



SIEGRIST COVERED BRIDGE RECONSTRUCTION

RETTEW
We answer to you.



About the Presenter



RETTEWTM

Dave Hoglund, PE

- ▶ Transportation manager
- ▶ 15 years of civil engineering experience
- ▶ Project manager, bridge engineer, hydrology & hydraulics analyst, highway engineer, municipal consultant



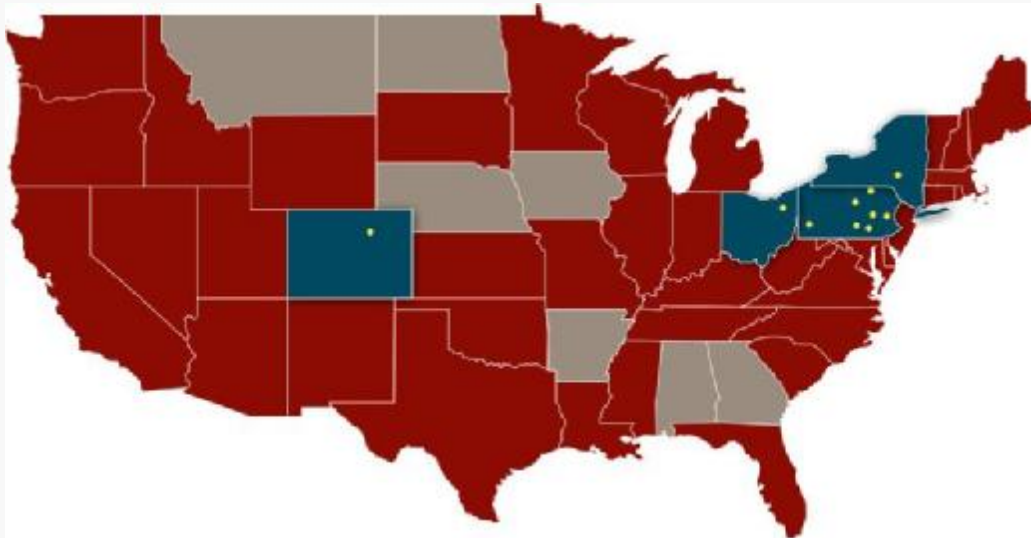
About RETTEW



RETTEWTM

Firm Overview

- ▶ *Engineering News Record* top 200 design firm
- ▶ Close to 400 dedicated professionals
- ▶ Multidisciplinary firm offering more than 100 different services
- ▶ Ten office locations in four states
- ▶ Serving clients for more than 40 years



Covered Bridge Experience



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Covered Bridge Experience

- ▶ Log Cabin
- ▶ Middle Creek
- ▶ Rex's



Covered Bridge Experience

- ▶ Siegrist
- ▶ Pinetown
- ▶ Bowser



Project Partners



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Project Partners

- ▶ Covered bridge owner – Lancaster County
- ▶ Municipalities – Rapho and West Hempfield Townships
- ▶ Funding /oversight – FEMA



Project Partners

- ▶ Engineer – RETTEW
- ▶ Bridge removal
 - ▶ General - Abel Construction
 - ▶ Cranes - Greiner Industries
- ▶ Bridge reconstruction
 - ▶ General - Bulldog Construction
 - ▶ Framing – Lancaster Timber Framers
- ▶ Agencies
 - ▶ FEMA
 - ▶ PA DEP
 - ▶ ACOE
 - ▶ PHMC
 - ▶ Theodore Burr Association



Project Background



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Siegrist Mill Covered Bridge History

- ▶ Built in 1885 by James C. Carpenter
- ▶ 91 feet long, 15 feet wide
- ▶ Burr arch truss
- ▶ Single span
- ▶ Single lane
- ▶ Also known as the scripture bridge
- ▶ Listed on the National Register of Historic Places in 1980



Lancaster County Covered Bridges

- ▶ 2,000 covered bridges in U.S.
- ▶ 200 covered bridges in Pennsylvania
- ▶ 27 covered bridges in Lancaster County
- ▶ County staff maintain structures
- ▶ Bridges built and restored as original as possible



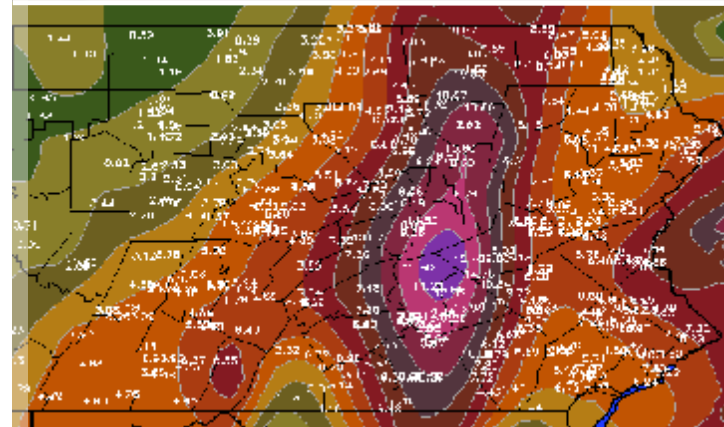
The Flood



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Tropical Storm Lee

- ▶ September 2011
- ▶ Hurricane Irene – 2 weeks earlier
- ▶ Saturated soils from Irene
- ▶ 15 inches of rain – all runoff



Siegrist Mill Covered Bridge

- ▶ New bridge needed because:



The Aftermath



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The Aftermath





The Aftermath



Recovery



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Recovery

- ▶ Property owners
- ▶ Staging area
- ▶ Contractor
- ▶ Lifting
- ▶ County stabilizing
- ▶ Safety critical





Recovery

Inspection



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Inspection

- ▶ Members
- ▶ Connections
- ▶ Salvageable pieces



Inspection

- ▶ Structural
- ▶ Floor
- ▶ Roof



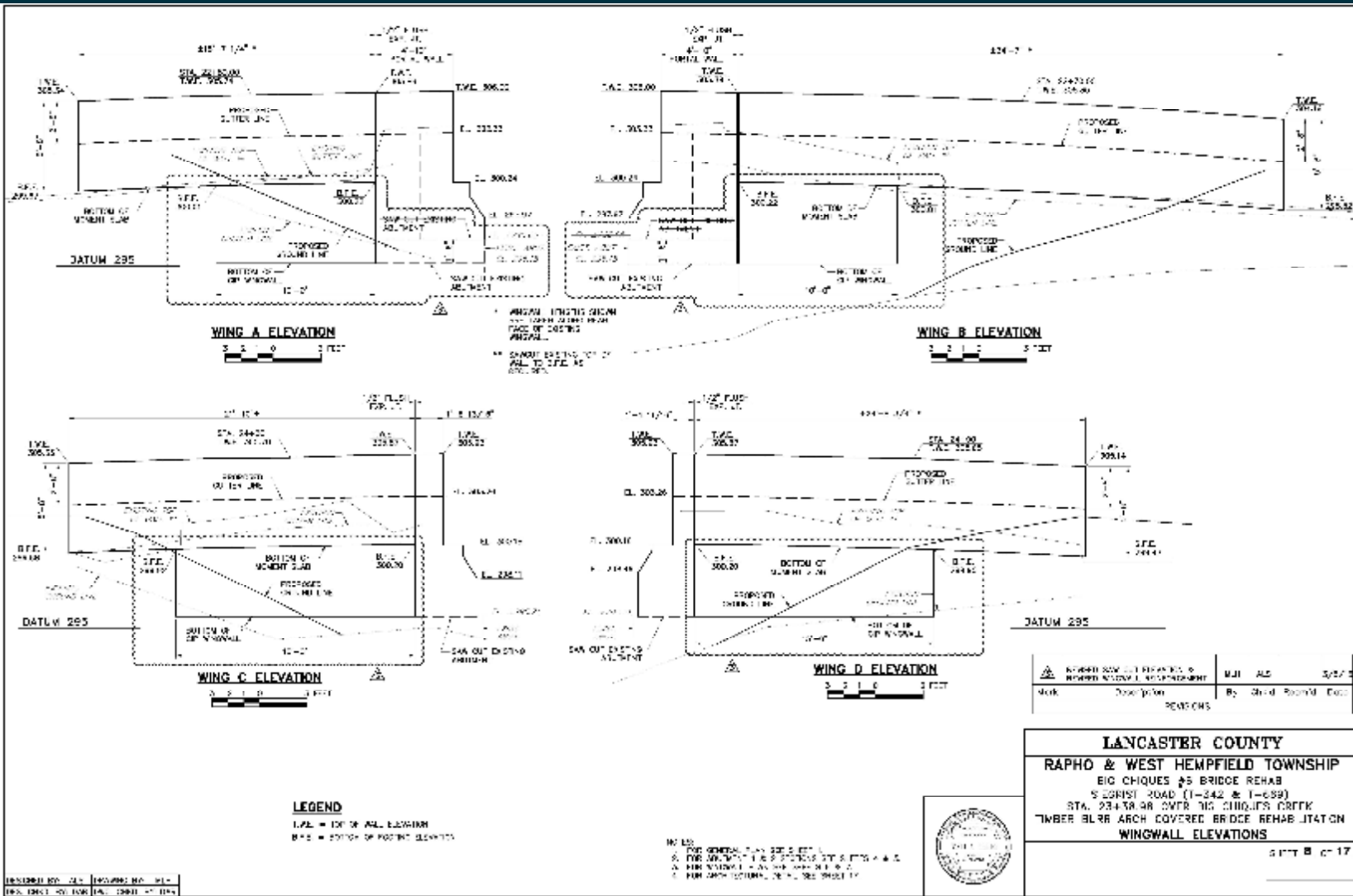
Design



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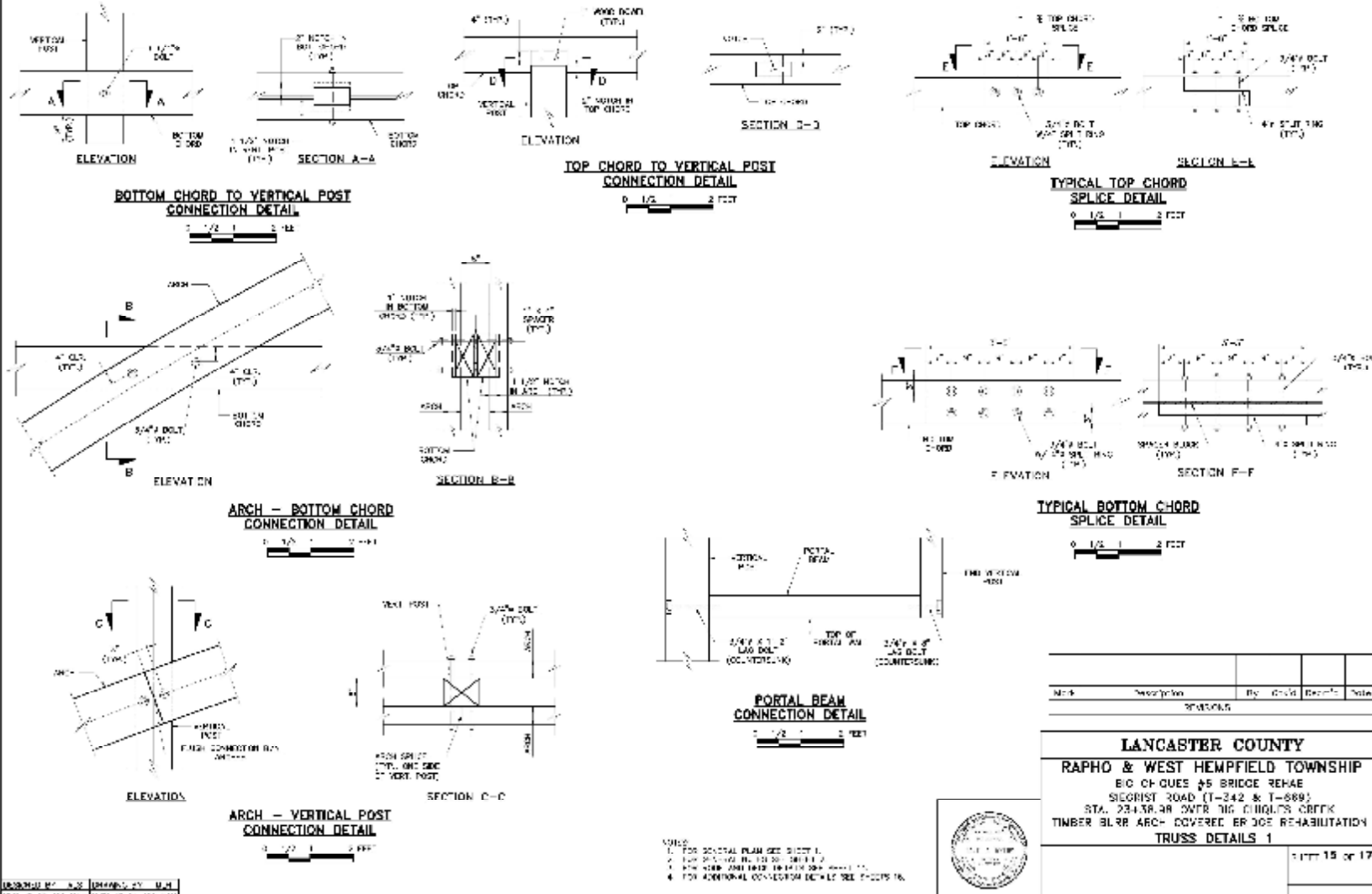
Design

▶ 2-foot elevation change

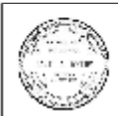


Design

► Structural Details

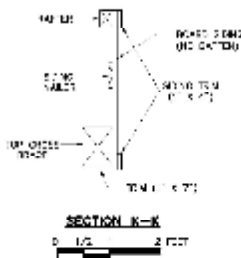
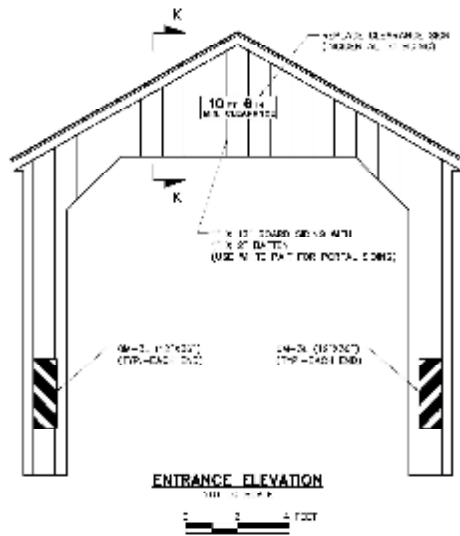
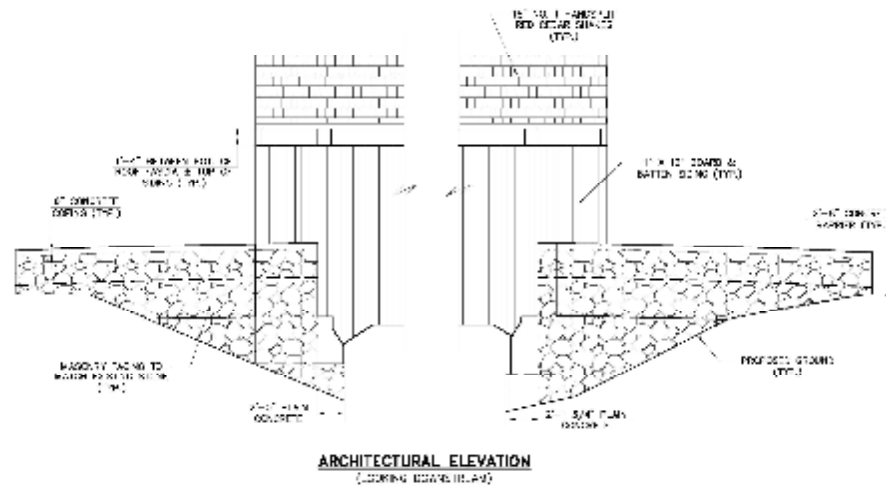
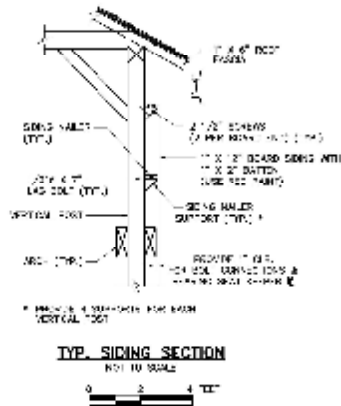


DESIGNED BY: J.S. [unreadable] DRAWN BY: M.J. [unreadable]
 CHECKED BY: M.A. [unreadable] DATE: 08-14-12



Design

▶ Cosmetic details



- NOTES:
1. PER GENERAL NOTES SHEET 01-1
 2. FOR GENERAL NOTES SEE SHEET 01-2
 3. FOR MATERIAL AND FINISH DETAILS SEE SHEETS 4-5
 4. PER ARCHITECT'S SPECIFICATIONS SHEET 01-1



Name	Description	By	Check	Drawn's	Date
PROJECT					

LANCASTER COUNTY

RAPHO & WEST HEMPFIELD TOWNSHIP

BIG CHICKS @S BRIDGE RENAISSANCE
SIEGRIST ROAD (T-342 & T-369)
STA. 23+39.93 OVER DIS CHANGES CRCC4
T.W.R.R. BURR ARCH COVERED BRIDGE REHABILITATION

ARCHITECTURAL DETAILS

Sheet 17 of 17

DESIGNED BY: M.L. DRAWING BY: M.L.
DATE: 08/11/11

Construction



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Construction

- ▶ Abutment work



Construction

- ▶ Abutment work



Construction

- ▶ Abutment work



Construction

- ▶ Timber work
- ▶ Dude! Where's my bridge?



Construction

- ▶ Timber work



Construction

- ▶ Timber work



Construction

- ▶ Timber work



Bridge Setting



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Bridge Setting

- ▶ Both trusses connected
- ▶ Eight-point touchdown



Bridge Setting

- ▶ Both trusses connected
- ▶ Eight-point touchdown



Roofing, Siding, and Flooring

- ▶ Oak floorboards
- ▶ Board and batten siding
- ▶ Cedar shake roof



Final Product



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Final Product





Final Product

Questions



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Thank you

David Hoglund

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