



**SPECIAL PROVISIONS
FOR
TEMPORARY DETOUR BRIDGE**

**Lucas County
BRFN-034-6(95)--38-59**

**Effective Date
December 21, 2021**

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.

150802.01 DESCRIPTION.

Design, furnish, instal, inspect, maintain, and remove a two lane bi-directional temporary detour bridge carrying US 34 Detour over Wolf Hollow. Traffic on US 34 over Wolf Hollow shall be maintained at all times during construction of the permanent bridge.

150802.02 DESIGN AND MATERIALS.

A. Design.

1. General.

- a. The temporary detour bridge is to be designed in accordance with the AASHTO LRFD Bridge Design Specification, 8th Edition, Series of 2017, by a Professional Engineer licensed in the State of Iowa. Fatigue does not need to be considered. The design vehicular live load shall be HL-93 and the bridge shall only be used for legal loads.
- b. Refer to the bridge plans and notes for the detour bridge layout requirements.

2. Superstructure.

- a. The superstructure shall be of the Contractor's choosing and design.
- b. The work for the superstructure includes rent, delivery and return, assembly, erection, disassembly and furnishing of any associated hardware.
- c. The superstructure shall be a prefabricated modular bridging system manufactured by one of the companies listed in Article SP-150802.02, B, 2, b.
- d. The bridge barrier rail shall meet MASH TL-4 safety performance criteria.
- e. Provide vehicle protection for the bridge barrier rail ends. The protection system shall meet MASH TL-3 safety performance criteria.
- f. A minimum 2 feet of Class E revetment underlain with engineering fabric is required. Place the revetment on the berms, bank and channel and wrap around the abutment to protect the upstream and downstream transition edges to elevation 875.00. Embed channel and bank revetment.
- g. The lowest elevation of superstructure shall be at or above elevation 876.62. Adjustments

to the detour profile and embankment quantities necessary to meet this elevation requirement will be incidental to the lump sum price for Temporary Detour Bridge Superstructure. Changes to the embankment shall remain within the temporary easement.

- h.** The flow area through the bridge, below elevation 872.6, shall be no less than 248 square feet. This minimum flow area is based on an estimated 40 foot clear span with 1:1 slope and spill through abutments. The adequacy of the provided flow area shall be verified by field measurement and approved by the Engineer before the bridge is open to traffic.
 - i.** Vertical abutments may provide an increase in flow area versus spill through abutments. Revetment quantities may be less for vertical abutments, but must provide adequate toe protection.
 - j.** Submit the revetment design to the Engineer for review in advance of installation.
- 3. Substructure.**
- a.** The substructure shall be of the Contractor's choosing and design.
 - b.** Design the substructure to accommodate the selected bridge manufacturer's bridging system and include any necessary earth retention systems required at the bridge corners.
 - c.** Design the substructure to accommodate the bridge approach pavement as detailed in the plans.
 - d.** The work shall include design, furnishing, installing and removing of abutment and pier foundations as required to sufficiently support the superstructure and retain the approaches as required.
 - e.** The Contractor shall retain a Professional Engineer licensed in the State of Iowa to determine the bearing capacity. Pile bent abutments are allowed. Shallow foundations, such as spread footings, are not allowed.
 - f.** Six subsurface soil borings (borings B-1 through B-6) are included in the bridge plans. This boring data can be used to design the foundation system. Rock core information and rock core compressive strength testing reports are available for borings B-4 and B-6. Laboratory data for Shelby tube samples taken from Borings B-1, B-4, B-5, and B-6 is available. This information is accessible electronically for aid in designing the substructure.
 - g.** Downdrag forces due to the settlement of compressible soils below fill shall be considered in the pile design.
- 4. Submittals.**
- a.** The submittals requiring written approval from the Engineer are as follows:

 - 1) Temporary detour bridge plans containing the following:**

 - a)** General notes sheet including all materials and design criteria.
 - b)** Site-specific proposed bridge elevations and a cross section depicting the proposed lowest elevation of superstructure in relation to the creek design-stage elevation.
 - c)** Bridge width. A minimum of 28 feet is required from curb to curb.
 - d)** Plan sheets showing span lengths, stationing, alignment and grades.
 - e)** Foundation layout sheet including abutment stationing and pile spacing.
 - f)** Pile data table showing pile type, size, capacity and estimated lengths.
 - g)** Substructure details including all reinforcing and elevations of the abutment and pier footings and caps.
 - h)** Substructure details for the bridge approach slab support.
 - i)** Bearing details as necessary.
 - j)** Bridge barrier rail end protection details.
 - k)** A parts list as required.
 - 2) Complete assembly and erection plans including installation procedures. This shall include procedures and methods to be used including crane capacity and location,**

equipment, tools, devices, etc. Steel erection shall be in accordance with the Standard Specifications.

- 3) Complete set of design calculations for the superstructure and substructure.
- b. Submittals shall be made electronically in accordance with Article 1105.03 of the Standard Specifications. The Engineer shall have 30 calendar days to review the submittal.

B. Materials.

1. General.

The temporary detour bridge may use timber, steel, concrete or any other material or combination of materials that are in sound condition, capable of safely carrying the specified loads, and meet the approval of the Engineer. All materials not specifically listed shall be in accordance with the requirements of the Standard Specifications.

2. Prefabricated Modular Bridging System.

- a. The bridging system shall meet the design loads and size criteria previously stated here and in the plans.
- b. The bridging system shall consist of one of the following:
 - 1) **Acrow 700XS Panel Bridge System**
Acrow Corporation of America
181 New Road
Parsippany, NJ 07054-5645
973-244-0080
 - 2) **The Bailey Bridge System**
Bailey Bridges, Inc.
201 63rd Street NE
Fort Payne, AL 35967
256-845-7575
 - 3) **Algonquin Bridge**
Algonquin Bridge
121 Gerald Parkway
Thorndale, Ontario
844-274-3535

150802.03 CONSTRUCTION.

A. General.

1. Do not commence construction until the submittals as previously described are approved by the Engineer.
2. Ensure the stability of the temporary detour bridge during erection, removal and at all times the bridge is in service.
3. Place an on-site mark or indicator at the critical water surface elevation. This mark will assist in determining when the bridge shall be inspected for integrity.

B. Inspection and Maintenance.

1. Inspect, repair and maintain the temporary detour bridge and barriers.
2. Prior to placing the temporary detour bridge into service, inspect the bridge with a representative from the selected bridge manufacturer to ensure correct assembly and erection. While the temporary detour bridge is in service, perform regular inspections as required to ensure the bridge and components are in safe operating condition.

3. Repair, replace or otherwise maintain all components of the temporary detour bridge as required to keep the bridge in safe operating condition.
4. Tighten or replace all loose and missing fasteners as required.
5. The Contractor shall always be on call while the temporary detour bridge is in service to make emergency repairs that may be required as a result of accidents or storms.
6. Repairs shall be made within 24 hours of a discovery of a defect.
7. Notify the Engineer 1 week prior to inspection to enable the Engineer to accompany the Contractor during the inspection.
8. Prepare reports of inspection, maintenance and repair activities and submit them to the Engineer. The reports shall itemize the following:
 - a. The date and time of the inspection.
 - b. General condition of the trusses, deck, floor beam system, connections, etc.
 - c. Repair and maintenance work performed.
 - d. Materials used.
9. Any damage caused by the Contractor shall be repaired at no additional cost to the State. Other damages caused by traffic or conditions beyond the Contractor's control shall be repaired, as directed by the Engineer, and will be paid for according to Article 1109.03, B of the Standard Specifications.

C. Bridge Removal.

Remove the temporary detour bridge in accordance with Section 2401 of the Standard Specifications when the detour is no longer required for traffic. Re-grade and restore the site to its original condition as directed by the Engineer. Return the temporary detour bridge to the supplier.

150802.04 METHOD OF MEASUREMENT.

Temporary Detour Bridge Superstructure measurement is Lump Sum. Temporary Detour Bridge Substructure measurement is Lump Sum.

150802.05 BASIS OF PAYMENT.

- A. Payment for Temporary Detour Bridge Superstructure will be the Lump Sum contract price. Payment will be full compensation for designing and providing necessary documentation, rent, delivery, assembling, erecting, disassembling, inspecting, maintaining and returning the temporary detour bridge superstructure. All costs for equipment, labor and materials needed to complete, make use of, and remove the temporary detour bridge superstructure shall be included in the contract price. This price includes the cost of barrier to protect bridge ends.
- B. Payment for Temporary Detour Bridge Substructure will be the Lump Sum contract price. Payment will be full compensation for designing and providing necessary documentation, furnishing, installing, inspecting, maintaining, and removing the temporary detour bridge substructure and revetment. All the cost for equipment, labor and materials needed to complete, make use of, and remove the temporary detour bridge substructure shall be included in the contract price, including additional borings/soil testing and any excavation necessary.
- C. For estimating partial payments, the Contractor will be paid 50% of the lump sum price for Temporary Detour Bridge Superstructure and Temporary Detour Bridge Substructure when the temporary detour bridge is installed and open to traffic. The remaining 50% of the lump sum price for these items will be considered for payment upon the restoration of the site as described above.