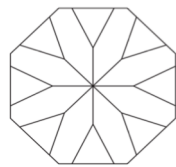
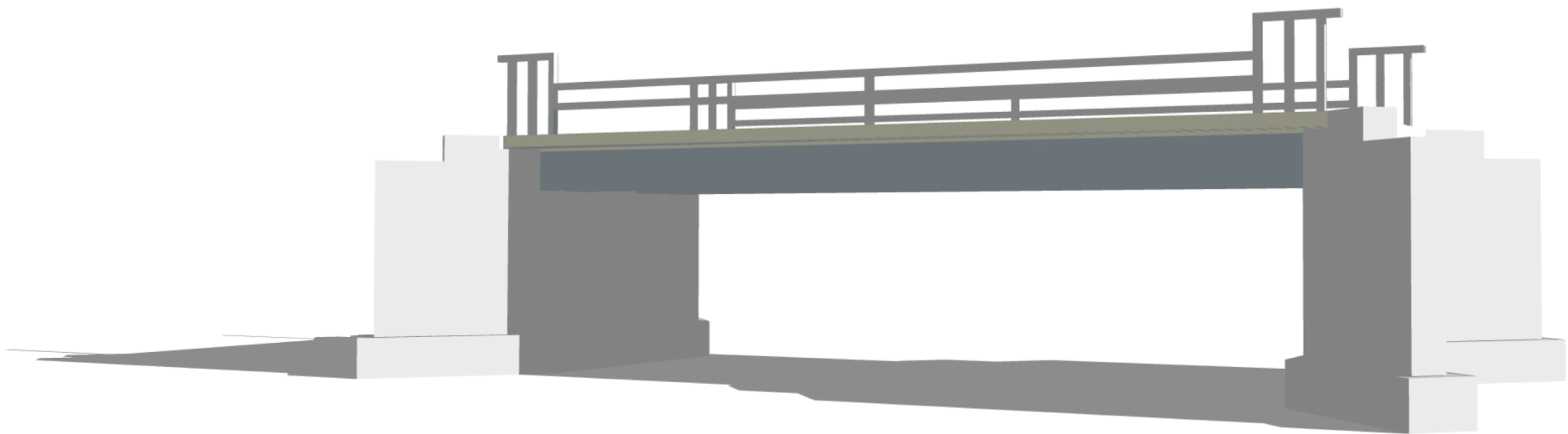


Mitchell Bridge

43° 45' 46.08" N
72° 22' 45.12" W

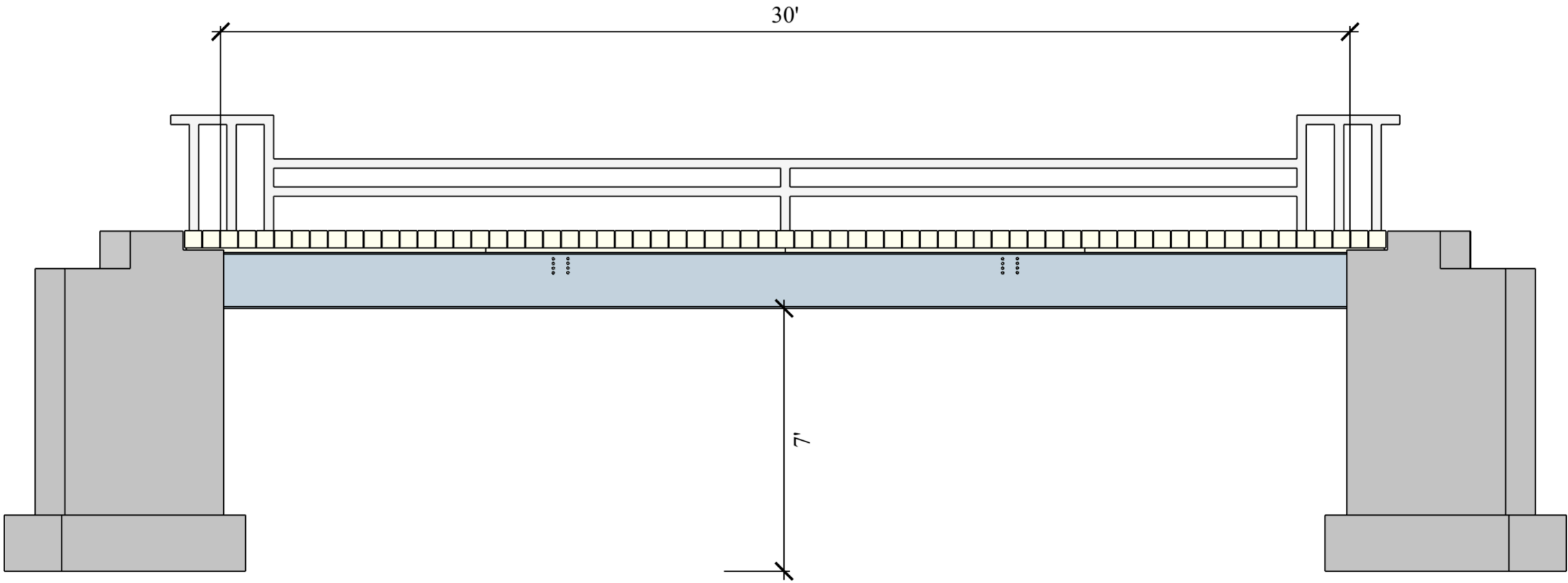


Mitchell Bridge

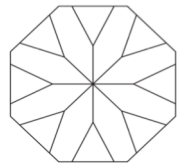
Designed June
2018



Left



Nick Fabrikant
Civil Engineer



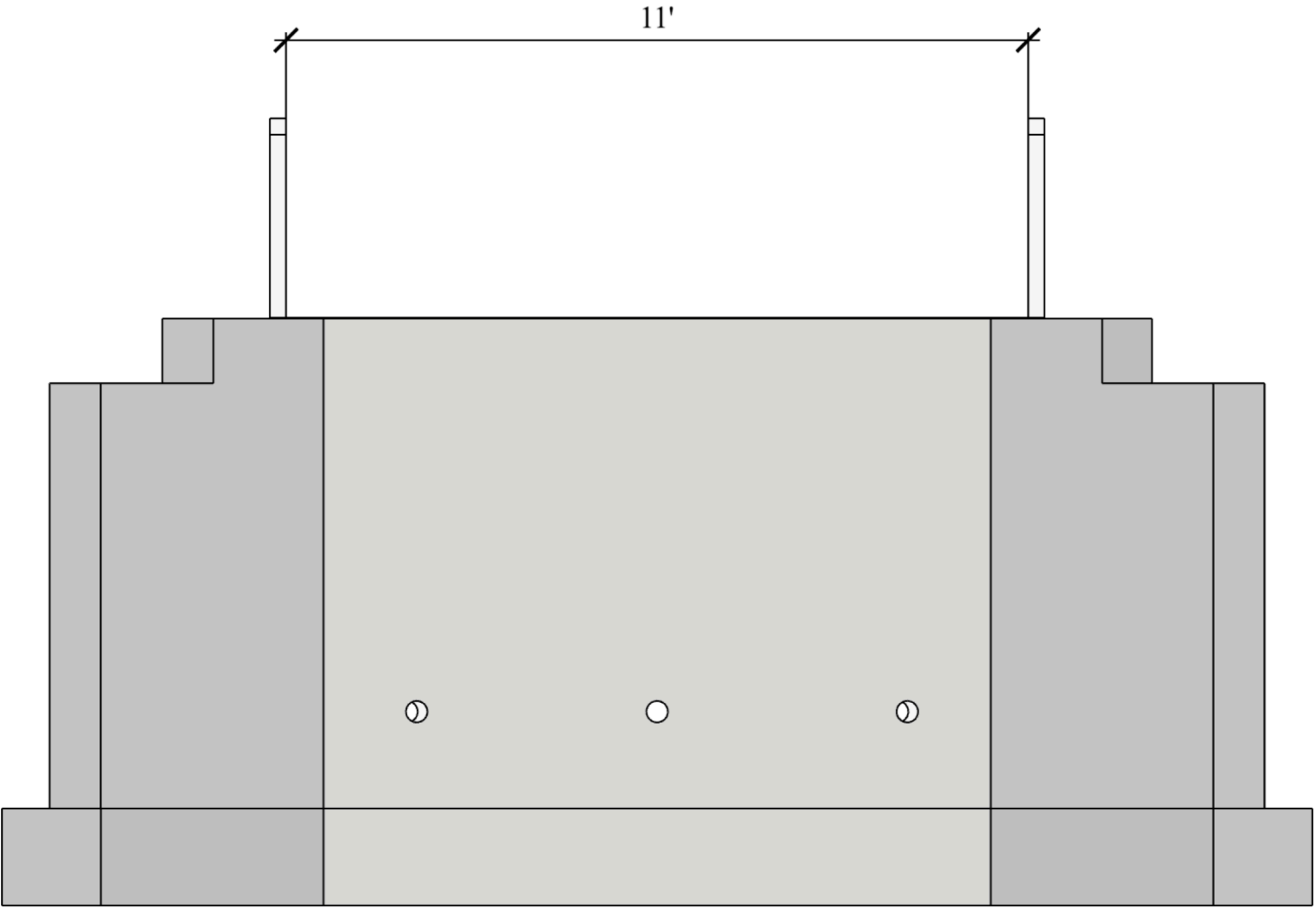
A3.1

Mitchell Bridge

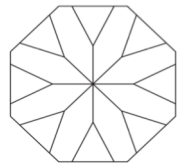
Designed June
2018



Front



Nick Fabrikant
Civil Engineer



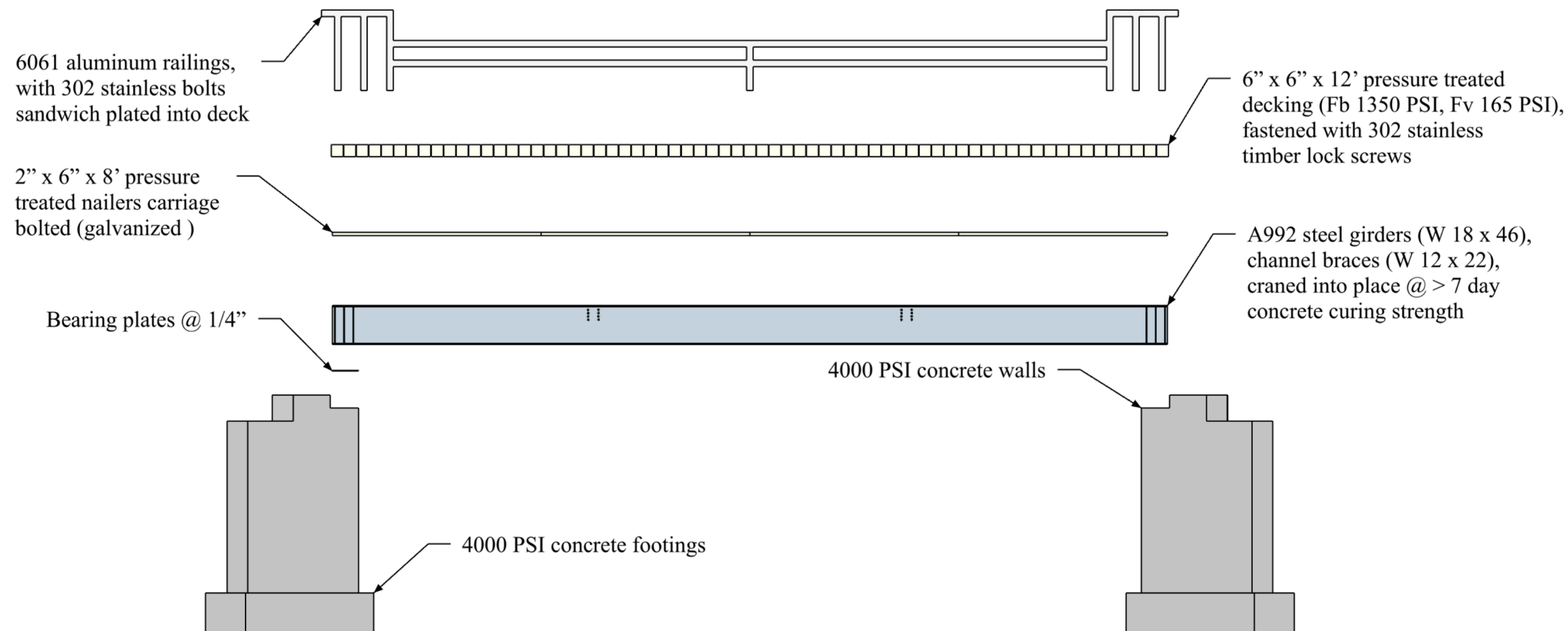
A_{3.2}

Mitchell Bridge

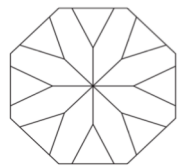
Designed June
2018



Left



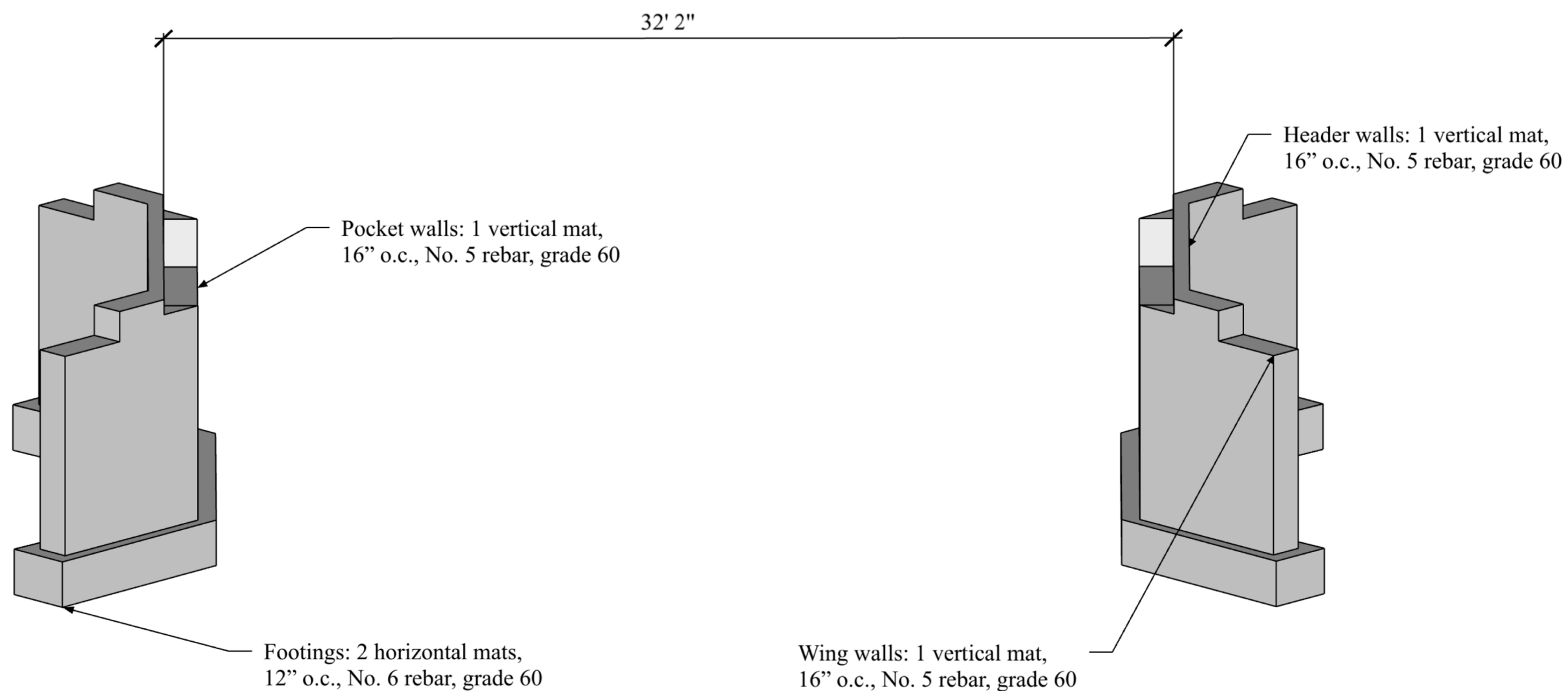
Nick Fabrikant
Civil Engineer



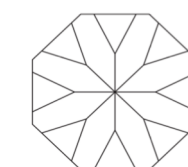
A3.3



All concrete @ 4000 PSI,
footings pinned to existing ledge,
or established 5' below stream grade



Nick Fabrikant
Civil Engineer



Designed June
2018

A schematic diagram of a bridge structure. It features two vertical piers supporting two spans. The spans are represented by two parallel lines sloping downwards from the piers towards the ends of the bridge. The bridge deck is shown as a horizontal line at the top, with the piers and spans below it.

Technical drawing of a rectangular structure, likely a foundation or wall section, showing dimensions and annotations.

Dimensions:

- Overall width: 12' 6"
- Overall height: 6' 7"
- Top left corner cutout: 1' wide, 1' 7" high.
- Top right corner cutout: 1' 1" wide, 6" high.
- Internal horizontal dimension: 10' 4"
- Internal vertical dimension: 1' 6"
- Horizontal spacing between internal features: 1' 3 1/2", 3' 10 1/2", 3' 10 1/2", 1' 3 1/2"

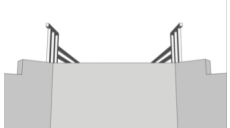
Annotations:

- DIA: 4" Typ. (Diameter 4 inches typical)

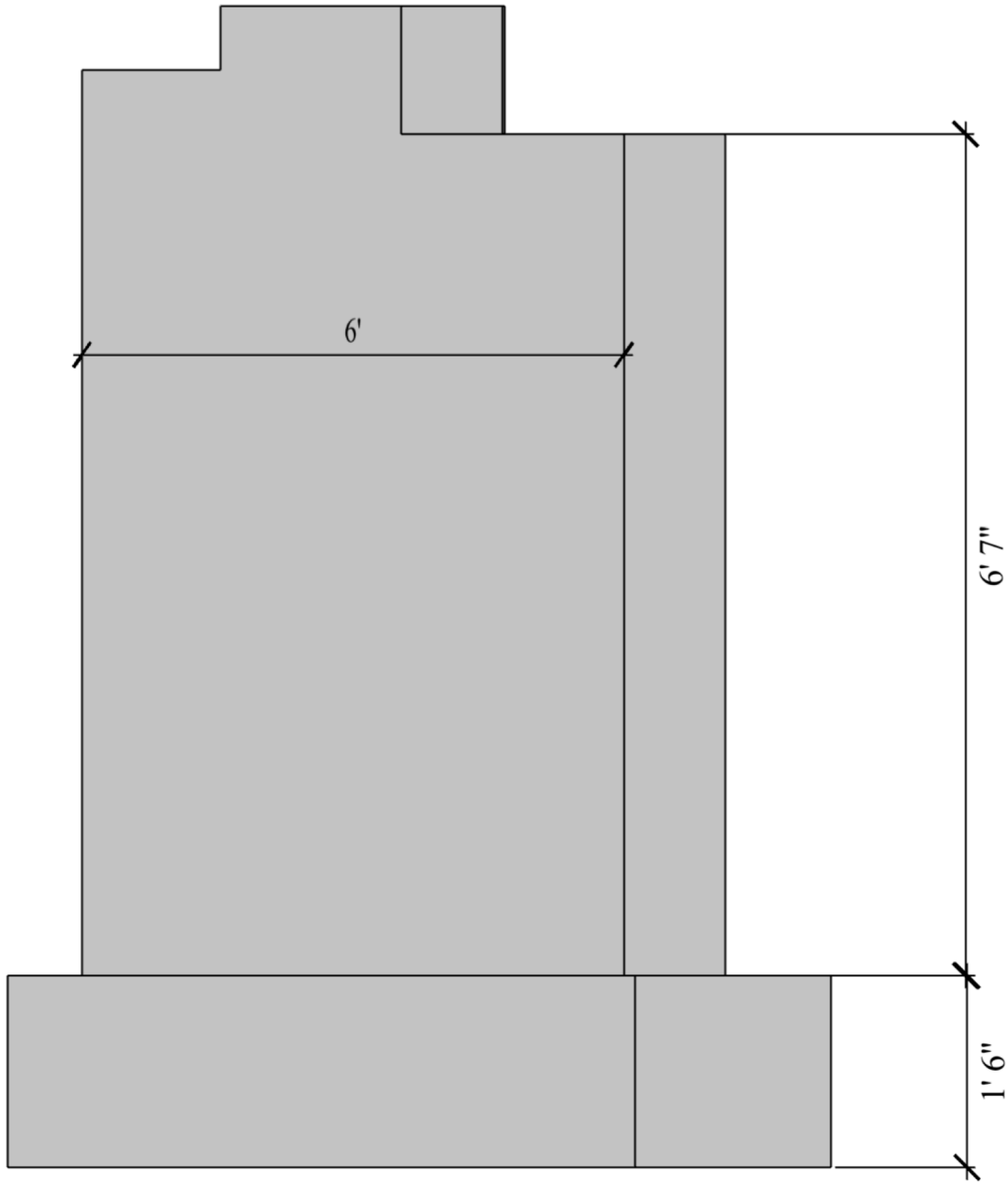
A_{3.5}

Mitchell Bridge

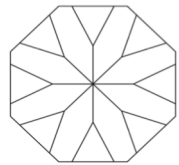
Designed June
2018



Left



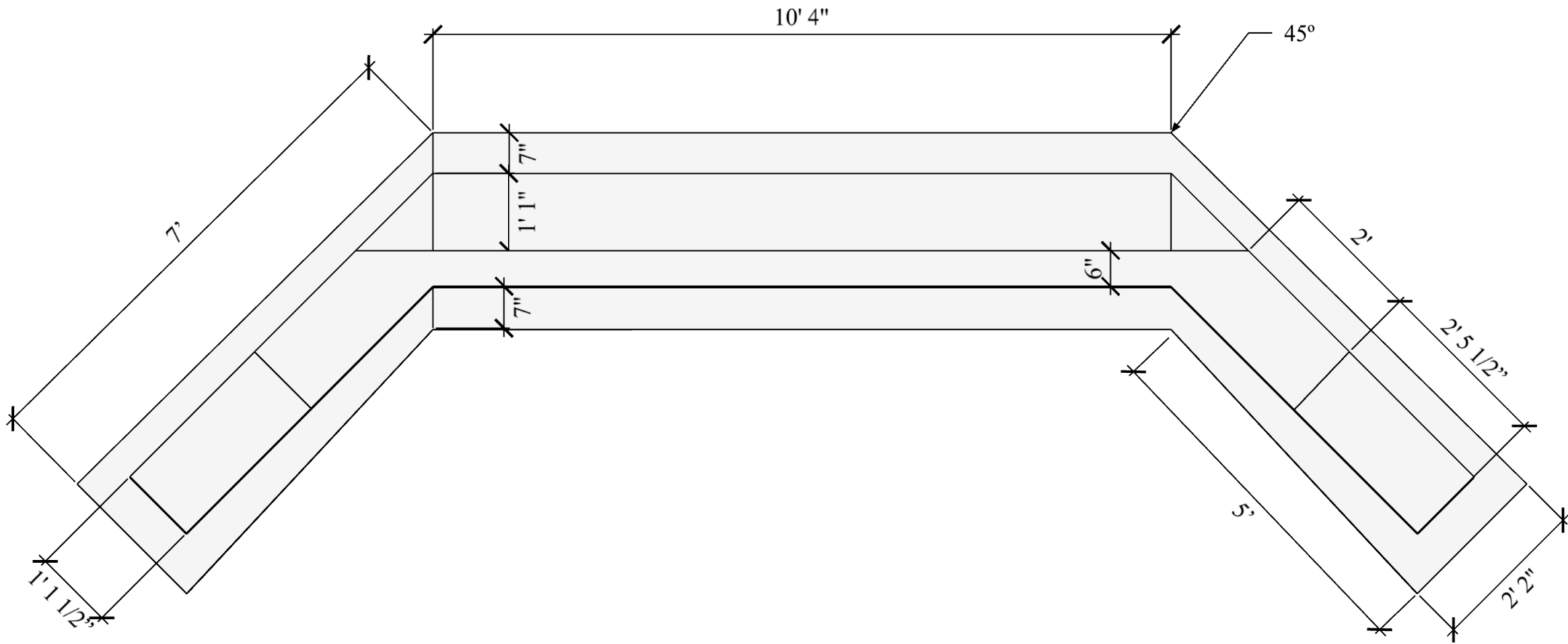
Nick Fabrikant
Civil Engineer



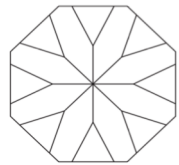
A3.6



Top



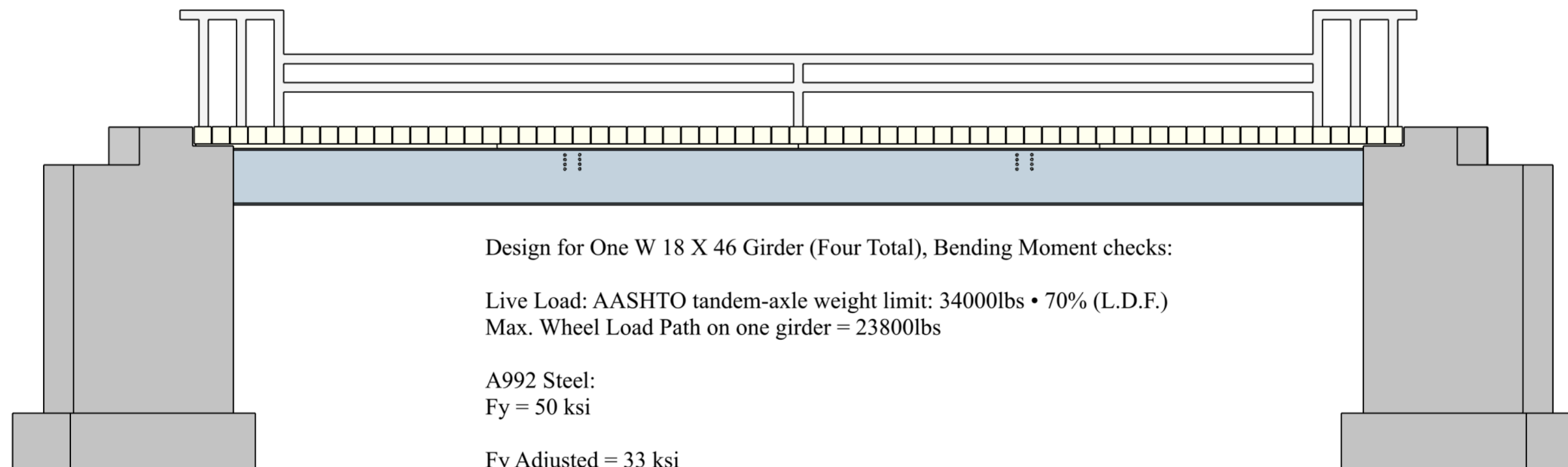
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Civil Engineer



A_{3.7}



Left



Design for One W 18 X 46 Girder (Four Total), Bending Moment checks:

Live Load: AASHTO tandem-axle weight limit: 34000lbs • 70% (L.D.F.)
Max. Wheel Load Path on one girder = 23800lbs

A992 Steel:
 $F_y = 50 \text{ ksi}$

$F_y \text{ Adjusted} = 33 \text{ ksi}$

Design Point Load @ center of single girder, of a simply supported beam:

$23800\text{lbs} \cdot 31' / 4 \cdot = 184450 \text{ lbs.ft} \cdot 12'' / 1000 \text{ lbs} = 2214 \text{ kip.in}$

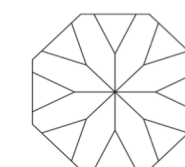
$M_{\text{max}} = 2214 \text{ kip.in (+)} 200 \text{ kip.in Dead Load (with 1.2 F.O.S.)}$

Design Moment (M_{max}) = 2412 kip.in

Design for Elastic Section Modulus:

$S_x = M_{\text{max}} / F_y \text{ Adjusted} = 73.2\text{in}^3 < 78.8\text{in}^3$, Satisfied

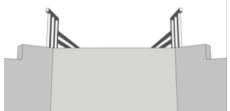
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A_{3.8}

Mitchell Bridge

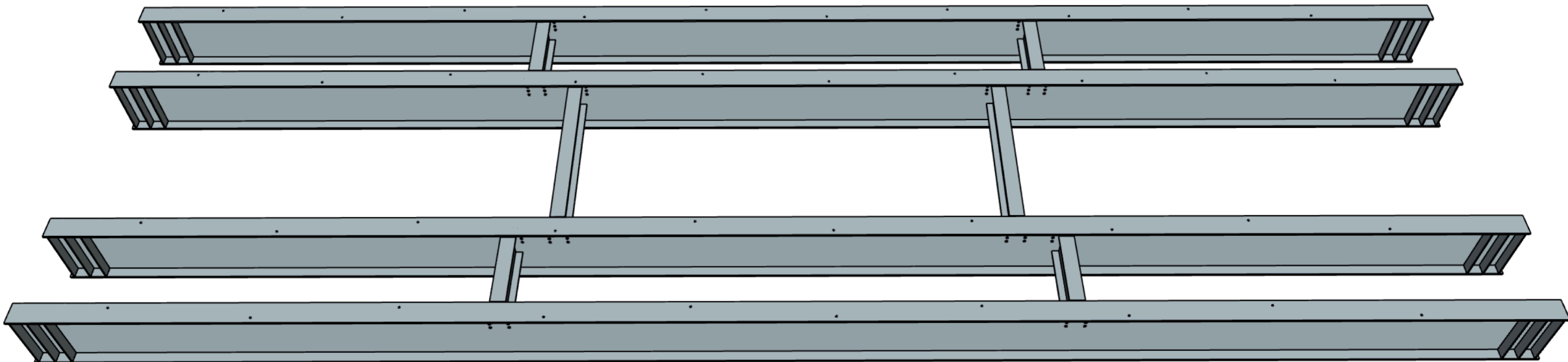
Designed June
2018



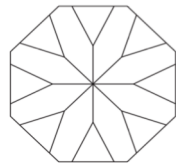
W 18 X 46 Main Girders, 4 total

W 12 X 22 Channel Braces, 6 total

All W-sections, Angles, A325 Bolts, Galvanized



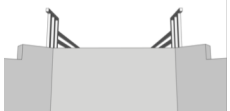
Nick Fabrikant
Civil Engineer



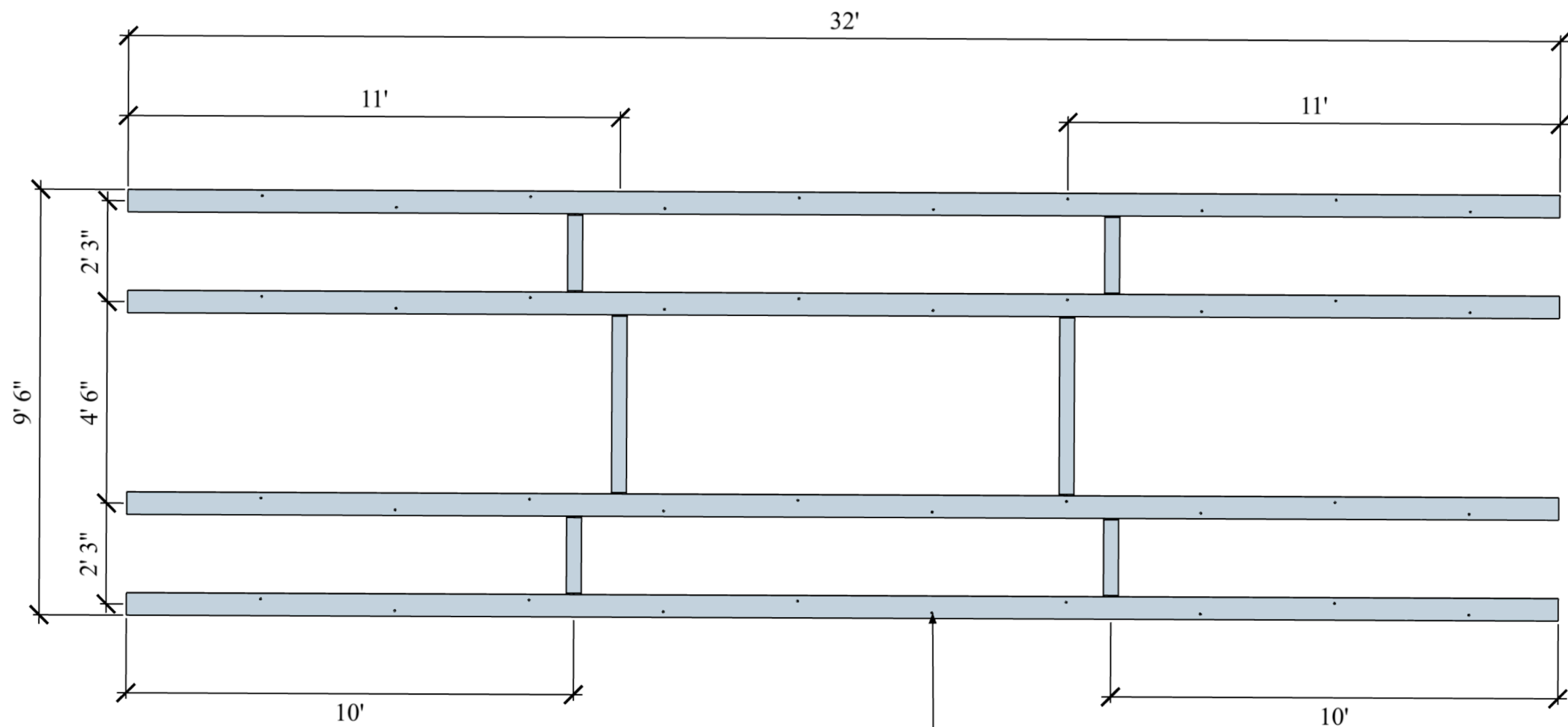
A_{3.9}

Mitchell Bridge

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2018

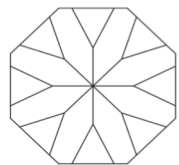


Top



Nailers: DIA: 1/2" staggered for P.T. boards

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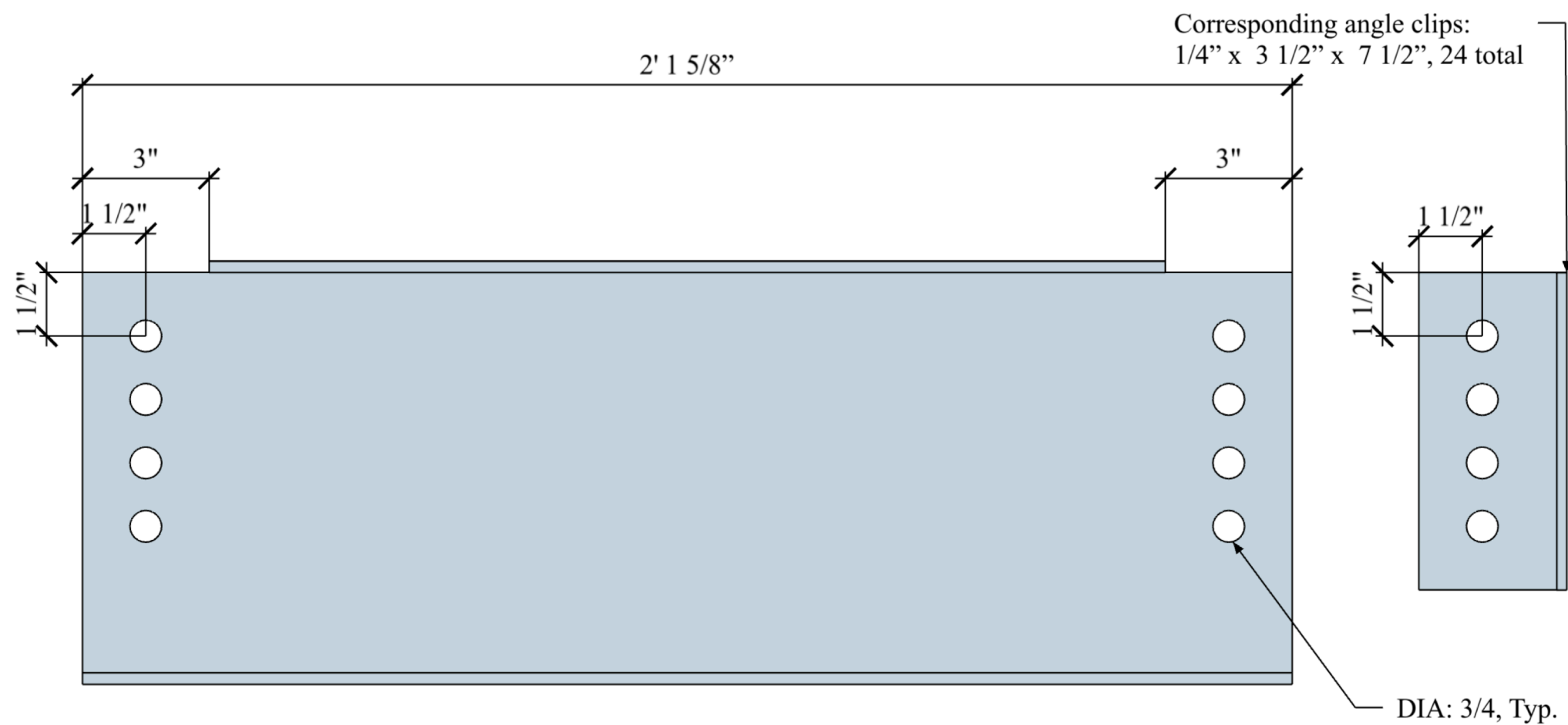


A3.10

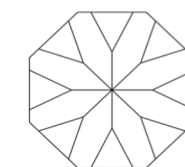


Back

4 Channel Braces, W 12 X 22, A 325 Bolt Connections



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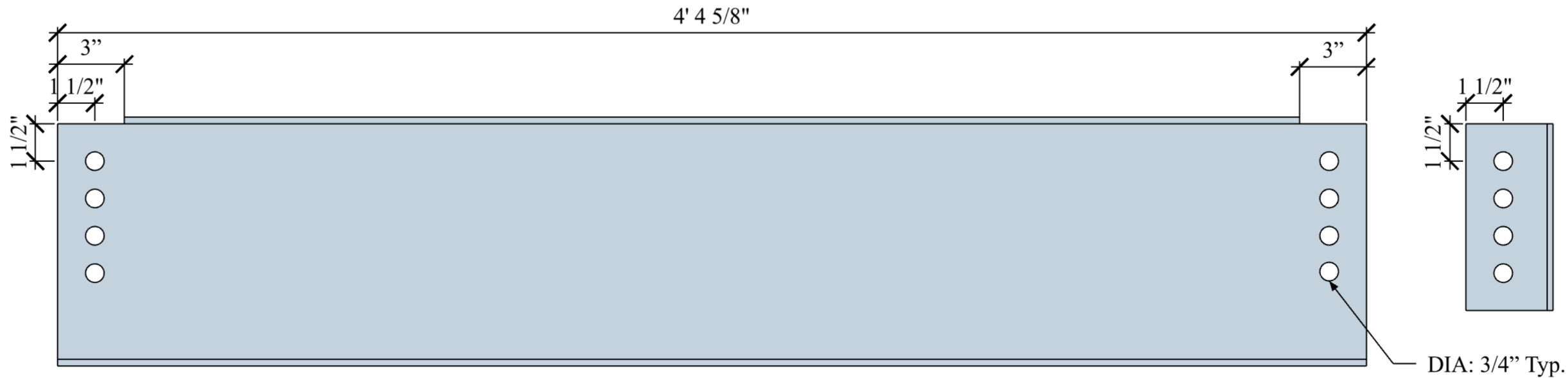


A3.11

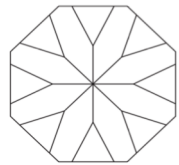


Back

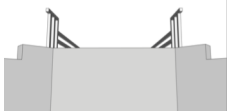
2 Channel Braces, W 12 X 22, A 325 Bolt Connections



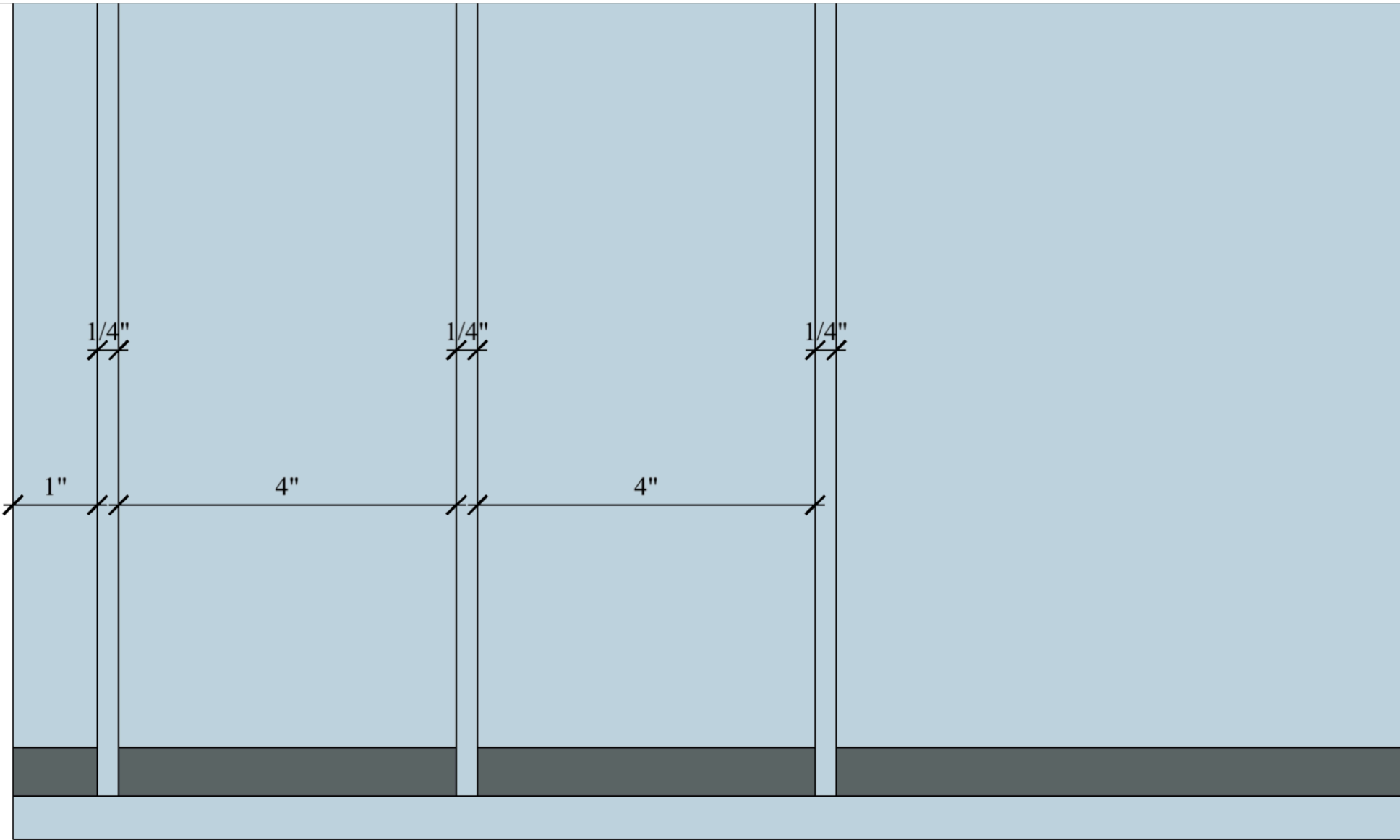
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Civil Engineer



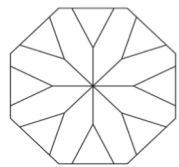
A3.12



Web stiffeners, 48 total,
flush with web, top and
bottom flange, dimensions Typ.



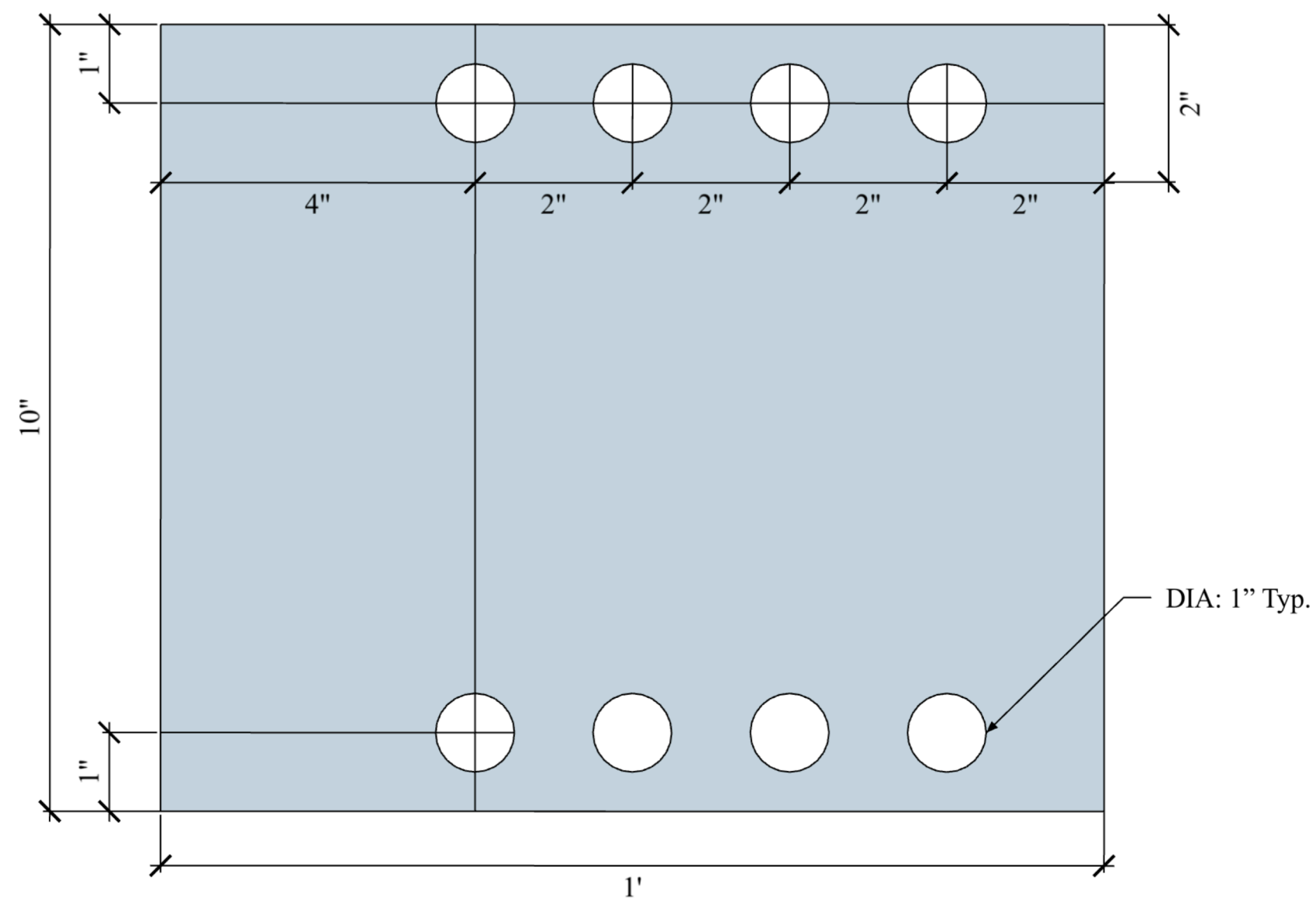
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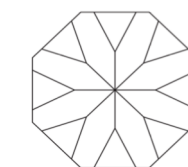


Top

Bearing plates @ 1/4", 8 total, using A325 epoxied threaded bolts (bottom girder flanges welded to plates 2" off longitudinal edges in-shop)



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A3.14

Thank You

43° 45' 46.08" N
72° 22' 45.12" W

