Monitoring

Sampling will be conducted in the new bridge footprint to quantify the effects of construction on unionids and to determine the rate at which unionids recolonize the construction area. Baseline quantitative data will be collected prior to construction (spring 2016) to allow for statistical comparison with future data. Quantitative samples will be used to determine unionid density and community metrics within the new bridge Action Area. To achieve a confidence interval within 20-25% of the mean, 100 samples will be collected in the Illinois portion of the action area. Samples will be arranged in a three random start design (Strayer and Smith, 2003) for statistical validity. Due to high variability in the Iowa action area, and because depths are great enough that construction barges should not directly impact the substrate,

samples in the Iowa action area will be concentrated around the shoreward pier. Twenty (20) quantitative samples will be collected in and adjacent to the pier footprint, and 30 samples will be collected outside the pier footprint. Data will be used to evaluate unionid species composition, community metrics, and density in the action areas.

Additional sampling will be conducted immediately after construction is complete (2017) to determine if unionids not relocated from the bridge area were impacted by construction. Quantitative samples will be collected as described above, and differences in community characteristics before and after construction will be noted. In addition, qualitative timed searches may be conducted around the new bridge piers to more effectively sample these areas and determine if unionid mortality may have occurred due to construction.

Monitoring the new bridge footprint with both quantitative and qualitative sampling will continue annually for the first 3 years following construction (2017, 2018, and 2019) and in Years 5, 10, and 15 (2021, 2026, and 2031). Continued monitoring will seek to describe unionid community changes, particularly mortality, and to document recolonization of unionids in the construction area.

3) <u>Recipient Site Monitoring</u>

Monitoring of federally endangered unionid species will be conducted to evaluate the health of unionids after relocation and to ensure that take estimates are not being exceeded. *Lampsilis higginsii* and *Plethobasus cyphyus* will be moved to general recipient sites identified in previous surveys; recipient sites and handling/monitoring procedures for *Cumberlandia monodonta* will be different due to this species' specific habitat requirements and are described below. All *P. cyphyus* and approximately 1000 *L. higginsii* will be placed in grids at 3 of the recipient sites. At each site, one 5 x 5 m grid will be established for placement of *P. cyphyus,* and two 5 x 5 m grids will be established for *L. higginsii.* Grids will be divided into 4 cells each. Relocated individuals will be marked with unique ID numbers, and will be measured (length, width, and height in mm), aged (external annuli count), and sexed (*L. higginsii*). Marked individuals will be hand-placed in grid cells at a rate not to exceed 50% of the existing density, and the grid cell in which each individual is placed will be recorded. Grids will be monitored to quantify survival, movement, and growth of relocated individuals. Each grid cell will be thoroughly searched by a diver, and any marked individuals found in grid cells will be processed as described above. Monitoring will be conducted annually for the first 2 years after relocation (2017 and 2018), and then at Years 5, 10, and 15 (2021, 2026, and 2031).

Cumberlandia monodonta is typically found in boulder or large rock substrate; therefore, the general recipient sites are not suitable for placement of this species. Several *C. monodonta* have been experimentally relocated to 3 sites harboring existing populations, and are currently being monitored using PIT tags. Any *C. monodonta* collected in the relocation effort will be measured and aged, and PIT tags will be affixed to the outer shell in the same manner as those individuals that have already been relocated (ESI, 2015). Tagged individuals will be hand-placed in 1 of the 3 recipient sites currently in use for this species. These sites will continue to be monitored to record survival of relocated *C. monodonta.*

Monitoring entails a diver passing a PIT tag reader over the substrate at the recipient sites while the topside crew directs the diver and informs him of any detections. If a tagged shell is detected, the diver will search the substrate by hand to locate the tagged mussel and determine if it is alive or dead. General notes about the position of mussels in the substrate, presence of resident (untagged) individuals, and habitat will also be recorded.