



Historic Covered Bridge Preservation Committee Meeting June 9, 2011

Waitsfield STP EH08(6) Waitsfield Village Covered Bridge



Our last Committee meeting was held on April 1, 2011. At that meeting we heard:

- Estimated construction costs seem low
- Develop alternatives for decoupling the cantilevered sidewalk, and replacing it with a new self-supporting sidewalk
- Initially concentrate on the sidewalk replacement and substructure concrete repair; with other repairs in subsequent phases

Subsequent to the last meeting, DuBois & King has:

- Developed alternatives for a self-supporting sidewalk (4 alternatives)
- Met with VTrans' Structures Engineers to discuss the alternatives and the overall construction costs in detail
- Met with the Waitsfield Selectboard to provide a project update, and to discuss sidewalk alternatives
- Revised cost estimates for various options

Here today to discuss our findings, and the results of the meetings

Sidewalk Bridge Alternatives

DuBois & King investigated 4 alternatives for a self-supporting pedestrian bridge:

- Pre-fabricated, glulam beams
- Pre-fabricated, glulam trussed arch
- Pre-fabricated steel truss
- Sawn lumber queen post truss and Burr arch

Construction costs are similar for each pre-fabricated option

- Pre-fabricated, glulam beams \$140,000
- Pre-fabricated, glulam trussed arch \$123,000
- Pre-fabricated steel truss \$117,000

Construction costs are approximately 50% higher for the custom made arch

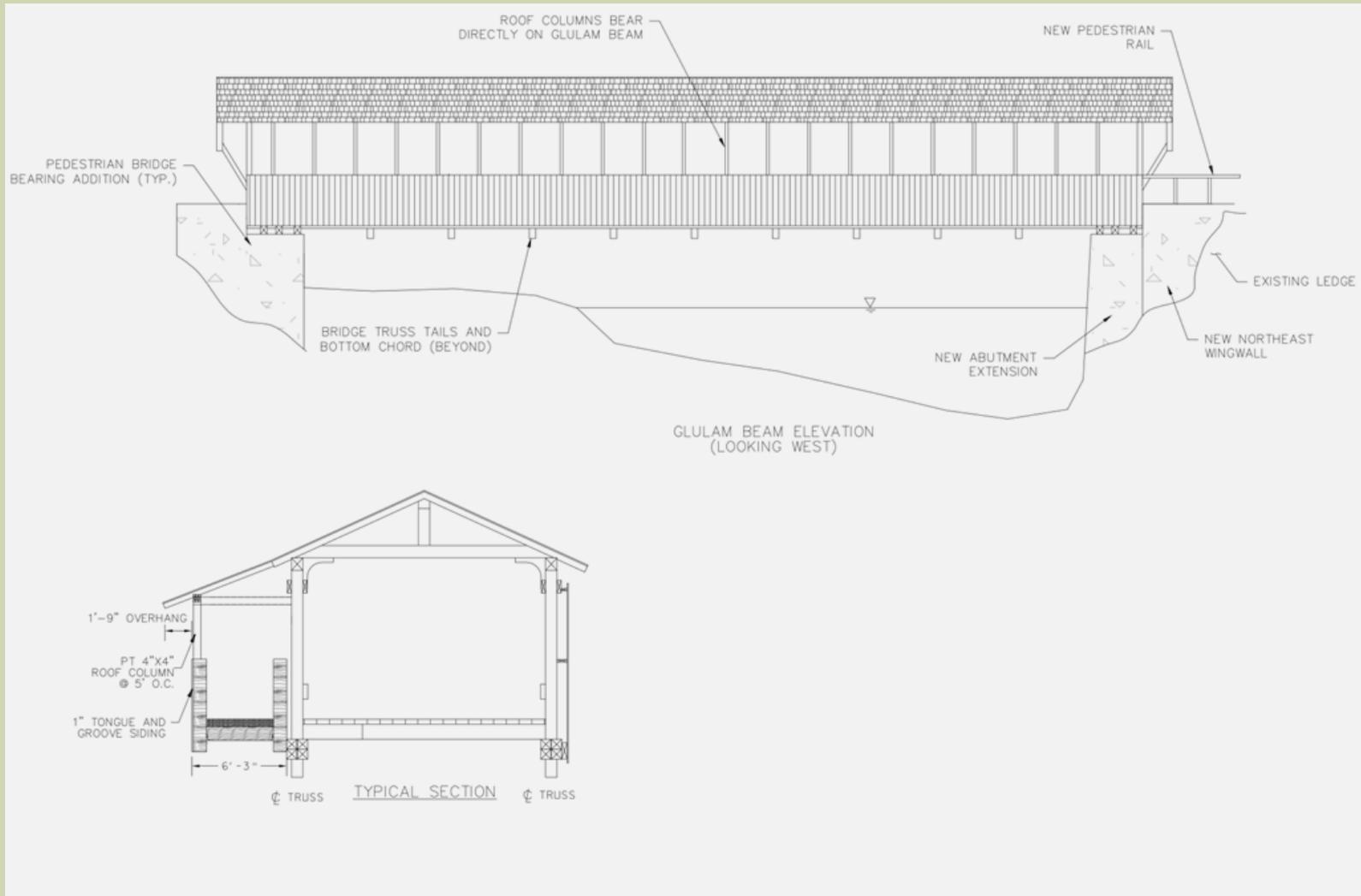
- Sawn lumber queen post truss and Burr arch \$185,000

Costs are for only bridge delivery and erection, and do not include demolition or abutments

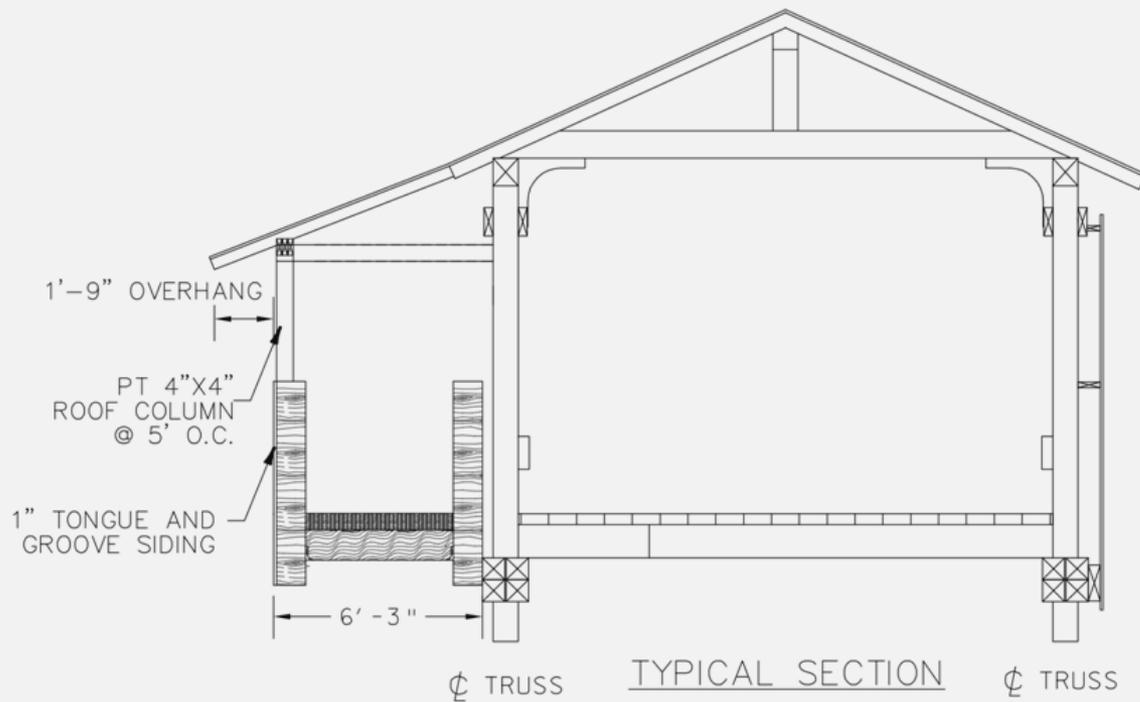
Pre-Fabricated Glulam Beams and Deck



Pre-Fabricated Glulam Beam and Deck



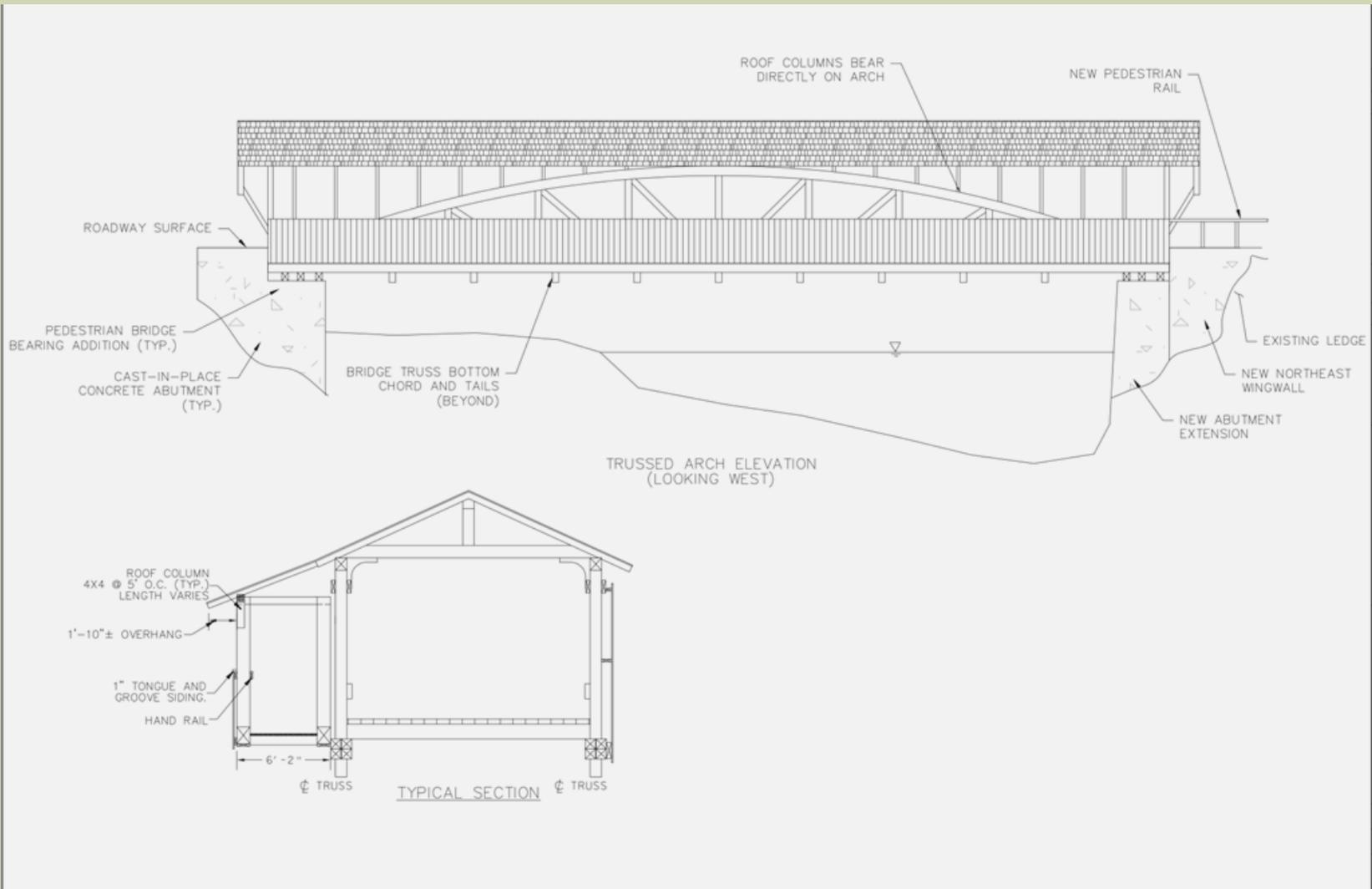
Pre-Fabricated Glulam Beam and Deck



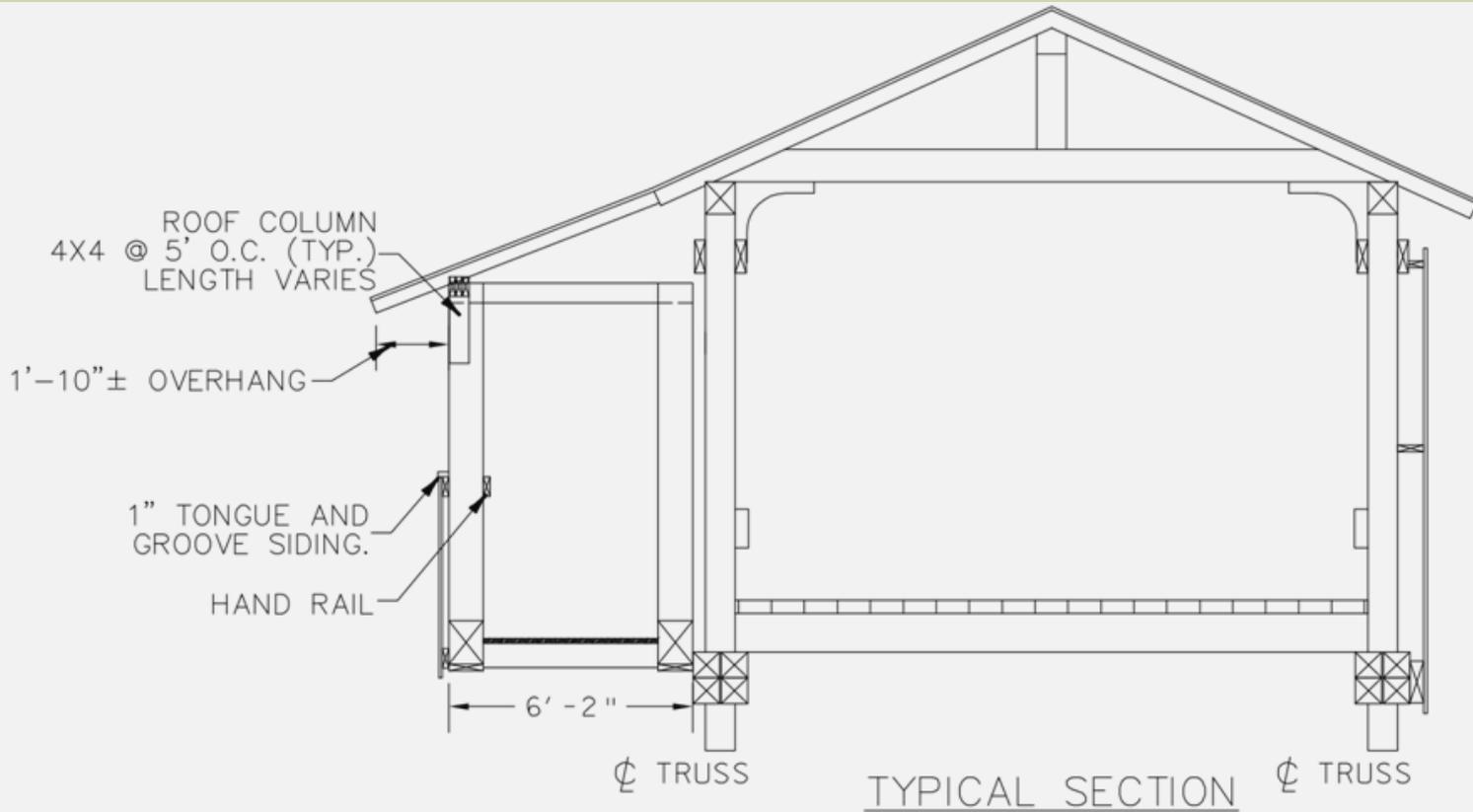
Pre-Fabricated Timber Trussed Arch



Pre-Fabricated Timber Trussed Arch



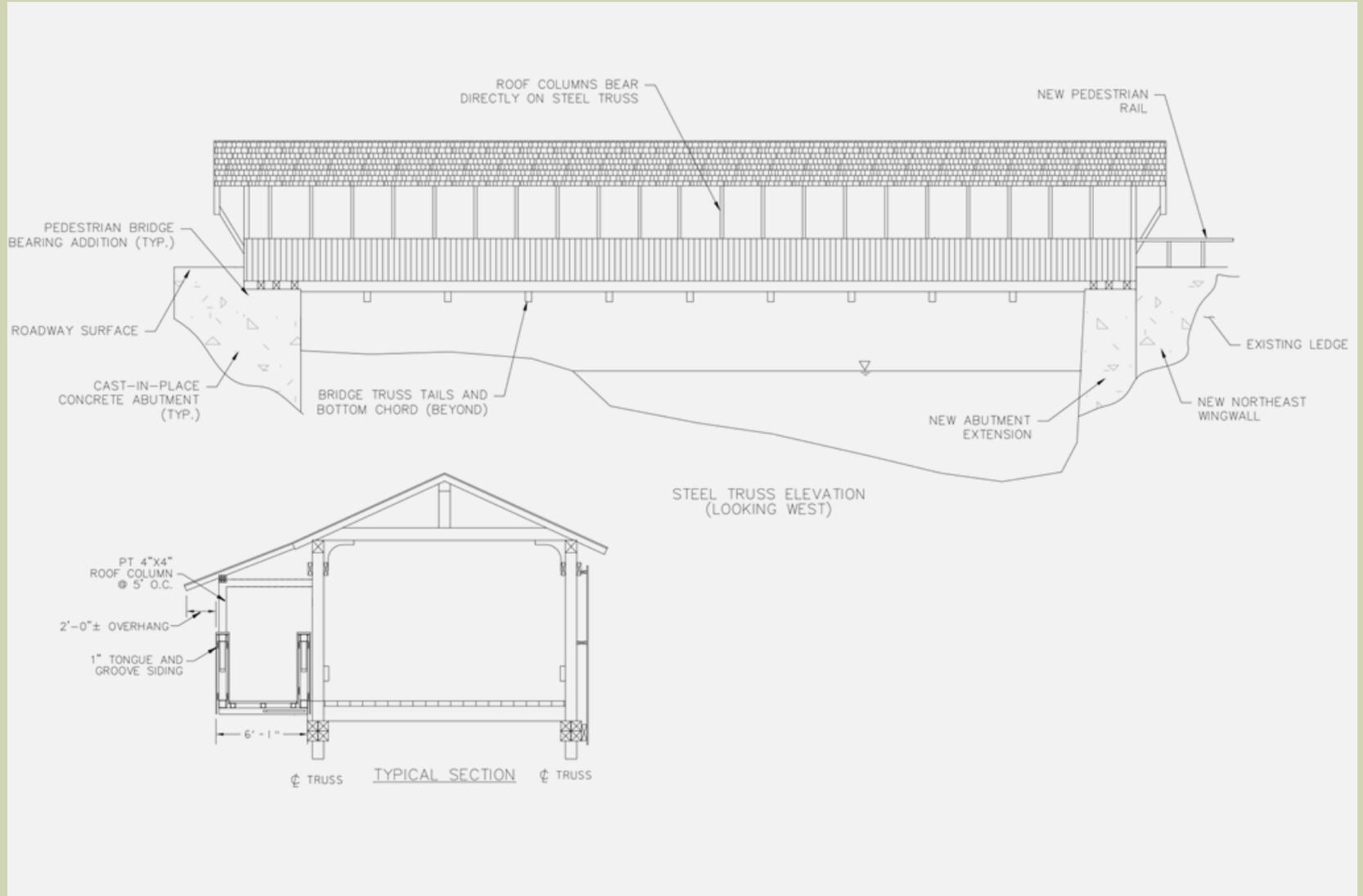
Pre-Fabricated Timber Trussed Arch



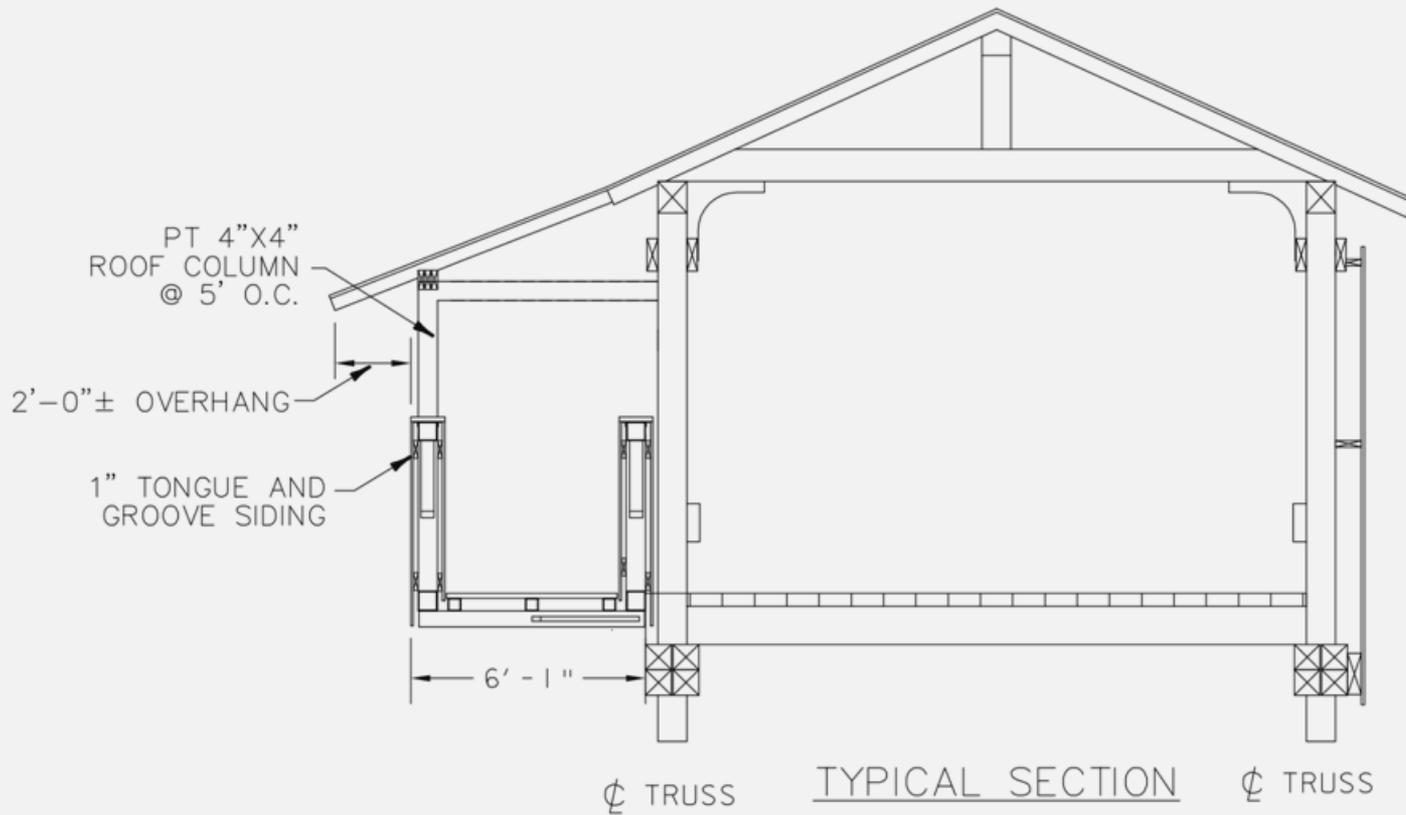
Pre-Fabricated Steel Truss

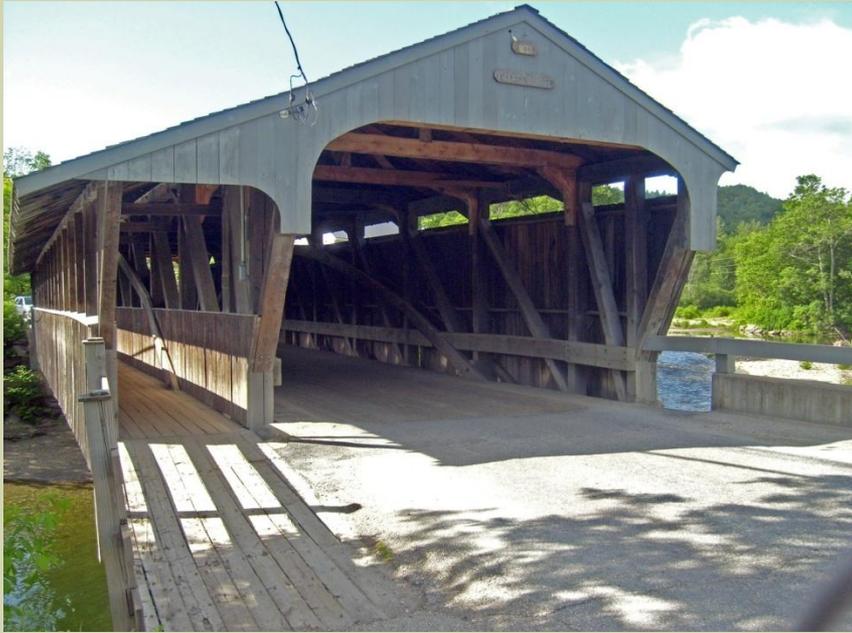


Pre-Fabricated Steel Truss

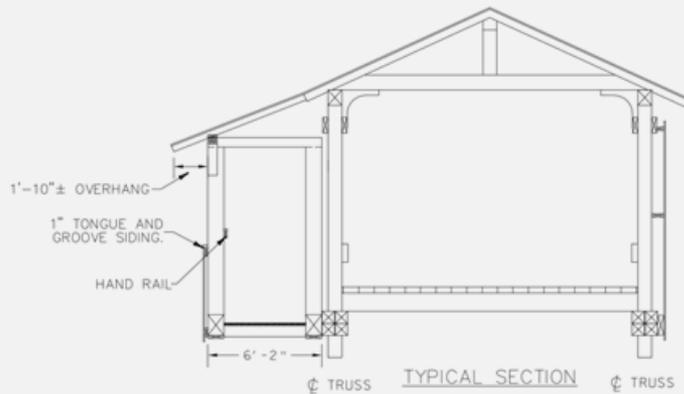
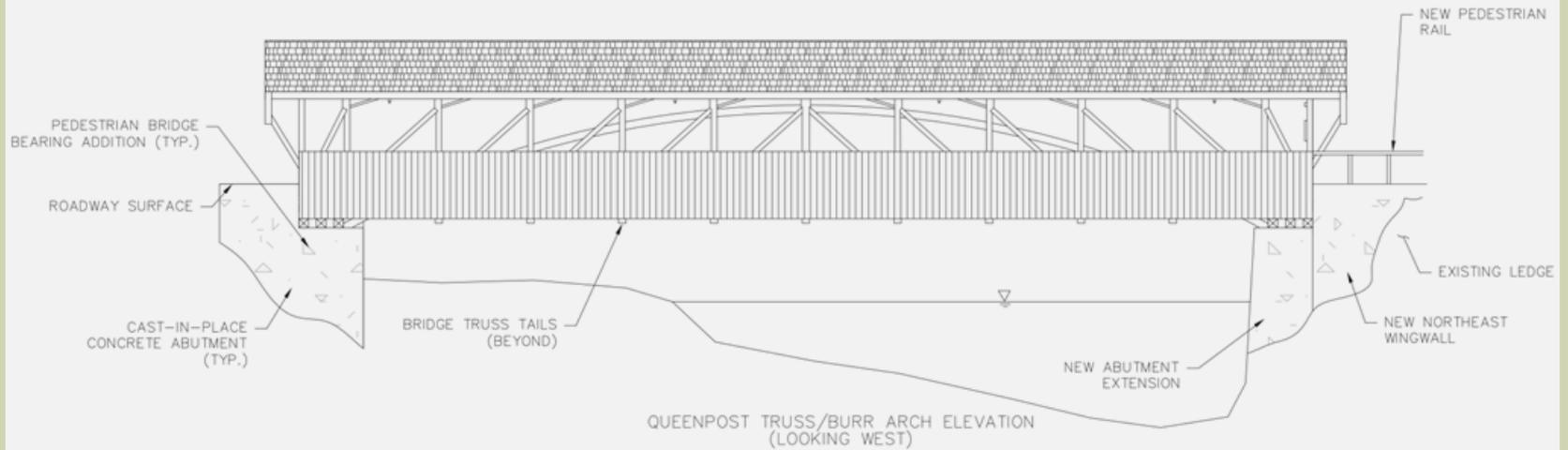


Pre-Fabricated Steel Truss

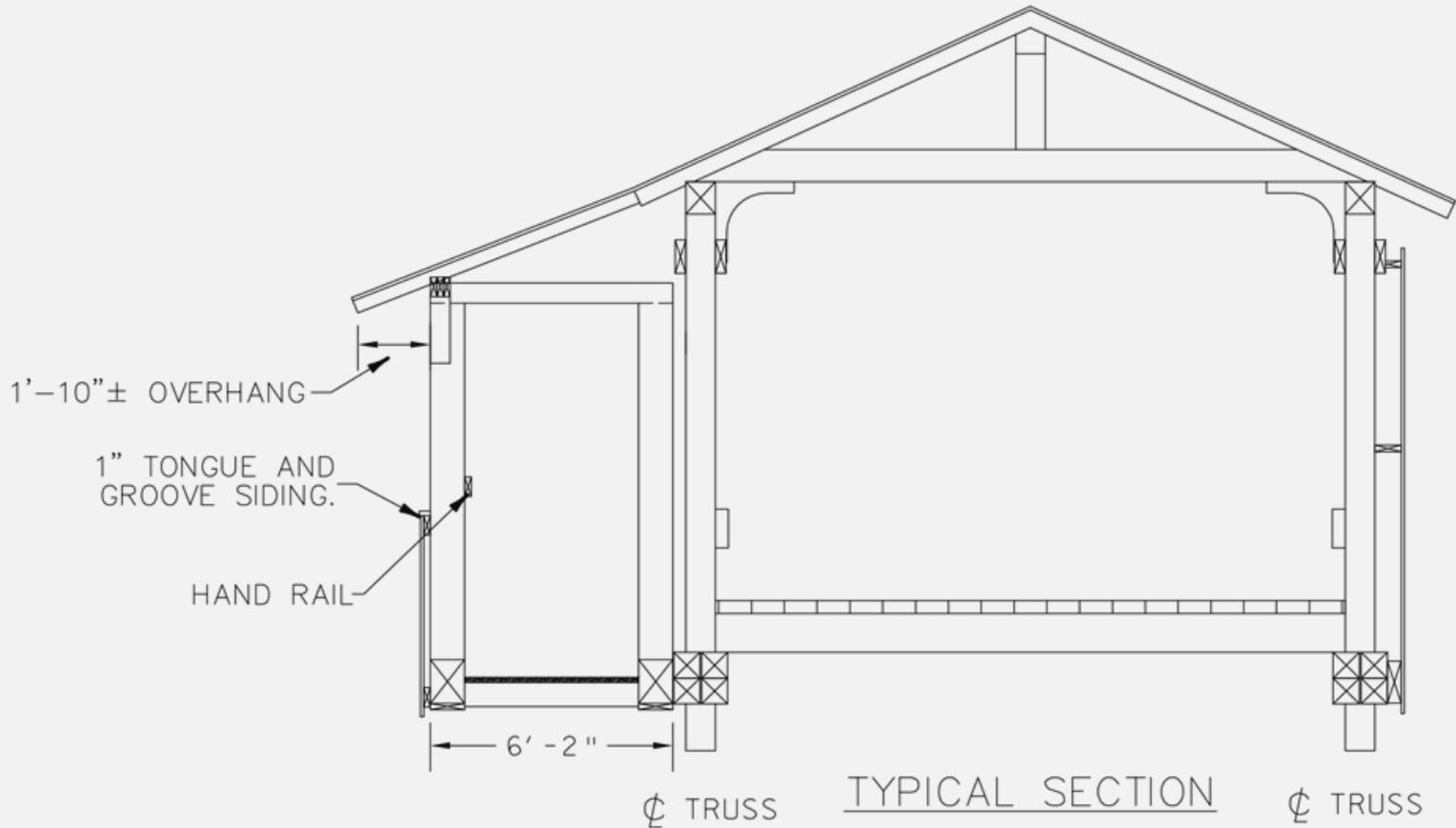




Sawn Lumber Queen Post Truss and Burr Arch



Sawn Lumber Queen Post Truss and Burr Arch



Which Sidewalk Style is Preferred?

VTrans' Structures Engineer's opinion was that the glulam beam and steel truss configurations are probably not preferable, and either the glulam arch or custom made arch/truss would be acceptable. The Town could even bid the two as bid alternatives to see which has a better price if they have no strong preference.

Town's opinion (via Selectboard vote) would be to have custom made arch/truss because it seems more traditional. There is some concern about actual view of bridge from the outside, and that the look would be changed if the arch/truss configuration is chosen. The current view could be maintained if a steel truss or glulam beam were to be used.





Other Construction Components and Costs

Required for New Sidewalk

• Sidewalk bridge	\$185,000
• Demolish the existing sidewalk	\$ 12,000
• Construct abutment extensions to support the new sidewalk	<u>\$ 25,000</u>
TOTAL:	\$222,000

Other components that should be addressed as funding becomes available

• Repair existing concrete substructure elements	\$ 80,000
• Repair superstructure floor beams, roof rafters, decking	\$ 50,000
• Paint with fire protective coating	\$ 30,000
• Jack, shore, & rehabilitate trusses to eliminate decay & negative camber	\$150,000
• Signing improvements	\$ 2,000
• Guard rail replacement	<u>\$ 18,000</u>
TOTAL:	\$330,000

CONSTRUCTION TOTAL: \$550,000

Advance project in phases as funding becomes available

1st phase – Do now under current grant

- Replace sidewalk
- Extend abutments
- Repair substructure concrete elements

Subsequent phase(s) – Do whatever could be afforded under future funding

- Repair/Replace deteriorated timber members
- Rehabilitate trusses
- Add fire protective coating
- Signing and guardrail

Potential future funding could come from:

- TE Grant
- Town Structures Grant
- National Historic Covered Bridge Preservation Program

North abutment, East side under sidewalk



South abutment, East side under sidewalk



South abutment, East side under trusses



Downstream Elevation View



Upstream Elevation View



Existing sidewalk

