

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
METAL MESH PANELS

STM:JAB

1 of 6

APPR:KCK:REL:08-26-25
FHWA:APPR:08-26-25

a. Description. This work consists of taking and recording measurements, furnishing, fabricating, delivering, and installing framed mesh panels, or approved alternatives, to catch debris under bridge decks. Perform all work in accordance with the standard specifications and as described herein.

b. Materials. Use materials and coating processes meeting the requirements of sections 906 and 907 of the Standard Specifications for Construction. Furnish square tubing in accordance with *ASTM A513/A513M*. Furnish chain link fence fabric in accordance with *ASTM A392*. Furnish fence fittings and hardware in accordance with *ASTM F626*. Furnish bolts in accordance with *ASTM A307 Grade A*. Furnish nuts and washers in accordance with subsection 906.07 of the Standard Specifications for Construction. Ensure all materials are hot-dip galvanized in accordance with *AASHTO M111M/M111 (after welding is complete)* or *AASHTO M232M/M232*, as applicable.

Acceptance of fabricated elements will be based on "General Certification" per the *MQAP Manual*.

c. Construction.

1. **Furnishing and Fabricating.** Fabricate the panels in accordance with the details herein and section 707 of the Standard Specifications for Construction, except as modified herein. Perform welding in accordance with *AWS D1.1/D1.1M Structural Welding Code – Steel* (as modified by 20SP-707A – Structural Steel and Aluminum Construction). *AISC* certification is not required for the steel fabrication work. Bolted connections are required to be tightened to a snug-tightened condition. The snug-tight condition is the tightness that is attained with a few impacts of an impact wrench or the full effort of person using an ordinary spud wrench to bring the connected plies into firm contact.

Fabricate the steel frame using 11 gauge square tubing. The length of panel varies and is determined from the bridge beam spacing. The maximum allowable length for 4 foot wide panels is 6 feet 6 inches. The maximum allowable length for 2 foot wide panels is 9 feet. The panel length is typically determined by field measuring the beam web to web distance and subtracting 2 inches. Verify fit up prior to fabrication. Use panels with extensions as needed to avoid beam attachments.

Use 9 gauge wire with 1 inch openings for the chain link fabric. Tension with 1/2 inch - 9 gauge flat stock steel bars, attached to tube frame with 11 gauge steel clamps and 5/8 inch galvanized bolts, washers, and nuts.

Panel plans and details are shown in Figures 1 through 5 herein.

2. Alternative Designs. Submit alternative panel design that meets the following criteria. The submittal must include the MDOT issued acceptance letter of the tested product under subsection c.2.C of this special provision.

A. Submit complete working drawings and design calculations to the Engineer in accordance with subsection 104.02 of the Standard Specifications for Construction. Include details of fabrication, erection, and attachment to the existing structure. Show all details, dimensions, and cross-sections necessary to clearly indicate the anchorage of the alternate panels to the existing beams.

B. Design Criteria. The panels must utilize the 9 gauge wire with 1 inch openings called for in subsection c.1 of this special provision.

- 75 psf vertical downward
- 15 psf vertical upward
- 700 pound concentrated load distributed over one square foot to create maximum load effect

C. Testing and Evaluation. Ensure all alternative designs are tested under dynamic impact loading with a maximum permanent deflection of 6 inches when a 4 foot by 3.5 foot by 3.5 inch concrete block is dropped from a height of 5 feet. The test will be conducted on 2 complete panels and both must meet the criteria of this special provision. The test will be conducted at the MDOT structures laboratory in the spring and fall of each year. Contact the MDOT Structure Construction Unit at 517-898-3428 to schedule a test during the open testing periods. Supply all panel materials for the test. No alterations to the test specimens from the submitted working drawings are permitted. Submit complete working drawings as outlined in subsection c.2.A, 14 calendar days prior to the scheduled testing.

3. Shipping and Installing. Transport and unload panels without damage. Install panels between the beam line as directed by the Engineer.

d. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

Pay Item	Pay Unit
Metal Mesh Panels	Square Foot

Metal Mesh Panels includes taking and recording measurements, furnishing, fabricating, delivering, and installing the metal mesh panels as described and detailed in this special provision.

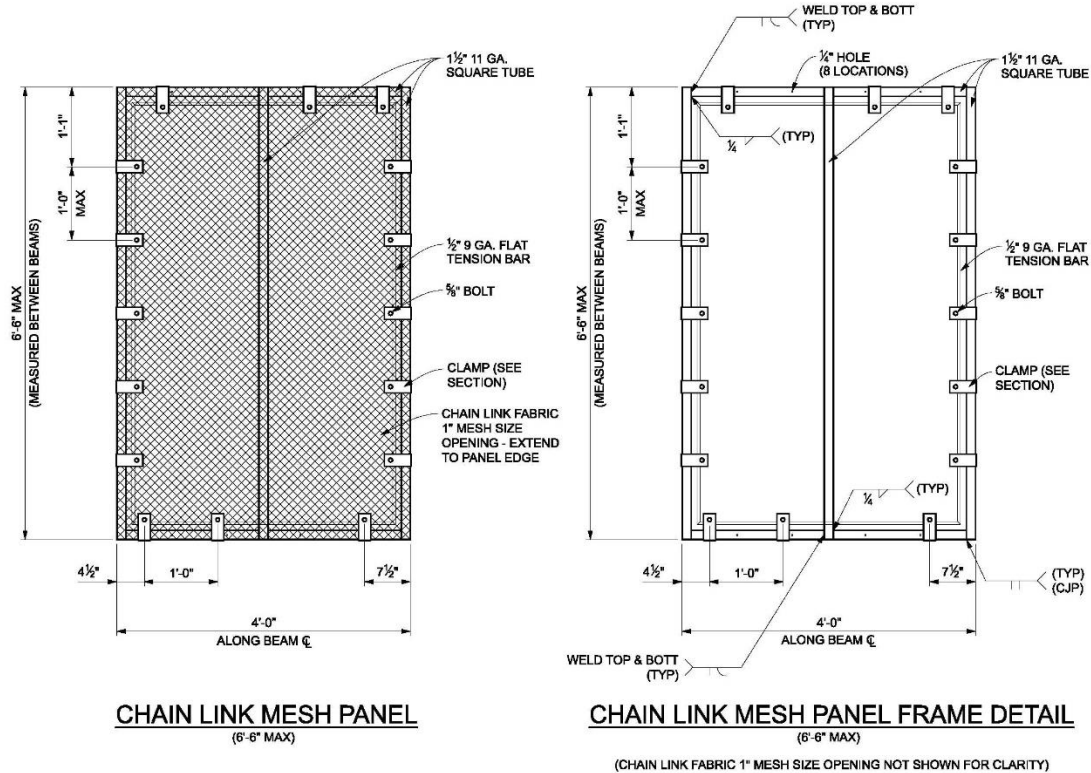


Figure 1: Metal Mesh Panel Plan (6 foot-6 inch Maximum Length)

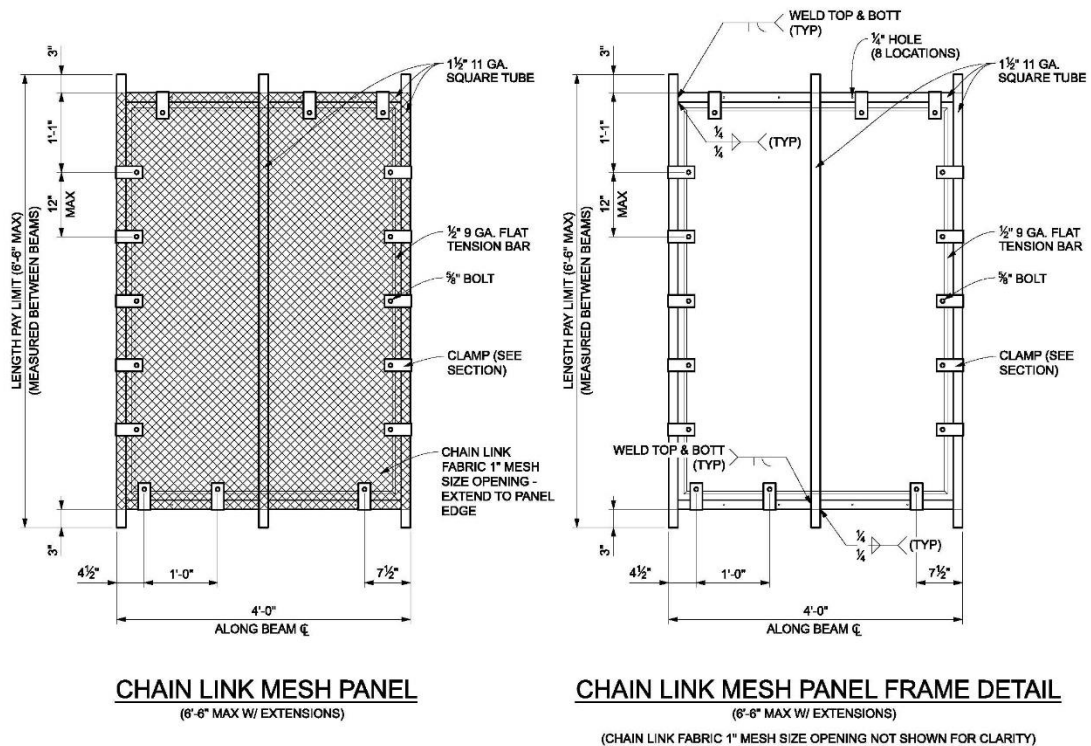


Figure 2: Metal Mesh Panel Plan with Extensions (6 foot-6 inch Maximum Length)

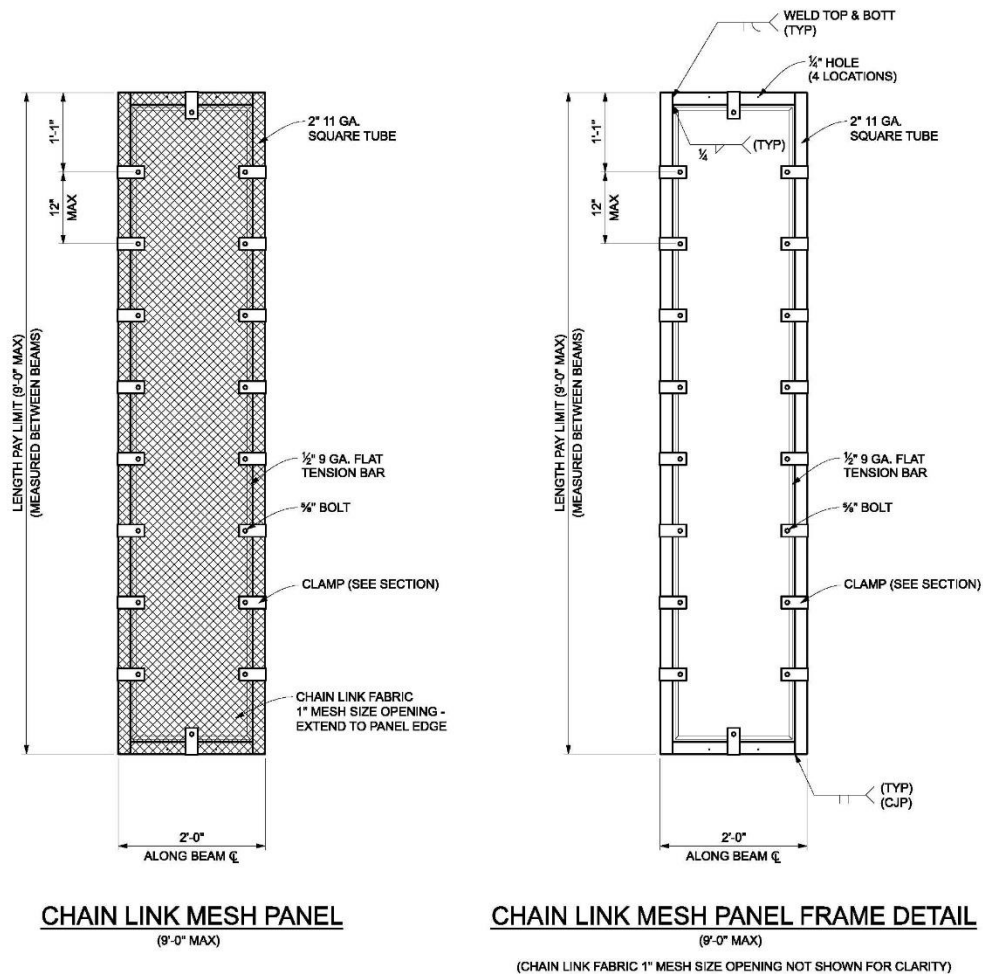


Figure 3: Metal Mesh Panel Plan (9 foot-0 inch Maximum Length)

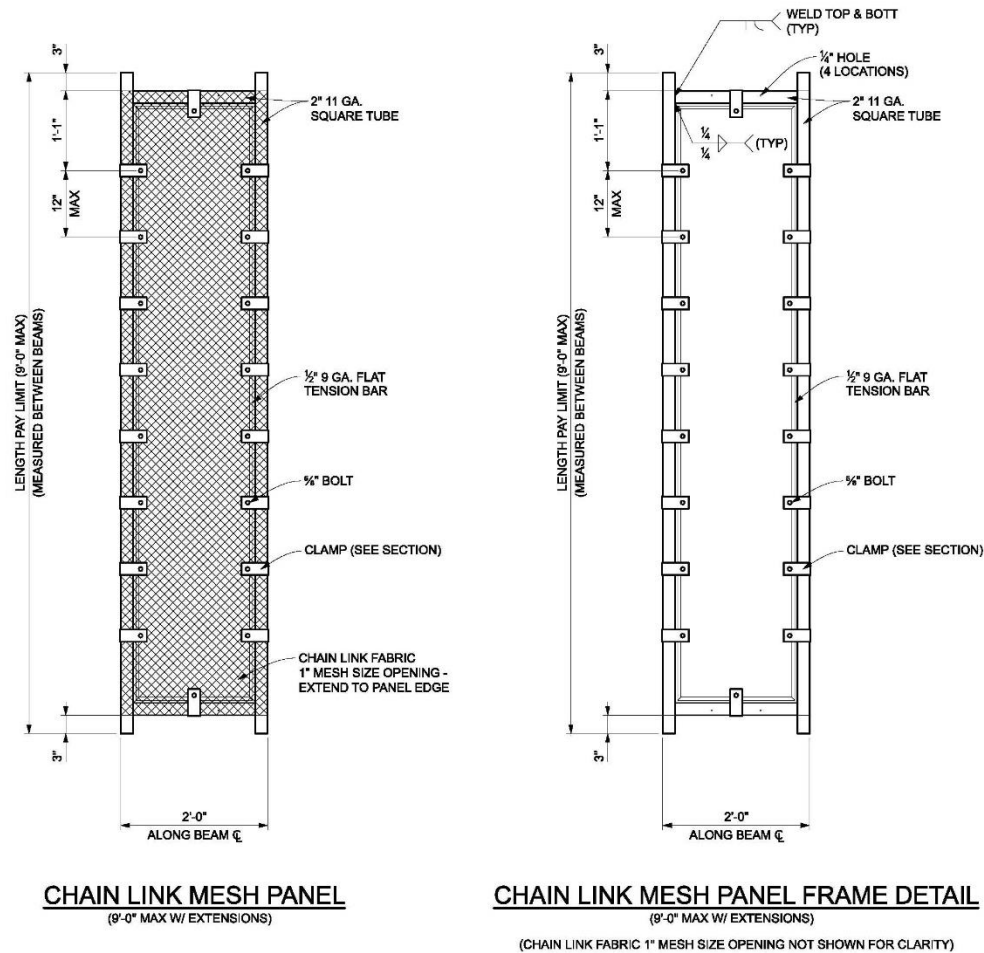
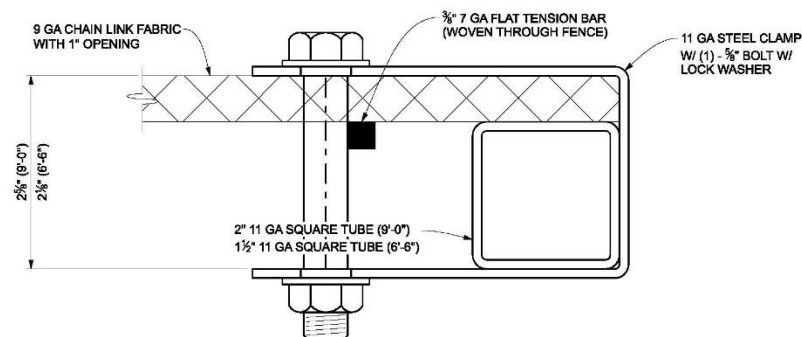


Figure 4: Metal Mesh Panel Plan with Extensions (9 foot-0 inch Maximum Length)



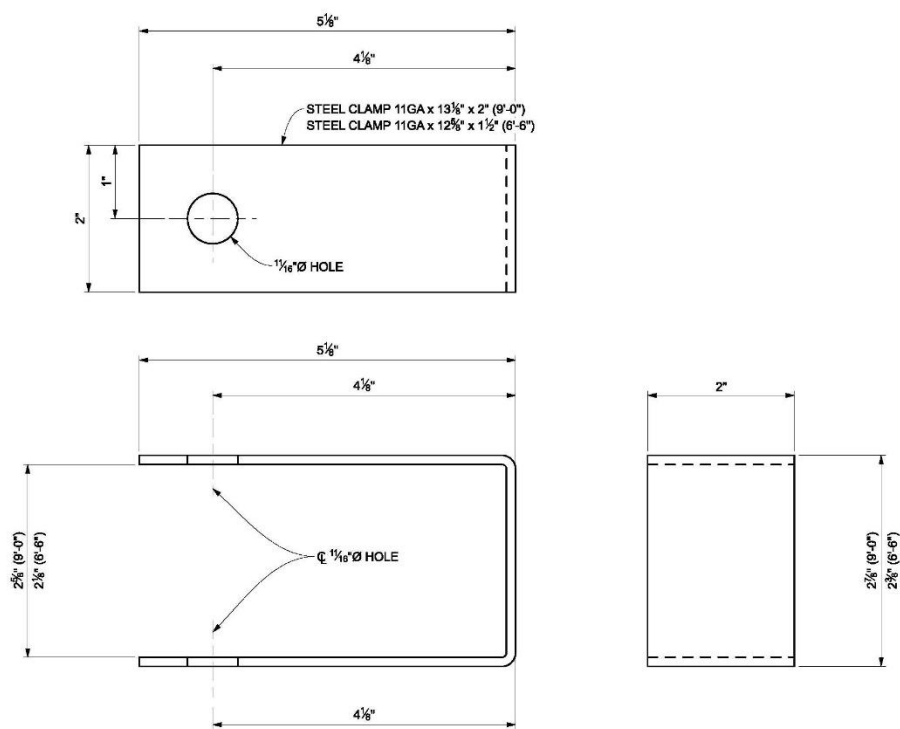


Figure 6: Clamp Detail