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September 28, 2022

Yakima City Council
129 N. Second Street
Yakima, WA 98901

Re: City of Yakima – Naches River Bridge

Dear Council Members:

We have worked with William O. Douglas Trail Association for decades with respect to preservation, enhancement, use and public access to this unique historic community asset. An integral component of the historic trail is the Naches River Bridge. Yakima Valley Transportation (YVT) has raised concerns with regard to the joint trolley and pedestrian use of the bridge. I am writing to respond to a number of the articulated concerns and provide the City Council with some further background on the history and safety considerations of a joint use arrangement.

Historic Considerations on Use of Naches River Bridge.

Let me begin by recognizing both William O. Douglas Trail Association and YVT have a historic interest in the Naches River Bridge. There is more than 110 yeas of history for your consideration. A short summary is attached. ***Attachment A.***

Department of Archaeology & Historic Preservation (DAHP) has recognized the mutual historic significance of the bridge to both YVT and William O. Douglas Trail Association.[1] DAHP acknowledged that they "…have many examples where rail bridges have accommodated pedestrian use as well." It was further recognized that a collaborative approach by all concerned would "…serve as a national example of stewardship and cooperation among the various parties." We believe that a cooperative and collaborative effort will result in maintenance of a public treasure and serve as an example of this community's commitment to historic preservation.

[1] By letter dated September 16, 2022, Michael Houser (State Architectural Historian) clarified DAHP's position with respect to the mutual interests of YVT and William O. Douglas Trail Association. He provided the following observation:

> While vision may slightly differ on the best way to utilize this resource, I think all of the parties can agree that the bridge is an exceptional historic structure which is unique in many ways, with connections to several aspects of our history: transportation, engineering and for its connection to William O. Douglas. Such laying of history only enhances its significance.

A copy of DAHP letter of September 16, 2022 is attached as ***Attachment B.***

Comment on Concerns Raised by YVT.

We feel compelled to respond to issues and concerns raised by YVT in their recent correspondence and communications. A full understanding of the facts and background on these issues should be helpful in your consideration and management of this community effort.

1. **History and multimodal use of the Naches River Bridge.**

   YVT's primary objection is to recognizing the historic pedestrian use of the bridge. The concerns were outlined in Paul D. Edmondson's letter of June 23, 2022. ***Attachment C.*** He contends that joint use will result in an enormous expansion of City liability and that he "...knows of no other city in America that has allowed multimodal use of a bridge." This is an odd statement in light of the DAHP's statement that "...we have many examples where rail bridges have accommodated pedestrian use as well." The fact is that multimodal use is recognized and accepted in these situations and circumstances.

   Let me begin with some history. In January of 1912, Northern Pacific Railway (NPRR) allowed YVT to use and occupy a portion of the railroad's right-of-way "*...subject to the rights of the public*" to use the historic trail/wagon road near the NPRR tracks. YVT agreed to assume "*all liability and expense from interference with or relocation of "the road" caused by the YVT's trolley line.* The seminal steps contemplated and required multimodal use of the right-of-way. Trolley passenger service across the Naches River Bridge ended in 1935. In 1947, all street car service ended in downtown Yakima. In 1985, the Interstate Commerce Commission issued a formal order of abandonment and all YVT operations ended.

   During 2005-2008, the City of Yakima, William O. Douglas Trail Foundation and Yakima County partnered successfully to seek 2.7 million dollars in grant funding from WSDOT, RCO, and UTC to do historical research, purchase land and develop the William O. Douglas Heritage Trail starting at the YVT Trolley barn and going 80 miles through 12 distinct ecological zones to Mt. Rainier. A history of funding and bridge restoration is attached hereto. The point is that William O. Douglas Trail Foundation has been and integral partner in preservation and restoration of the Naches River Bridge.

2. **Pedestrian and Trolley safety initiatives.**

   In 2008, City of Yakima submitted a funding application to Washington Utilities & Transportation Condition ("UTC") for safety improvements related to pedestrian access to the bridge. There had been a history of serious injuries from pedestrians/train collisions on the downstream BNSF bridge, where there were frequent high-speed trains. To improved public safety, BNSF supported and approved Yakima's 2008 grant application for safety fencing around the BNSF tracts. The purpose of this fencing was to prevent trespass on the BNSF bridge and divert pedestrians away from BNSF tracks to the City's upstream multimodal bridge pathway, thereby enabling safe

pedestrian river crossings. In application correspondence filed with the UTC, the City stated:

> *Part of the William O. Douglas Trail will include a pathway across the Trolley Bridge to allow pedestrians access across the Naches River.*

UTC approved funding for this safety project. The project was supported by Yakima Valley Trolleys and Burlington Northern Santa Fe Railroad Company (BNSF).[2] Safety and controlled pedestrian access have always been a concern with respect to the bridge.

3. **Engineered multimodal bridge design for Naches River Bridge.**

William O. Douglas Trail Association has specifically developed engineered plans for a walkway across the multi-modal Naches River bridge. ***Attachment D.*** The design was developed in compliance with all applicable safety standards and codes, including AASHTO and WSDOT. The design applied best use provisions for crossing the bridge by providing two pedestrian walkway zones – each walkway separated from the rail area and placed on opposite of the bridge. Signs will be placed for one-way pedestrian traffic on each side. The specific design can be seen in the attached materials. The shared use physically separates pedestrian pathways from rail tracks. Engineering design requires "temporal separation", so trolleys and pedestrians will not use the bridge at the same time. It should also be noted that YVT operates trolleys during summer weekends and does not cross the Naches River bridge on more than ninety percent (90%) of the calendar days in a year. And unlike high-speed BNSF trains, Yakima Municipal Code sets a maximum trolley speed limit at 12 mph and requires street car flaggers to ensure pedestrian safety. The bridge design and standards actually improve safety and reduce municipal liability risks.

City Liability Related to Multi-Modal Pedestrian/Trolley Use of Naches River Bridge.

Mr. Edmondson asserts that from "…a legal perspective the most serious issue obviously confronting the City is the enormous expansion of City liability in endorsing pedestrian use of a railroad bridge …." As mentioned earlier in this correspondence, the proposed bridge design was developed by a licensed

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[2] In his correspondence, Mr. Edmondson made the following statement:

> At the present time the right of way is posted to warn trespassers to keep out. If the City decides to invite pedestrian use of the bridge and tracks the legal doctrine of "attractive nuisance" would appear to become relevant.

This concern was the specific focus of the 2008 safety improvements. In the City's application, it offered the following justification:

> Due to the lack of pedestrian facilities, and despite "No Trespassing" signs, pedestrians occasionally use the BNSF railroad bridge to cross the Naches River. On July 12, 2007, a man and woman who were crossing the Naches River on the railroad bridge were struck by a passing train and seriously injured.

See ***Attachment C.***

engineer in compliance with all applicable federal and state standards and requirements. The bridge design specifically separates pedestrian and rail traffic, imposes temporal constraints, and meets all applicable standards. Municipal liability arises only when there is a failure to comply with applicable standards governing the use and construction of the public facility. In this case, the proposed improvement actually reduces civil liability risks to the City of Yakima.

Second, municipal facilities typically have multimodal uses and users. City streets require sidewalks and other improvements to assure safe use by both vehicular and pedestrian traffic. The same principle is applicable to the Naches River Bridge. It should also be noted that the rail use on the Naches River Bridge is significantly different than commercial rail activities. The municipal ordinance limits operating speed and requires flaggers. An abundance of caution has been applied to both rail and pedestrian use of this facility. City of Yakima has exceeded all applicable standards for pedestrian safety.

Third, the doctrine of attractive nuisance simply does not apply to this situation. The general rule is that a landowner owes no duty to a trespasser, except to refrain from causing willful or wanton injury to him. *Ochampaugh v. City of Seattle,* 91 Wn.2d 514, 518, 588 P.2d 1351 (1979). The standards for "attractive nuisance" have been summarized as follows:

> (1) The instrumentality or condition must be dangerous in itself, that is, must be an agency which is likely to, or probably will, result in injury to those attracted by, and coming in contact with it;
>
> (2) It must be attractive and alluring, or enticing, to young children;
>
> (3) The children must have been incapable, by reason of their youth, of comprehending the danger involved;
>
> (4) The instrumentality or condition must have been left unguarded and exposed at a place where children of tender years are accustomed to resort, or where it is reasonably to be expected that they will resort, for play and amusement, or gratification of youthful curiosity; and
>
> (5) It must have been reasonably practicable and feasible either to prevent access to the instrumentality or condition, or else to render it innocuous, without obstructing any reasonable purpose or use for which it was intended.

Id. In this case, the bridge design and standards for operation of rail activities are well defined, controlled and managed in accordance with applicable laws. It is not an inherently dangerous situation. Pedestrian pathways are separated from rail use areas. All aspects of the facility meet applicable state and local standards.

Conclusion

For 110 years, the pedestrian and rail facilities have contemplated joint use of the facilities. YVT is obligated to incorporate public access into the use of the bridge. And all design requirements for the multimodal facility will meet local, state and federal regulations and requirements. We agree with DAHP that this should be a collaborative effort that can serve as a national example of stewardship and cooperation among the various parties. There is no reason not to work together.

Very truly yours,
MEYER, FLUEGGE & TENNEY, P.S.

James C. Carmody

Attachment A: Short Summary
Attachment B: DAHP letter of September 16, 2022
Attachment C: Paul D. Edmondson's letter of June 23, 2022
Attachment D: Engineered Plans for Walkway

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ATTACHMENT A

For 110 years, the historic trolley and historic trail have been inextricably linked at Selah Gap. A 1912 agreement between YVT and NP contains a continuing requirement that YVT preserve public access to the historic trail/pioneer road on both sides of the river -- Portions of the historic trail were subsumed within the trolley line during 1912-1913 but other portions remain and are still used by pedestrians.

HISTORIC TRAIL CROSSING THE NACHES RIVER (PRE-1910)

An 1865 U. S. General Land Office survey map shows a trail crossing the Naches River on a southeast-to-northwest alignment approximating the current trolley route through Selah Gap. This historic trail provided pedestrian access to the "Selah Fishery" as shown on maps from 1855-1856.

During the Yakama War in early 1856, U. S. Army General John Wool designated the Selah Fishery just above Selah Gap as a strategic target to be captured during the May/June salmon runs. Travelling north from Ft. Dalles on the Columbia River in May 1856, over 500 soldiers with wagons and howitzers got stuck for over a month on the Naches River south side and unable to ford the river due to high water. Finally on July 24, 1856 Colonel George Wright was able to cross the Naches River with a detachment of Dragoons. He traveled on the historic Selah Gap trail to reach the Selah Fishery.

The Northern Pacific Railway was constructed in 1885 on top of portions of the Selah Gap trail. To preserve public access, the railroad relocated the trail slightly uphill. Pioneers widened the trail to accommodate wagons and stagecoaches that travelled between North Yakima and the Selah Valley. There were a number of drownings when people attempted to ford the river during high water. To improve safety, a wooden bridge was built across the river close to the current trolley bridge.

On December 8, 1901, a serious train wreck with multiple fatalities occurred on the Northern Pacific line just north of the Naches River Crossing. The attached photo shows people lined up on the old pioneer road, just uphill from the railroad tracks.

HISTORY OF WILLIAM O. DOUGLAS CROSSING NACHES RIVER

Growing up in Yakima, U.S. Supreme Court Justice William O. Douglas, was challenged by poverty and life-threatening illness. In a rags-to-riches story, Douglas overcame infantile paralysis, excelled academically in Yakima Public Schools, served prominently on the U.S. Supreme Court, and came close to becoming President of the United States.

Douglas was on the Supreme Court longer than any other justice in U.S. history – he was a strong advocate for Equal Protection, Privacy, First Amendment rights of expression, assembly, and religion, and he wanted to "get government off the backs of the people." His influence on our nation's laws continues to be strongly felt. He was an extremely important figure to Native Americans and a very effective champion of preserving wilderness all over the Nation, including the William O. Douglas Wilderness, Olympic National Park, Glacier Peak Wilderness, Sequoia National Park, and C&O Canal National Historic Park.

Douglas nearly died as a child and was left greatly weakened. When he was 12 or 13, he decided to strengthen his legs by hiking north from his 5th Avenue house in Yakima up into the hills near Selah Gap. He frequently walked the historic trail/wagon road up 6th Avenue, crossed the Naches River, continued on the historic trail, and then ascended Selah Ridge to Lookout Point.

Published books and unpublished documents in the Library of Congress indicate that Douglas crossed both Naches River bridges many times as a teenager and young adult until 1926 when he left Yakima to teach in New York. While climbing Selah Ridge, Douglas studied nature, contemplated the meaning of life, and considered whether to leave Yakima for his legal career. Later in life, William O. Douglas frequently spent time during court recesses at his Goose Prairie cabin and at the nearby Double K Mountain Ranch operated by Kay Kershaw and Isabelle Lynn.

He was also a prolific author, writing dozens of books and hundreds of magazine articles about his adventure travels and outdoor recreation. Douglas narrowly missed being selected as FDR's Vice-President in 1944, which would have made him President upon FDR's death in April 1945.

HISTORY OF TROLLEY CROSSING THE NACHES RIVER

In a January 1912 Agreement, Northern Pacific Railway (NPRR) allowed Yakima Valley Transportation Co. (YVT) to use and occupy a portion of the railroad's right-of-way -- under Section 5, YVT's right to use NPRR right-of-way is *"subject to the rights of the public"* to use the historic trail/wagon road just uphill from NPRR's tracks. YVT agreed to assume *"all liability and expense from interference with or relocation of"* the road caused by YVT's trolley line.

During 1912-1913, much of the trolley line up 6th Ave. and over the Naches River was constructed on the pre-existing historic trail/wagon roadbed. Trolley passenger service from Yakima to Selah began in 1913. In 1920, YVT reached its maximum size of 48 track miles with overhead electrical wires, including the Selah line. By 1926, YVT ridership and revenues had declined due to the proliferation of automobiles, and YVT unsuccessfully sought permission from the City to replace electric powered street cars with gasoline powered buses.

Trolley passenger service across the Naches River Bridge ended in 1935. Freight service continued. In 1947, all streetcar service ended in downtown Yakima.

After a 39-year hiatus in trolley interurban service, a limited schedule of tourist trolley excursions began in 1974 using two trolleys acquired from Porto, Portugal.

In 1985, the Interstate Commerce Commission issued a formal order of abandonment and all YVT operations ended. Congdon Orchards obtained a court order severing the Wiley City and Henrybro interurban lines.

Pursuant to a 1993 court decision, trolley tracks and overhead electrical wires located within the City of Selah were dismantled except for a 630-foot-long strip of track/wires at the southern boundary of Selah (Southern Avenue).

Tragically, during the winter of 2005-2006, thieves dismantled most of the remaining overhead electrical wire/catenary between Davis High School and Selah, including on the Naches River Bridge and along 6th Avenue. This historic and valuable copper wire was cut up and sold off.

After 2005, trolleys could not use the Selah line because the original copper electrical wires that powered the trolleys were gone. The Naches River Bridge was not used for several years. City of Yakima records indicate there was no trolley operating agreement between 2005 and 2013.

In 2013, the City granted YVT a new operating agreement, and trolleys resumed use of the Selah line using a towed diesel fuel generator car. It is hoped that funding can be secured to replace the stolen copper wires with aluminum wires on the Selah line so that diesel powered travel will no longer be needed.

In 2015, a rockslide at Selah Gap blocked use of the Selah line for 2 years.

As of 2016, the Trolley system needed about $9 Million in upgrades -- in an April 2016 memo, City Economic Development Manager Sean Hawkins told City Council: "While there is general community support for the nostalgic and historical attraction of the Yakima Valley Trolley system, the remaining trolley infrastructure is deteriorating so quickly that a decision must be made to either invest in its upgrade or close down the system."

During 2016-2019, the City contributed $100,000 in tourism/lodging tax funds as match for a legislative appropriation of $49,926.53 for YVT system capital improvements, which included trolley barn parking lot, HVAC, painting, restrooms, and windows & doors. In addition, these funds were used to clear the Selah Gap rockslide.

HISTORY OF WILLIAM O. DOUGLAS TRAIL GRANT PROGRAM

During 2005-2008, the City of Yakima, William O. Douglas Trail Foundation, and Yakima County partnered to successfully seek $2.7 Million in grant funding from WSDOT, RCO, and UTC to do historical research, purchase land, and develop the William O. Douglas Heritage Trail starting at the YVT trolley barn and going 80 miles through 12 distinct ecological zones to Mt. Rainier.

Structural Engineer's Conclusion (2005): The trolley bridge needed repairs to prevent impending structural failure. The City committed to use "multimodal" trail funds to repair and restore the deteriorating bridge and add a "shared use (trolleys & pedestrians) pathway" on the bridge to access the historic trail and 70-acre W.O.D. Hill Climb. The grant application stated: "The Naches River Bridge is integral to the whole experience of using the William O. Douglas Trail."

A related grant deliverable was to purchase and repair the YVT trolley barn that was at risk of the walls collapsing. Over $300,000 in William O. Douglas Trail grant funds were used to repair, restore, and save the historic bridge. About $950,000 was spent to build the 6th Avenue pathway leading up to the bridge. However, the 330' bridge path installation was delayed by a decade due to the extensive time needed to negotiate and fundraise for the 70-acre hill climb purchase.

To preserve the historic integrity of the bridge, the proposed side path was reviewed by federal, state, and tribal agencies based on a design to place the path "parallel to the existing rails" between the face of the trusses (no outside cantilever), "using dimensional lumber attached directly to the existing bridge," and with "no structural modification." The Department of Archaeology & Historic Preservation issued a § 106 Determination that this bridge path would not adversely affect the historic bridge.

There is a history of serious injuries from pedestrian/train collisions on the downstream BNSF bridge, where there are frequent high-speed trains. To improve public safety, BNSF supported and approved Yakima's 2008 grant application to the State Utilities & Transportation Commission (UTC) for safety fencing around the BNSF tracks. The purpose of this fencing was to prevent trespass on the BNSF bridge and divert pedestrians away from BNSF tracks to the City's upstream multimodal bridge pathway, thereby enabling safe pedestrian river crossings. In application correspondence filed with UTC, the City stated:

> *part of the William O. Douglas Trail will include a pathway across the Trolley Bridge to allow pedestrians access across the Naches River.*

UTC approved funding for this safety project. Yakima Valley Trolleys, Kenneth G. Johnsen, and BNSF were listed as involved in implementing the project. UTC project agreements are binding upon agents and all persons acting through the parties.

The Yakima City Council authorized and directed implementation of trail project, and the WSDOT/City agreement says grant fund will be used for "*construction of a shared use (trolleys & pedestrians) pathway*" over the City bridge. WSDOT multimodal transportation funds were pledged as "match" for the "William O. Douglas Trail Connections" grant awarded by the State Recreation & Conservation Office. *See* City Resolutions R-2005-121, R-2006-64, R-2006-87, and R-2008-98. These State grants anticipated that the Greenway trail would connect to the W.O.D. bridge path via property previously leased to Yakima County for the Greenway.

The City of Yakima, Yakima County, and WODTF were co-applicants for W.O.D. Heritage Trail grant funds. At the north end of the City's Naches River Bridge, WODTF purchased 70 acres of land as the *destination* for pedestrians using the bridge path and historic trail. Partners and supporters included the Cities of Yakima & Selah, Yakima County, Yakima Schools, Yakima Rotary and Lions Clubs, Yakima Greenway Foundation, State Parks & Recreation Commission, Yakima Valley Museum, Cowiche Canyon Conservancy, Greater Yakima Chamber of Commerce, Kershaw Fruit, Congdon Orchards, and the James Stone and Cathleen Douglas Stone Foundation.

Secretary of the Interior Standards for Rehabilitation of Historic Properties 36 C.F.R. § 67.7

(1) A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.

(2) The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.

(3) Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.

(4) Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.

(5) Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.

(6) Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.

(7) Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.

(8) Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.

(9) New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

(10) New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

ATTACHMENT B

Allyson Brooks Ph.D., Director
State Historic Preservation Officer

September 16, 2022

Bob Harrison, (Yakima City Manager), Sara Watkins, Yakima City Attorney, and
City Council Members
City of Yakima
129 N 2nd St
Yakima, WA 98901

RE: Yakima Valley Transportation Co. Trolley Bridge & William O. Douglas Trail

Dear Yakima City Officials,

I am writing to update you as to recent discussions that we have had with various parties involved in the future of Yakima Valley Transportation Co. Trolley Bridge which spans the Naches River.

While visions may slightly differ on the best way to utilize this resource, I think all of the parties can agree that the bridge is an exceptional historic structure which is unique in many ways, with connections to several aspects of our history; transportation, engineering and for its connection to William O. Douglas. Such laying of history only enhances its significance. However, discussions about its use, alterations and long-term maintenance should be carefully considered and weighted.

My initial reaction to proposed alterations to the bridge may have been premature. At the time I did not have the chance to see any specific design details or drawings. I have also been made aware that preliminary plans were approved by our office when the bridge was under-going rehabilitation in the early 2000s.

While National Register listing does not require formal review by our office on changes to buildings and structures (unless there is federal nexus), we are more than happy to serve in a consulting capacity.

I have offered to meet with the various groups within the next couple of weeks to discuss the project and prosed changes in more detail. Additions/Changes to bridges can easily affect eligibility, but the devil is in the details, and we have many examples where rail bridges have accommodated pedestrian use as well.

I am optimistic that everyone's concerns can be meet and the project can serve as a national example of stewardship and cooperation among the various parties. Should you have any questions, please feel free to contact me at (360) 890-2634.

Sincerely,

Michael Houser
State Architectural Historian, DAHP
(360) 586-3076
E-Mail: michael.houser@dahp.wa.gov

CC: Huy Pham, WA Trust Preservation Programs Director,
Ken Johnsen, President Yakima Valley Trolley kjohnsen@yakimavalleytrolleys.org
Michael Sullivan, consultant
Ray Paolella, William O. Douglas Trail

ATTACHMENT C

PAUL D. EDMONDSON
Attorney-at-Law
313 NORTH THIRD STREET
YAKIMA, WA 98901
(509) 452-7963

June 23, 2022

Ken Johnsen, President
Yakima Valley Trolleys
PO Box 161
Renton, WA 98057

Re: Pedestrians on City Railway

Dear President Johnsen:

You have inquired about a proposal to permit pedestrians to use the City-owned railroad tracks now used by Yakima Valley Trolleys over the Naches River between Yakima and Selah, WA. I understand that the group asking for City permission is a hiking group interested in traversing the Naches River bridge into Selah Gap where the tracks are located along a narrow shelf adjacent to the BNSF mainline tracks which are used for mile-long 100 car freight trains returning to North Dakota from Western Washington oil refineries. I further understand that the Naches bridge has no special accommodation for pedestrians or hikers although an adjacent freeway bridge a short distance downriver does have pedestrian facilities to allow foot access into Selah from the Yakima Greenway.

From a legal perspective the most serious issue obviously confronting the City is the enormous expansion of City liability in endorsing pedestrian use of a railroad bridge and narrow right-of-way expressly built for railway use only. I know of no other city in America which has done so. I also do not know of the position of BNSF, the owner of the right-of-way, as opposed to the City–owned easement upon which the tracks lie. Since the easement is

for railway purposes only the addition of pedestrian use would obviously be beyond the scope of the easement and unlawful, thereby exposing the City to possible litigation and damages from BNSF who I am quite sure do not want people hiking on their right-of-way adjacent to long oil trains.

At the present time the right-of-way is posted to warn trespassers to keep out. If the City decides to invite pedestrian use of the bridge and tracks the legal doctrine of an "attractive nuisance" would appear to become relevant. A common example is a homeowner's liability for a swimming pool in his backyard which is used by kids in the neighborhood. This creates substantial risk for the owner who has "invited" the users explicitly or impliedly. This is the reason for the warning signs presently posted in Selah Gap and by the bridge.

In addition from the aforementioned dangers it should be noted that the Selah Gap hillside next to the trolley tracks is very steep. In places it is a vertical rock wall right next to the trolley tracks and the oil trains on the downhill side. Every Spring large two-man boulders fall down the hillside onto the tracks below creating a dangerous situation for rail traffic, not to mention pedestrians. Every Spring and Summer weekends trolley members clear out these boulders to keep the tracks clear and safe. Encouraging people to walk in this narrow corridor anytime during the boulder season is obviously not in the City's interest.

In summary, permitting pedestrians on city railroad tracks is just asking for litigation by invitees, no longer trespassers. It is unthinkable as a matter of prudent public policy.

Very truly yours,

Paul D Edmondson
WSBA 3634, HSBA 6687
EOIR XN287101

RESPONSE to PAUL EDMONDSON letter to YVT PRESIDENT KEN JOHNSEN (dated JUNE 23, 2022)

- The proposal is not to permit pedestrians to use City-owned tracks. Rather, the bridge side path is physically separate from the streetcar tracks, in space not used by trolleys.
- Pedestrians will not walk on tracks "located along a narrow shelf adjacent to the BNSF mainline tracks."
- Pedestrians will not be on steep hillside prone to landslides where boulders frequently fall onto the streetcar tracks.
- Pedestrians do not seek "foot access into Selah from the Yakima Greenway." Rather, the destination of pedestrians is the historic William O. Douglas hill climb natural area on the north side of the bridge.
- Trolley operates on summer weekends – trolley does not cross the Naches River Bridge on more 90% of the calendar days in a year. Engineering design requires "temporal separation," so trolleys and pedestrians will not use the bridge at the same time. Structural Bridge Engineer certified that the side path meets or exceeds all applicable safety standards/codes.[1]
- Bridge walkway reduces liability and increases safety because BNSF and the State wanted fencing installed to stop people from going across the BNSF high speed bridge with multiple mile-long trains every day. The City committed (in State grant agreements) to provide a safe pedestrian side path on trolley bridge, and the City committed to WA UTC and BNSF to maintain state-funded fencing to divert pedestrians away from BNSF to trolley bridge path.
- BNSF and WA Utilities & Transportation Commission both approved trolley bridge path in a proceeding that YVT was party to – UTC orders are binding on parties and agents.
- Unlike high-speed BNSF trains, Yakima Municipal Code sets the maximum trolley speed limit at 12 MPH and requires streetcar flaggers to ensure pedestrian safety.
- In exchange for state trail grants to repair/restore deteriorating bridge, City designated bridge as a multimodal, "shared-use (trolleys & pedestrians) pathway."
- In a 1912 "Agreement," Northern Pacific Railway allowed Yakima Valley Transportation Company (YVTC) to use a portion of NP right-of-way "subject to the rights of the public" to continue using the historic road (same historic route used by William O. Douglas). YVTC assumed "all liability and expense from interference with or relocation of" the road. Part of the historic route was subsumed within the YVTC line built just uphill from the NP tracks from 1912-1913
- No evidence supporting Edmonson's claims that oil trains use Selah Gap line. Ecology says oil trains use Columbia River route, without going through Yakima County.[2]
- There is no practical alternative to cross the Naches River via a safe and historically authentic route used by Justice William O. Douglas. Rerouting the WOD Trail to cross a modern highway bridge 0.4 mile downstream has significant technical, environmental, and fiscal challenges -- uncertainties about constructing a new trail in floodplains, and whether it would be feasible to tunnel near structural piers under the BNSF and trolley pier structures next to the river.

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[1] Safety Standards Compliance Memo for Naches River Bridge Path (2KS Consulting Engineers, July 11, 2022)

[2] https://apps.ecology.wa.gov/coastalatlas/storymaps/spills/spills_sm.html [Dept. of Ecology Estimated Oil Trains in Washington Counties]

ATTACHMENT D

2KS consulting
Engineering and Inspection Services
40 Scott Drive
Victor, ID 83455

July 11, 2022

MEMO: Yakima Valley Transit (YVT) Bridge – Trail Addition Project
Project Progress Plans

TO: William O. Douglas Trail Foundation
FROM: Kevin B. Hinkley, P.E., S.E.

Attached are the engineering final plans for the proposed William O. Douglas Trail walkway across the multi-modal Naches River Bridge. As stated in the General Notes on sheet S1, the design satisfies the stated applicable safety standards and codes, including AASHTO and WSDOT. Sheet S2 defines the use zones for the bridge corridor to provide a safe crossing area for the defined users of the bridge.

The design has laid out the best use provisions for crossing the bridge by providing two pedestrian walkway zones – each walkway is designated to be signed for one-way pedestrian traffic on each side. Each walkway has a clear width of 2'-101/4". On sheet S2 of the plans, there is a Typical Section showing the walkways located adjacent to the trusses, and away from the trolley tracks.

As mentioned above, please note that this walkway design specifies a zonal use concept that maintains spatial and temporal separation between users. There is a trolley "RAIL TRAFFIC ZONE" in the middle of the bridge centered about the trolley tracks, whereas the pedestrian "WALKWAY ZONE" is located away from the tracks next to the trusses. Pedestrians are not allowed in the Rail Traffic Zone, and vehicle traffic is not allowed in the Walkway Zone.

I look forward to your review and comment of the attached plans, and I hope you find the plans acceptable for construction as attached. If you have any comments, these will be considered and incorporated into the final set of plans for construction.

Thank you for your time and consideration.

Sincerely,

Kevin B. Hinkley

Kevin B. Hinkley, P.E., S.E.
Civil and Structural Engineer

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Sammamish, WA 98074

STRUCTURAL CALCULATIONS

for the

Yakima Valley Transit (YVT) Bridge
Trail Addition Project

For

William O. Douglas Trail Foundation
(a Washington non-profit 501(c)(3) corporation)

Attn. Ray Paolella
1108 Hillman Road
Yakima, WA 98908-9151

Project No. 2157

7/11/22

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Engineering and Inspection Services
40 Scott Drive
Victor, ID 83455

Project:
Yakima Valley Transit (YVT) Bridge
Trail Addition Project

Project:
The project is to provide a trail planking design for the existing bridge in Yakima over the Naches River.

Structural Engineering analysis and design includes a single phase construction for walkway passage on the east and west sides of the bridge and between the existing truss members. The design performed was similar the preliminary designs from 2008 for Alternatives 8A & 8B with the exception for chain-link fencing preferred for the railings and fall protection. The rail height is 3'-6" to accommodate pedestrian-only traffic. The trail will not be open for use until the decking plus railings and fall protection is constructed. Vehicular traffic will not be utilized unless it is during maintenance activity. Vehicle traffic is limited to rail mounted vehicles only. Trolley activity will be accommodated as the primary user of the rails and the safety during shared use activities will be the responsibility of the rail user. The cantilevered trail support will be provided by steel channels between the existing ties and the channels will be fastened without penetration to the existing bridge girders.

Design Criteria, Materials & Codes:

1. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION STANDARDS SPECIFICATION FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION DATED 2022 (ENGLISH), AND AMENDMENTS.

2. THE DESIGN OF WALKWAY STRUCTURE IS IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, CUSTOMARY U.S. UNITS, 9TH EDITION, 2020 WITH INTERIM REVISIONS AND THE WSDOT BRIDGE DESIGN MANUAL, SEPTEM 2020.

3. BRIDGE TRAIL WALKWAY SHALL BE LIMITED TO THE "WALKWAY ZONE" AND RAIL TRAFFIC SHALL BE LIMITED TO THE "RAIL TRAFFIC ZONE".

4. BRIDGE SHALL BE POSTED ON EACH END: "NO MOTOR VEHICLES ALLOWED". THE SIGN SHALL BE DESIGNED, POSTED AND MAINTAINED BY THE CITY OF YAKIMA. THE SIGN DESIGN SHALL BE APPROVED BY THE ENGINEER.

5. BRIDGE SHALL BE POSTED ON EACH END: "WALKWAY ZONE - ONE WAY TRAFFIC - KEEP RIGHT". THE SIGN SHALL DELINEATE THE CORRECT WALKWAY TO BE USED ON EACH SIDE OF THE BRIDGE AND THE SIGN SHALL BE DESIGNED, POSTED AND MAINTAINED BY THE CITY OF YAKIMA. THE SIGN DESIGN SHALL BE APPROVED BY THE ENGINEER.

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6. BRIDGE SHALL BE POSTED ON EACH END: "RAIL TRAFFIC SHALL YIELD TO PEDESTRIANS". THE SIGN SHALL BE DESIGNED, POSTED AND MAINTAINED BY THE CITY OF YAKIMA. THE SIGN DESIGN SHALL BE APPROVED BY THE ENGINEER.

7. THE EXISTING BRIDGE IS A REGISTERED HISTORICAL STRUCTURE AND NO MODIFICATIONS OR PENETRATIONS SHALL BE MADE.

8. ALL NEW STRUCTURAL STEEL SHALL BE ASTM A36 AND HOT DIPPED GALVANIZED AFTER FABRICATION.

9. ALL WOOD SHALL PRESERVATIVE TREATED LUMBER (PTL).

10. ALL FASTENERS SHALL BE GALVANIZED.

11. ALL OPTION 1 FENCING SHALL BE GALVANIZED AND VINYL COATED, COLOR BLACK AND APPROVED BY THE ENGINEER. ALL OPTION 2 RAILINGS & WELDED WIRE FABRIC SHALL BE HOT DIPPED GALVANIZED APPROVED BY THE ENGINEER.

12. FALSEWORK SUPPORTED BY THE BRIDGE SHALL NOT EXCEED THE LOAD CARRYING CAPACITY. ALL FALSEWORK SHALL BE ADEQUATE TO SUPPORT ALL LOADS NECESSARY TO PERFORM CONSTRUCTION. FALSEWORK SHALL BE CAREFULLY RELEASED TO PREVENT ANY SUDDEN OR UNIQUE STRESS IN THE STRUCTURE. ALL WORKERS SHALL WEAR APPROVED FALL-PROTECTION UNTIL WALKWAY HAS BEEN COMPLETED.

13. THE DIMENSIONS SHOWN ON THE PLANS ARE BASED ON RECORD INFORMATION FROM ORIGINAL CONSTRUCTION AS WELL AS FIELD MEASUREMENTS OBTAINED DURING BRIDGE INSPECTION AND BY CLIENT PROVIDED INFORMATION. IMPROVEMENTS TO THIS STRUCTURE ARE INTENDED TO MATCH THE EXISTING BRIDGE. ALL MEASUREMENTS SHALL BE VERIFIED PRIOR TO FABRICATION AND CONSTRUCTION. THE DIMENSIONS AND ELEVATIONS SHOWN SHALL ALSO BE VERIFIED BY THE CONTRACTOR IN THE FIELD.

14. THE WALKWAY SHALL NOT BE OPEN TO PEDESTRIANS UNTIL ALL WORK HAS BEEN COMPLETED.

DESIGN LIVE LOAD LIMITS FOR "RAIL TRAFFIC ZONE":

1. TROLLEYS #1776 & #1976:
MAX. CAR WIDTH: 8'-0"
TRUCK WHEELBASE: 7'-81/2"
TOTAL WEIGHT: 26 KIPS ON 2 AXLES

2. TROLLEYS #21 & #22:
MAX. CAR WIDTH: 8'-6"
WHEELBASE PER TRUCK (DBL. TRUCK CAR): 5'-4"
DIST. BTWN. TRUCK CENTERS: 17'-5"
TOTAL WEIGHT: 33.6 KIPS ON 4 AXLES

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3. LINE CAR #A:
MAX. CAR WIDTH: 9'-3"
WHEELBASE PER TRUCK (DBL. TRUCK): 6'-4"
DIST. BTWN. TRUCK CENTERS: 23'-0"
TOTAL CAR WEIGHT: 46 KIPS on 4 AXLES

4. LOCOMOTIVE #298:
MAX. CAR WIDTH: 9'-7"
WHEELBASE PER TRUCK (DBL. TRUCK): 7'-3"
DIST. BTWN. TRUCK CENTERS: 18'-4"
TOTAL CAR WEIGHT: 100 KIPS ON 4 AXLES

DESIGN LIVE LOAD LIMITS FOR "WALKWAY ZONE":

1. VEHICLE LIVE LOAD:
NOT ALLOWED IN WALKWAY ZONE.
VEHICLES ONLY ALLOWED IN "RAIL TRAFFIC ZONE",
AND VEHICLES SHALL BE RAIL MOUNTED.

2. PEDESTRIAN LIVE LOAD ON DECK:
85 POUNDS PER SQUARE FOOT

3. FENCE LIVE LOAD:
200 POUNDS CONCENTRATED PLUS 50 POUNDS PER LINEAR FOOT APPLIED HORIZONTALLY AND VERTICALLY AT EACH HORIZONTAL ELEMENT

The load factor for temperature gradient, γ_{TG}, should be considered on a project-specific basis. In lieu of project-specific information to the contrary, γ_{TG} may be taken as:

- 0.0 at the strength and extreme event limit states,
- 1.0 at the service limit state when live load is not considered, and
- 0.50 at the service limit state when live load is considered.

The load factor for settlement, γ_{SE}, should be considered on a project-specific basis. In lieu of project-specific information to the contrary, γ_{SE}, may be taken as 1.0. Load combinations which include settlement shall also be applied without settlement.

For segmentally constructed bridges, the following combination shall be investigated at the service limit state:

$$DC + DW + EH + EV + ES + WA + CR + SH + TG + EL + PS \quad (3.4.1\text{-}2)$$

The load factor for temperature gradient should be determined on the basis of the:

- Type of structure, and
- Limit state being investigated.

Open girder construction and multiple steel box girders have traditionally, but perhaps not necessarily correctly, been designed without consideration of temperature gradient, i.e., $\gamma_{TG} = 0.0$.

Table 3.4.1-1—Load Combinations and Load Factors

Load Combination Limit State	*DC* *DD* *DW* *EH* *EV* *ES* *EL* *PS* *CR* *SH*	*LL* *IM* *CE* *BR* *PL* *LS*	*WA*	*WS*	*WL*	*FR*	*TU*	*TG*	*SE*	Use One of These at a Time				
										EQ	*BL*	*IC*	*CT*	*CV*
Strength I (unless noted)	γ_p	1.75	1.00	—	—	1.00	0.50/1.20	γ_{TG}	γ_{SE}	—	—	—	—	—
Strength II	γ_p	1.35	1.00	—	—	1.00	0.50/1.20	γ_{TG}	γ_{SE}	—	—	—	—	—
Strength III	γ_p	—	1.00	1.00	—	1.00	0.50/1.20	γ_{TG}	γ_{SE}	—	—	—	—	—
Strength IV	γ_p	—	1.00	—	—	1.00	0.50/1.20	—	—	—	—	—	—	—
Strength V	γ_p	1.35	1.00	1.00	1.00	1.00	0.50/1.20	γ_{TG}	γ_{SE}	—	—	—	—	—
Extreme Event I	1.00	γ_{EQ}	1.00	—	—	1.00	—	—	—	1.00	—	—	—	—
Extreme Event II	1.00	0.50	1.00	—	—	1.00	—	—	—	—	1.00	1.00	1.00	1.00
Service I	1.00	1.00	1.00	1.00	1.00	1.00	1.00/1.20	γ_{TG}	γ_{SE}	—	—	—	—	—
Service II	1.00	1.30	1.00	—	—	1.00	1.00/1.20	—	—	—	—	—	—	—
Service III	1.00	γ_{LL}	1.00	—	—	1.00	1.00/1.20	γ_{TG}	γ_{SE}	—	—	—	—	—
Service IV	1.00	—	1.00	1.00	—	1.00	1.00/1.20	—	1.00	—	—	—	—	—
Fatigue I—*LL*, *IM* & *CE* only	—	1.75	—	—	—	—	—	—	—	—	—	—	—	—
Fatigue II—*LL*, *IM* & *CE* only	—	0.80	—	—	—	—	—	—	—	—	—	—	—	—

Table 3.4.1-2—Load Factors for Permanent Loads, γ_p

Type of Load, Foundation Type, and Method Used to Calculate Downdrag	Load Factor	
	Maximum	Minimum
DC: Component and Attachments	1.25	0.90
DC: Strength IV only	1.50	0.90

DD: Downdrag	Piles, α Tomlinson Method	1.40	0.25
	Piles, λ Method	1.05	0.30
	Drilled shafts, O'Neill and Reese (2010) Method	1.25	0.35
DW: Wearing Surfaces and Utilities		1.50	0.65
EH: Horizontal Earth Pressure			
• Active		1.50	0.90
• At-Rest		1.35	0.90
• *AEP* for anchored walls		1.35	N/A
EL: Locked-in Construction Stresses		1.00	1.00
EV: Vertical Earth Pressure			
• Overall Stability		1.00	N/A
• Retaining Walls and Abutments		1.35	1.00
• Rigid Buried Structure		1.30	0.90
• Rigid Frames		1.35	0.90
• Flexible Buried Structures			
◦ Metal Box Culverts, Structural Plate Culverts with Deep Corrugations, and Fiberglass Culverts		1.50	0.90
◦ Thermoplastic Culverts		1.30	0.90
◦ All others		1.95	0.90
ES: Earth Surcharge		1.50	0.75

Table 3.4.1-3—Load Factors for Permanent Loads Due to Superimposed Deformations, γ_p

Bridge Component	*PS*	*CR, SH*
Superstructures—Segmental Concrete Substructures supporting Segmental Superstructures (see 3.12.4, 3.12.5)	1.0	See γ_p for *DC*, Table 3.4.1-2
Concrete Superstructures—non-segmental	1.0	1.0
Substructures supporting non-segmental Superstructures		
• using I_g	0.5	0.5
• using $I_{effective}$	1.0	1.0
Steel Substructures	1.0	1.0

Table 3.4.1-4—Load Factors for Live Load for Service III Load Combination, γ_{LL}

Component	γ_{LL}
Prestressed concrete components designed using the refined estimates of time-dependent losses as specified in Article 5.9.5.4 in conjunction with taking advantage of the elastic gain	1.0
All other prestressed concrete components	0.8

Where prestressed components are used in conjunction with steel girders, the force effects from the following sources shall be considered as construction loads, *EL*:

- In conjunction with longitudinal prestressing of a precast deck prior to making the deck sections composite with the girders, the friction between the precast deck sections and the steel girders.
- When longitudinal post-tensioning is performed after the deck becomes composite with the girders, the additional forces

The crash test specimen for a railing system may be designed to resist the applied loads in accordance with Appendix A13.

Provision shall be made to transfer loads from the railing system to the deck. Railing loads may be taken from Appendix A13.

Unless a lesser thickness can be proven satisfactory during the crash testing procedure, the minimum edge thickness for concrete deck overhangs shall be taken as:

- For concrete deck overhangs supporting a deck-mounted post system: 8.0 in.
- For a side-mounted post system: 12.0 in.
- For concrete deck overhangs supporting concrete parapets or barriers: 8.0 in.

Preliminary design for bridge decks should comply with Article A13.1.2. A determination of the adequacy of deck reinforcement for the distribution of post anchorage loads to the deck should be made during the rail testing program. If the rail testing program satisfactorily models the bridge deck, damage to the deck edge can be assessed at this time.

In adequately designed bridge deck overhangs, the major crash-related damage presently occurs in short sections of slab areas where the barrier is hit.

13.7.3.2—Height of Traffic Parapet or Railing

Traffic railings shall be at least 27.0 in. for TL-3, 32.0 in. for TL-4, 42.0 in. for TL-5, and 90.0 in. in height for TL-6.

The bottom 3.0-in. lip of the safety shape shall not be increased for future overlay considerations.

The minimum height for a concrete parapet with a vertical face shall be 27.0 in. The height of other combined concrete and metal rails shall not be less than 27.0 in. and shall be determined to be satisfactory through crash testing for the desired test level.

The minimum height of the pedestrian or bicycle railing should be measured above the surface of the sidewalk or bikeway.

The minimum geometric requirements for combination railings beyond those required to meet crash test requirements shall be taken as specified in Articles 13.8, 13.9, and 13.10.

C13.7.3.2

These heights have been determined as satisfactory through crash tests performed in accordance with NCHRP Report 350 and experience.

For future deck overlays, an encroachment of 2.0 in., leaving a 1.0-in. lip, has been satisfactorily tested for safety shapes.

13.8—PEDESTRIAN RAILING

13.8.1—Geometry

C13.8.1

The minimum height of a pedestrian railing shall be 42.0 in. measured from the top of the walkway.

A pedestrian rail may be composed of horizontal and/or vertical elements. The clear opening between elements shall be such that a 6.0-in. diameter sphere shall not pass through.

When both horizontal and vertical elements are used, the 6.0-in. clear opening shall apply to the lower 27.0 in. of the railing, and the spacing in the upper portion shall be such that an 8.0-in. diameter sphere shall not pass through. A safety toe rail or curb should be provided. Rails should project beyond the face of posts and/or pickets as shown in Figure A13.1.1-2.

The rail spacing requirements given above should not apply to chain link or metal fabric fence support rails and posts. Mesh size in chain link or metal fabric fence should have openings no larger than 2.0 in.

13.8.2—Design Loads

The design live load for pedestrian railings shall be taken as w = 0.050 klf, both transversely and vertically, acting simultaneously. In addition, each longitudinal element will be designed for a concentrated load of 0.20 kips, which shall act simultaneously with the above loads at any point and in any direction at the top of the longitudinal element.

The posts of pedestrian railings shall be designed for a concentrated design live load applied transversely at the center of gravity of the upper longitudinal element or, for railings with a total height greater than 5.0 ft, at a point 5.0 ft above the top surface of the sidewalk. The value of the concentrated design live load for posts, P_{LL}, in kips, shall be taken as:

$$P_{LL} = 0.20 + 0.050L \qquad (13.8.2\text{-}1)$$

where:

L = post spacing (ft)

The application of loads shall be as indicated in Figure 13.8.2-1, in which the shapes of rail members are illustrative only. Any material or combination of materials specified in Article 13.5 may be used.

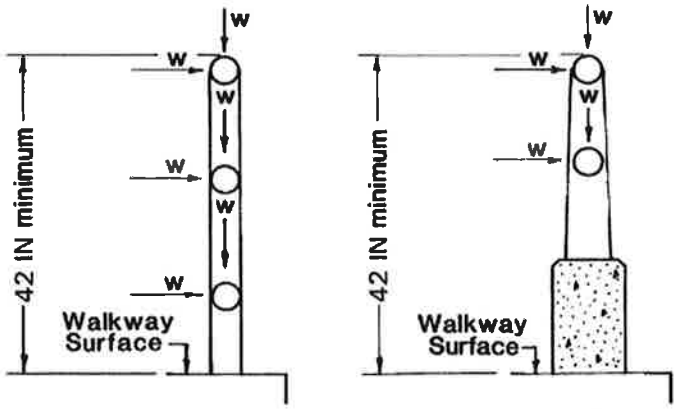

Figure 13.8.2-1—Pedestrian Railing Loads—To be used on the outer edge of a sidewalk when highway traffic is separated from pedestrian traffic by a traffic railing. Railing shape illustrative only.

The design wind load for chain link or metal fabric fence shall be taken as 0.015 ksf acting normal to the entire surface. The wind load need not be applied simultaneously with live load.

The size of openings should be capable of retaining an average size beverage container.

C13.8.2

These live loads apply to the railing. The pedestrian live load, specified in Article 3.6.1.6, applies to the sidewalk.

13.9—BICYCLE RAILINGS

13.9.1—General

Bicycle railings shall be used on bridges specifically designed to carry bicycle traffic and on bridges where specific protection of bicyclists is deemed necessary.

13.9.2—Geometry

The height of a bicycle railing shall not be less than 42.0 in., measured from the top of the riding surface.

Bicycle railings shall have rail spacing satisfying the respective provisions of Article 13.8.1.

If deemed necessary, rubrails attached to the rail or fence to prevent snagging should be deep enough to protect a wide range of bicycle handlebar heights.

If screening, fencing, or a solid face is utilized, the number of rails may be reduced.

13.9.3—Design Live Loads

If the rail height exceeds 54.0 in. above the riding surface, design loads shall be determined by the Designer. The design loads for the lower 54.0 in. of the bicycle railing shall not be less than those specified in Article 13.8.2, except that for railings with total height greater than 54.0 in., the design live load for posts shall be applied at a point 54.0 in. above the riding surface.

The application of loads shall be as indicated in Figure 13.9.3-1. Any material or combination of materials specified in Article 13.5 may be used.

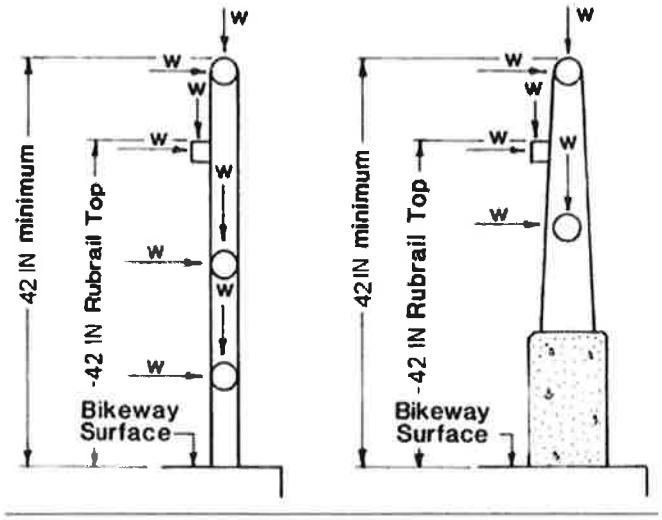

Figure 13.9.3-1—Bicycle Railing Loads—To be used on the outer edge of a bikeway when

C13.9.2

Railings, fences, or barriers on either side of a shared use path on a structure, or along bicycle lane, shared use path or signed shared roadway located on a highway bridge should be a minimum of 42.0 in. high. The 42.0-in. minimum height is in accordance with the *AASHTO Guide for the Development of Bicycle Facilities*, Third Edition (1999).

On such a bridge or bridge approach where high-speed, high-angle impact with a railing, fence, or barrier are more likely to occur (such as short-radius curves with restricted sight distance or at the end of a long descending grade) or in locations with site-specific safety concerns, a railing, fence, or barrier height above the minimum should be considered.

The need for rubrails attached to a rail or fence is controversial among many bicyclists.

highway traffic is separated from bicycle traffic by a traffic railing. Railing shape illustrative only.

13.10—COMBINATION RAILINGS

13.10.1—General

The combination railing shall conform to the requirements of either the pedestrian or bicycle railings, as specified in Articles 13.8 and 13.9, whichever is applicable. The traffic railing portion of the combination railing shall conform to Article 13.7.

13.10.2—Geometry

The geometric provisions of Articles 13.7, 13.8, and 13.9 shall apply to their respective portions of a combination railing.

13.10.3—Design Live Loads

Design loads, specified in Articles 13.8 and 13.9, shall not be applied simultaneously with the vehicular impact loads.

13.11—CURBS AND SIDEWALKS

13.11.1—General

Horizontal measurements of roadway width shall be taken from the bottom of the face of the curb. A sidewalk curb located on the highway traffic side of a bridge railing shall be considered an integral part of the railing and shall be subject to the crash test requirements specified in Article 13.7.

13.11.2—Sidewalks

When curb and gutter sections with sidewalks are used on roadway approaches, the curb height for raised sidewalks on the bridge should be no more than 8.0 in. If a barrier curb is required, the curb height should not be less than 6.0 in. If the height of the curb on the bridge differs from that off the bridge, it should be uniformly transitioned over a distance greater than or equal to 20 times the change in height.

C13.11.2

Raised sidewalks on bridges are not usually provided where the approach roadway is not curbed for pedestrians or the structure is not planned for pedestrian occupancy.

For recommendations on sidewalk width, see Figure 13.7.1.1-1 and AASHTO's *A Policy on Geometric Design of Highways and Streets*.

During stage construction, the same transition considerations will be given to the provision of ramps from the bridge sidewalk to the approach surface.

13.11.3—End Treatment of Separation Railing

The end treatment of any traffic railing or barrier shall meet the requirements specified in Articles 13.7.1.2 and 13.7.1.3.

13.12—REFERENCES

2KS consulting
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YAKIMA VALLEY TROLLEY (YVT) BRIDGE - DECK LOADS & DESIGN

A. CHANNEL LOADS:

	LOAD TYPE	LOAD	LOAD DESCRIPTION	LOAD (lb.)	DIRECTION	SPACING (ft.)	MOMENT ARM (ft.)	SERVICE MOMENT	LOA FACT
1	Live	FENCE	Top Rail - Uniform	50.0	Horiz.	8	4.438	1,775.000	
2	Live	FENCE	Top Rail - Concentrated	200.0	Horiz.	1	4.438	887.500	
3	Live	FENCE	Mid. Rail - Uniform	50.0	Horiz.	8	1.531	612.500	
4	Live	FENCE	Mid. Rail - Concentrated	200.0	Horiz.	1	1.531	306.250	
5	Live	PED.	Pedestrian Live Load on Deck	212.5	Vert.	8	2.833	4,816.661	
6	Dead	FENCE	Self Weight	20.0	Vert.	8	3.063	490.000	
7	Dead	ANGLE	Fence Post Support	10.0	Vert.	1	3.063	30.625	
8	Dead	ANGLE	Decking Support	10.0	Vert.	8	2.833	226.666	
9	Dead	WOOD	Decking	12.5	Vert.	8	2.833	283.333	
10	Dead	CHANNEL	Deck Support Member	11.5	Vert.	1	0.063	0.719	
							TOTAL SERVICE MOMENT =	9,429.254 ft. lbs.	
								TOTAL FACTORED MOMEN	

A. CHANNEL DESIGN:

Fb = 36,000 psi
phi = 0.9
F'b = 32,400 psi
= M/S

S<req'd> = M<factored>/F'b
= 5.921 in.^3

Therefore, use C 8 x 11.5 Channel Beam (Sx=8.15 in.^3)

B. CHANNEL BOLT LOADS:

	LOAD TYPE	LOAD	LOAD DESCRIPTION	LOAD (lb.)	DIRECTION	SPACING (ft.)	MOMENT ARM (ft.)	SERVICE MOMENT	SERV FOR
1	Live	FENCE	Top Rail - Uniform	50.0	Horiz.	8	4.438	1,775.000	
2	Live	FENCE	Top Rail - Concentrated	200.0	Horiz.	1	4.438	887.500	
3	Live	FENCE	Mid. Rail - Uniform	50.0	Horiz.	8	1.531	612.500	
4	Live	FENCE	Mid. Rail - Concentrated	200.0	Horiz.	1	1.531	306.250	
							TOTAL SERVICE MOMENT =	**3,581.250**	**ft. lbs.**
							BOLT SPACING =	**4.000**	**inches**
			ONE-HALF (due to decking nailed for support) SERVICE SHEAR FROM MOMENT =					**6,231.375**	**lbs.**
5	Live	PED.	Pedestrian Live Load on Deck	212.5	Vert.	8			1,700
6	Dead	FENCE	Self Weight	20.0	Vert.	8			160
7	Dead	ANGLE	Fence Post Support	10.0	Vert.	1			10
8	Dead	ANGLE	Decking Support	10.0	Vert.	8			80
9	Dead	WOOD	Decking	12.5	Vert.	8			100
10	Dead	CHANNEL	Deck Support Member	11.5	Vert.	1			11
							TOTAL SERVICE SHEAR FROM VERTICAL LOAD =		**2,061**

B. CHANNEL BOLT DESIGN:

Total Shear Force =	6,564 lbs.
Allowable Shear Stress for A325 Bolt =	21 k.s.i.
3/4" Diam. Area =	0.442 in.^2
Allowable Shear Force for A307 Bolt =	9,278 lbs.

Therefore, use 3/4" Diam. A325 Bolts

C. POST CONNECTION LOADS:

	LOAD TYPE	LOAD	LOAD DESCRIPTION	LOAD (lb.)	DIRECTION	SPACING (ft.)	MOMENT ARM (ft.)	SERVICE MOMENT	LOA FACT
1	Live	FENCE	Top Rail - Uniform	50.0	Horiz.	8	3.478	1,391.000	
2	Live	FENCE	Top Rail - Concentrated	200.0	Horiz.	1	3.478	695.500	
3	Live	FENCE	Mid. Rail - Uniform	50.0	Horiz.	8	0.571	228.500	
4	Live	FENCE	Mid. Rail - Concentrated	200.0	Horiz.	1	0.571	114.250	

TOTAL SERVICE MOMENT = 2,429.250 ft. lbs.
TOTAL FACTORED MOMEN

C. POST CONNECTION DESIGN:

Fb = 36,000 psi
phi = 0.9
F'b = 32,400 psi
= M/S

S<req'd> = M<factored>/F'b
= 1.575 in.^3

Therefore, use L 3 x 3 x 5/16 Angle (Sx=1.75 in.^3)

D. SPANNING ANGLE LOADS

YAKIMA VALLEY TROLLEY (YVT) BRIDGE - LOADS AND DESIGN

	LOAD TYPE	LOAD	LOAD DESCRIPTION	LOAD (lb.)	DIRECTION	SPACING (ft.)	SERVICE MOMENT	LOA FACT
5	Live	PED.	Pedestrian Live Load on Deck	212.5	Vert.	8	850.00	
9	Dead	WOOD	Decking	12.5	Vert.	8	50.00	

TOTAL SERVICE MOMENT = 900.000 ft. lbs.
TOTAL FACTORED MOMEN

D. SPANNING ANGLE DESIGN

Fb = 36,000 psi
phi = 0.9
F'b = 32,400 psi
= M/S

S<req'd> = M<factored>/F'b
= 0.574 in.^3

Therefore, use L 3 x 3 x 1/4 Angle (Sx=1.47 in.^3)

D. SPANNING ANGLE DEFLECTION

w = 112.5 lb / ft.
9.375 lb / in.
L = 96 in.
E = 3E+07
I = 1.51 in. ^ 4

Delta = 5*w*L^4 / 384*E*I
0.237

L / 360 = 0.267

Therefore revise to use L 3 x 3 x 5/16 Angle

E. DECKING LOADS

	LOAD TYPE	LOAD	LOAD DESCRIPTION	LOAD (lb.)	DIRECTION	SPACING (ft.)	SERVICE MOMENT
5	Live	PED.	Pedestrian Live Load on Deck	212.5	Vert.	2.4375	78.91
9	Dead	WOOD	Decking	12.5	Vert.	2.4375	4.64

TOTAL SERVICE MOMENT = 83.551 ft. lbs.
TOTAL SERVICE MOMENT (5.5" PLANK) = 38.294 ft. lbs.

E. DECKING DESIGN

Fb = 500 psi
Fb = = M/S

S<req'd> = M<factored>/Fb
= 0.919 in.^3

2x6 SECTION PROPERTY = 2.063

Therefore, use 2x6 PTL Wood Decking

F. WELDING CONNECTION LOADS

	LOAD TYPE	LOAD	LOAD DESCRIPTION	LOAD (lb.)	DIRECTION	SPACING (ft.)	SERVICE LOAD
5	Live	PED.	Pedestrian Live Load on Deck	212.5	Vert.	8	1,700.000
6	Dead	FENCE	Self Weight	20.0	Vert.	8	160.000
7	Dead	ANGLE	Fence Post Support	10.0	Vert.	1	10.000
8	Dead	ANGLE	Decking Support	10.0	Vert.	8	80.000
9	Dead	WOOD	Decking	12.5	Vert.	8	100.000
10	Dead	CHANNEL	Deck Support Member	11.5	Vert.	1	11.500
			TOTAL SERVICE SHEAR FROM VERTICAL LOAD =				**2,061.500 ft. lbs.**

F. WELDING CONNECTION DESIGN

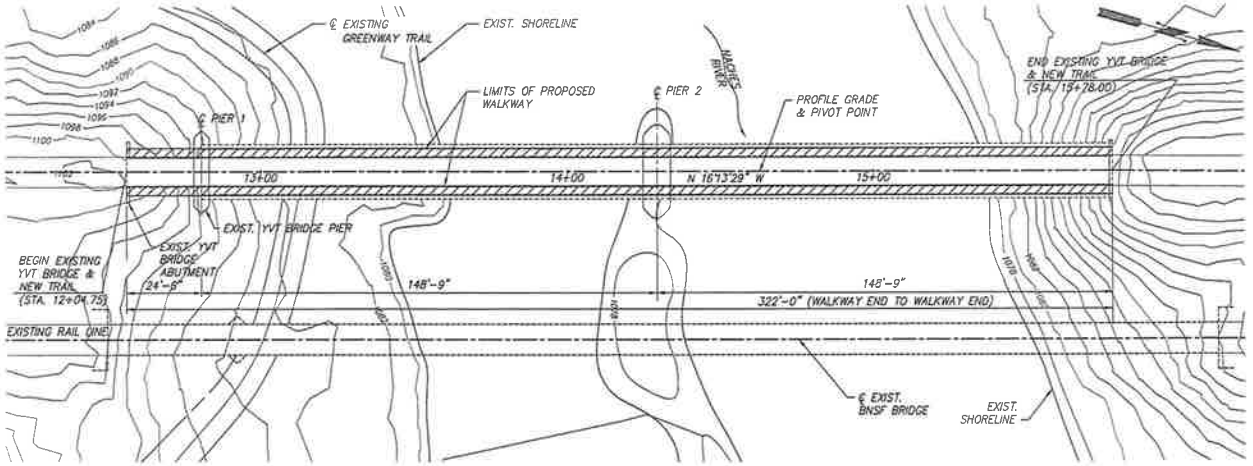
Fv = 70,000 psi
reduction = 0.3
F'v = 21,000 psi

Weld Area = 0.53 in^2 (3" wide and 1/4" weld)

Weld Strength = 11,135 lbs.

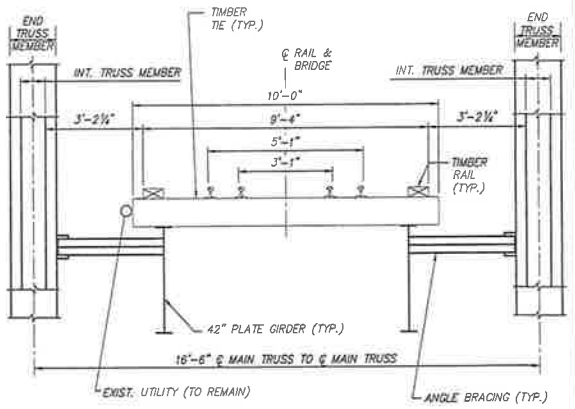
Therefore, use 3" wide and 1/4" weld

SECTION 12, T. 13 N., R. 18 E. W.M. ~ YAKIMA, WA



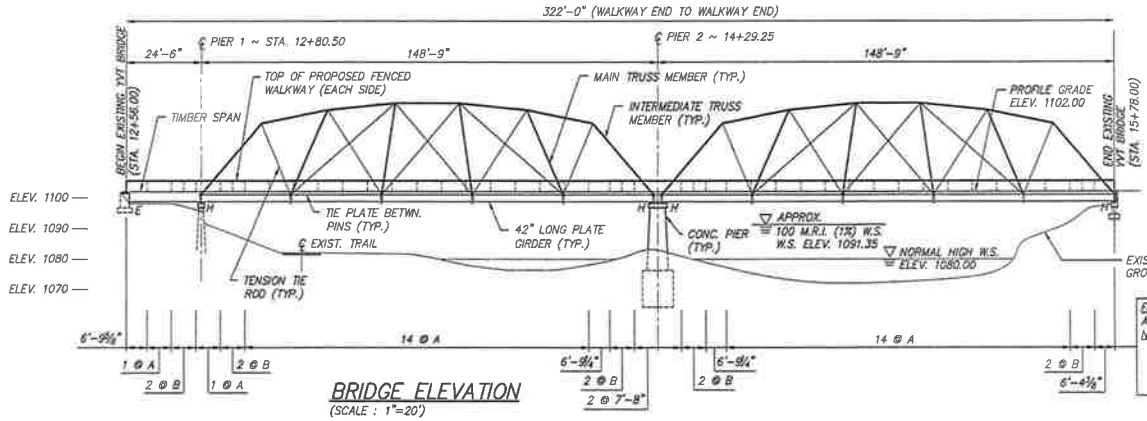
BRIDGE PLAN

(BEARING OF ALL PIERS ARE NORMAL TO BRIDGE)
(SCALE : 1"=20')



EXISTING BRIDGE TYPICAL SECTION

(SCALE : ½"=1'-0")



BRIDGE ELEVATION

(SCALE : 1"=20')

FENCE RAIL POST SPACINGS
A = 8'-0" & B = 4'-0"
NOTE: VERIFY SPACINGS AND ADJUST AS NECESSARY TO ATTACH TO CHANNEL MEMBERS THAT NEED TO CLEAR BETWEEN EXISTING TIES

GENERAL NOTES:

1. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION STANDARDS SPECIFICATION FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION DATED 2022 (ENGLISH), AND AMENDMENTS.
2. THE DESIGN OF WALKWAY STRUCTURE IS IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, CUSTOMARY U.S. UNITS, 9TH EDITION, 2020 WITH INTERIM REVISIONS AND THE WSDOT BRIDGE DESIGN MANUAL, SEPTEM 2020.
3. BRIDGE TRAIL WALKWAY SHALL BE LIMITED TO THE "WALKWAY ZONE" AND RAIL TRAFFIC SHALL BE LIMITED TO THE "RAIL TRAFFIC ZONE".
4. BRIDGE SHALL BE POSTED ON EACH END: "NO MOTOR VEHICLES ALLOWED". THE SIGN SHALL BE DESIGNED, POSTED AND MAINTAINED BY THE CITY OF YAKIMA. THE SIGN DESIGN SHALL BE APPROVED BY THE ENGINEER.
5. BRIDGE SHALL BE POSTED ON EACH END: "WALKWAY ZONE – ONE WAY TRAFFIC – KEEP RIGHT". THE SIGN SHALL DELINEATE THE CORRECT WALKWAY TO BE USED ON EACH SIDE OF THE BRIDGE AND THE SIGN SHALL BE DESIGNED, POSTED AND MAINTAINED BY THE CITY OF YAKIMA. THE SIGN DESIGN SHALL BE APPROVED BY THE ENGINEER.
6. BRIDGE SHALL BE POSTED ON EACH END: "RAIL TRAFFIC SHALL YIELD TO PEDESTRIANS". THE SIGN SHALL BE DESIGNED, POSTED AND MAINTAINED BY THE CITY OF YAKIMA. THE SIGN DESIGN SHALL BE APPROVED BY THE ENGINEER.
7. THE EXISTING BRIDGE IS A REGISTERED HISTORICAL STRUCTURE AND NO MODIFICATIONS OR PENETRATIONS SHALL BE MADE.
8. ALL NEW STRUCTURAL STEEL SHALL BE ASTM A36 AND HOT DIPPED GALVANIZED AFTER FABRICATION.
9. ALL WOOD SHALL PRESERVATIVE TREATED LUMBER (PTL).
10. ALL FASTENERS SHALL BE GALVANIZED.
11. ALL OPTION 1 FENCING SHALL BE GALVANIZED AND VINYL COATED, COLOR BLACK AND APPROVED BY THE ENGINEER. ALL OPTION 2 RAILINGS & WELDED WIRE FABRIC SHALL BE HOT DIPPED GALVANIZED APPROVED BY THE ENGINEER.
12. FALSEWORK SUPPORTED BY THE BRIDGE SHALL NOT EXCEED THE LOAD CARRYING CAPACITY. ALL FALSEWORK SHALL BE ADEQUATE TO SUPPORT ALL LOADS NECESSARY TO PERFORM CONSTRUCTION. FALSEWORK SHALL BE CAREFULLY RELEASED TO PREVENT ANY SUDDEN OR UNIQUE STRESS IN THE STRUCTURE. ALL WORKERS SHALL WEAR APPROVED FALL-PROTECTION UNTIL WALKWAY HAS BEEN COMPLETED.
13. THE DIMENSIONS SHOWN ON THE PLANS ARE BASED ON RECORD INFORMATION FROM ORIGINAL CONSTRUCTION AS WELL AS FIELD MEASUREMENTS OBTAINED DURING BRIDGE INSPECTION AND BY CLIENT PROVIDED INFORMATION. IMPROVEMENTS TO THIS STRUCTURE ARE INTENDED TO MATCH THE EXISTING BRIDGE. ALL MEASUREMENTS SHALL BE VERIFIED PRIOR TO FABRICATION AND CONSTRUCTION. THE DIMENSIONS AND ELEVATIONS SHOWN SHALL ALSO BE VERIFIED BY THE CONTRACTOR IN THE FIELD.
14. THE WALKWAY SHALL NOT BE OPEN TO PEDESTRIANS UNTIL ALL WORK HAS BEEN COMPLETED.

PEGRAM RAILROAD BRIDGE TRUSS

LOADING LIMITS: MAXIMUM OF LIVE LOAD 1, 2, 3, 4 OR 5 BELOW
("RAIL TRAFFIC ZONE")

1. TROLLEYS #1776 & #1976:
   MAX. CAR WIDTH: 8'-0"
   TRUCK WHEELBASE: 7'-8½"
   TOTAL WEIGHT: 26 KIPS ON 2 AXLES
2. TROLLEYS #21 & #22:
   MAX. CAR WIDTH: 8'-6"
   WHEELBASE PER TRUCK (DBL. TRUCK CAR): 5'-4"
   DIST. BTWN. TRUCK CENTERS: 17'-5"
   TOTAL WEIGHT: 33.6 KIPS ON 4 AXLES
3. LINE CAR #4:
   MAX. CAR WIDTH: 9'-3"
   WHEELBASE PER TRUCK (DBL. TRUCK): 6'-4"
   DIST. BTWN. TRUCK CENTERS: 23'-0"
   TOTAL CAR WEIGHT: 46 KIPS on 4 AXLES
4. LOCOMOTIVE #298:
   MAX. CAR WIDTH: 9'-7"
   WHEELBASE PER TRUCK (DBL. TRUCK): 7'-3"
   DIST. BTWN. TRUCK CENTERS: 18'-4"
   TOTAL CAR WEIGHT: 100 KIPS ON 4 AXLES

LOADING LIMITS: MAXIMUM OF LIVE LOAD 1, 2 & 3 BELOW:
("WALKWAY ZONE")

1. VEHICLE LIVE LOAD:
   NOT ALLOWED IN WALKWAY ZONE. VEHICLES ONLY ALLOWED IN "RAIL TRAFFIC ZONE", AND VEHICLES SHALL BE RAIL MOUNTED.
2. PEDESTRIAN LIVE LOAD ON DECK:
   85 POUNDS PER SQUARE FOOT
3. FENCE LIVE LOAD:
   200 POUNDS CONCENTRATED PLUS 50 POUNDS PER LINEAR FOOT APPLIED HORIZONTALLY AND VERTICALLY AT EACH HORIZONTAL ELEMENT

N.A.V.D. 88

REVISIONS		
NO.	DESCRIPTION/DATE	BY

HINKLEY B. WASHINGTON STATE REGISTERED STRUCTURAL ENGINEER PROFESSIONAL

2KS Engineering and Inspection Services
40 Scott Olive
Valley, ID 83655

YAKIMA VALLEY TRANSPORTATION (YVT) MULTI-MODAL BRIDGE TRAIL ADDITION PROJECT OVER NACHES RIVER, WA
NACHES RIVER CROSSING – YAKIMA, WA
William O. Douglas Trail Foundation, a Washington non-profit 501(c)(3) corporation

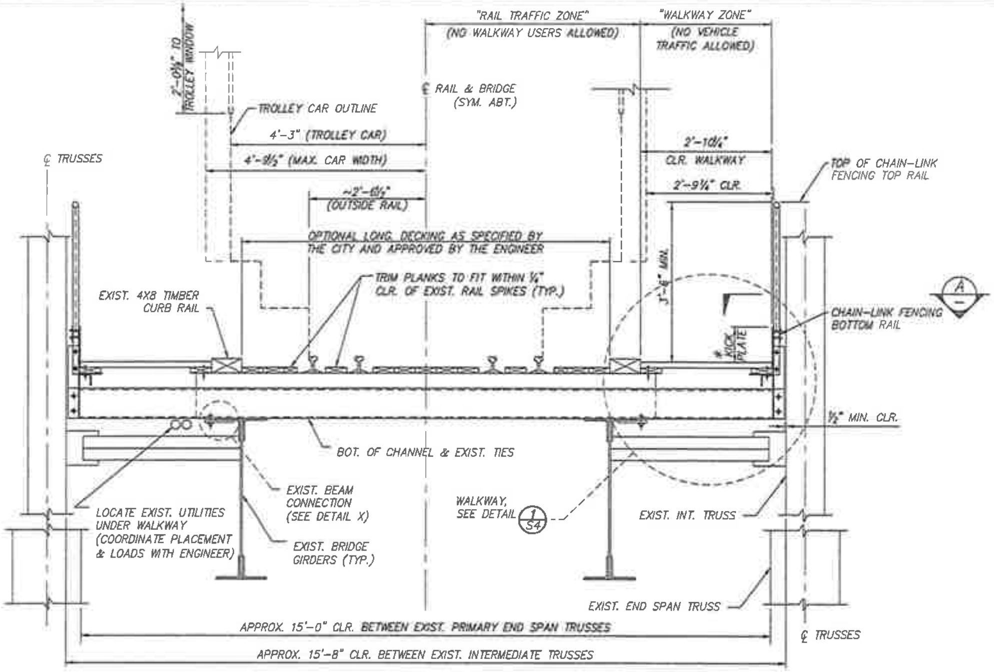
BRIDGE TRAIL LAYOUT & GENERAL NOTES

SCALE: AS NOTED

BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES ACCORDINGLY

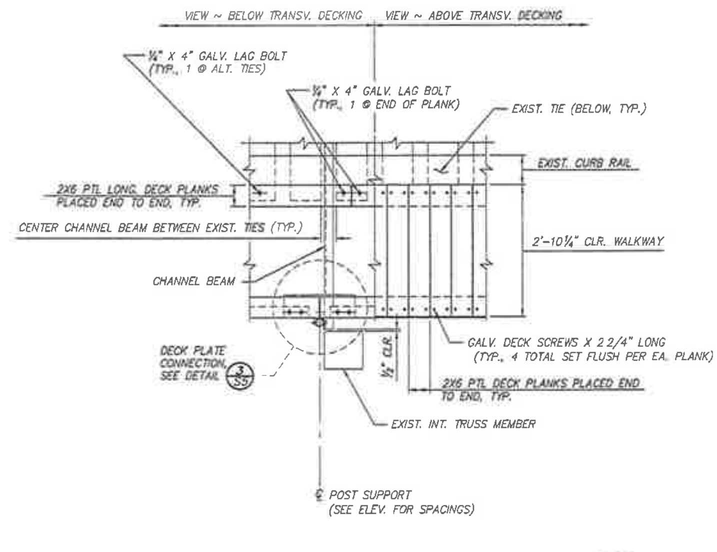
PROJECT NO.	2057
DRAWN BY	KBH
DATE	JULY 2022
SHEET	S1 OF S8

FILE: YVT-Bridge-Trail_Layout.dwg


"RAIL TRAFFIC ZONE"
(NO WALKWAY USERS ALLOWED)
"WALKWAY ZONE"
(NO VEHICLE TRAFFIC ALLOWED)
2'-0¾" TO TROLLEY WINDOW
TROLLEY CAR OUTLINE
℄ RAIL & BRIDGE (SYM. ABT.)
4'-3" (TROLLEY CAR)
4'-9½" (MAX. CAR WIDTH)
℄ TRUSSES
2'-10¼" CLR. WALKWAY
2'-9¼" CLR.
~2'-6½" (OUTSIDE RAIL)
TOP OF CHAIN-LINK FENCING TOP RAIL
OPTIONAL LONG. DECKING AS SPECIFIED BY THE CITY AND APPROVED BY THE ENGINEER
3'-6" MIN.
EXIST. 4X8 TIMBER CURB RAIL
TRIM PLANKS TO FIT WITHIN ¼" CLR. OF EXIST. RAIL SPIKES (TYP.)
* KICK PLATE
CHAIN-LINK FENCING BOTTOM RAIL
½" MIN. CLR.
BOT. OF CHANNEL & EXIST. TIES
EXIST. BEAM CONNECTION (SEE DETAIL X)
LOCATE EXIST. UTILITIES UNDER WALKWAY (COORDINATE PLACEMENT & LOADS WITH ENGINEER)
EXIST. BRIDGE GIRDERS (TYP.)
WALKWAY, SEE DETAIL 1/S4
EXIST. INT. TRUSS
EXIST. END SPAN TRUSS
APPROX. 15'-0" CLR. BETWEEN EXIST. PRIMARY END SPAN TRUSSES
℄ TRUSSES
APPROX. 15'-8" CLR. BETWEEN EXIST. INTERMEDIATE TRUSSES

TYPICAL SECTION ~ OPTION 1: CHAIN LINK FENCING

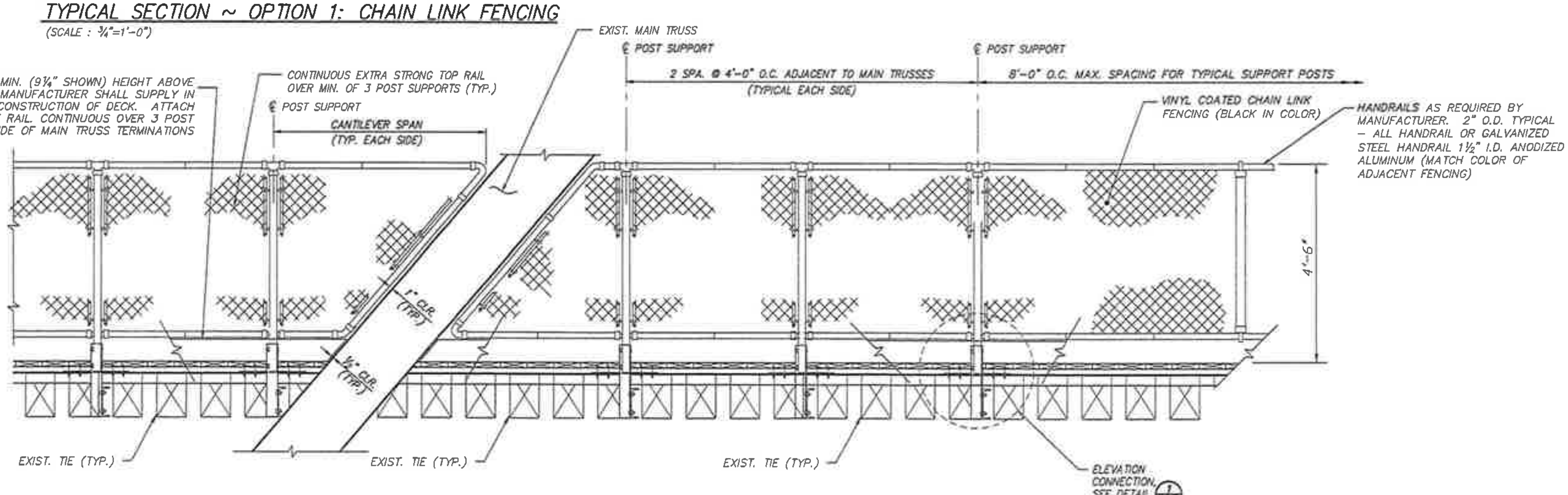
(SCALE : ¾"=1'-0")


VIEW ~ BELOW TRANSV. DECKING
VIEW ~ ABOVE TRANSV. DECKING
¼" X 4" GALV. LAG BOLT (TYP., 1 @ ALT. TIES)
¼" X 4" GALV. LAG BOLT (TYP., 1 @ END OF PLANK)
EXIST. TIE (BELOW, TYP.)
EXIST. CURB RAIL
2X6 PTL LONG. DECK PLANKS PLACED END TO END, TYP.
CENTER CHANNEL BEAM BETWEEN EXIST. TIES (TYP.)
2'-10¼" CLR. WALKWAY
CHANNEL BEAM
GALV. DECK SCREWS X 2 2/4" LONG (TYP., 4 TOTAL SET FLUSH PER EA. PLANK)
DECK PLATE CONNECTION, SEE DETAIL 3/S5
½" CLR.
2X6 PTL DECK PLANKS PLACED END TO END, TYP.
EXIST. INT. TRUSS MEMBER
℄ POST SUPPORT (SEE ELEV. FOR SPACINGS)

PARTIAL PLAN SECTION – OPTION 1 DETAIL (A/–)

(SCALE : ¾"=1'-0")

*KICK PLATE, ¼" x 6" MIN. (9¼" SHOWN) HEIGHT ABOVE TOP OF DECK. FENCE MANUFACTURER SHALL SUPPLY IN COORDINATION WITH CONSTRUCTION OF DECK. ATTACH BOTTOM FENCE RAIL. CONTINUOUS OVER 3 POST SUPPORTS EACH SIDE OF MAIN TRUSS TERMINATIONS


EXIST. MAIN TRUSS
℄ POST SUPPORT
℄ POST SUPPORT
CONTINUOUS EXTRA STRONG TOP RAIL OVER MIN. OF 3 POST SUPPORTS (TYP.)
℄ POST SUPPORT
CANTILEVER SPAN (TYP. EACH SIDE)
2 SPA. @ 4'-0" O.C. ADJACENT TO MAIN TRUSSES (TYPICAL EACH SIDE)
8'-0" O.C. MAX. SPACING FOR TYPICAL SUPPORT POSTS
VINYL COATED CHAIN LINK FENCING (BLACK IN COLOR)
HANDRAILS AS REQUIRED BY MANUFACTURER. 2" O.D. TYPICAL – ALL HANDRAIL OR GALVANIZED STEEL HANDRAIL 1½" I.D. ANODIZED ALUMINUM (MATCH COLOR OF ADJACENT FENCING)
4'-6"
1" CLR. (TYP.)
½" CLR. (TYP.)
EXIST. TIE (TYP.)
EXIST. TIE (TYP.)
EXIST. TIE (TYP.)
ELEVATION CONNECTION, SEE DETAIL 1/S5

TYP. FENCING & DECK ELEVATION VIEW ~ LOOKING FROM OUTSIDE OF BRIDGE

(SCALE : ¾"=1'-0")

REVISIONS		
NO.	DESCRIPTION/DATE	BY

KEVIN B. HINKLEY — STATE OF WASHINGTON — 26098 — PROFESSIONAL STRUCTURAL ENGINEER — 7/11/22

2KS consulting
Engineering and Inspection Services
40 Scott Drive
Victor, ID 83455

YAKIMA VALLEY TRANSPORTATION (YVT) MULTI-MODAL BRIDGE TRAIL ADDITION PROJECT OVER NACHES RIVER, WA
NACHES RIVER CROSSING – YAKIMA, WA
William O. Douglas Trail Foundation, a Washington non-profit 501(c)(3) corporation

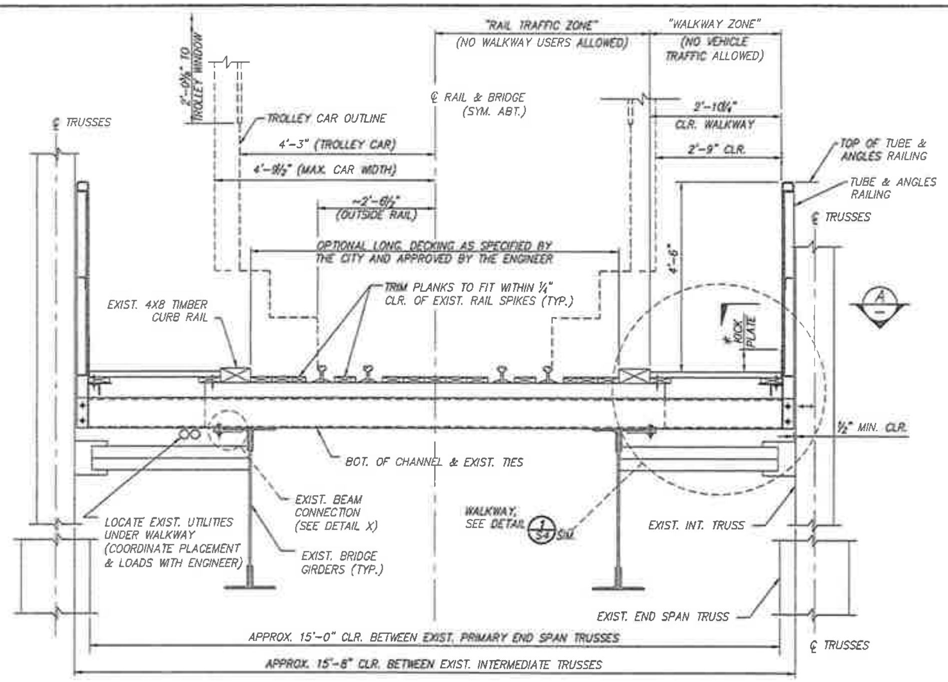
BRIDGE TRAIL OPTION 1 ~ SECTION, PLAN & ELEVATION

SCALE: AS NOTED

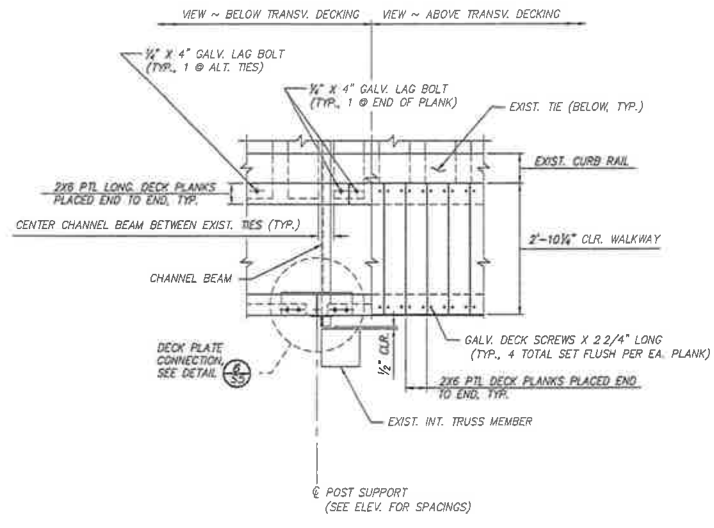
BAR IS ONE INCH ON ORIGINAL DRAWING ADJUST SCALES ACCORDINGLY
0" 1"

PROJECT NO.	2157
DRAWN BY	KBH
DATE	JULY 2022
SHEET	S2 OF S8

FILE: YVT-Bridge-Trail_Layout.dwg

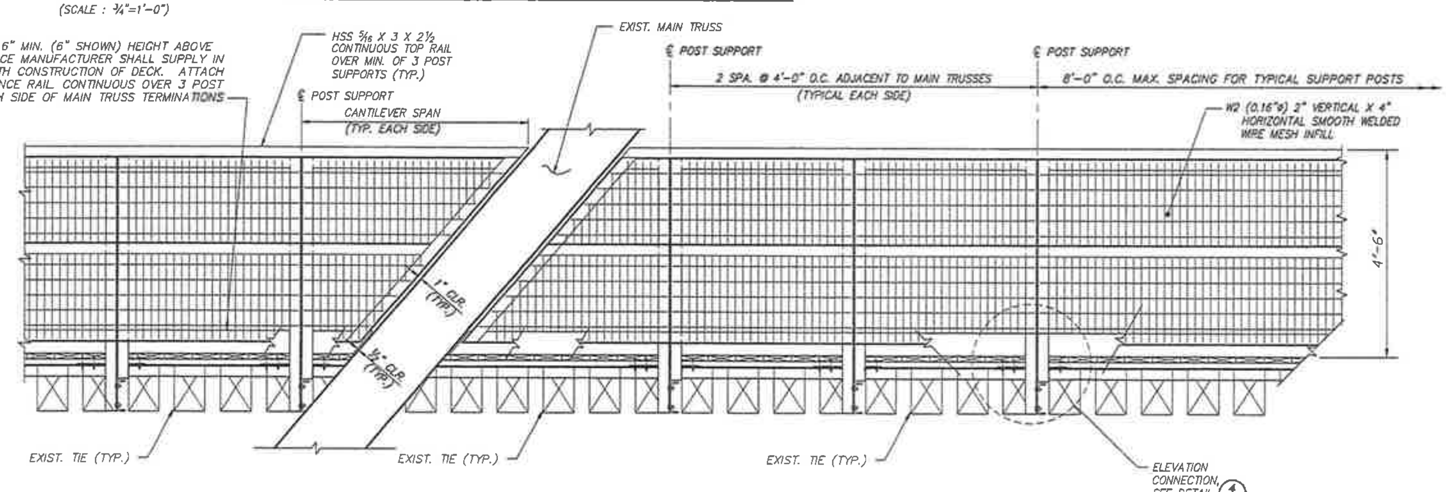

"RAIL TRAFFIC ZONE"
(NO WALKWAY USERS ALLOWED)
"WALKWAY ZONE"
(NO VEHICLE TRAFFIC ALLOWED)
2'-0⅝" TO TROLLEY WINDOW
℄ TRUSSES
TROLLEY CAR OUTLINE
℄ RAIL & BRIDGE (SYM. ABT.)
4'-3" (TROLLEY CAR)
4'-8½" (MAX. CAR WIDTH)
~2'-6½" (OUTSIDE RAIL)
2'-10¼" CLR. WALKWAY
2'-9" CLR.
TOP OF TUBE & ANGLES RAILING
TUBE & ANGLES RAILING
℄ TRUSSES
OPTIONAL LONG. DECKING AS SPECIFIED BY THE CITY AND APPROVED BY THE ENGINEER
TRIM PLANKS TO FIT WITHIN ¼" CLR. OF EXIST. RAIL SPIKES (TYP.)
4'-6"
*KICK PLATE
EXIST. 4X8 TIMBER CURB RAIL
½" MIN. CLR.
BOT. OF CHANNEL & EXIST. TIES
EXIST. BEAM CONNECTION (SEE DETAIL X)
LOCATE EXIST. UTILITIES UNDER WALKWAY (COORDINATE PLACEMENT & LOADS WITH ENGINEER)
EXIST. BRIDGE GIRDERS (TYP.)
WALKWAY, SEE DETAIL 1/S4 SIM.
EXIST. INT. TRUSS
EXIST. END SPAN TRUSS
APPROX. 15'-0" CLR. BETWEEN EXIST. PRIMARY END SPAN TRUSSES
APPROX. 15'-8" CLR. BETWEEN EXIST. INTERMEDIATE TRUSSES
℄ TRUSSES

TYPICAL SECTION ~ OPTION 2: TUBE, ANGLES & WELDED WIRE RAILING
(SCALE : ¾"=1'-0")


VIEW ~ BELOW TRANSV. DECKING
VIEW ~ ABOVE TRANSV. DECKING
¼" X 4" GALV. LAG BOLT (TYP., 1 @ ALT. TIES)
¼" X 4" GALV. LAG BOLT (TYP., 1 @ END OF PLANK)
EXIST. TIE (BELOW, TYP.)
EXIST. CURB RAIL
2X6 PTL LONG. DECK PLANKS PLACED END TO END, TYP.
CENTER CHANNEL BEAM BETWEEN EXIST. TIES (TYP.)
2'-10¼" CLR. WALKWAY
CHANNEL BEAM
GALV. DECK SCREWS X 2 2/4" LONG (TYP., 4 TOTAL SET FLUSH PER EA. PLANK)
DECK PLATE CONNECTION, SEE DETAIL 6/S5
½" CLR.
2X6 PTL DECK PLANKS PLACED END TO END, TYP.
EXIST. INT. TRUSS MEMBER
℄ POST SUPPORT (SEE ELEV. FOR SPACINGS)

PARTIAL PLAN SECTION – OPTION 2 DETAIL (A/–)
(SCALE : ¾"=1'-0")

* KICK PLATE, ¼" x 6" MIN. (6" SHOWN) HEIGHT ABOVE TOP OF DECK. FENCE MANUFACTURER SHALL SUPPLY IN COORDINATION WITH CONSTRUCTION OF DECK. ATTACH BOTTOM FENCE RAIL CONTINUOUS OVER 3 POST SUPPORTS EACH SIDE OF MAIN TRUSS TERMINATIONS


HSS 5/16 X 3 X 2½ CONTINUOUS TOP RAIL OVER MIN. OF 3 POST SUPPORTS (TYP.)
EXIST. MAIN TRUSS
℄ POST SUPPORT
CANTILEVER SPAN (TYP. EACH SIDE)
℄ POST SUPPORT
2 SPA. @ 4'-0" O.C. ADJACENT TO MAIN TRUSSES (TYPICAL EACH SIDE)
℄ POST SUPPORT
8'-0" O.C. MAX. SPACING FOR TYPICAL SUPPORT POSTS
W2 (0.16"ø) 2" VERTICAL X 4" HORIZONTAL SMOOTH WELDED WIRE MESH INFILL
4'-6"
1" CLR. (TYP.)
½" CLR. (TYP.)
EXIST. TIE (TYP.)
EXIST. TIE (TYP.)
EXIST. TIE (TYP.)
ELEVATION CONNECTION, SEE DETAIL 4/S5

TYP. FENCING & DECK ELEVATION VIEW ~ LOOKING FROM OUTSIDE OF BRIDGE
(SCALE : ¾"=1'-0")

REVISIONS		
NO.	DESCRIPTION/DATE	BY

KEVIN B. HINKLEY — STATE OF WASHINGTON — 26006 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER — 7/11/22

2KS Engineering and Inspection Services, 40 Scott Drive, Victor ID 83455

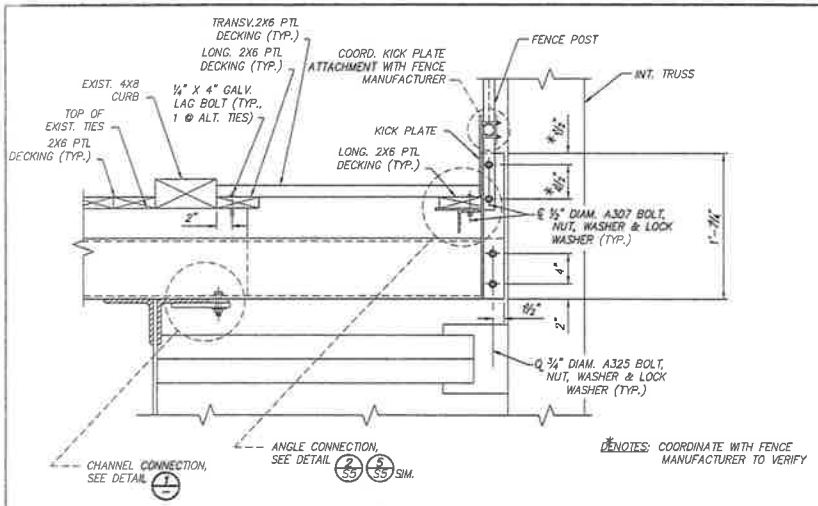
YAKIMA VALLEY TRANSPORTATION (YVT) MULTI-MODAL BRIDGE TRAIL ADDITION PROJECT OVER NACHES RIVER, WA
NACHES RIVER CROSSING – YAKIMA, WA
William O. Douglas Trail Foundation, a Washington non-profit 501(c)(3) corporation

BRIDGE TRAIL OPTION 2 ~ SECTION, PLAN & ELEVATION

SCALE: AS NOTED

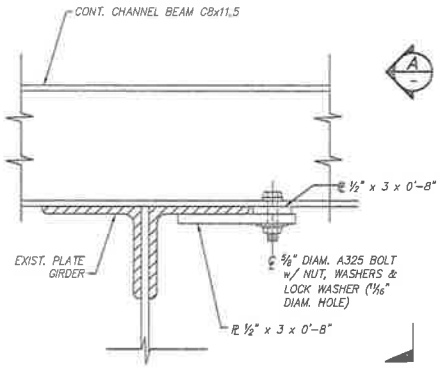
BAR IS ONE INCH ON ORIGINAL DRAWING ADJUST SCALES ACCORDINGLY 0" 1"

PROJECT NO.	2057
DRAWN BY	KBH
DATE	JULY 2022
SHEET	S3 OF S8



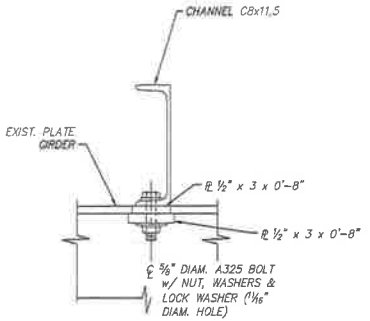
WALKWAY DETAIL 1/S2, S3, S5

(SCALE : 1½"=1'-0")



CHANNEL CONNECTION DETAIL 1/-

(SCALE : 3"=1'-0")



SECTION A/-

REVISIONS

NO.	DESCRIPTION/DATE	BY

2KS Engineering and Inspection Services
40 Scott Drive
Yelm, WA 98597

YAKIMA VALLEY TRANSPORTATION (YVT) MULTI-MODAL BRIDGE TRAIL ADDITION PROJECT OVER NACHES RIVER, WA

NACHES RIVER CROSSING – YAKIMA, WA

William O. Douglas Trail Foundation, a Washington non-profit 501(c)(3) corporation

BRIDGE TRAIL DETAILS ~ 1 OF 2

SCALE: AS NOTED

BAR IS ONE INCH ON ORIGINAL DRAWING ADJUST SCALES ACCORDINGLY

0" 1"

PROJECT NO. 2057

DRAWN BY KBH

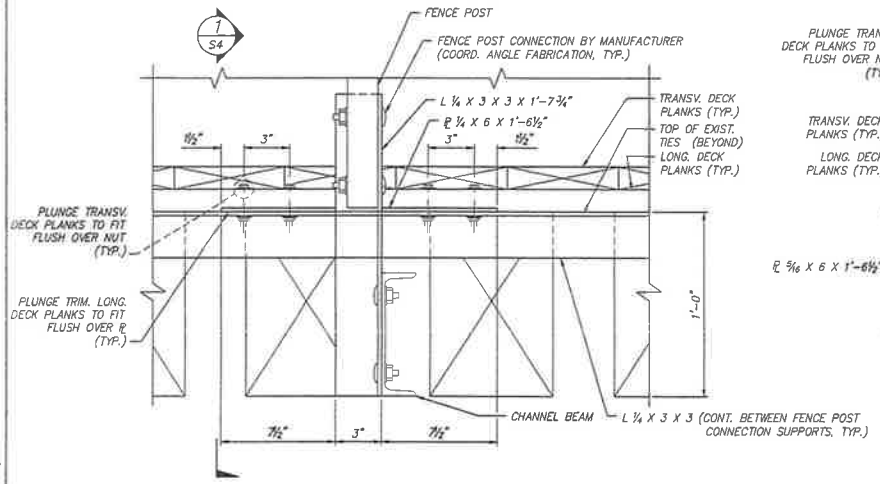
DATE JULY 2022

SHEET S4 OF S8

P:\E-YVT-Bridge-Trail_Layout.dwg

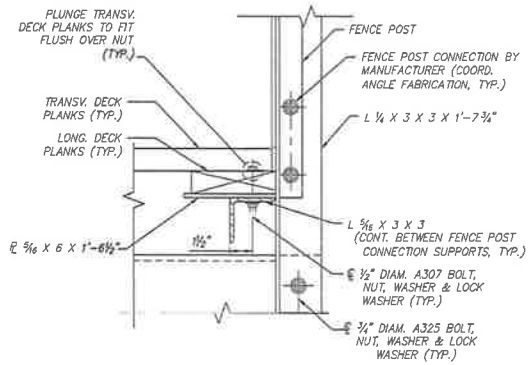
C:\Users\Ken\Documents_Engineering\2057_Naches-River-Bridge\2057-Structure\YVT-Bridge-Trail_Details.dwg

BRIDGE RAILING OPTION 1 – CHAIN LINK FENCING



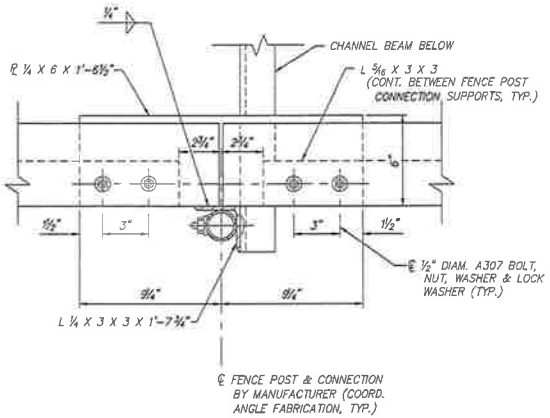
ELEVATION CONNECTION DETAIL 1 / S2

(SCALE : 3"=1'-0")



ANGLE CONNECTION SECTION DETAIL 2 / S4

(SCALE : 3"=1'-0")



DECK PLATE CONNECTION DETAIL 3 / S2

(SCALE : 3"=1'-0")

REVISIONS

NO.	DESCRIPTION/DATE	BY

KEVIN B. HINKLEY
STATE OF WASHINGTON
REGISTERED
STRUCTURAL ENGINEER
PROFESSIONAL

2KS
Engineering and Inspection Services
40 Scott Drive
Victor, ID 83455

YAKIMA VALLEY TRANSPORTATION (YVT) MULTI-MODAL BRIDGE TRAIL ADDITION PROJECT OVER NACHES RIVER, WA
NACHES RIVER CROSSING – YAKIMA, WA
Milliam G. Douglas Trail Foundation, a Washington non-profit 501(c)(3) corporation

BRIDGE TRAIL DETAILS 2 OF 2

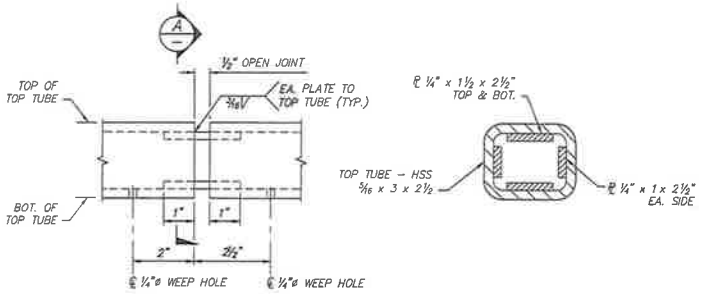
SCALE: AS NOTED

BAR IS ONE INCH ON ORIGINAL DRAWING ADJUST SCALES ACCORDINGLY
0" 1"

PROJECT NO. 2157
DRAWN BY KBH
DATE JULY 2022
SHEET S5 OF S8

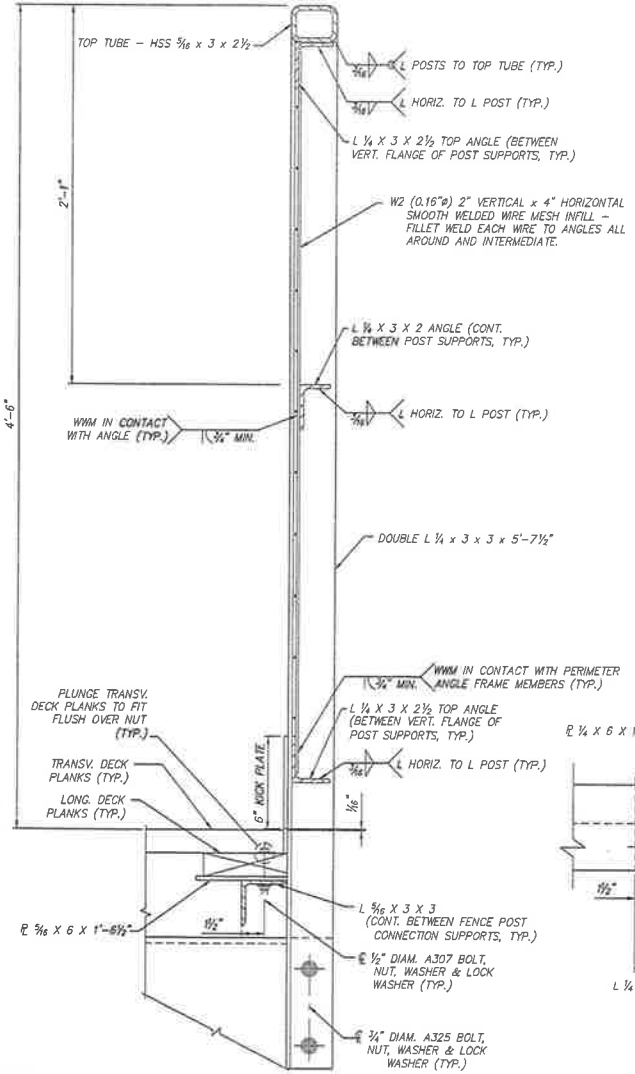
FILE: YVT-Bridge-Trail_Layout.dwg

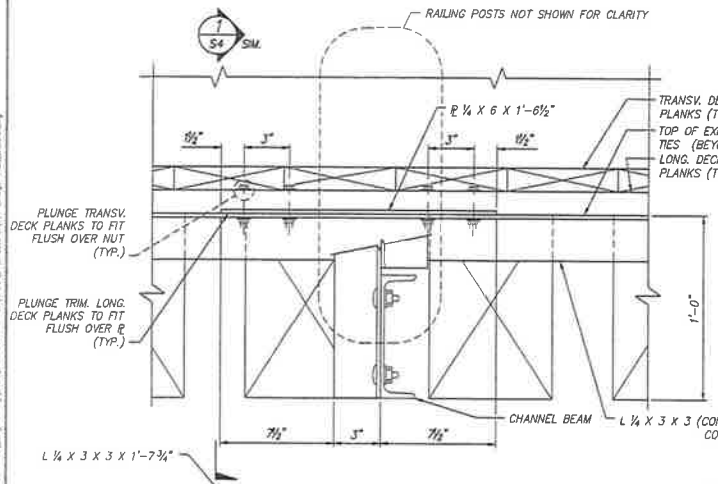
BRIDGE RAILING OPTION 2 – TUBE, ANGLES & WELDED WIRE RAILING



TOP RAIL EXPANSION DETAIL
(SCALE : N.T.S.)

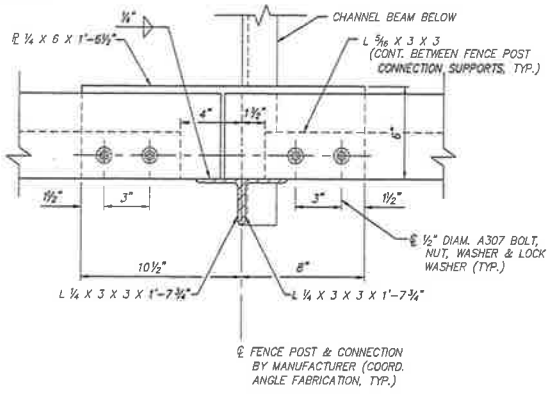
SECTION A
(SCALE : N.T.S.)





ELEVATION CONNECTION DETAIL 4
(SCALE : 3"=1'-0") S3

ANGLE CONNECTION SECTION DETAIL 5
(SCALE : 3"=1'-0") S4



DECK PLATE CONNECTION DETAIL 6
(SCALE : 3"=1'-0") S3

REVISIONS			
NO.	DESCRIPTION/DATE	BY	

KEVIN B. HINKLEY
STATE OF WASHINGTON
EXPIRES 10/06/2023
STRUCTURAL ENGINEER
PROFESSIONAL
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YAKIMA VALLEY TRANSPORTATION (YVT) MULTI-MODAL BRIDGE TRAIL ADDITION PROJECT OVER NACHES RIVER, WA
NACHES RIVER CROSSING -- YAKIMA, WA
William O. Douglas Trail Foundation, a Washington non-profit 501(c)(3) corporation

BRIDGE TRAIL DETAILS 2 OF 2

SCALE: AS NOTED

BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES ACCORDINGLY

PROJECT NO.	2057
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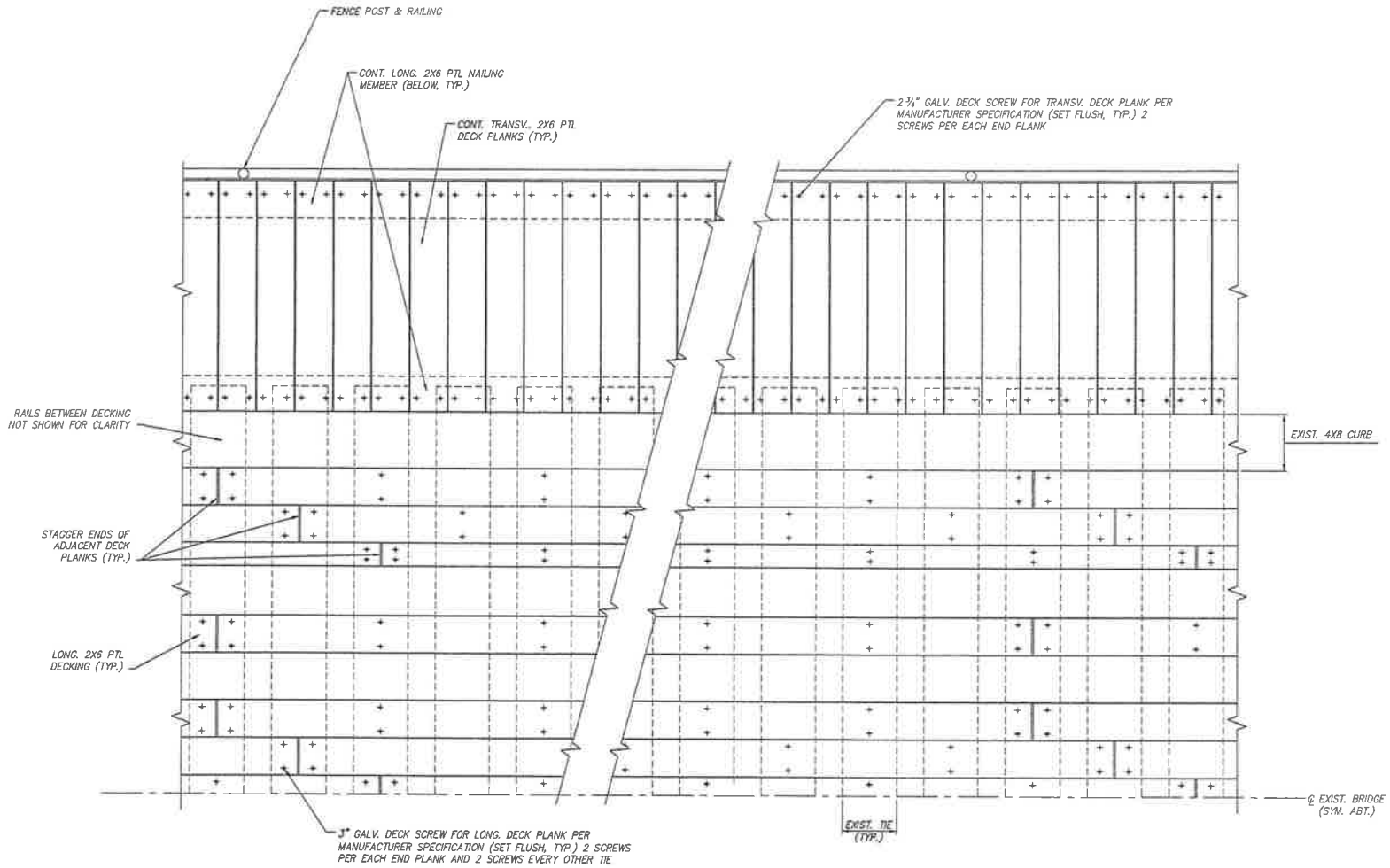
DATE	JULY 2022
SHEET	S6 OF S8

FILE: YVT-Bridge-Trail_Layout.dwg



TYP. DECK LAYOUT PLAN

(SCALE : 1½"=1'-0")

REVISIONS			
NO.	DESCRIPTION/DATE	BY	

BRIAN B. HINKLEY — STATE OF WASHINGTON — 22004 — REGISTERED STRUCTURAL PROFESSIONAL ENGINEER

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YAKIMA VALLEY TRANSPORTATION (YVT) MULTI-MODAL BRIDGE TRAIL ADDITION PROJECT OVER NACHES RIVER, WA
NACHES RIVER CROSSING – YAKIMA, WA
William O. Douglas Trail Foundation, a Washington non-profit 501(c)(3) corporation

BRIDGE TRAIL – DECKING LAYOUT PLAN

SCALE: AS NOTED

BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES ACCORDINGLY

0" 1"

PROJECT NO.	2057
DRAWN BY	KBH
DATE	JULY 2022
SHEET	S7 OF S8

FILE: YVT-Bridge-Trail_Layout.dwg

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STRUCTURAL NOTES & SPECIFICATIONS:

PART 1 – CRITERIA

1.01 ALL MATERIALS, WORKMANSHIP, DESIGN AND CONSTRUCTION SHALL CONFORM TO THE PLANS, SPECIFICATION, 2015 INTERNATIONAL BUILDING CODE (IBC), AND RESIDENTIAL BUILDING CODE (IRC), ASCE 7–16, AND WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION.

1.02 DESIGN LOAD CRITERIA PER NOTES ON SHEET S1.

1.03 CONTRACTORS SHALL VERIFY ALL EXISTING DIMENSIONS, MEMBER SIZES, AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OR EXISTING CONSTRUCTION SHOWN ON THE PLANS ARE INTENDED AS GUIDELINE ONLY AND MUST BE VERIFIED. ANY DISCREPANCIES FOUND AMONG THE DRAWINGS, THE SPECIFICATIONS, THESE GENERAL NOTES AND THE SITE CONDITIONS SHALL BE REPORTED TO THE ENGINEER OF RECORD, WHO SHALL CORRECT SUCH DISCREPANCY IN WRITING. ANY WORK DONE BY THE CONTRACTOR AFTER DISCOVERY OF SUCH DISCREPANCY, BUT PRIOR TO CORRECTION OF SUCH DISCREPANCY SHALL BE DONE AT THE CONTRACTOR'S RISK. THE CONTRACTOR IS RESPONSIBLE FOR CONFORMING TO ALL OSHA SAFETY STANDARDS.

1.04 CONTRACTOR SHALL PROVIDE TEMPORARY BRACING FOR THE STRUCTURE AND STRUCTURAL COMPONENTS UNTIL ALL FINAL CONNECTIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE PLANS.

1.05 CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THE WORK. STRUCTURAL DESIGN OF THE BUILDING IS BASED ON RESISTANCE TO DEAD LOADS, CODE SPECIFIED LATERAL LOADS, AND MAXIMUM EXPECTED SERVICE LOADS. NO CONSIDERATION HAS BEEN GIVEN TO LOADS THAT WILL BE INDUCED BY ERECTION PROCEDURES. THE CONTRACTOR SHALL VERIFY, TO THE SATISFACTION OF HIMSELF AND THE OWNER, THE ABILITY OF THE STRUCTURE TO RESIST ALL ERECTION LOADS WITHOUT EXCEEDING THE ALLOWABLE STRESSES OF THE MATERIALS USED. THE CONTRACTOR SHALL PROVIDE, INSTALL AND REMOVE SUCH TEMPORARY BRACING AND/OR STRENGTHENING AS REQUIRED.

1.06 SECTIONS AND DETAILS SHOWING REINFORCING, BOLTS, FRAMING MEMBERS, AND CONNECTIONS ARE INTENDED TO ILLUSTRATE SPECIFIC DETAILS. NO ATTEMPT AS BEEN MADE TO SHOW ALL ELEMENTS PASSING THROUGH A SPECIFIC SECTION OR DETAIL. CONSTRUCTION DETAILS NOT SPECIFICALLY SHOWN ON THE DRAWINGS SHALL FOLLOW SIMILAR DETAILS OF THIS PROJECT AS APPROVED BY THE ENGINEER OF RECORD.

1.07 SHOP DRAWINGS, DIMENSIONS AND QUANTITIES ARE THE RESPONSIBILITY OF THE CONTRACTOR, DESPITE REVIEW BY THE ENGINEER OF RECORD. SUBMIT SHOP DRAWINGS TO THE ENGINEER OF RECORD FOR THE FOLLOWING, PRIOR TO ANY FABRICATION OR CONSTRUCTION.

- STRUCTURAL AND MISCELLANEOUS STEEL INCLUDING WELDS, WELDED STUDS AND ANCHORS.

1.08 CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THE WORK. STRUCTURAL DESIGN OF THE BUILDING IS BASED ON RESISTANCE TO DEAD LOADS, CODE SPECIFIED LATERAL LOADS, AND MAXIMUM EXPECTED SERVICE LOADS. NO CONSIDERATION HAS BEEN GIVEN TO LOADS THAT WILL BE INDUCED BY ERECTION PROCEDURES. THE CONTRACTOR SHALL VERIFY, TO THE SATISFACTION OF HIMSELF AND THE OWNER, THE ABILITY OF THE STRUCTURE TO RESIST ALL ERECTION LOADS WITHOUT EXCEEDING THE ALLOWABLE STRESSES OF THE MATERIALS USED. THE CONTRACTOR SHALL PROVIDE, INSTALL AND REMOVE SUCH TEMPORARY BRACING AND/OR STRENGTHENING AS REQUIRED.

PART 2 – GEOTECHNICAL IS NOT APPLICABLE FOR THIS PROJECT.

PART 3 – CONSTRUCTION

CONTRACTOR SHALL PROVIDE SHORING AS NECESSARY TO SUPPORT ALL AREAS TO BE CONSTRUCTED. THE CONTRACTOR SHALL PROVIDE THE CONSTRUCTION SEQUENCE AS NECESSARY TO SAFELY COMPLETE CONSTRUCTION AS REQUIRED. DEBRIS SHALL NOT BE ALLOWED TO DAMAGE OR OVERLOAD THE STRUCTURE. LIMIT CONSTRUCTION LOADING (INCLUDING DEMOLITION DEBRIS) ON FLOOR SYSTEMS TO 40 PSF.

A. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND LOCATIONS OF MEMBERS PRIOR TO CUTTING ANY EXISTING STRUCTURAL MEMBERS THAT IS NOT COVERED ON THE PLANS.

PART 4 – CONCRETE IS NOT APPLICABLE FOR THIS PROJECT.

PART 5 – ANCHORAGE

5.01 EXPANSION BOLTS INTO CONCRETE SHALL BE WEDGE–ALL WEDGE ANCHORS AS MANUFACTURED BY THE SIMPSON STRONG TIE COMPANY AND INSTALLED IN STRICT CONFORMANCE TO THE ICBO REPORT NUMBER ER 3631, INCLUDING MINIMUM EMBEDMENT REQUIREMENTS. BOLTS INTO CONCRETE MASONRY OR BRICK MASONRY UNITS SHALL BE INTO FULLY GROUTED CELLS, AND SHALL MEET THE QUALITY OF ASTM F1554 GRADE 36 BOLTS AND SHALL HAVE A STANDARD BOLT HEAD OR AN EQUAL DEFORMITY IN THE EMBEDDED PORTION. GALVANIZE ANCHOR BOLTS IN CONTACT WITH PRESSURE TREATED LUMBER PER ASTM A153, CLASS C.

EXPANSION ANCHORS AND INSERTS SHALL BE ICC LISTED AND SHALL HAVE WORKING STRENGTH CAPACITY EQUAL TO THE ULTIMATE CAPACITY DIVIDED BY 4, WHICH SHALL BE EQUAL TO OR GREATER THAT THE VALUES LISTED IN IBC TABLE NO. 1911.2 FOR THE EQUIVALENT SIZE BOLTS. EXPANSION ANCHORS AND INSERTS SHALL BE AS MANUFACTURED BY HILTI OR APPROVED EQUIVALENT.

5.02 EPOXY–GROUTED ITEMS SPECIFIED ON THE PLANS SHALL BE INSTALLED USING "SET" HIGH STRENGTH EPOXY AS MANUFACTURED BY SIMPSON STRONG TIE COMPANY. INSTALL IN STRICT ACCORDANCE WITH ICBO REPORT ER 5279.

PART 6 – WOOD

6.01 FRAMING LUMBER SHALL BE KILN DRIED OR MC–19, AND GRADED AND MARKED IN CONFORMANCE WITH WCLIB STANDARD GRADING RULE FOR WEST COAST LUMBER, NO. 17 OR EQUAL.

FURNISH TO THE FOLLOWING MINIMUM STANDARDS:

A. JOISTS AND BEAMS:
2X AND 3X MEMBERS
DOUGLAS FIR NO. 2,
MINIMUM BASIC DESIGN STRENGTH, FB = 750 PSI.

4X MEMBERS
DOUGLAS FIR NO. 1
MINIMUM BASIC DESIGN STRENGTH, FB = 1,000 PSI.

B. BEAMS:
6X AND LARGER MEMBERS
DOUGLAS FIR NO. 1
MINIMUM BASIC DESIGN STRENGTH, FB = 1,350 PSI.

C. POSTS:
4X MEMBERS
DOUGLAS FIR NO. 2
MINIMUM BASIC DESIGN STRENGTH, FB = 1,300 PSI.

6X AND LARGER MEMBERS
DOUGLAS FIR NO. 1
MINIMUM BASIC DESIGN STRENGTH, FB = 925 PSI.

6X ROUGH SAWN MEMBERS
DOUGLAS FIR NO. 2
MINIMUM BASIC DESIGN STRENGTH, FB = 925 PSI.

D. STUDS, PLATES, AND MISC. FRAMING:
DOUGLAS FIR NO. 2 OR BETTER

6.02 PRESERVATIVE TREATED WOOD SHALL BE USED.

6.03 TIMBER CONNECTORS CALLED OUT BY LETTERS AND NUMBERS SHALL BE "STRONG TIE" SIMPSON STRONG TIE COMPANY, AS SPECIFIED IN THEIR LATEST CATALOG. EQUIVALENT DEVICES BY OTHER MANUFACTURERS MAY BE SUBSTITUTED, PROVIDED THEY HAVE ICBO APPROVAL FOR EQUAL OR GREATER LOAD CAPACITIES. ALL FASTENERS IN CONTACT WITH PRESERVATIVE TREATED WOOD SHALL BE HOT DIPPED GALVANIZED OR STAINLESS STEEL. THIS INCLUDES ANCHOR BOLTS, NAILS, WASHERS, NUTS, AND SHEAR WALL AND SHEATHING NAILING. PROVIDE NUMBER AND SIZE OF FASTENERS AS SPECIFIED BY THE MANUFACTURER. CONNECTORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ALL BOLTS IN WOOD MEMBERS SHALL CONFORM TO ASTM A307. APPROVED WASHERS UNDER THE HEADS AND NUTS OF ALL BOLTS AND LAG SCREWS BEARING ON WOOD SHALL BE USED. UNLESS OTHERWISE NOTED, ALL NAILS SHALL BE AS CALLED OUT BELOW. ALL SHIMS SHALL BE SEASONED AND DRIED AND THE SAME GRADE (MINIMUM) AS MEMBERS AND JOIST HANGERS. ALL DOUBLE–JOIST BEAMS SHALL BE CONNECTED TO FLUSH BEAMS WITH MTT SERIES JOIST HANGERS.

6.04 WOOD FASTENERS

A. NAIL SIZES SPECIFIED ON PLANS ARE BASED ON THE FOLLOWING SPECIFICATIONS:

6d	2"	0.113"
8d	2–1/2"	0.131
10d	3"	0.148"
12d	3–1/4"	0.148"
16d BOX	3–1/2"	0.135"

B. IF CONTRACTOR PROPOSES THE USE OF ALTERNATED NAILS, THEY SHALL SUBMIT NAIL SPECIFICATIONS TO THE ENGINEER OF RECORD (PRIOR TO CONSTRUCTION) FOR REVIEW AND APPROVAL.

C. NAILS – PLYWOOD (APA RATED SHEATHING) FASTENERS TO FRAMING SHALL BE DRIVEN FLUSH TO FACE OF SHEATHING WITH NO COUNTERSINKING PERMITTED.

6.05 WOOD FRAMING NOTES

A. ALL WOOD FRAMING DETAILS NOT SHOWN OTHERWISE SHALL BE CONSTRUCTED TO THE MINIMUM STANDARDS OF THE IBC. MINIMUM NAILING, UNLESS OTHERWISE NOTED, SHALL CONFORM TO TABLE 2304.9.1 OF THE IBC. PROVIDE WASHERS UNDER THE HEADS AND SCREWS OF ALL BOLTS AND LAG BOLTS BEARING ON WOOD. INSTALLATION OF LAG BOLTS SHALL CONFORM TO NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (2015 EDITION) WITH A LEAD BORE OF 60 TO 70 PERCENT OF THE SHANK DIAMETER. LEAD HOLES ARE NOT REQUIRED FOR 3/8" AND SMALL LAG SCREWS.

PART 7 – REINFORCING STEEL IS NOT APPLICABLE FOR THIS PROJECT.

PART 8 – STRUCTURAL AND MISC. STEEL

PRE–MANUFACTURED UNITS SHALL BE BY THE SIMPSON STRONG TIE COMPANY AND AS SPECIFIED IN THE PLANS.

SHAPES, PLATES AND BARS: ASTM A36, FY = 36 KSI.
PIPE: ASTM 153 OR A 501, FY = 35 KSI MINIMUM.
TUBING: ASTM A500, GRADE B, FY = 46 KSI.
BOLTS: ASTM A325 HIGH STRENGTH BOLTS (H.S.B.) UNLESS NOTED AS ASTM A307 MACHINE BOLTS (M.B.).

WHERE HIGH STRENGTH BOLTS ARE USED, THEY SHALL BE INSTALLED WITH LOAD INDICATOR DEVICES (LOAD INDICATOR WASHERS OR SNAP–OFF HEADS).

EXPANSION BOLTS (E.B.):	"HILTI KWIK BOLT" OR APPROVED EQUAL.
FLUSH EXPANSION ANCHORS:	"HILTI DROP IN ANCHOR" OR APPROVED EQUAL.
ADHESIVE ANCHORS:	"HILTI HVA" OR APPROVED EQUAL.
HEADED ANCHOR STUD (H.A.S.):	ASTM A108–69T, FY = 50 KSI, END WELDED PER MANUFACTURER'S RECOMMENDATIONS.
WELDING ELECTRODES OR WIRES:	AWS A5.1 OR A5.5, E70XX; AWS A5.17, E70S–X; AWS A5.20, E7XT–X.

ERECTION AND FABRICATION SHALL BE IN ACCORDANCE WITH AISC "SPECIFICATIONS FOR DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".

WELDING SHALL CONFORM TO AWS "CODE FOR ARC AND GAS WELDING IN BUILDING CONSTRUCTION". ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS.

ALL BEAMS TO BE FROM UNSPLICED LENGTHS UNLESS NOTED OTHERWISE ON THE DRAWINGS. SUBMIT SHOP DRAWINGS SHOWING SIZES, DIMENSIONS AND REQUIRED CONNECTION DETAILS FOR REVIEW BY THE ENGINEER PRIOR TO FABRICATION.

REVISIONS		
NO.	DESCRIPTION/DATE	BY

KEVIN B. HINKLEY — STATE OF WASHINGTON — 26038 — STRUCTURAL ENGINEER — PROFESSIONAL — 11/1/22

YAKIMA VALLEY TRANSPORTATION (YVT) MULTI-MODAL BRIDGE TRAIL ADDITION PROJECT OVER NACHES RIVER, WA
NACHES RIVER CROSSING – YAKIMA, WA
William O. Douglas Trail Foundation, a Washington non–profit 501(c)(3) corporation

STRUCTURAL NOTES & SPECIFICATIONS

SCALE: AS NOTED

BAR IS ONE INCH ON ORIGINAL DRAWING ADJUST SCALES ACCORDINGLY
0" 1"

PROJECT NO. 2057
DRAWN BY KBH
DATE JULY 2022
SHEET S8 OF S8

FILE: YVT–Bridge–Trail_Layout.dwg