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Mills Platte River Trail Connectivity Study

December 2023



CITY OF MILLS
 EST. 1921



CASPER AREA
 METROPOLITAN PLANNING ORGANIZATION
 Casper • Mills • Evansville • Borger • Natrona County



Disclaimer:

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Executive Summary

Project Overview

The Mills Platte River Connectivity Study was conducted to determine the feasibility of construction of a pedestrian crossing on SW Wyoming Boulevard along with a pedestrian crossing of the North Platte River from the Mills riverfront to the north of the river to the south side of the river near the Fort Caspar Museum. The Mills Comprehensive Plan and the Mills River Front Concept Development plan outline the need and opportunities to improve connectivity from the heart of Mills, Wyoming to the greater trails system.



Mills riverfront looking southeast with SW Wyoming Boulevard in the distance

Purpose and Need

Before the City of Mills was established in 1921, this site was a significant historical crossing for emigrants along the Oregon and Mormon Trails. Brigham Young arrived at the site on June 12, 1847 on his way to the Great Salt Lake Valley. Due to flooding on the North Platte River, Young commissioned the construction of a ferryboat to aid in crossing of the river near this location. In 1859, a permanent bridge was constructed and trading post were established by Louis Guinard. This post would eventually become a military outpost known as Fort Caspar.

Today, the City of Mills has a population of over 4,000 residents and continues to grow. The city currently has around four miles of pathway that are part of the greater Platte River Trails system of over 45 miles of trails spanning the Caspar area.



Mills residents can access the Platte River Trails at First Street Park and at SW Wyoming Boulevard near 1st Street. The City of Mills currently has plans to add roughly three miles of pathway to connect the Robertson Hills neighborhood and other residential neighborhoods to the larger pathway system and the Mills riverfront. The City of Mills and the Casper Area MPO want to provide a safe crossing from the riverfront that showcases some of the underutilized beauty in the area.



Study area

▶ Process

Stakeholder meetings were conducted with Mills staff, MPO, and WYDOT before four SW Wyoming Boulevard crossings and three North Platte River Crossings were developed. The aforementioned crossings were presented to the community in the summer of 2023 at the Mills Summer Fest and the Platte River Trails Riverfest where feedback was collected from the public and visitors. Input was evaluated and taken into consideration for the final recommendation.



► Preferred Alignment

Multiple options were presented and evaluated with the intent of best serving the needs of the project and community in mind. Factors taken into consideration during the evaluation process include: pedestrian safety, constructibility, cost, user experience, vehicle interactions, future plans, and property ownerships.

The selected alignment meets all the project criteria. The locations will allow the community to safely experience this area of Mills and Fort Caspar while limiting pedestrian and vehicular interaction.



Introduction

Introduction

Founded in 1921, the City of Mills has a rich history including being part of the Oregon and Mormon Trails. Two of the many routes used by early settlers heading west came through Mills – Child’s and Poison Spider, both considered northerly routes. Today, Mills connects to a regional network of approximately 45 miles of trails spanning the entire Casper area. Within the existing Mills city limits, there are approximately four miles of pathways connecting to the Platte River Parkway with an additional three miles of pathway currently planned for the future. Mills residents can access the Platte River Parkway at First Street Park and at SW Wyoming Boulevard near First Street.

The purpose of the study is to determine how to proceed with a proposal to move pedestrians safely across the North Platte River on the west side of the existing highway bridge. The options that were explored included two locations for a pedestrian bridge crossing over the North Platte River and a pathway attached to the existing Wyoming Boulevard bridge.

A pedestrian and multi-modal crossing of the river near Wyoming Boulevard, and additional connectivity and access to existing trails along the river near downtown Mills and other future development in the area is important to the community and the safety of the pathway users. The recommended option should serve



Figure 1: Study Area



residents and visitors with links to increased recreational opportunities, extend low-stress transportation networks, and improve all residents' health and safety.

The Casper Area Metropolitan Planning Organization (MPO) previously identified a portion of this project as a near-term priority in the most recent update of the Long Range Transportation Plan: Connecting Crossroads and was requested by the City of Mills to support larger transportation goals for the community.

In addition to the river crossing, a pedestrian crossing of Wyoming Boulevard in Mills to connect the future pathways and the adjacent neighborhoods is imperative. This study examines four potential at-grade crosswalk options and associated apparatus to aide pedestrians as they navigate this busy highway.

As mentioned, CEPI developed three potential options to cross the North Platte River and four crosswalk options to cross SW Wyoming Boulevard. After thoroughly reviewing previous studies, the river crossing locations were chosen based on feasibility, future pathway plans, existing pathway locations, and potential costs. The crosswalk locations were selected primarily based on existing pathway locations and greatest number of residents served. In other words, where would potential pedestrians be coming from and needing to get to? Another, and more important component of the highway crossing is vehicular site lines. Where can vehicles have the most time to see and opportunity to stop for crossing pedestrians? And vice versa.

These three options for each component (river crossing and highway crossing) were presented at two public engagement events and online. Community members were asked for their input where they could select their desired option, tell us why they prefer this option, and provide any additional ideas or input.

▶ Goals and Objectives

| Goal | Objective |
|----------------------------------|--|
| ▶ Enhance Pedestrian Safety | ▶ Reduce likelihood of pedestrian conflicts with vehicles and provide a safe passage across SW Wyoming Boulevard and the North Platte River |
| ▶ Connectivity and Accessibility | ▶ Improve bicycle and pedestrian connectivity and route continuity to support the economic vitality of the area and provide a connected transportation network to more residents |

By addressing these goals and objectives, the Mills Platte River Trail Connectivity Study aims to create a safe, aesthetically pleasing, and sustainable infrastructure that enhances community connectivity and promotes active multi-modal transportation.



▶ Study Process

The study used the following four-step process to develop planning recommendations:

- ▶ Identify issues and needs
- ▶ Develop concepts
- ▶ Develop feasible solutions
- ▶ Develop recommendations

▶ Prior Studies

The following historical planning documents were referenced to support this study:

- ▶ *Long Range Transportation Plan: Connecting Crossroads (2020)*
- ▶ *Casper Area Bicycle and Pedestrian Plan Update (2021)*
- ▶ *Mills Main Street Corridor Study (2020)*
- ▶ *Comprehensive Plan: Uniquely Mills (2017)*
- ▶ *Town of Mills Transportation Plan (2017)*
- ▶ *River Front Property Feasibility Study Final Concept Plan (2016)*



Mills River Front Property Concept Plan from the 2016 River Front Property Feasibility Study



The Site

A Significant Historical River Crossing

Fort Caspar, located in Casper, Wyoming, has a rich history deeply intertwined with the development of the American West. The fort's origins can be traced back to the mid-19th century.

Before present day Fort Caspar became a staple for emigrants traveling westward, Brigham Young arrived at the site on June 12, 1847 on his way to the Great Salt Lake Valley. Due to flooding on the North Platte River, Young commissioned the construction of a ferryboat to aide in crossing of the river. Young had nine ferrymen work the ferry and operate the business every season until 1852. Because of increased emigrant traffic along the route, other seasonal ferry businesses popped up along the river throughout the present-day Casper area.



Guinard Bridge replica at Fort Caspar Museum

included protecting mail routes and to protect and repair damaged telegraph lines caused by raiding Shoshone, Cheyenne, Arapaho, and Lakota.

After the 1864 Sand Creek Massacre in the Colorado Territory, Plains tribes increased raids along the trails the following spring of 1865. On July 26th of 1865, Lieutenant Caspar Collins and his men left Platte Bridge Station to escort an incoming supply train traveling from Sweetwater Station. Less than a mile from the bridge, Collins' men were ambushed by Arapaho, Cheyenne, and Lakota. Five soldiers, including Lt. Caspar Collins, were killed in the skirmish that later became known as the Battle of Platte Bridge.

The first permanent occupation here was established in 1859 when Louis Guinard built a bridge and a trading post at the future Fort Caspar site. From 1859-1862, the bridge and trading post served as an Overland Stage Company stop and a Pony Express relay station in 1860-1861.

In 1862, during the height of the Civil War, the outpost became known as the Platte Bridge Station. Due to unrest in the area with the native Plains tribes, the U.S. Army sent troops to the area to establish a fort. The troops objectives




In the fall of 1865, the fort was renamed Fort Casper in honor of Lieutenant Caspar Collins. The Special Order 49 documents which renamed the fort misspelled the fallen lieutenant's name. His first name was used for the fort because there was already a Fort Collins in Colorado named after his father. That same autumn, more troops arrived at the post which brought the total troops on duty to over 250. Over the next two years a new fort was erected. The new fort had twenty new buildings with enough housing for 400-500 troops. The fort played a significant role in providing protection for settlers, traders, and emigrants, as well as serving as a supply depot.

The Mormon Ferry and Platte Bridge Station were essential components of the Overland Trail, a route used by thousands of pioneers seeking a better life in the West. The North Platte River crossings, facilitated by the ferry and later the bridge at the station, were critical for westward expansion.



Battle at Platte Bridge Station - By William Henry Jackson (1933)





Over time, as the demand for military presence waned, Fort Caspar transitioned into a civilian settlement. Today, Fort Caspar Museum stands as a testament to the area's historical significance, preserving artifacts and offering insights into the challenges and triumphs of those who shaped the region during the 19th century. The Mormon Ferry and Platte Bridge Station remain integral parts of this narrative, symbolizing the westward movement that defined the American frontier. Today, the significance of the North Platte River in the Mills community is still vital. Its use is primarily recreation and the need to safely cross the river is no less important.

The Site Today

Today, the site of the old Platte Bridge Station is unrecognizable with Wyoming Boulevard crossing the North Platte River to the east before veering west into the heart of the City of Mills. Directly across the river from the Fort Caspar Historical Site is an undeveloped parcel of land owned by the City of Mills. Though nothing is currently slated for this site, the city hopes to eventually develop this area with a park and trails to attract families, the arts, and restaurants creating a vibrant space for residents and neighboring community members to enjoy.

This Mills riverfront site, located between the river and busy Wyoming Boulevard, puts it on a virtual island . For pedestrians to access this riverfront site, they must navigate the highway. A safe pedestrian crossing is critical.

The Mills Comprehensive Plan lays out a plan to create a bustling Downtown Riverfront District in this area and the Riverfront Feasibility Study proposes continuing the paved trail along this piece of riverfront via a pedestrian bridge and connecting it to the proposed pedestrian crosswalks on SW Wyoming Boulevard and 1st, 2nd, 3rd, and 4th Streets.

The Platte River Trails currently has a pathway to the east of the Wyoming Boulevard bridge in Mills but there is no crossing on the highway. The trails system also has an underpass on the south side of the river under Wyoming Boulevard into the Fort Casper site.

Connecting the neighborhood north of the riverfront in Mills would provide a large portion of Mills residents a new access to multi-modal transportation and recreation.



Design Development

Design Development

CEPI conducted three meetings with stakeholders including Mills, Wyoming Department of Transportation (WYDOT), and Metropolitan Planning Organization (MPO) officials. In these meetings locations of river crossings and highway pedestrian crossings were discussed. WYDOT stated that there are currently no plans to reconstruct or do any work to the Wyoming Boulevard bridge in the foreseeable future. WYDOT also stated that in order to add a 10-foot pathway on the west side of the bridge would require extensive work and a likely need to extend the existing girders, making this option cost prohibitive.

North Platte River Crossings

From these stakeholder meetings, CEPI developed 3 river crossing conceptual layouts and four pedestrian crossing locations for Wyoming Boulevard. The river crossings consisted of:

- ▶ Alternate 1 – a 400-foot-long pedestrian bridge starting on the west side of the Mills riverfront property, utilizing an existing island to locate a pylon, and ending in at the Isaak Walton Campground.
- ▶ Alternate 2 – a 220-foot-long single span pedestrian bridge starting in the middle of the Mills riverfront property and landing on the northwest portion of Fort Caspar.
- ▶ Alternate 3 – a 10-foot-wide pedestrian pathway attached to the SW Wyoming Boulevard bridge.

All of the river crossings would attach to existing or future multi-modal pathways on north and south side of river and tie into existing Platte River Trails system.





Figure 2 - River and Wyoming Boulevard Crossing Concept





▶ Wyoming Boulevard At-Grade Pedestrian Crossings

The four Wyoming Boulevard street crossings options consisted of:


- ▶ Alternate A – 5th Street crossing at the existing Mills Public Library
- ▶ Alternate B – 4th Street crossing at the Mills City Hall
- ▶ Alternate C – 3rd Street crossing just west of the Wyoming Boulevard curve
- ▶ Alternate D – 1st Street crossing near the Mills Eagle monument just north of the Wyoming Boulevard Bridge near the existing river trail on the east side of the bridge.

All four options would be equipped with pedestrian activated beacons to alert automobiles to the presence of pedestrians.

CONVENTIONAL CROSSWALKS

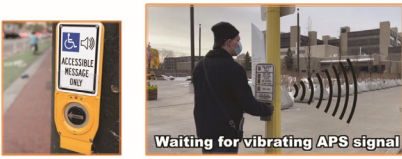



CROSSWALK DESIGN ELEMENTS




APS BEACONS (ACCESSIBLE PEDESTRIAN SIGNALS)

- PUSH BUTTONS ALIGN WITH CROSSWALK
- AUDITORY, VISUAL, AND/OR VIBRATORY CUES AIDE HEARING AND VISUALLY IMPAIRED







Waiting for vibrating APS signal



ADDITIONAL SAFETY FEATURES


HIGH INTENSITY ACTIVATED CROSSWALK (HAWK)

- USED FOR PEDESTRIAN TRAFFIC ACROSS BUSY ROADS
- PEDESTRIANS ACTIVATE THE TRAFFIC SIGNAL FOR SAFE CROSSING
- ALERTS MOTORISTS TO PEDESTRIAN PRESENCE

PEDESTRIAN REFUGE ISLANDS

- LIMIT PEDESTRIAN EXPOSURE IN AN INTERSECTION
- INCLUDE CURBS, BOLLARDS OR OTHER SAFETY FEATURES
- CAN BE ENHANCED USING PLANTINGS, STREET TREES, BENCHES OR OTHER FEATURES








Figure 3 - Crosswalk Design Elements



Community Engagement

Community Engagement

CEPI conducted two community engagement events over the summer. On June 10th, 2023 Mills held their annual Summer Fest at Freden Park. CEPI displayed four possible locations for pedestrian crossings on SW Wyoming Boulevard and three crossing locations for the North Platte River.

We then spoke with attendees to collect feedback and their preferred options. CEPI also sent these options to other stakeholders such as Fort Caspar Museum and the Platte River Trails for feedback.



Summer Fest Event at Freden Park in Mills

The results of the feedback were displayed at the Platte River Trails Riverfest on August 19th, 2023 to collect additional feedback from avid trail users.



Riverfest Event at Castle Park at Crossroads



▶ Additional Community Feedback

▶ *We would use the trail often if it connected across the river to Fort Caspar Museum.*

▶ *We live near City Hall and would love to see a safe crossing for pedestrians here. We would use the trail often.*

▶ *When I was 12 yrs old I was crossing and was hit by a car on my bike at 2nd Street. People drive way too fast on Wyoming Boulevard and don't pay attention. 1st Street crossing would be dangerous because of the curve. 5th street is dangerous because of the hill and curve there. A highly visible street crossing is needed.*

▶ *I had knee surgery and need to walk more for physical therapy. I would use a trail along the river and the shorter pedestrian bridge.*

▶ *Mills needs a gathering area for events and this space is perfect for that.*

▶ *I want a crossing by 1st Street because I love to fish near the dock.*

▶ *It doesn't matter to me I don't walk anywhere.*

▶ *I think the 1st Street crossing is way too dangerous.*

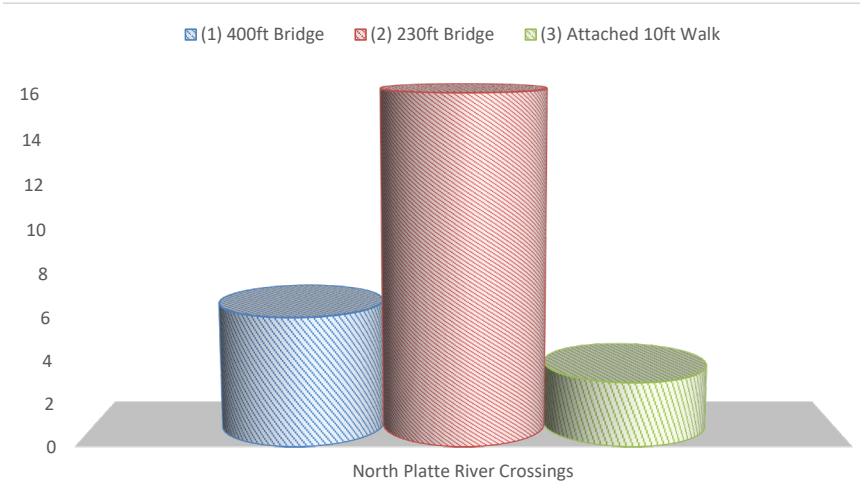


Figure 4 - North Platte River Crossing Poll Results

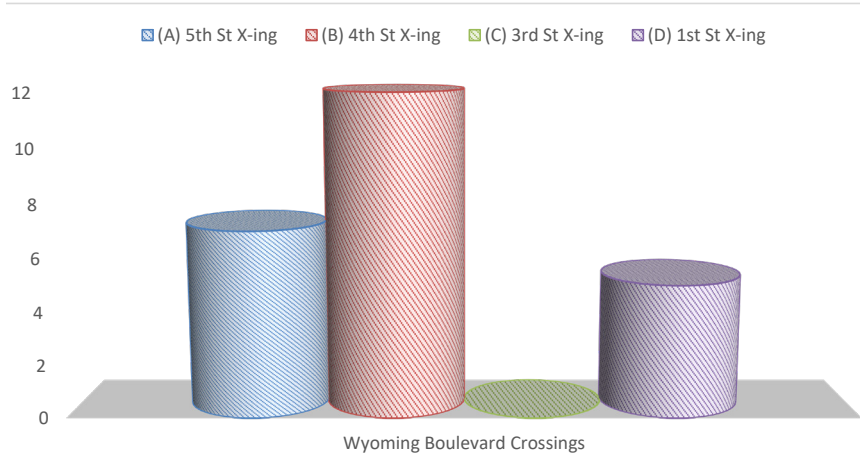


Figure 5 - SW Wyoming Boulevard Pedestrian Crossing Poll Results





▶ Additional Community Feedback

- ▶ *I like option B & 1 because it is less restrictive to the lands on the river. Mills would have more room to develop.*
- ▶ *Loop the end of the path by Wyoming Boulevard for a terminus.*
- ▶ *The middle bridge option is the best spot to cross within the current condition.*
- ▶ *We definitely need a bridge crossing here.*
- ▶ *The proposed bridge is right adjacent to known archaeological site for the Guinard bridge. Are there plans for archaeological mitigation? Can the proposed bridge be moved slightly more east if that location is selected? Moving further to west from the proposed location will also impact one of the City of Casper well sheds.*
- ▶ *There was a dump area for Wyo Blvd construction and it used to bubble up old tar in the summer. I am not sure it has been cleaned up. This will need to be confirmed.*
- ▶ *The museum staff preference would be along the existing Wyo Blvd Bridge. In any case, we look forward to working with you for whichever site is eventually selected.*



▶ Recommendations

▶ Preferred Alignment



► Preferred Alignment

Upon evaluation of all the information collected through surveys, public comments, and consideration of the numerous factors that will go into the design, it was determined that most preferred crossing of SW Wyoming Boulevard would be at Option B at 4th Street and the preferred North Platte River pedestrian bridge location would be Option 2 near the historical ferry crossing. The main factors considered were:

- ▶ Public input
- ▶ Pedestrian safety (i.e. sight lines on Wyoming Blvd, locations in relation to vehicles)
- ▶ Constructibility
- ▶ Cost

Other factors for further exploration to consider prior to construction would include:

- ▶ Archaeological considerations when constructing within a historical area
- ▶ The concern of an old dumping area during the construction of Wyoming Blvd that was raised by Fort Caspar staff
- ▶ Geotechnical exploration of soils
- ▶ Any possible negative effects construction could have to existing City of Casper wells in the area

► Crosswalk Design Considerations

When introducing a pedestrian crosswalk on a busy highway there are several elements that can be introduced to protect pedestrians from vehicular interactions:

- ▶ *Accessible Pedestrian Signals (APS) or High Intensity Activated Crosswalks (HAWK)*
- ▶ Crosswalk signage
- ▶ Pedestrian refuge island - a median with a refuge area that is intended to help protect pedestrians who are crossing a multi-lane road.
- ▶ Colored and/or raised crosswalk



HAWK signal with pedestrian refuge, striping, and signage



Bridge Concept

► Bridge Design

After collecting public input, CEPI worked with Contech Engineered Solutions to develop two preliminary 12-foot-wide single-span pedestrian bridge options and preliminary costs associated with the construction. The bridge drawings can be found in Appendix A.

A single-span, prefabricated bridge is the easiest construction method in this situation because it would not require any piers in the river. In order to achieve this, the span must stay under 250 lineal feet. The base design model from Contech shows the span at 200 lineal feet, but this can be adjusted when the abutments are located and designed to accommodate the real-world location. The two bridge designs are for Contech's Connector and Capstone models. This particular bridge would be delivered to the site in five sections. The bridge is designed with a weathered steel finish and a timber deck.



Connector® Pedestrian Truss



Contech Connector style pedestrian bridge



Capstone® Pedestrian Truss



Contech Capstone style pedestrian bridge



► Cost Estimate

| ITEM DESCRIPTION | UNIT | QUANTITY | UNIT PRICE | TOTAL |
|---|------|----------|--|-----------------------|
| Mobilization & Bonds | LS | 1 | \$250,000.00 | \$250,000.00 |
| Right of Way Acquisitions | LS | 1 | \$70,000.00 | \$70,000.00 |
| Traffic Control | LS | 1 | \$10,000.00 | \$10,000.00 |
| Crosswalk Installation (HAWK, striping, curb ramps) | LS | 1 | \$70,000.00 | \$70,000.00 |
| Unclassified Excavation | CY | 3300 | \$45.00 | \$148,500.00 |
| Embankment | CY | 500 | \$55.00 | \$27,500.00 |
| 5" Concrete Pathway over 4" Crushed Base | SY | 1450 | \$110.00 | \$159,500.00 |
| Bridge Construction (including abutments) | LS | 1 | \$1,500,000.00 | \$1,500,000.00 |
| Signage | LS | 1 | \$15,000.00 | \$15,000.00 |
| Erosion & Sedimentation Control | LS | 1 | \$20,000.00 | \$20,000.00 |
| Re-seeding | LS | 1 | \$12,000.00 | \$12,000.00 |
| | | | Construction Estimate | \$2,282,500.00 |
| | | | Contingency (10%) | \$228,250.00 |
| | | | Final Design and Construction Administration | \$301,290.00 |
| | | | TOTAL | \$2,812,040.00 |

Estimate notes:

- Does not include escalation for inflation
- Does not include permitting fees
- Costs are based on date of estimate only and subject to fluctuation
- Does not include detailed design or engineering fees



Appendix A

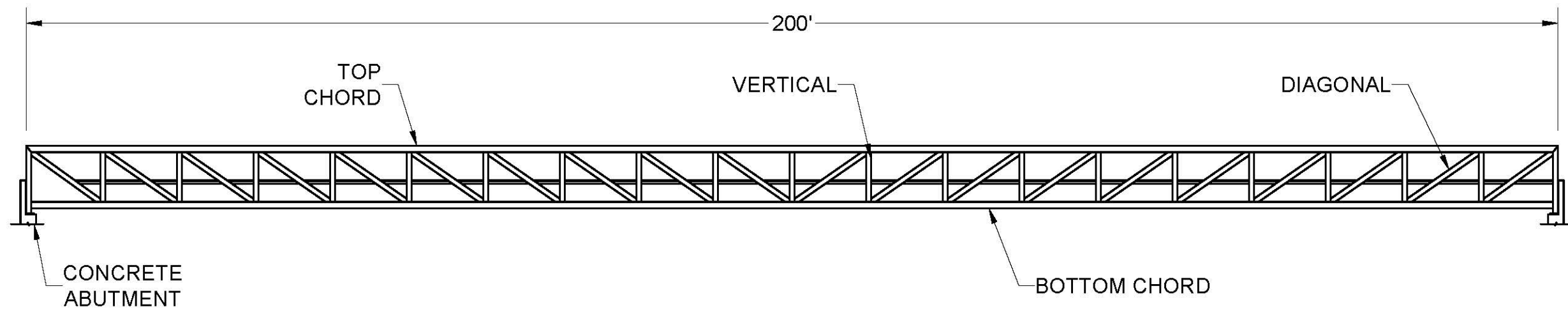
▶ Bridge Designs

BRIDGE SUMMARY

Connector Pedestrian Bridge 200' Span x 12' Width

Deck Type: IPE (Hardwood)

Bridge Finish: Weathering Steel



BRIDGE ELEVATION

The graphic information and details contained in these plans is schematic in nature. The plans, elevations and sections have been developed automatically in a way that demonstrates your current input in a relative and proportional manner. The details included in these plans have been selected to represent commonly built construction assemblies. These are not Engineering drawings, and as such, the details may vary in the final design for your project depending on many variables that are selected in your final scope of work and specifications.

PRELIMINARY
NOT FOR CONSTRUCTION



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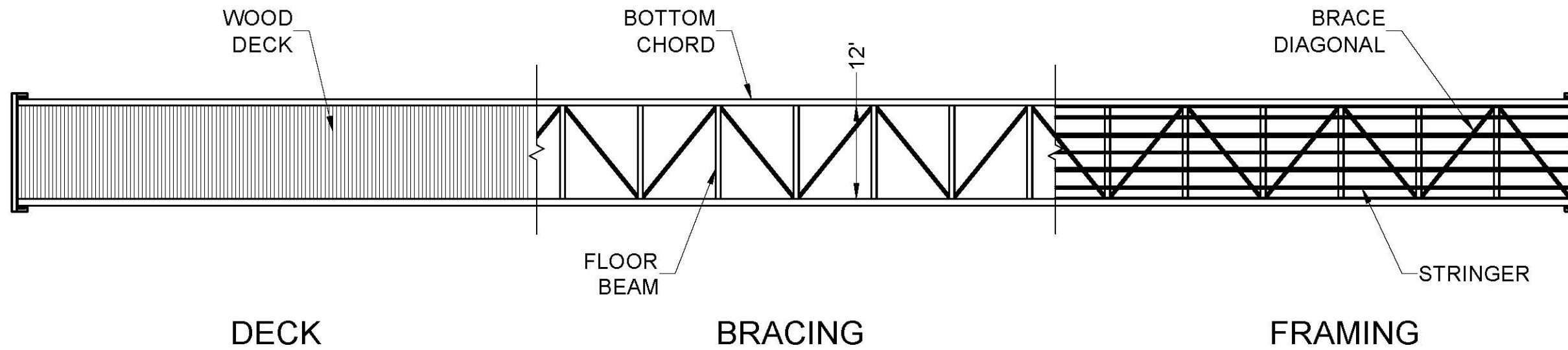
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CONTINENTAL
BRIDGE

CONTECH
DYOB®
DRAWING

Connector® 200' Span x 12' Width
Mills Bridge Study
Pedestrian Bridge
Mills, Wyoming

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| DESIGNED: DYOB | DRAWN: DYOB |
| CHECKED: | APPROVED: |
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BRIDGE PLAN

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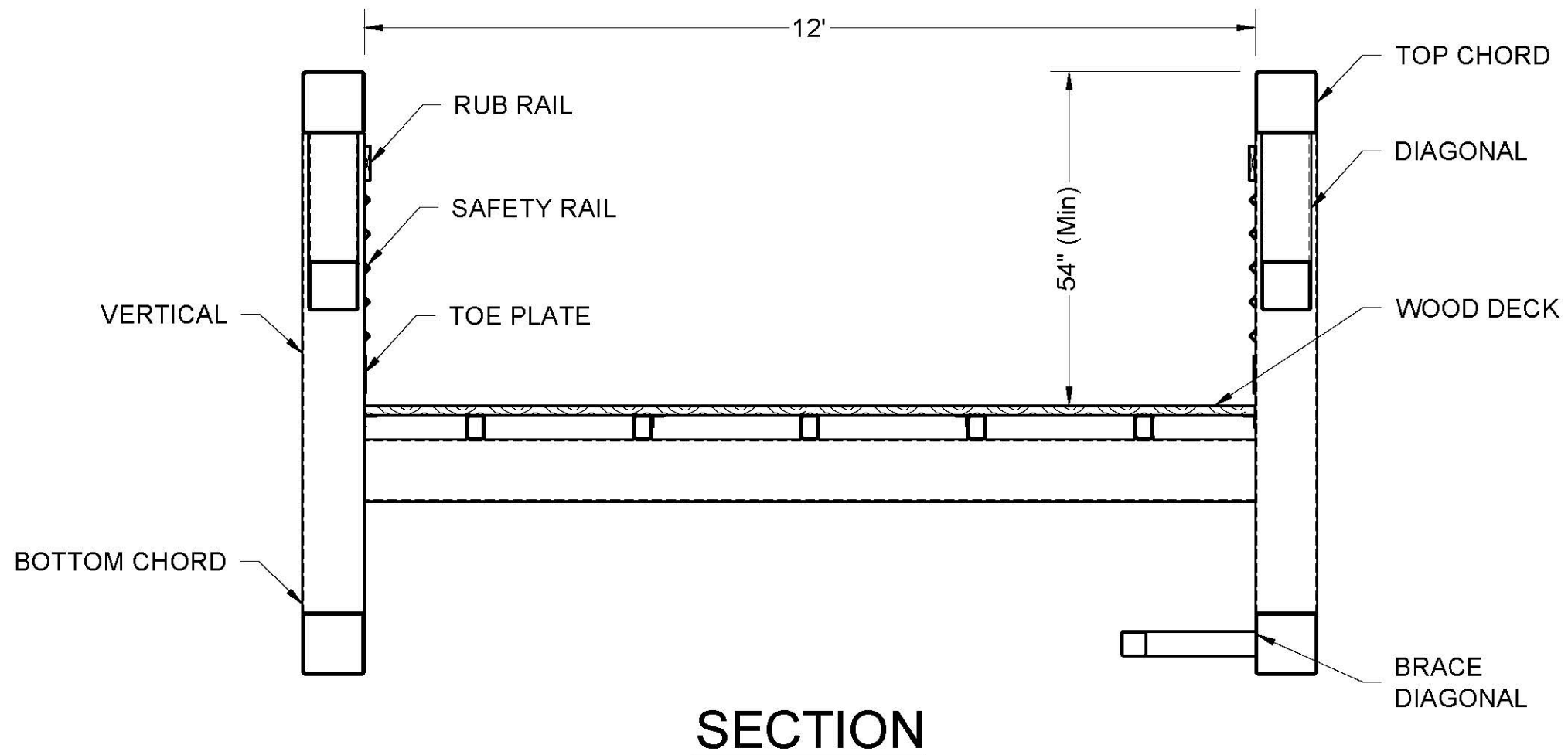

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CONTINENTAL
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Connector[®] 200' Span x 12' Width
 Mills Bridge Study
 Pedestrian Bridge
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SECTION

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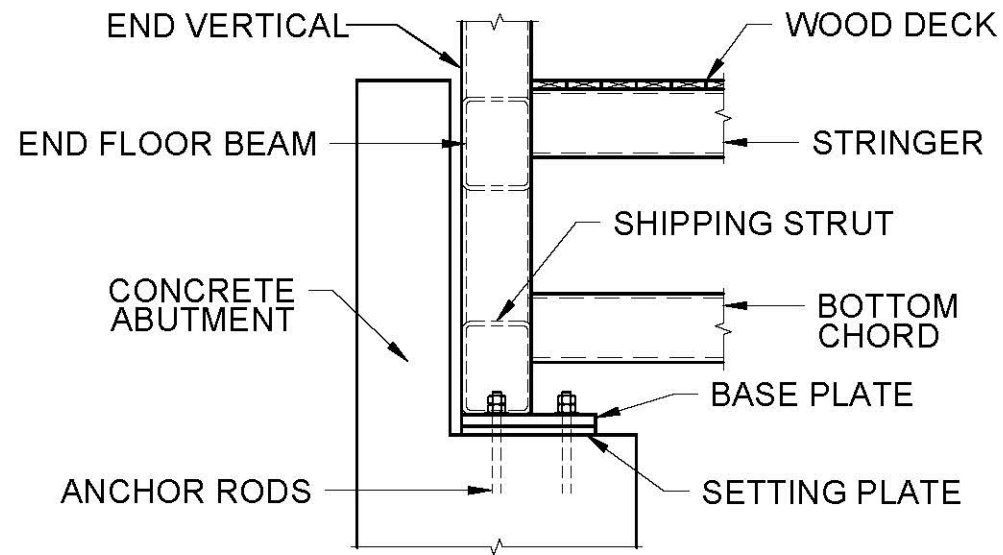

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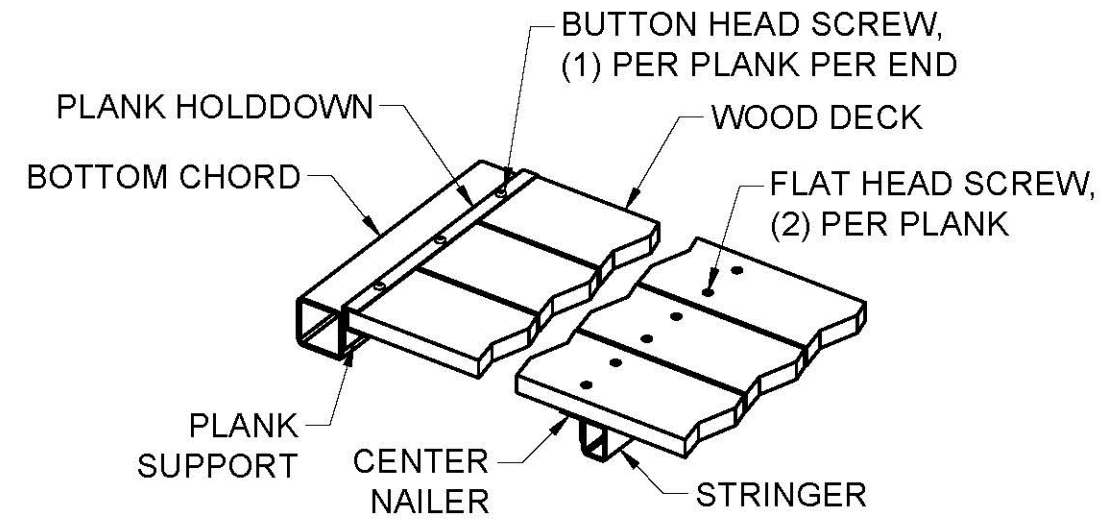
Connector® 200' Span x 12' Width
 Mills Bridge Study
 Pedestrian Bridge
 Mills, Wyoming

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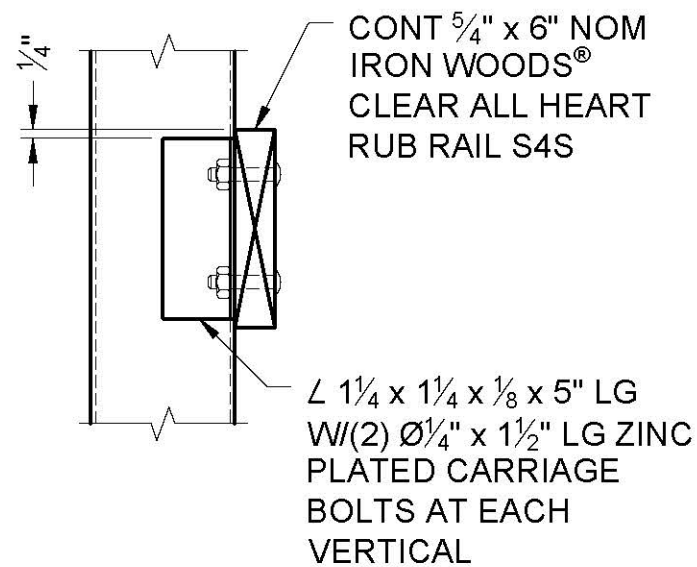


BEARING SIDE VIEW

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ACTUAL BEARING DIAGRAMS TO BE BASED ON FINAL DESIGN.



WOOD DECK DETAIL



RUB RAIL DETAIL

The graphic information and details contained in these plans is schematic in nature. The plans, elevations and sections have been developed automatically in a way that demonstrates your current input in a relative and proportional manner. The details included in these plans have been selected to represent commonly built construction assemblies. These are not Engineering drawings, and as such, the details may vary in the final design for your project depending on many variables that are selected in your final scope of work and specifications.

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CONTINENTAL
 BRIDGE

 CONTECH
DYOB[®]
 DRAWING

Connector[®] 200' Span x 12' Width
 Mills Bridge Study
 Pedestrian Bridge
 Mills, Wyoming

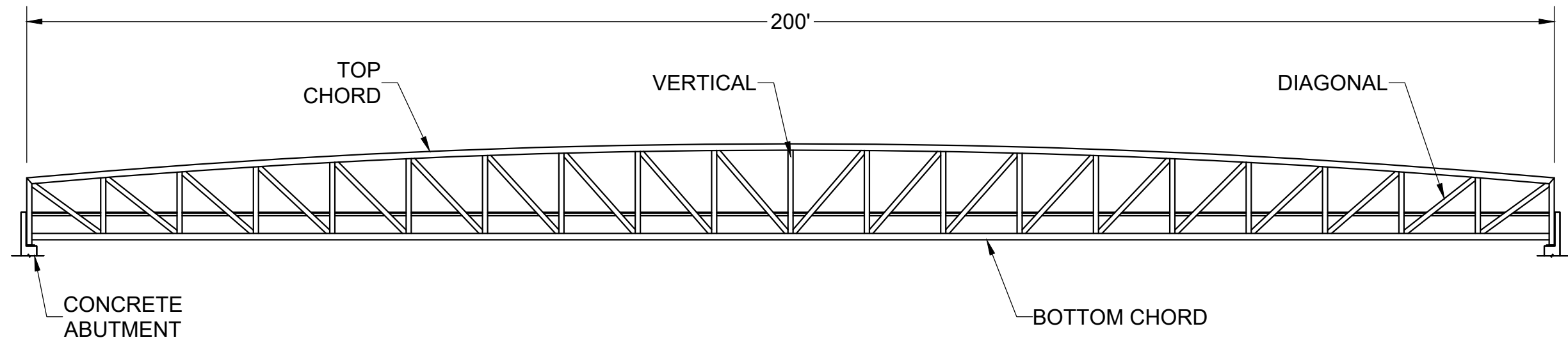
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| PROJECT NUMBER: 2224 10 | DATE: 8/23/2023 |
| DESIGNED: DYOB | DRAWN: DYOB |
| CHECKED: | APPROVED: |
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BRIDGE SUMMARY

Capstone Pedestrian Bridge 200' Span x 12' Width

Deck Type: IPE (Hardwood)

Bridge Finish: Weathering Steel



BRIDGE ELEVATION

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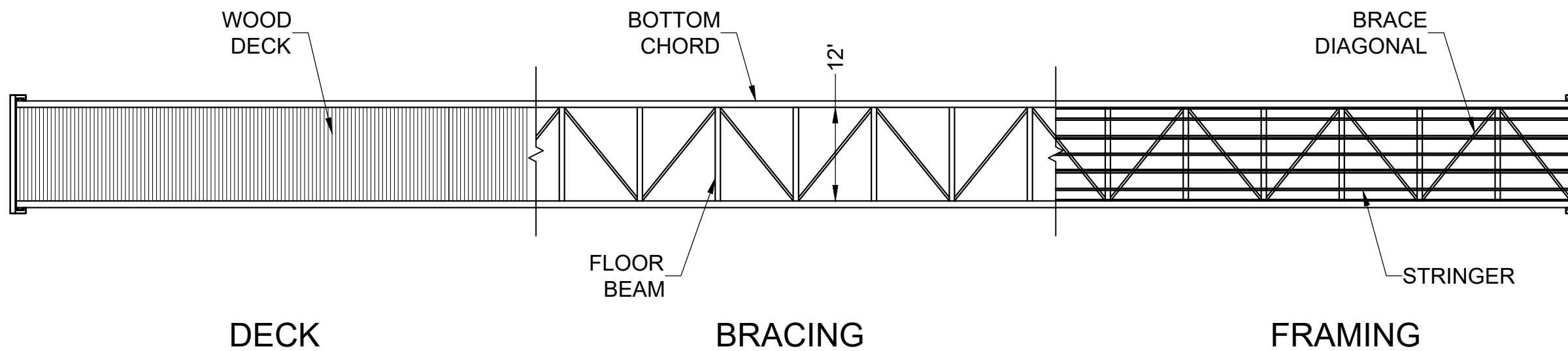


Capstone[®] 200' Span x 12' Width
Mills Bridge Study
Pedestrian Bridge
Mills, Wyoming

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BRIDGE PLAN

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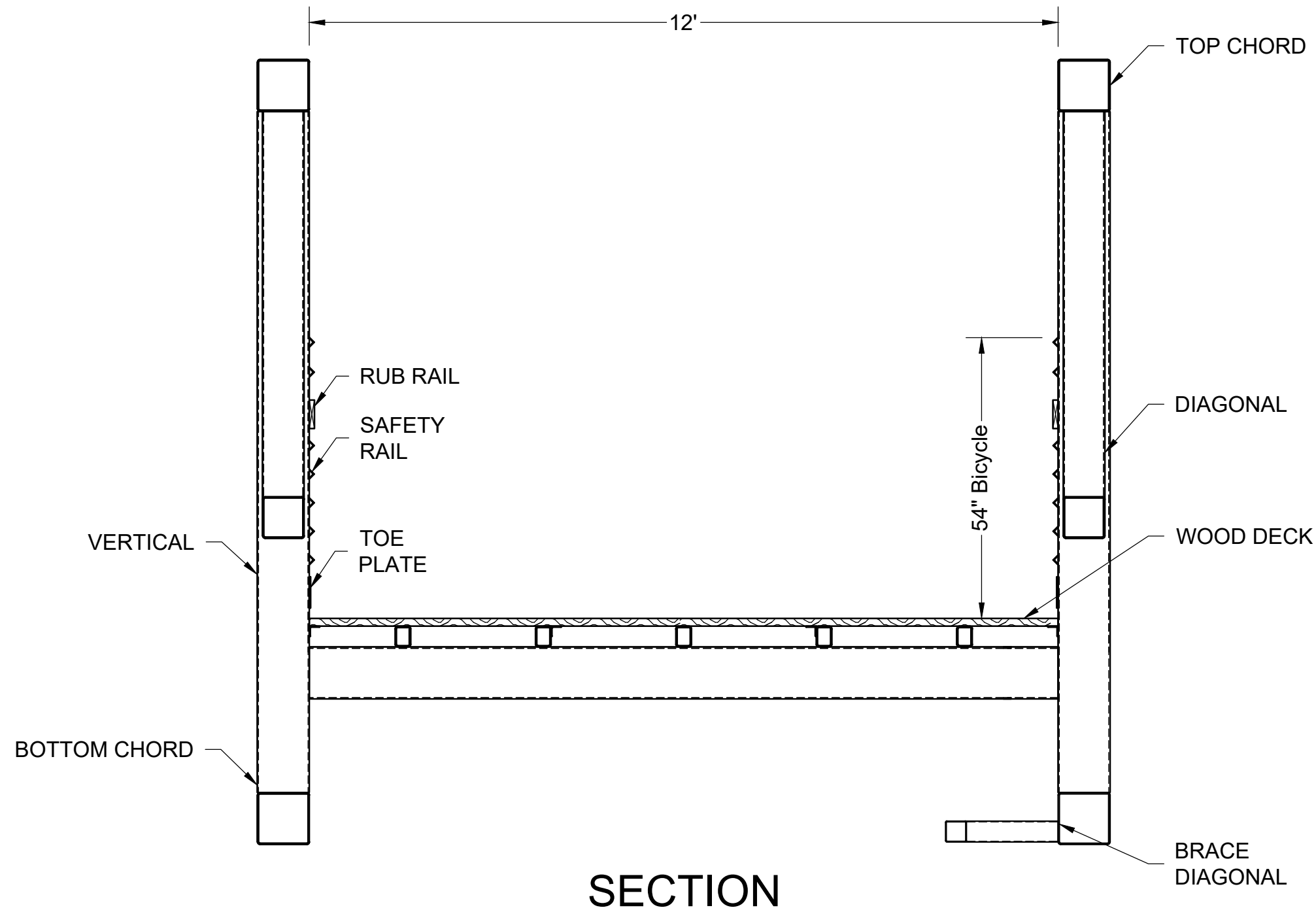
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CONTINENTAL
BRIDGE
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Capstone® 200' Span x 12' Width
 Mills Bridge Study
 Pedestrian Bridge
 Mills, Wyoming

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SECTION

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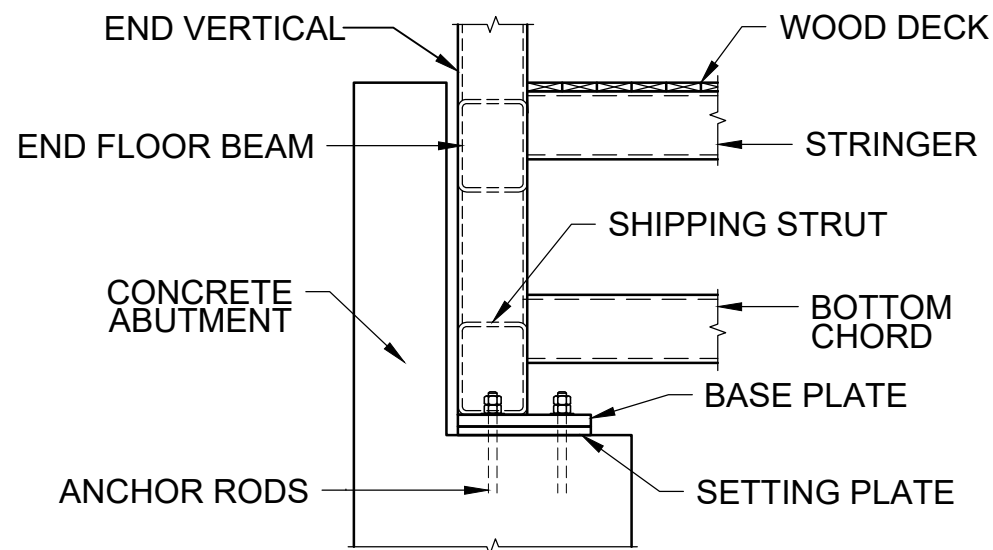
CONTINENTAL
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Capstone[®] 200' Span x 12' Width
 Mills Bridge Study
 Pedestrian Bridge
 Mills, Wyoming

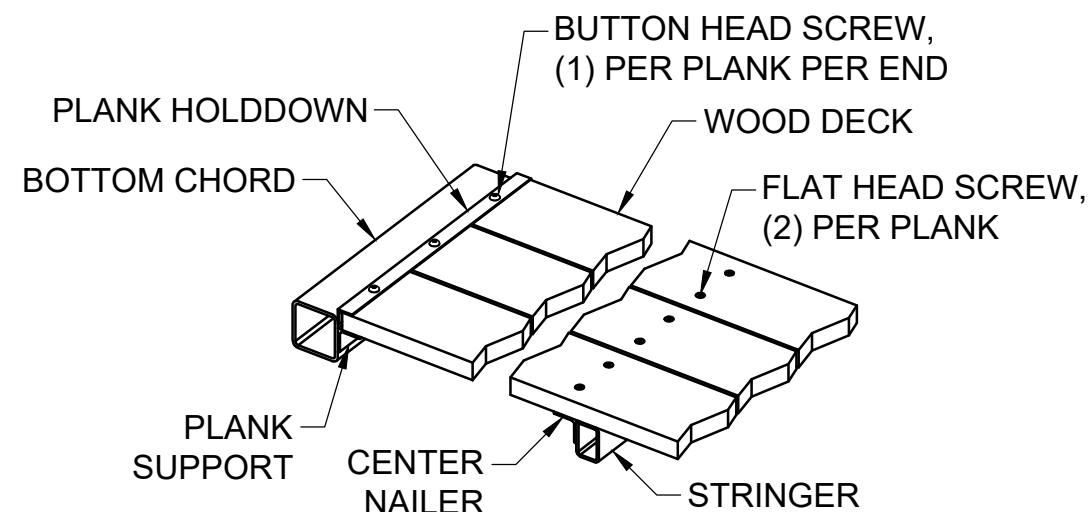
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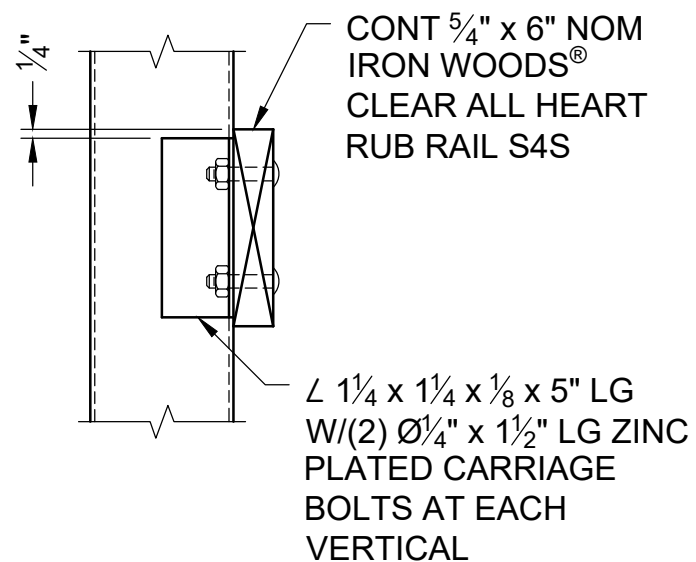


BEARING SIDE VIEW

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WOOD DECK DETAIL



RUB RAIL DETAIL

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Mills Platte River Trail Connectivity Study

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