



The Evolution of Crane Access Trestle

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April 2015

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Heavy Construction Access Timeline

1900

1925

1950

1975

2000

2025

Fill Causeway - DRIVE

Dredge Access - FLOAT

Build Trestle - BRIDGE



FILL

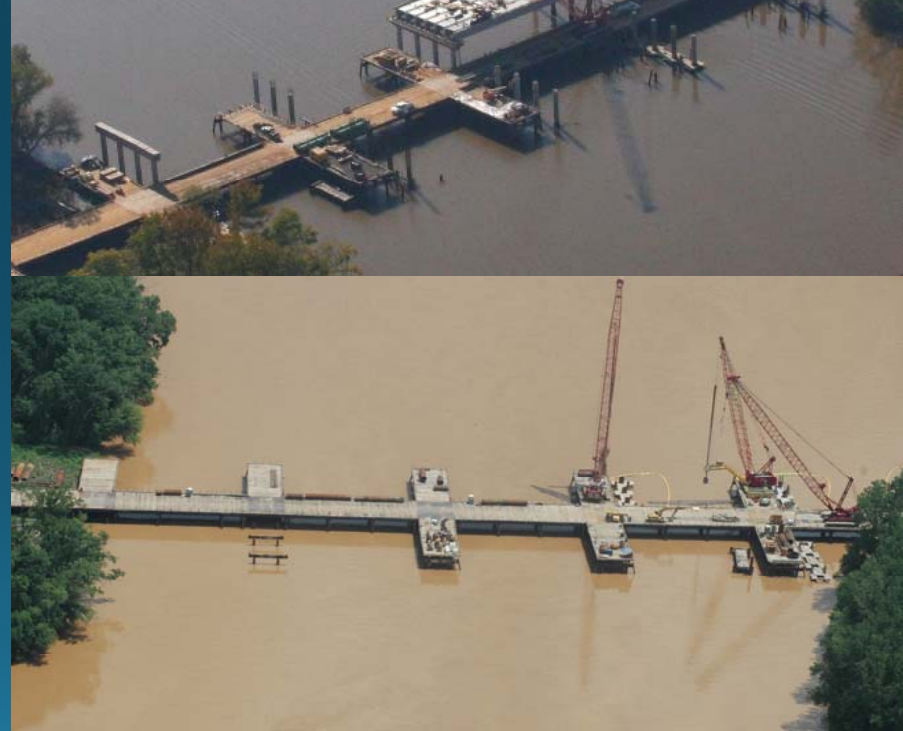
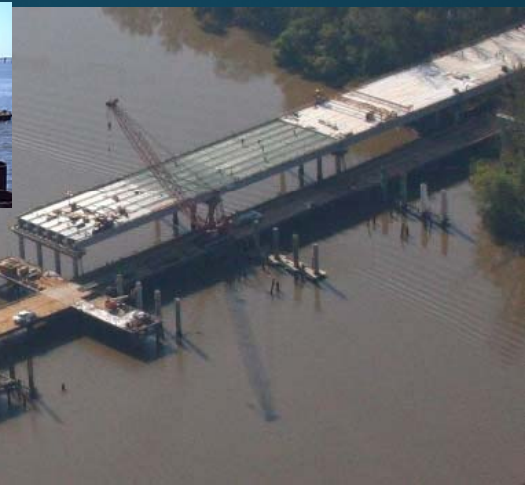
DIG

BRIDGE

Wetlands Trestle



Bay and River Trestle



Ocean Trestle



Fernandina Beach, FL



Rosarita, Mexico



Myrtle Beach, SC

Mountain Trestle

Foothills Parkway

Great Smoky Mountains TN



Why use access Trestle ?

1. Of the three heavy construction access options;

least soil disturbance = most environmentally responsible.

2. Empowers project planners to define **access limits and scope**

Benefits =

- a. simplified permit / permission process
- b. reduced or eliminated access related contractual issues and claims


Crane Access Trestle Fundamental System Types

Traditional

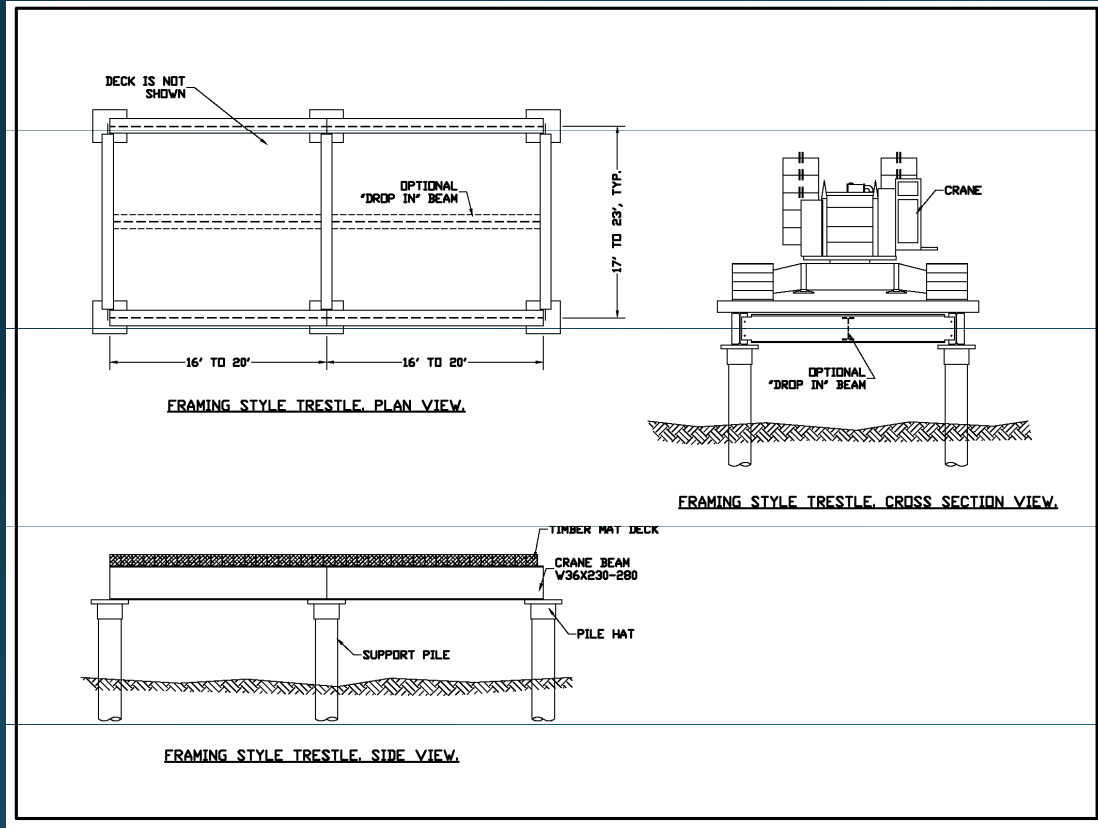
- I Frame Style
- II Pier and Double Beam
- III Raft Style

Evolutionary

PATENTS PENDING

- F Hybrid Frame – Omega Beam System
- E Elevated Deck - High Capacity Pier System
-  Modular Panels – Concept currently in R&D

I. Frame Style



Advantages

Light weight superstructure

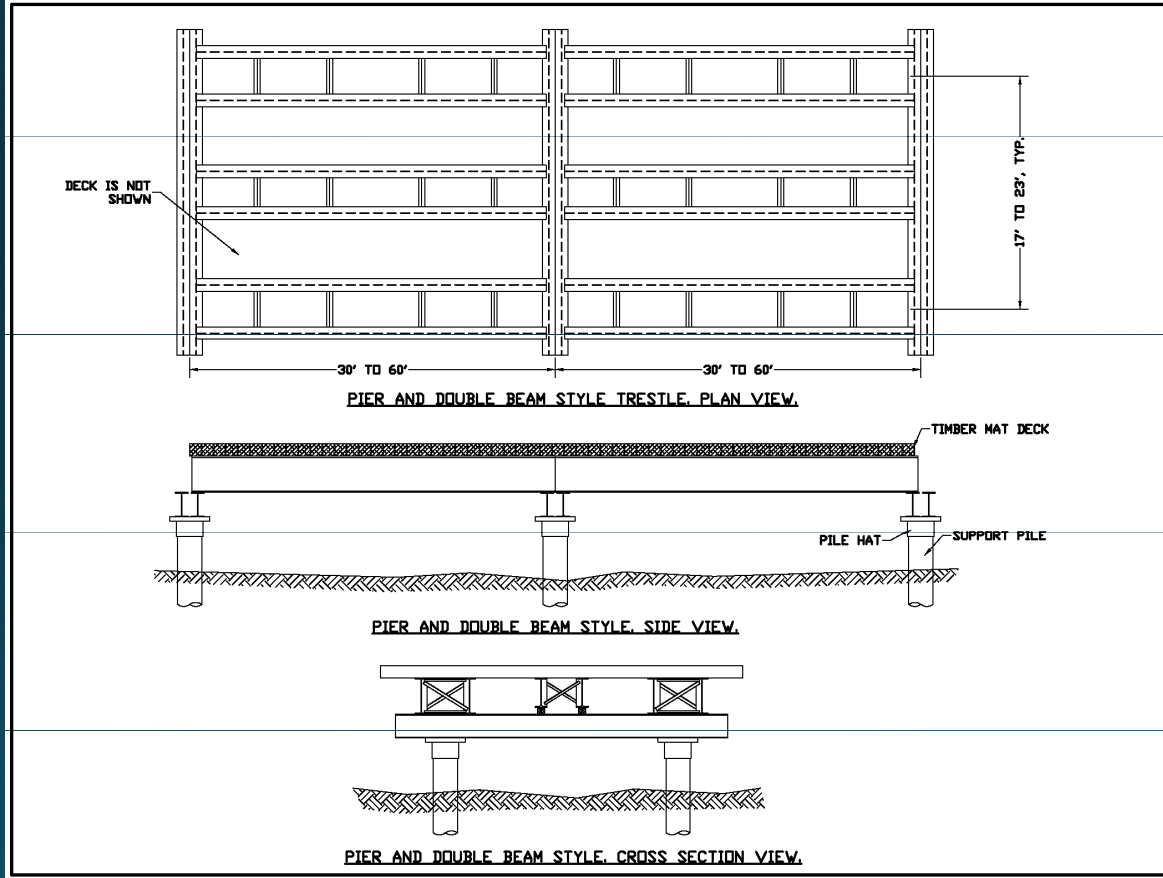
Disadvantages

Short Spans = more pile locations

One crane width

Not good on radius

II. Pier and Double Beam



Advantages

- Longer spans
- Can accommodate different crane widths

Disadvantages

- Heavy superstructure
 - often twice the weight of frame style
- Requirement for numerous similar sized beams often requires new mill purchase

III. Raft Style

Advantages

Shallow profile

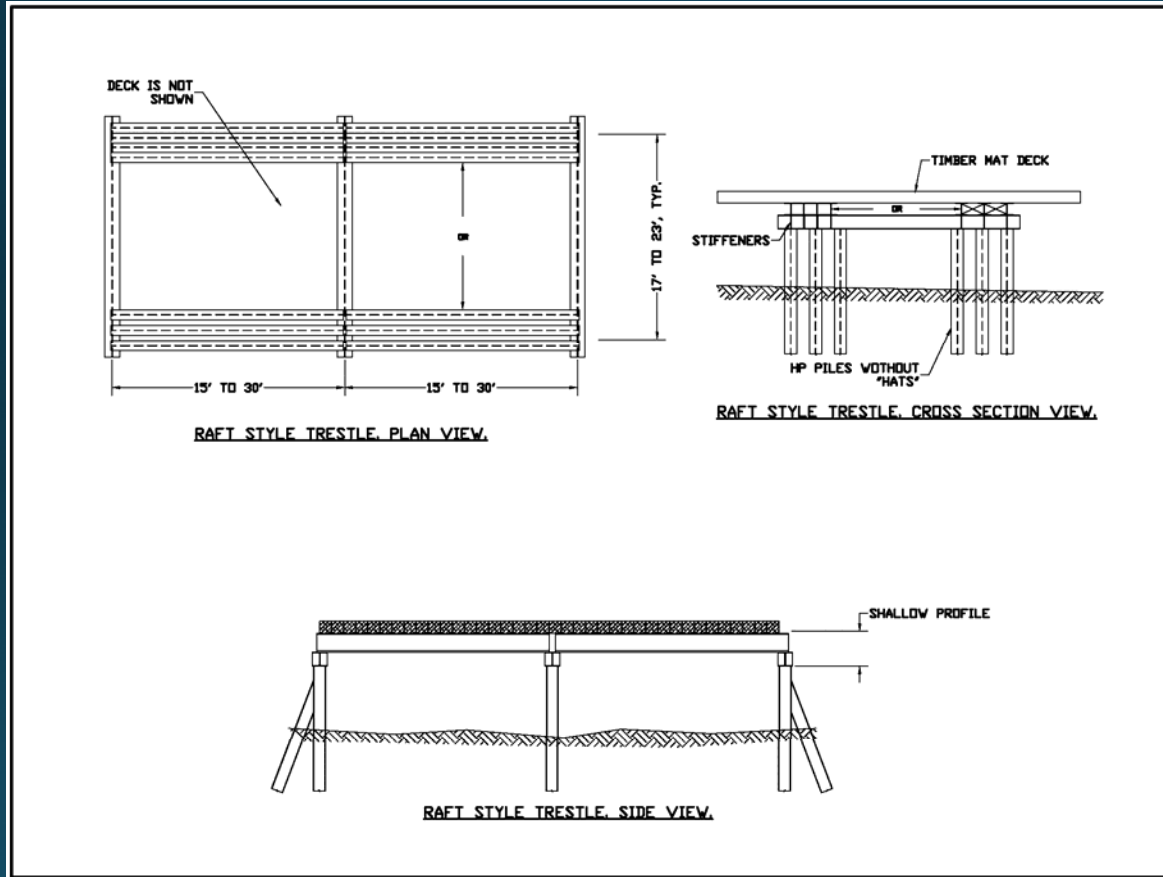
Can be "cobbled" together from numerous smaller superstructure members

Disadvantages

Low capacity

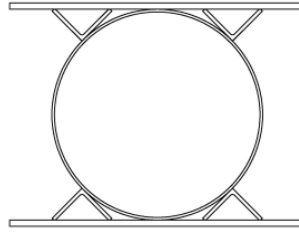
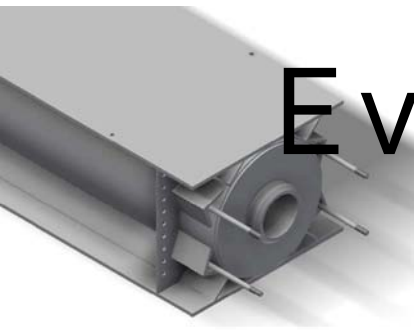
No interoperability with other systems

Low production for long bridges

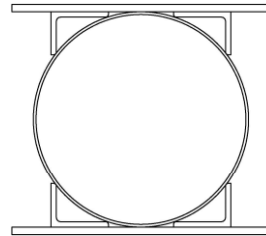
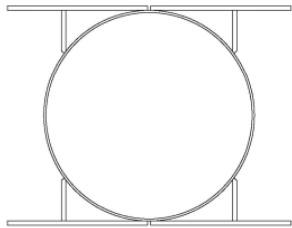


Evolution- Omega Beams

www.OmegaTrestle.com

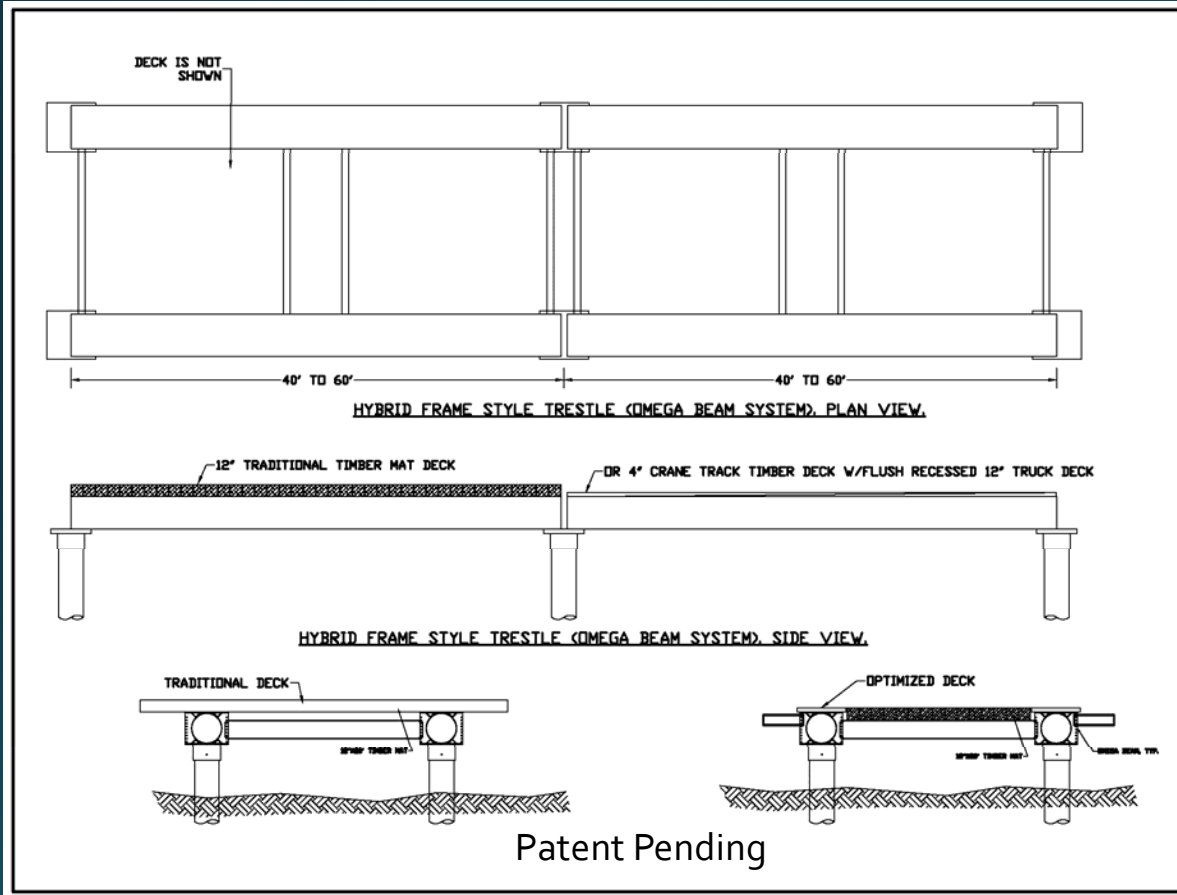


patent pending



Economical - High Capacity - Torsion Resistant – Wide Platform - Rugged Steel Beams

Ω Hybrid Frame – Omega Trestle System



Advantages

Longer spans (up to 2x longer)

Wide platform beams can accommodate different crane widths

Can be used with or without pier caps

Utilizes more readily available materials to construct – Pipe, Angle and Plate

Simplistic Full Shear end connection allows for less pile driving accuracy

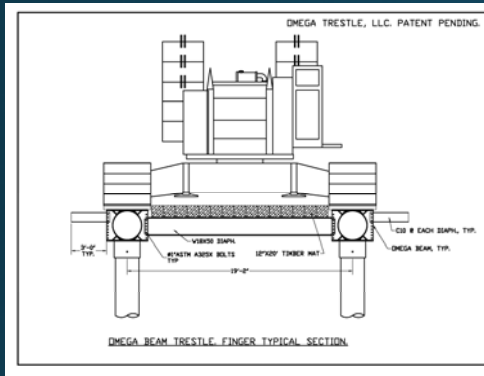
Simplistic truck lane option

Optimized timber option

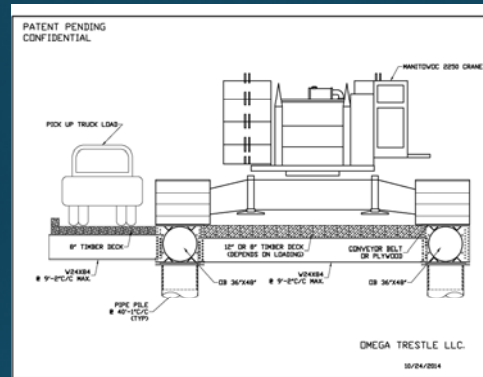
Disadvantages

Pile driving accuracy is required when constructing on a curve greater than 3 degrees

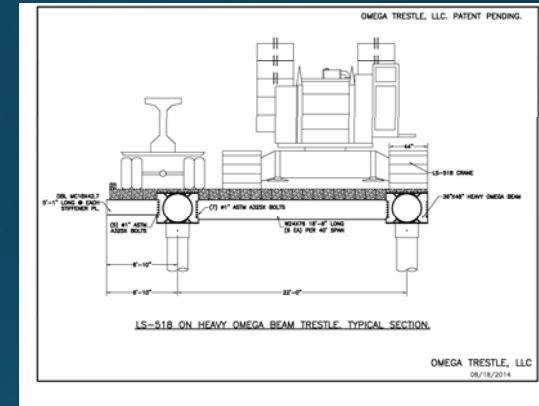
Omega Trestle System Options



Standard X-Section
Simply add walkways as needed

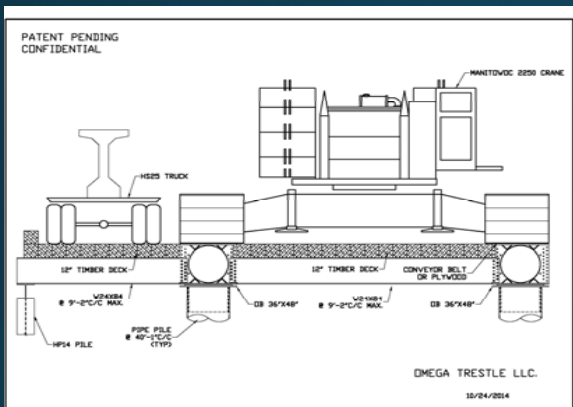


Cantilevered
Truck Lane



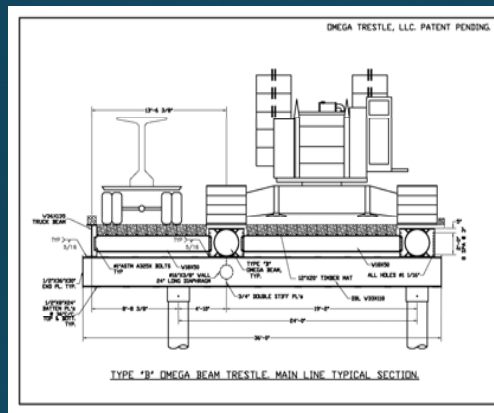
Crawler on Diaphragms
Smaller service crane, +/- 150 Ton, shown on 300 Ton trestle frame with cantilevered heavy truck access.

Omega Trestle System Options



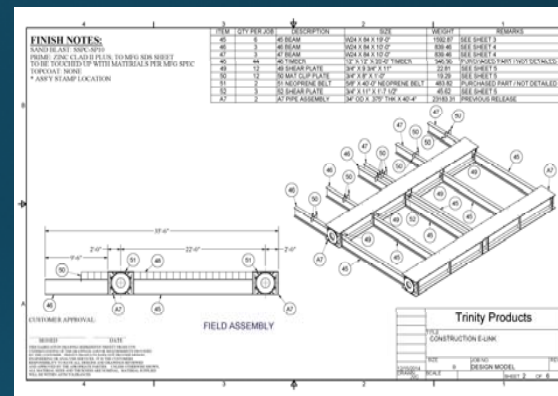
300 Ton crane + heavy truck

Simple crutch bent under cantilever augments capacity only when, and where needed.



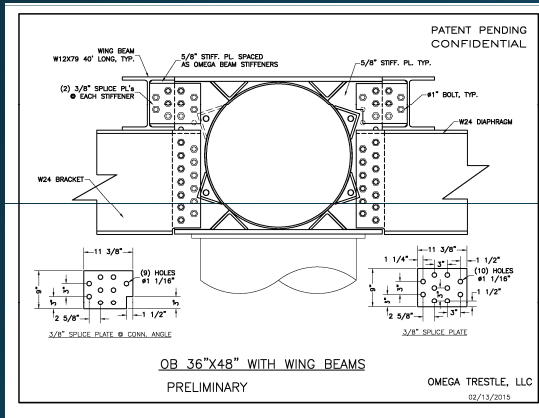
with Heavy Pier Cap

For minimized piling while accommodating sharp curves.

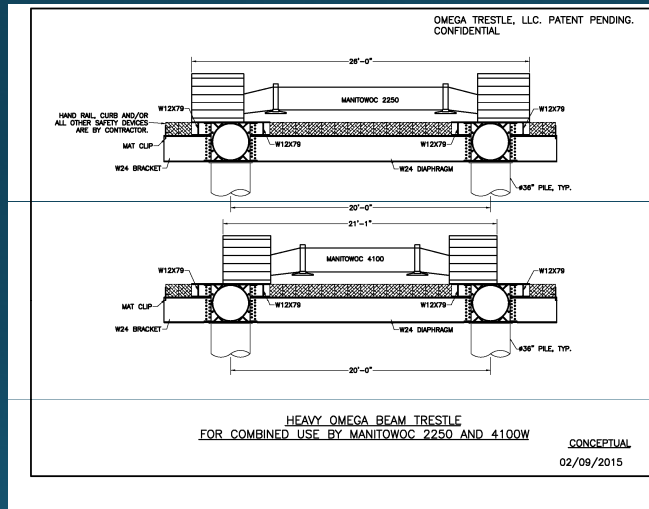


Typical Frame with cantilevered truck lane

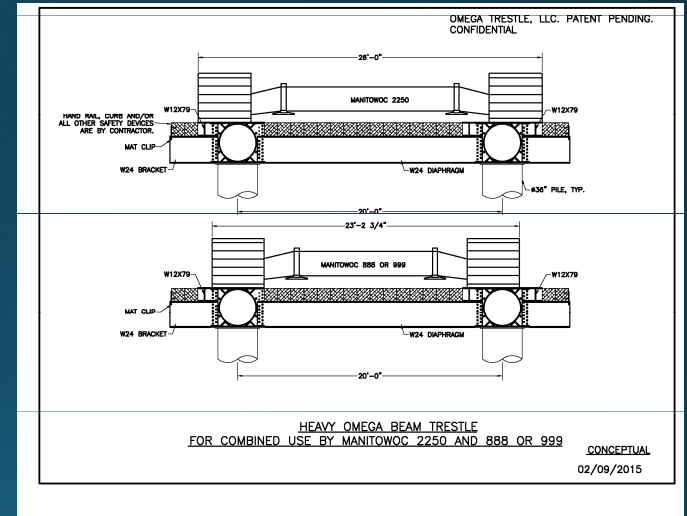
Omega Wing Beam – frame combinations currently in development



OB 36 x 48 w/wing beams
preliminary



300 T and 220 T cranes



300 T and 250/275 T cranes

Omega Project

Phase II



TESTING



MANUFACTURING



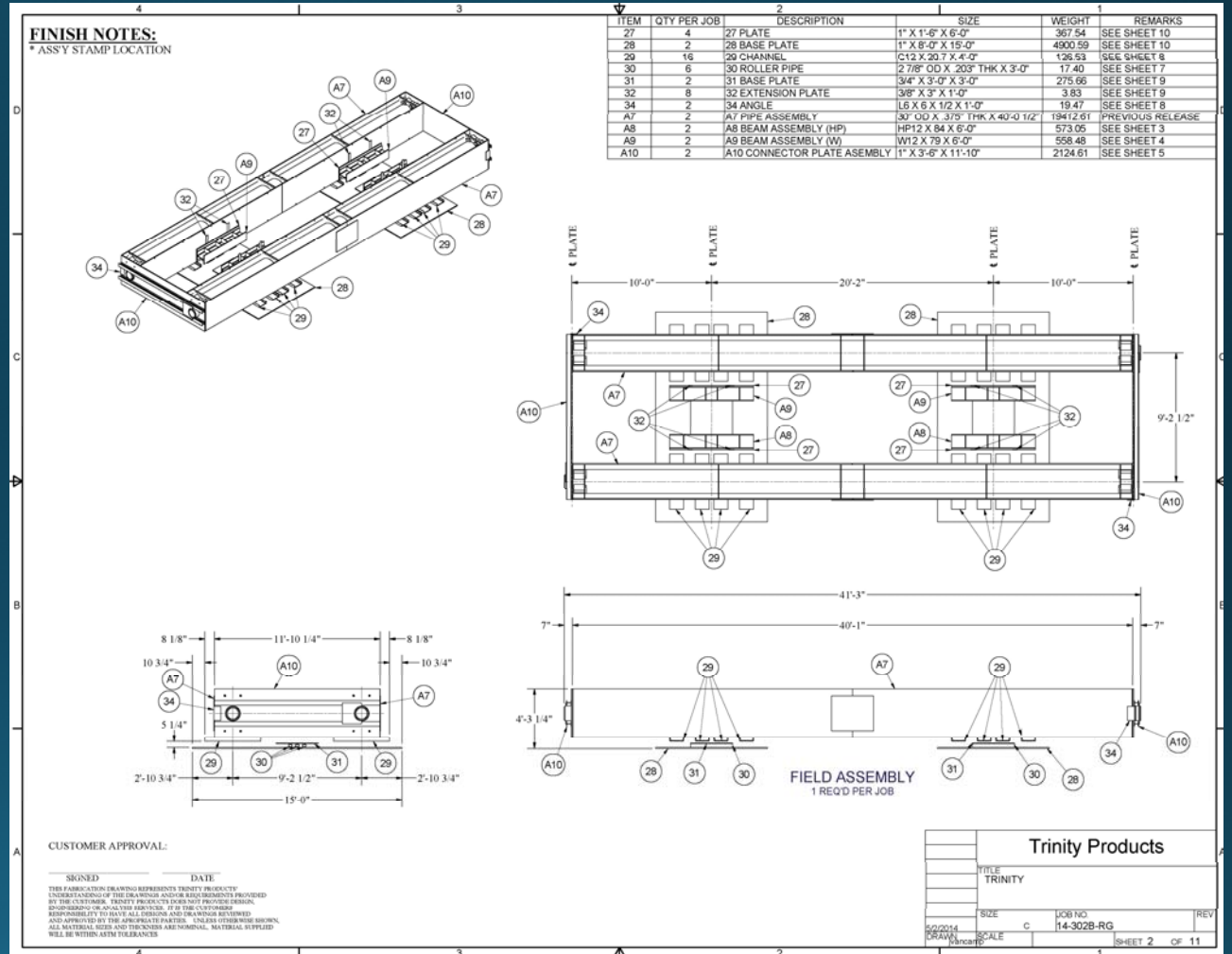
FIELD DEPLOYMENT

TESTING

TEST 1

Maximum Bending Moment

Maximum Shear & Full shear end connection test



TESTING

Proof Load
600 Tons



Two (2) 800 Ton Jacks Certified and Calibrated
Application of jack forces and instrumentation was in general accordance with
ASTM 1143/D 1143M-07 and adapted for this horizontal application.

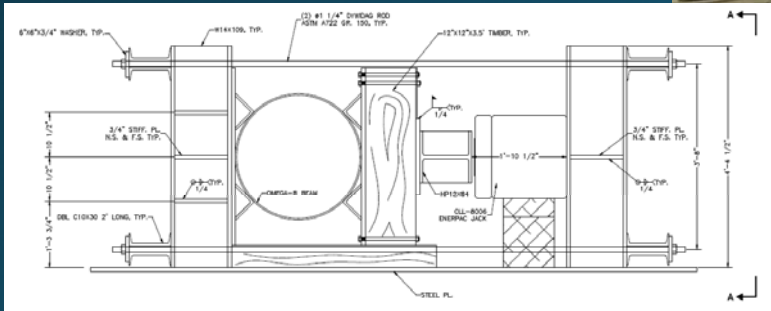
TESTING

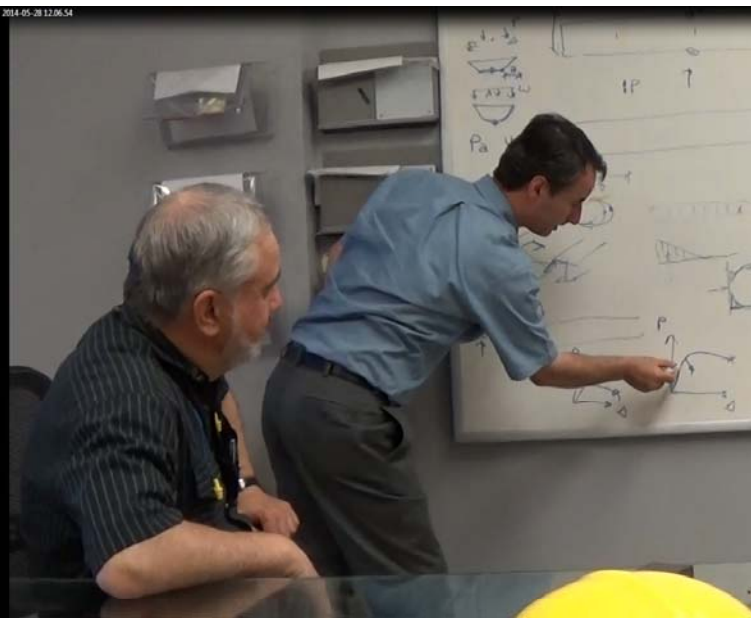
Proof Load 275 Tons

TEST 2

Compression Test

Localized
"Crush Test"





Special thanks to:

The Ohio State University &
Dr. Halil Sezen, P.E.
Professor of Civil Engineering

Dr. Sezen provided his valuable assistance with
the static load tests on the Omega Beams in
St. Charles MO in May & June 2014.

We look forward to continuing our knowledge
sharing relationship with The Ohio State
University and Dr. Sezen.

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MANUFACTURING

Nearly 3,000 LF of beams moved into production in late 2014

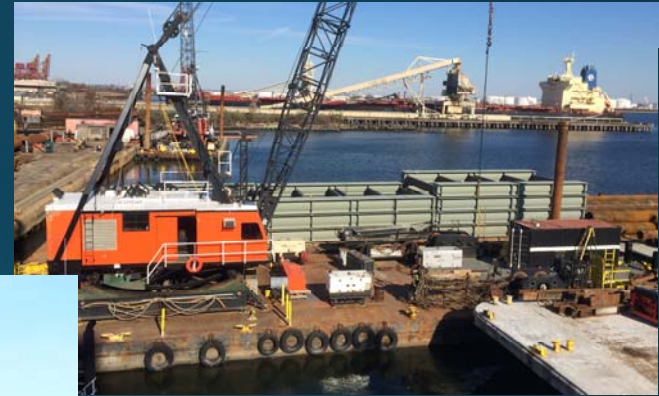


MANUFACTURING



FIELD DEPLOYMENT

1,200 LF Trestle for a 300 Ton Manitowoc 2250 Crane on the Eastern Shore of MD



FIELD DEPLOYMENT



THANK YOU !

The Omega Project has
moved from
Concept to Reality

Special Thanks to Trinity
Products, Inc. for the use of
their facilities and the
assistance of their skilled team.

We are fortunate to know
Robert Griggs.

He is a visionary, and a true
modern industrialist.

“The Spirit of St. Louis”



Trinity Products

