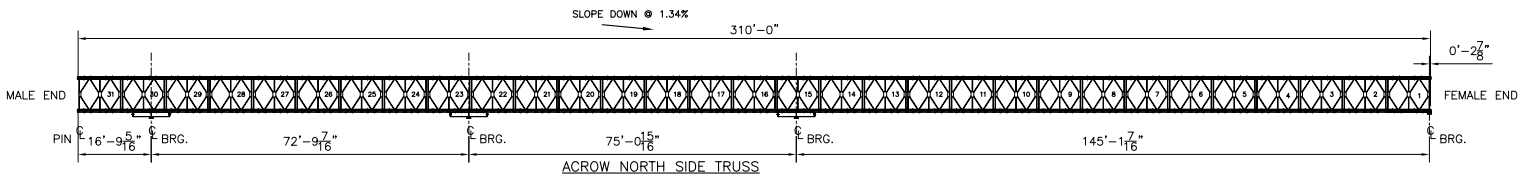


# Multi-Span Panel Truss Enables Refurbishment of Historic Covered Bridge

An Acrow 700XS multi-span panel truss provides a temporary support for the historic Bath Covered Bridge during its complete rebuild and refurbishment.



The historic 1832 bridge over the B & M Railroad and Ammonoosuc River in Bath, NH is the longest covered bridge in New Hampshire and one of the longest in the country. An important traffic link in town, the bridge in recent years has deteriorated and has been posted to a load limit of 3 tons. This prevents school vans and emergency vehicles from using the bridge.

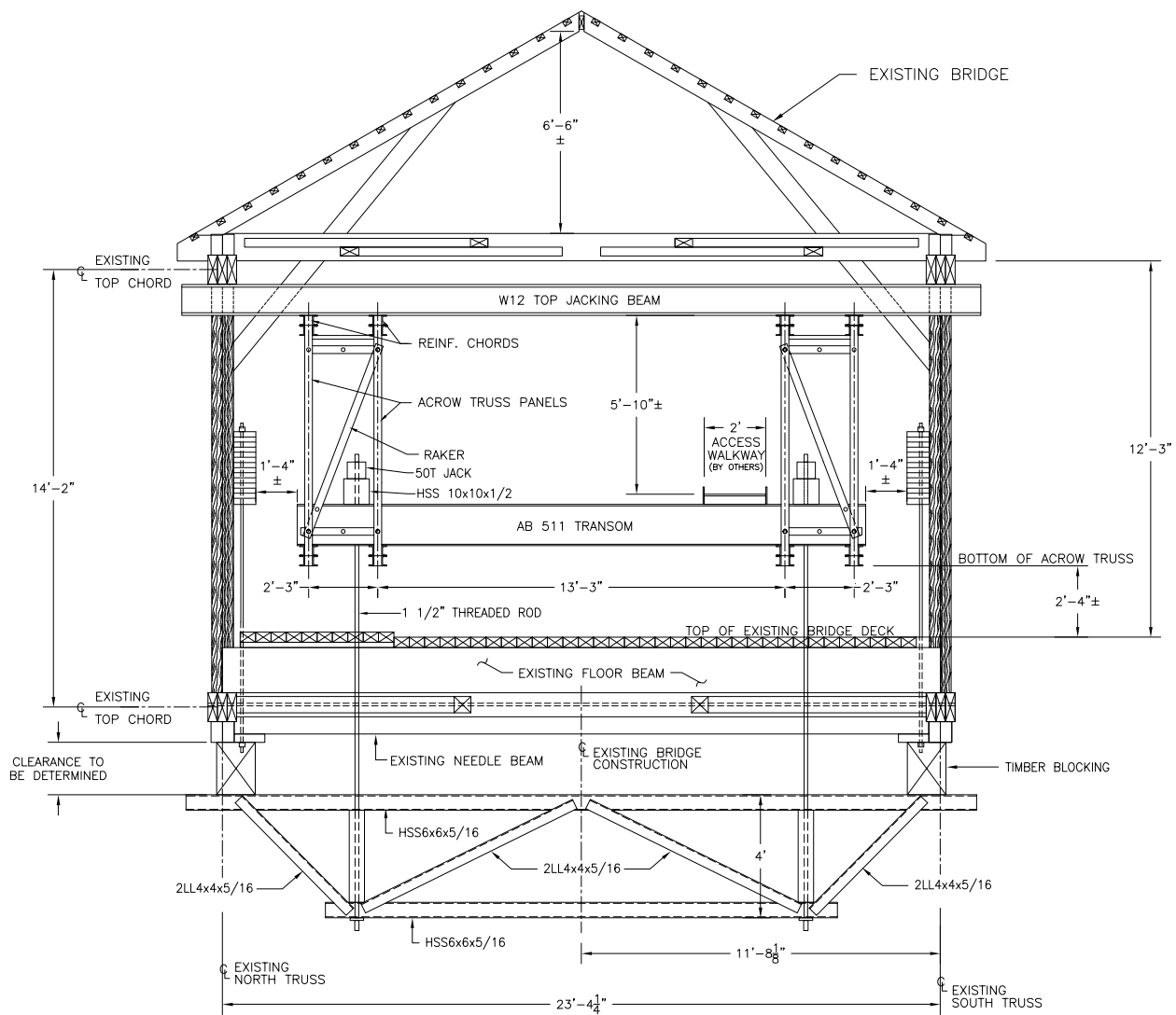
The contractor's scope of work on this classic Burr-Arch structure includes: jacking and bracing to straighten; release stresses; plumb and re-align the trusses and arches; re-camber the bridge; shimming the bridge; replacing the floor, roof and siding; abutment and pier improvements; and installing fire protection and lighting upgrades. This work should extend the life of the bridge by at least another 50 years.

After considering a series of alternates, Wright Construction chose to use an Acrow Panel truss system to support the covered bridge structure while performing the rehabilitation of the bridge. Our truss

was carefully designed to accept the significant vertical and lateral loads of the reconstruction while not overstressing the fragile bridge during initial insertion. The Acrow design and installation was further complicated by the limited (25-foot) build area available outside the western bridge portal.

Acrow truss installation began July 16th, 2013 and was substantially complete by month-end. Insertion of the Acrow Panel truss system was carefully monitored by consulting engineers Hoyle, Tanner Associates Inc. and the New Hampshire Division of Historical Resources.

Structural work is underway, scheduled for 2014 completion and the much anticipated re-opening of this important town link.



## Specifications

### Truss length:

Acrow supplied 310 linear feet (94.49 meters) of bridging comprising three spans. The span arrangements over the skewed piers were nominally 72.78 feet (22.18 m) ~ 78.08 feet (22.88 m) ~ 145.12 feet (44.23 m) plus overhang.

### Truss width:

The Acrow support truss using standard single-lane transoms left less than a foot of clearance between Acrow steel and the interior of the covered bridge.

### Deck surface:

The Acrow support truss was not decked. Contractor added a planked walkway for access.

### Truss erection:

Incremental build, then push (20 feet per cycle).

### Loads:

The bridge was designed in accordance with current AISC ASD design specifications to accept bridge dead loads (1,400 lbs plf plus imbalance factors); snow loads; hurricane wind loads; construction platform loads, jacking loads; and self-weight. Calculations were produced and analyzed for 96 sets of load conditions and load cases.

### Bridge design:

- (A) Panel chords, diagonals, 7 verticals, panel reinforcing chords, rakers to AASHTO M223 GD 65
- (B) Raker brace, transom, top chord brace, swaybrace, transom brace, diagonal chord brace to AASHTO GD 50
- (C) Panel pins to ASTM A 193 GD b7
- (D) Bolts to AASHTO M164M – A325

### Bridge finish:

- All major components galvanized to AASHTO M111 – ASTM A 123
- All bolts are hot dipped galvanized
- All pins are electro galvanized