Minneapolis
City of Lakes

CPED STAFF REPORT
Prepared for the Heritage Preservation Commission
HPC Agenda Item #4
April 17, 2018
PLAN6134

HERITAGE PRESERVATION APPLICATION SUMMARY

Property Location: 501 Ramsey Street Northeast to 206 Island Avenue East

Project Name: Boom Island-Nicollet Island Bridge Rehabilitation

Prepared By: Aaron Hanauer, City Planner, (612) 673-2494

Applicant: Minneapolis Park and Recreation Board

Project Contact: Daniel Elias

Ward: 3

Neighborhood: Nicollet Island - East Bank, St. Anthony West

Request: To allow rehabilitation of and alterations to the existing Boom Island-Nicollet Island Bridge (Bridge No. 93835).

Required Applications:

Certificate of Appropriateness	To allow rehabilitation of and alterations to the existing Boom Island-Nicollet Island Bridge (Bridge No. 93835).

HISTORIC PROPERTY INFORMATION

Current Name	Boom Island-Nicollet Island Bridge (Bridge No. 93835)
Historic Name	Wisconsin Central Railroad Boom Island Bridge
Historic Address	Wisconsin Central Railroad over East Channel Mississippi River
Original Construction Date	1901
Original Architect	C.F. Loweth
Original Builder	Butler-Ryan Co., St. Paul MN
Original Engineer	C.F. Loweth
Historic Use	Railroad Bridge
Current Use	Bicycle & Pedestrian Bridge
Proposed Use	Bicycle & Pedestrian Bridge

Date Application Deemed Complete	March 16, 2018	Date Extension Letter Sent	N/A
End of 60-Day Decision Period	May 15, 2018	End of 120-Day Decision Period	N/A

CLASSIFICATION

Local Historic District	St. Anthony Falls
Period of Significance	1848-1941
Criteria of Significance	Architecture, Commerce, Industry, Transportation
Date of Local Designation	1971
Date of National Register Listing	1971
Applicable Design Guidelines	*St. Anthony Falls Historic District Design Guidelines*

SUMMARY

BACKGROUND. The Boom Island-Nicollet Island Bridge, designated Bridge No. 93835, is a 175 foot, 8-panel pin-connected Pratt through truss steel bridge which connects Nicollet Island to Boom Island in the St. Anthony Falls Historic District. Notable for the v-lacing on the top of the end post and top chord, the bridge was designed by engineer C.F. Loweth and built by the Butler-Ryan Co. of St. Paul. The bridge was constructed in 1901 for the Wisconsin Central Railroad (later the Chicago & Great Western) to serve their yards on Boom Island, which replaced a number of lumberyards and saw mills that had burned 8 years earlier. The rail yard was cleared in the 1970's to make way for the planned Interstate 335; when that project was abandoned the land was turned over to the Minneapolis Park and Recreation Board (MPRB) which converted the bridge to bicycle and pedestrian use, removing the rails and adding the currently existing timber deck and chain-link fencing.

In late 2013, the bridge was closed to emergency and maintenance vehicles after an inspection discovered significant deterioration. Emergency repairs were completed in July 2015 to replace the bearings on the north abutment and modify the ends of the stringers. The bridge was then reopened to emergency and maintenance vehicle traffic.

APPLICANT'S PROPOSAL. At the regular meeting of the Heritage Preservation Commission on Tuesday, January 31, 2017, the commission, notwithstanding staff's recommendation, denied an application submitted by the Minneapolis Park and Recreation Board to allow rehabilitation and alterations to the existing Boom Island-Nicollet Island Bridge (PLAN3458). The HPC findings in denying the application were the following:

> **Finding #1:** The timber ties, steel stringers, and other components of the deck system are integral components of the original bridge design.
>
> **Finding #2:** The removal of the interior stringers and original timber ties and the introduction of a new, reinforced concrete deck system would significantly degrade the bridge's historic integrity.
>
> **Finding #3:** The conditions of approval recommended by staff would be insufficient to mitigate the loss of historic fabric and proposed structural changes to the functioning of the deck system.

After the denial, the MPRB revised their proposal and presented to the Heritage Preservation Commission as an informational item at the commission's April 5, 2017 meeting. The revised proposal included several significant changes in response to the Commission's findings. The revised proposal included additional steel repairs to restore the structural integrity of the existing exterior stringers, in-kind replacement of the existing timber ties and wood decking – largely retaining the bridge's original structural design and avoiding the introduction of new, incompatible materials, and proposed removal of the interior stringers in a way that would allow for reinstallation of the elements at a later date.

The MPRB now proposes to rehabilitate the bridge for continued use by bicycles, pedestrians, and maintenance and emergency vehicles. The overall cost of the project is estimated at $2.2 million. Planned work is as follows (see staff report attachments on the proposed work compares to the previous proposal):

Abutments: Cracks and spalling to be repaired and sealed, top of backwall removed and replaced in-kind to support a new deck system. The applicant proposes to match color and texture of the existing concrete.

Portals and Hip Joints: No work is proposed to the hip joints and no changes are proposed to the portals.

Floor Beams and Stringers: The applicant proposes to replace the existing deck system, which rests upon the stringers, with new reinforced concrete panels spanning from floorbeam to floorbeam. The bottom cover plate and angles which make up the bottom flange of the floor beams will be removed for most of their length and replaced with a new welded web plate and bottom flange to match the existing height.

The exterior stringers will carry structural loads as they have historically. To do so, they must be repaired. The repairs to the exterior stringers will be surgical in nature. The 7 stringers which have holes in the middle of the bottom inside angles will have this bottom angle replaced in-kind; the connection angles and fill plates for these exterior stringers will be replaced in-kind as they possess the highest level of corrosion. In four locations, a repair plate will be added to the bottom of the angle.

The interior stringers are beyond repair and will be removed. In addition, the interior stringers need to be removed to allow for the structurally needed floor beam vertical repair plate. The holes and significant corrosion in the existing floor beam vertical web plate are between the interior and exterior stringers. With only 6" between the bottom angles of the exterior and interior angles, there is not enough space to adequately repair the floor beams if the interior stringers remain. The interior stringers will be replaced with a similar sized I-beam as a bid alternate if funds allow.

Bottom Lateral Bracing: The in-place bottom lateral bracing is mostly not original construction. The original elements will be retained, and the non-historic members will be replaced in-kind with new plates and shelf angles.

Decking: The proposed deck system will be similar to the current decking except the proposed timber planks and stringers will be 3x12 sections instead of 2x6 for greater durability.

Timber Ties: The timber ties need to be removed due to their condition but will be replaced in-kind. The proposed timber ties will have similar size and spacing, but the lengths will be longer to carry the loads from the deck to the stringers.

Railing: A new 42" metal railing will be installed that will consist of 4" wide tube posts, top rail and bottom rail sections and ¼ inch diameter cables that will be spaced at 3.5 inches, horizontally between the posts. The cables are thin and will not obscure the truss members.

Bearings: Emergency repairs in July 2015 replaced the existing bearings and modified the stringer ends on the north abutment. The applicant proposes replacement of the bearings on both abutments, and modification of the stringer ends (similar to the previous changes on the north end) and pouring of a new concrete bearing pad pedestal on the south abutment. These changes will be largely obscured between the two large truss bearings.

Paint System: The applicant proposes repainting of the truss and floor system to match the existing paint color, including a zinc-rich primer to extend the life of the existing steel members.

Lighting: The existing flood light on the north portal is to be replaced with a series of six new LED fixtures to evenly illuminate the bridge deck. Fixtures have been selected for minimal visual intrusion; new conduit will be painted to match the steel color and concealed within the truss wherever possible.

RELATED APPROVALS.

Planning Case #	Application(s)	Description	Action
PLAN3458-January 31, 2017	Certificate of Appropriateness to allow for rehabilitation and alterations to the bridge	See above and attachments	Denied

PUBLIC COMMENTS. A resolution from the Nicollet Island – East Bank Neighborhood Association (NIEBNA) was received in 2016 expressing support for vertical steel railings, consistent with the current proposal, and the use of wood planking similar to the existing decking. Any additional correspondence received prior to the public meeting will be forwarded on to the Heritage Preservation Commission for consideration.

ANALYSIS

CERTIFICATE OF APPROPRIATENESS

The Department of Community Planning and Economic Development has analyzed the application to allow rehabilitation of and alterations to the existing Boom Island-Nicollet Island Bridge (Bridge No. 93835) based on the following findings:

1. *The alteration is compatible with the designation of the landmark or historic district, including the period and criteria of significance.*

   The proposed alterations are compatible with and support the criteria and period of significance for the district. Most of the character-defining elements of the original 1901 truss will be preserved, with portions of the portals and hip joints to be replaced in-kind. Modifications to the floor beams will be visible only from underneath, as will removal of the interior stringers. The current wooden deck system and chain link fence were installed as part of the conversion to trail use and do not constitute historic elements of the bridge. The proposed new metal railing, while representing a change from the current condition, would be clearly differentiated from the historic fabric and generally compatible with the historic district. The proposed wood deck is also compatible with the historic appearance of the bridge, which photographs show featured wood-plank walkways on either side of the rails. The replacement of the timber ties also helps retain the historic appearance of the bridge.

   The bridge contributes significantly to the district because of its engineering and its relationship to transportation and the industrial development of the area; as conditioned, the proposed changes maintain these associations.

2. *The alteration will ensure the continued integrity of the landmark or historic district.*

   Integrity is the ability of a property to convey its significance. Both the National Register and the City of Minneapolis preservation regulations evaluate integrity based on the following seven aspects:

   Location: The proposed work will not impact the bridge's location and will maintain the historic rail connection between Boom Island and Nicollet Island, as called for in the design guidelines.

   Design: Design is the combination of elements that create the form, plan, space, structure, and style of a property. The character-defining 9 panel pin-connected truss will be maintained, removal of the two interior stringers will be minimally visible and be done in a way that will allow for them to be inserted at a later date if funds become available. In addition, the new deck and steel railings – which replace non-historic elements – will be compatible with and not overwhelm the historic design.

Setting: Some limited approach work is proposed, however this work will not significantly alter the bridge's setting. Though the surrounding area has changed significantly since rail use of the bridge was discontinued, the continuity of the former rail corridor between Boom Island to the North and the East Channel Rail crossing to the South will be maintained.

Materials: The steel truss itself will be maintained with select elements of the portals and hip joints to be replaced in-kind and only the two interior stringers to be removed (at this time). The steel rails were removed at the time of the trail conversion, so the replacement of the existing wood deck and wood ties with new wood systems and the replacement of the chain link fence with a more durable material will not adversely impact the bridge design.

Workmanship: Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history. The workmanship of the historic structure, most evident in its characteristic v-lacing on the end post and top chord, will not be negatively impacted by the proposed changes.

Feeling: Feeling is a property's expression of the aesthetic or historic sense of a particular period of time. The applicant's proposed revised deck and railing are compatible with the bridge's historic condition. Staff finds that pursuit of the combined wood/concrete alternative would most maintain the historic feeling of the rail crossing (which featured wood-plank walkways on either side of the rails) by avoiding the appearance of a solid, unbroken surface of concrete and maintaining compatibility with the comparatively light and airy construction of the truss itself.

Association: Association is the direct link between an important historic event or person and a historic property. The bridge is significant as a contributing structure because of its function as a rail link between Boom and Nicollet Islands and its association with rail transportation and the industrial development of the surrounding area. This association will be maintained with the installation of new wood ties and decking.

3. *The alteration is consistent with the applicable design guidelines adopted by the commission.*

The St. Anthony Falls Historic District Design Guidelines were adopted in 2012. The intent of the design guidelines are to protect the integrity and character of the district and to ensure that new development occurs in a manner that is sensitive to the historic character of this unique place. The following design guidelines are applicable to the proposal:

Treatment of Historic Infrastructure Features

While preserving a historically significant feature of early infrastructure as it exists is usually preferred, this may not always be feasible. Even so, retaining references of each feature is expected, and should be incorporated in new development in a manner that respects the value of the resource and aids in interpretation of the history of the district.

Intent

Historically significant features of early infrastructure should be preserved. Sensitive reinterpretations should be employed where new development occurs.

Requirements

5.1 Preserve historically significant bridges.

a. Bridges from the period of significance are prominent features and should be kept intact.

5.3 Preserve railroad corridors and spurs.

a. Existing non-active railroad corridors, spurs and tracks should be preserved in place.

b. The adaptive reuse of railroad corridors and spurs to provide green space, view corridors or other amenity for use and enjoyment is the preferred treatment.

c. The enclosure of rail corridors and spurs in a building is generally inappropriate. However, it will be considered if the design clearly interprets the historic function of the space and it can be demonstrated that site constraints make the reuse of the site not feasible.

d. Where they exist, incorporate railroad tracks into a design.

Staff Comment: The proposal is in compliance with the *St. Anthony Falls Historic District Design Guidelines*. The proposed work would preserve intact the major character-defining features of the historic Wisconsin Central Railway Boom Island Bridge while maintaining the associated rail corridor as a trail for public use and enjoyment.

Open Space & Parks

Historically there were few parks in the St. Anthony Falls Historic District. Today, nearly all the land adjacent to the Mississippi River is dedicated to parks and open space. The reuse of these former industrial and railroad transportation areas as recreational and scenic attractions is reflective of the evolving use and importance of the central riverfront within Minneapolis. This evolving use as a recreation and scenic attraction is paramount to initiatives to increase activity along the riverfront.

Intent

The historic development patterns and use of these areas is often evident in the orientation of and access to the sites, remnants of historic infrastructure buildings, and their vegetation. New designs for open spaces and parks should reflect the historic use of the site through design interpretation while allowing for designs that meet the needs for the current and proposed use of the site.

Requirements

6.7 New designs for open spaces and parks should be compatible and reflective of the historic context of the individual character areas.

a. Incorporate the remnants of historic infrastructure and buildings into new designs for open spaces and parks.

b. Retain the historic orientation and access patterns of sites.

c. Interpret the historic use of the site through new design elements.

d. The volunteer pattern of historic landscapes should be reflected in industrial settings.

e. In historic commercial and residential areas, traditional and contemporary vegetation plans for open spaces and parks are appropriate.

Staff Comment: The proposal is in compliance with the *St. Anthony Falls Historic District Design Guidelines*. The applicant's proposal would continue to integrate the historic bridge structure as a key component of Boom Island Park and the overall riverfront park and trail network while retaining a historic access point to the Boom Island site and causing minimal disturbance to riparian vegetation.

Boom Island

Boom Island gained its name as the principal anchor for log booming companies that sorted logs for the appropriate mills located adjacent to the Falls. By the 1880s steam powered saw mills were constructed adjacent to the island. The shift from sawmilling to flour milling along the river resulted in a change in the use of Boom Island. By the early 1900s, the island became a rail yard for the Chicago & Great Western Railroad (Wisconsin Central Railroad). BF Nelson Lumber Company had an extensive sawmilling operation located adjacent to the island.

Over time the channel between Boom Island and the east bank of the river has been infilled. In 1982, the site was purchased by the Minneapolis Park and Recreation Board. It is a distinctive park in that it is very open to the river, comprising a marina and boat docking facility, and a much more formal, bulk-headed, urban promenade that brings visitors to the river's edge.

Intent

Retain the island's ability to convey its historic uses and connections to other resources within the St. Anthony Falls Historic District.

Requirement

10.54 Retain the historic bridge structure and its connection to Nicollet Island.

Staff Comment: The Boom Island section of the *St. Anthony Falls Historic District Design Guidelines* calls for retention of the Wisconsin Central Railway Boom Island Bridge and encourages "interpretive signage and other features that convey the historic uses of the area." CPED is not recommending interpretive signage with this proposal as this proposal is more in keeping with the historic character of the bridge and will not adversely impact the bridge's historic design integrity. In addition, the applicant has noted that the Minneapolis Park and Recreation Board has a master plan for signage that highlights other historic amenities in the area, but not this bridge. In addition, the applicant notes that current funding sources for this project cannot be spent on further interpretation and that grant funding would have to be secured.

4. *The alteration is consistent with the applicable recommendations contained in The Secretary of the Interior's Standards for the Treatment of Historic Properties.*

The project will not impair the significance and integrity of the contributing structure as evidenced by the consistency of alterations with *The Secretary of the Interior's Standards for the Treatment of Historic Properties*. The following *Standards for Rehabilitation* are most applicable to the proposed project:

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

The bridge will continue to be used in a manner compatible with its original purpose. Major, character-defining features of the historic truss will be retained, with most elements to be retained and limited replacement in-kind. The interior stringers will be removed in a way that will allow new interior stringers to be inserted if funding becomes available. Removal of the original timber ties will be mitigated through the use of new timber ties. Both the new deck and steel railings will largely replace non-historic materials dating to the bridge's conversion to trail use and their possible future removal would leave the essential form and integrity of the bridge intact.

5. *The alteration is consistent with the spirit and intent of the preservation ordinance, the applicable policies of the comprehensive plan, and the applicable preservation policies in small area plans adopted by the city council.*

The proposed work is consistent with *the Minneapolis Plan for Sustainable Growth,* the City's Comprehensive Plan. The following preservation policies of the plan are most applicable to this proposal:

Heritage Preservation Policy 8.1: Preserve, maintain, and designate districts, landmarks, and historic resources which serve as reminders of the city's architecture, history, and culture.

8.1.1 Protect historic resources from modifications that are not sensitive to their historic significance.

8.1.3 Encourage new developments to retain historic resources, including landscapes, incorporating them into new development rather than removal.

Heritage Preservation Policy 8.5: Recognize and preserve the important influence of landscape on the cultural identity of Minneapolis.

8.5.1 Identify and protect important historic and cultural landscapes.

8.5.2 Encourage planting and maintenance of street trees and other natural elements in historic districts to promote livability.

The preservation ordinance is intended to promote the recognition, preservation, protection and reuse of historic districts, to promote the economic growth and general welfare of the city, to further educational and cultural enrichment, and to implement the policies of the comprehensive plan. The proposed work allows the bridge to be rehabilitated while respecting its historical significance, retaining the bridge for continued trail use with modifications that are sensitive to its historic character. The bridge will continue to provide interpretation of the area's historic use and rehabilitation work will maintain natural landscape elements of the riverbank. As conditioned, the proposed work is consistent with the spirit and intent of the preservation ordinance as well as the applicable policies of the Comprehensive Plan.

RECOMMENDATIONS

The Department of Community Planning and Economic Development recommends that the Heritage Preservation Commission adopt staff findings for the applications by the Minneapolis Park and Recreation Board for the property located between 501 Ramsey Street Northeast and 206 Island Avenue East in the St. Anthony Falls Historic District:

A. Certificate of Appropriateness.

Recommended motion: **Approve** the certificate of appropriateness to allow rehabilitation of and alterations to the existing Boom Island-Nicollet Island Bridge (Bridge No. 93835), subject to the following conditions:

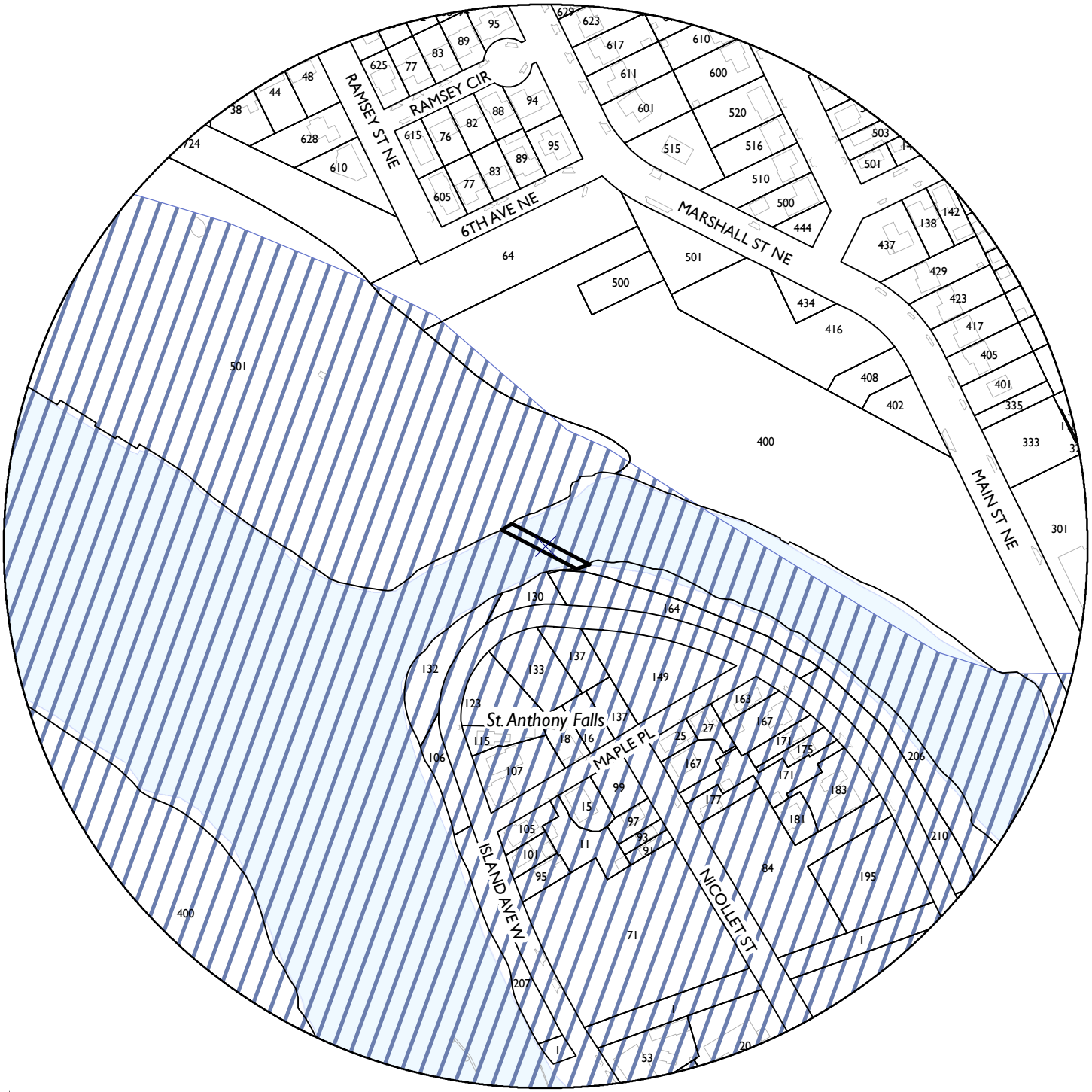
1. Approval of the final plans by the Department of Community Planning and Economic Development.
2. By ordinance, approvals are valid for a period of two years from the date of the decision unless required permits are obtained and the action approval is substantially begun and proceeds in a continuous basis toward completion. Upon written request and for good cause, the planning director may grant up to a one year extension if the request is made in writing no later than January 17, 2019.
3. By ordinance, all approvals granted in this Certificate of Appropriateness shall remain in effect as long as all of the conditions and guarantees of such approvals are observed. Failure to comply with such conditions and guarantees shall constitute a violation of this Certificate of Appropriateness and may result in termination of the approval.

ATTACHMENTS

1. PLAN Maps
2. Project description
3. Aerials
4. Rehabilitation plan
5. Photographs
6. Construction details
7. Plan set
8. Public comments

Minneapolis Park and Recreation Board — **3rd**

NAME OF APPLICANT — WARD



PROPERTY ADDRESS

501 Ramsey Street Northeast to 206 Island Avenue East

FILE NUMBER

PLAN3458

Minneapolis Park and Recreation Board | **3rd**

NAME OF APPLICANT | WARD

240 120 0 240 480 Feet

PROPERTY ADDRESS

501 Ramsey Street Northeast to 206 Island Avneue East

FILE NUMBER

PLAN3458

Bridge No. 93835 – Pedestrian Truss over Mississippi East Channel (Boom Island) Rehabilitation

Application to Minneapolis Heritage Preservation Commission for a Certificate of Appropriateness for Alterations within a Historic District

Table of Contents:

Bridge No. 93835 – Pedestrian Truss over Mississippi East Channel (Boom Island) Rehabilitation

Application to Minneapolis Heritage Preservation Commission for a Certificate of Appropriateness for Alterations within a Historic District

2. NARRATIVE

i. Statement of Proposed Use

Bridge No. 93835 is a steel truss bridge which connects Nicollet Island to Boom Island in the St. Anthony Falls Historic District. Likely built in 1901, the bridge was first a railroad bridge for the Wisconsin Central Railroad. Wisconsin Central Railroad owned a rail yard on Boom Island after the 1893 fire destroyed the original lumberyards. The rail yard was cleared in the 1970s and the bridge was turned over to the Minneapolis Park and Recreation Board (MPRB). In the 1970s the railroad tracks were removed and the existing timber deck was added on top of the railroad timber ties to facilitate vehicular and pedestrian traffic. The chain-link fence was also added for safety. In late 2013, the bridge was closed to vehicular traffic because of significant steel deterioration. Emergency repairs were completed in July 2015 to replace the existing bearings on the north abutment and modify the ends of the stringers which corroded completely away. After the emergency repairs, maintenance vehicles could travel on the bridge. The intent of this project is to rehabilitate the bridge to allow continued pedestrian use for the next 50-75 years and permit maintenance vehicles on the bridge. The overall bridge repair project budget is $2.2M with $1.8M anticipated for construction. The $1.8M estimated construction cost includes two bid alternates: $25K for a proposed lighting system and $400K to replace the interior stringers. The bid alternates will be included in the project if the bids are favorable.

ii. Description of the Project

Abutments:

The abutments are cracked and spalled. The spalls will be repaired and the cracks will be sealed. In addition, the top of the abutment backwall will be removed and replaced in-kind to provide support for the proposed deck system. The proposed abutment concrete will match the color and texture of the existing concrete.

Portals:

The existing lower horizontal angle of the portals is deteriorated. This angle will be removed and replaced in-kind.

Floor Beams:

The floor beams are a built-up member consisting of back-to-back 6”x6” angles on the top and bottom with a vertical web plate between the angles. A horizontal cover plate is above and below the angles. The bottom legs of the bottom two angles have significant corrosion between the exterior stringers. The web plate has high levels of corrosion; at least 2 web plates have holes.

The bottom angles are beyond the condition where a repair plate and a good coat of paint can repair the floor beam. The bottom cover plate, angles, and 3” of the bottom of the vertical web plate will be removed. A new vertical web plate will be added to compensate for the section

loss in the existing vertical plate. A new horizontal plate will be welded to the bottom of the new vertical plate. This detail retains the historic "I" shape of the floor beams. The repair does not replace the bottom angles in kind because built-up members are more likely to accumulate pack rust.

Exterior Stringers:

The exterior stringer sections are similar to the floor beams; they consist of back-to-back 6"x6" angles riveted to the top and bottom of a vertical web plate. They are connected to the floor beam vertical web plate with connection angles and a hidden fill plate. All exterior stringers possess corrosion on the inside bottom angle at the floor beams. About 11 of the 16 exterior stringers have severe deterioration at this location. 7 of the exterior stringers have holes through the bottom angle in the center of the bays. One exterior stringer has a hole in the vertical web plate. All of the connection angles are corroded.

The repairs to the exterior stringers will be surgical in nature. The 7 stringers which have holes in the middle of the bottom inside angles will have this bottom angle replaced in-kind; the angle is beyond repair. In addition, the connection angles and fill plates for these exterior stringers will be replaced in-kind as they possess the highest level of corrosion. In four locations, the bottom of the inside angle has significant deterioration only by the web. A repair plate will be added to the bottom of the angle in these locations. The hole in the vertical web plate of one exterior stringer will be covered with repair plates. The repair plates are longer than the hole so that the load in the existing vertical plate can transfer to the new repair plates on either side of the hole. On the Boom Island Park side of all floor beams, the connection angles and fill plates need to be replaced to accommodate the plate height required for the floor beam repair. These will be replaced in-kind and button head bolts will be used in the same holes as the existing rivets.

Interior Stringers:

The two interior stringers exhibit the worst deterioration. The bottom leg of the bottom angle has through corrosion in many locations; otherwise, the leg is so thin that it will disappear with the minimal cleaning required to adhere any paint system to preserve the remaining steel. There is significant corrosion in the top leg of the bottom angles as well. The vertical plate is not visible in this location, but it can be reasonably assumed to be deteriorated behind the angle. The vertical web plate would be significantly damaged if the bottom angles are removed.

The interior stringers are beyond repair and will be removed. In addition, the interior stringers need to be replaced to allow for the structurally needed floor beam vertical repair plate. The holes and significant corrosion in the existing floor beam vertical web plate are between the interior and exterior stringers. With only 6" between the bottom angles of the exterior and interior angles, there is not enough space to adequately repair the floor beams if the interior stringers remain. The interior stringers will be replaced with a similar sized I-beam as a bid alternate if funds allow.

Bottom Lateral Bracing:

The bottom lateral bracing has been modified since original construction. The bracing elements between the stringers include welds, which wouldn't have been a practice at the time of original construction. In addition, a plate and shelf angle on the outside of the exterior stringers are not

part of the original construction as they are welded to the likely original lateral bracing angle and exterior stringer. Some of the existing plates are severed; others have significant corrosion.

The bottom lateral bracing will be replaced in-kind with new plates and shelf angles. The likely original lateral bracing angle will be cut at the place where it connects to the existing plate. The portion that was connected to the plate will be removed and a new angle will be attached on top to connect the original angle to the new plate. See included photographs for the severed location of the original angle – this is where the original angle will be cut at all other locations. "LOWER LATERAL BRACING REPLACEMENT" detail on Plan Sheet 14 shows the proposed in-kind replacement.

Decking:

The deck, which is in poor condition, consists of timber stingers which run the length of the bridge and are attached to the timber ties. Transverse timber planks, which make up the visual deck surface, are attached on top of the timber stringers. The transverse timber planks are loose, cracked, decayed, cupped, and splitting. Many of the nail heads are pushed up and bent over; these are creating tripping hazards. Due to the condition of the timber, all timber planks and stringers will be replaced. The proposed deck system will be similar except the proposed timber planks and stringers will be 3x12 sections instead of 2x6 for greater durability. The MPRB conducted a study on timber planks and stringers after the Plank Road project exhibited quick deterioration to the timber sections. These details incorporate the findings of that study.

Timber Ties:

The in-place timber ties are likely not original but have been replaced one by one based on their condition. All or some of the timber ties were likely replaced when the timber deck was installed in the 1970s. Based on a recent inspection, the timber ties are cracked, decayed, splitting and contain white rot. The timber ties need to be removed due to their condition. The proposed timber ties lengths will have similar size and spacing, but the lengths will be longer. For a railroad bridge, the timber ties only need to carry load from exterior stringer to exterior stringer – not curb to curb. For a pedestrian bridge, the timber ties need to carry the load from curb to curb. See "PLAN VIEW" on Plan Sheet 16 for a typical timber tie configuration. Sections B-B and C-C on Plan Sheet 15 show how the timber ties will be spaced on and around the floor beams and abutments. This matches the current configuration.

Railing:

Historically the bridge did not have a fence. The in-place chain-link fence needs to be removed to repair the deck. Due to the condition, this railing will not be reinstalled. A new 42" metal railing will be installed. It will consist of 4" wide tube posts, top rail, and bottom rail sections. ¼ inch diameter cables will be spaced at 3.5 inches, horizontally between the posts. The cables are thin and will not obscure the truss members.

Bearings:

Emergency repairs were completed in July 2015 to replace the existing bearings and modify the ends of the stringers which corroded completely away on the west abutment (Boom Island Park side). The bearings on both abutments will be replaced as part of this project. The ends of the exterior stringers on the east abutment will be modified, similar to the ends on the west abutment, due to significant corrosion. The bottom half of the stringers, which sits on the

bearing, has through hole corrosion and will not be able to transfer the necessary load in years to come. After the ends of the stringers are modified, a concrete pedestal will be poured for a bearing pad. See Plan Sheet 17 for details. The modifications to the ends of the exterior stringers and new concrete pedestal will be obscured between the two large truss bearings.

Paint System:

The original paint system has failed. The entire truss will be cleaned and painted. The steel members will be blasted to a level of SSPC 6, which is less than the typical SSPC 10 used for steel bridges. This level of surface preparation will remove paint and minimize damage to the 1901 steel. The proposed paint system will include a zinc-rich primer to extend the life of the existing steel and a penetrating sealer to minimize the development of pack rust in the built-up truss members.

Timber Walls:

Timber walls hold up the trail in all four corners of the bridge. These walls were likely placed in 1901 to support the railway, but wood would not be expected to have a service life over 40 years. The timber members were likely replaced throughout the lifetime of the railway. The timber walls have significant decay, splitting, swelling, and are loose. Their lifespan is limited. In addition, they would not be able to accommodate any construction loads required to rehabilitate the bridge.

The timber walls will be reconstructed. The existing horizontal and vertical timbers will be removed. The vertical members will be replaced in-kind, but the horizontal members will be replaced with wider sections to accommodate the railing that is required for safety reasons on top of the walls. The combined drop and steep slopes at the bottom of the wall require the railing protection to prevent people from falling down the steep slopes

Lighting:

The existing flood light on the north portal currently does not work. The existing light system will be removed as part of this project. If the bids are favorable, an alternate will be included to add a proposed LED lighting system in a manner that makes the fixtures appear secondary to the structure. Efforts will be made to conceal the fixtures. Lighting will evenly illuminate the bridge deck.

iii. Statement Addressing Applicable Findings:

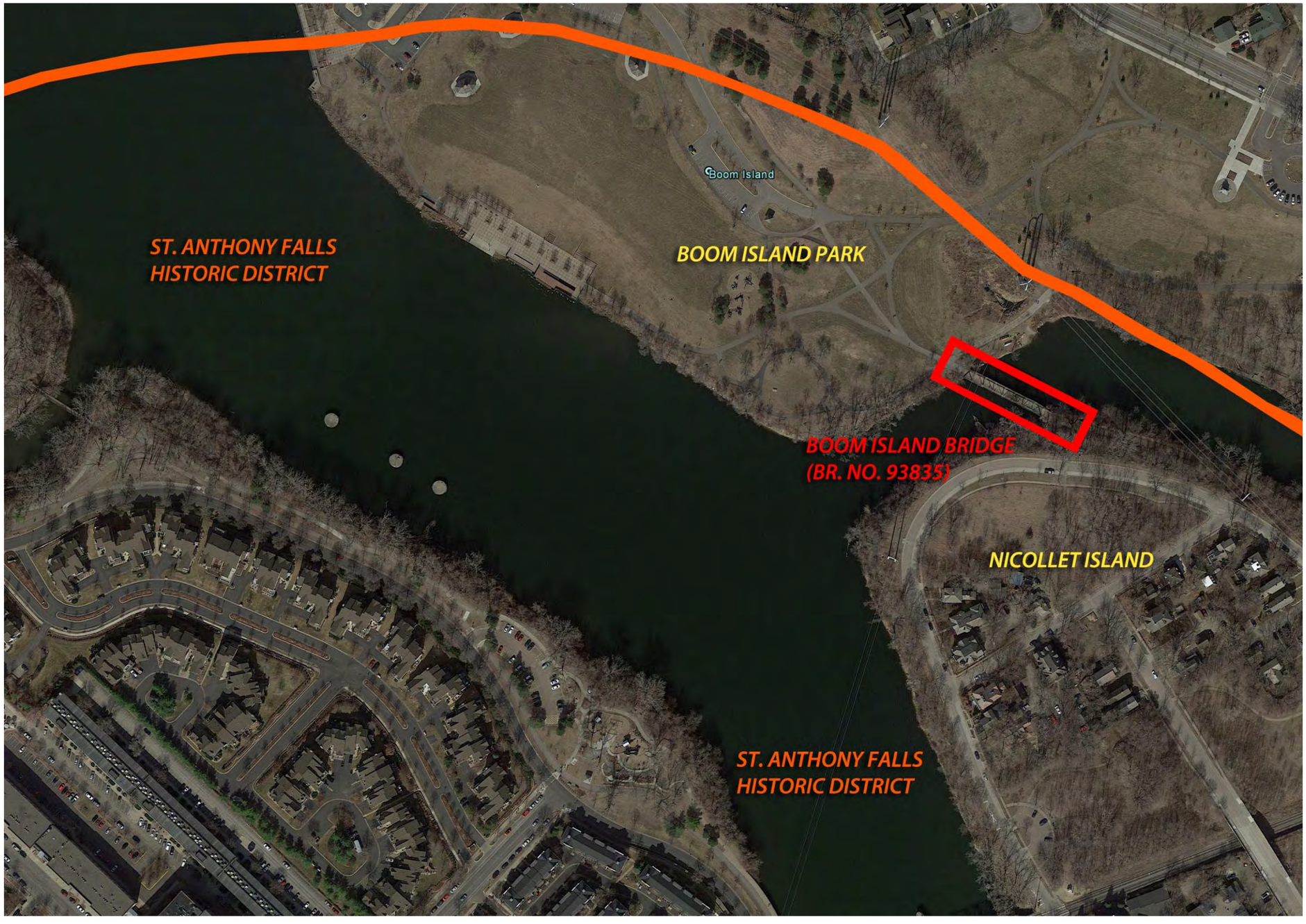
The repairs are consistent with The Secretary of the Interior's Standards for Treatment of Historic Properties. The original 1901 truss members are being preserved and replaced in-kind where necessary. The interior stringers will be removed and replaced with similar I-shaped sections if the bids are favorable. The floor beam geometry will be slightly modified, but the changes will be largely unnoticed by the public; the changes will only be seen by canoeists. The current deck system and fence are not part of the original bridge structure and will be removed. The proposed deck system is similar to existing; new timber ties will be used, but the timber stringers and transverse timber planks will be 3x12 pieces for durability. The proposed railing will not obscure the historic truss members.

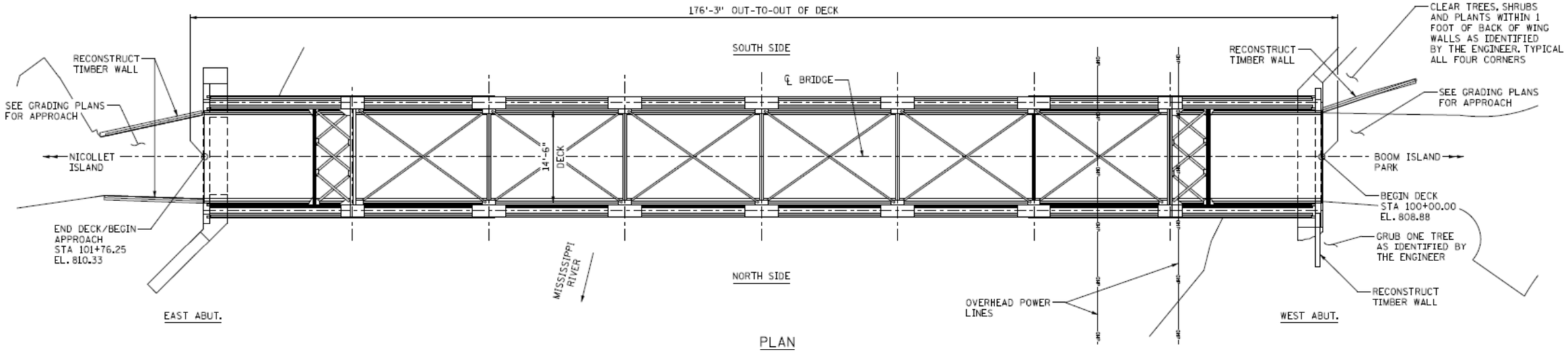
3. SITE PLAN

Bridge No. 93835 Rehabilitation Application for a Certificate of Appropriateness		
Scope of the Work	**January 10, 2017 Heritage Preservation Commission Meeting – *Application Denied***	**April 5, 2017 Heritage Preservation Meeting - Discussion Item** **April 17, 2018 Heritage Preservation Commission Meeting – Revised Application**
Abutments	The spalls will be repaired and the cracks will be sealed. The proposed abutment concrete will match the color and texture of the existing concrete.	No Change
Portals/Hip Joints	This angle will be removed and replaced in-kind. The existing plate will be removed, the pack rust will be cleaned, and the existing plate will be reinstalled.	No work will occur on the hip joints. No Change to portals.
Floor Beams	For the floor beams, the bottom cover plate, angles, and 3" of the bottom of the vertical web plate will be removed. A new vertical web plate will be added to compensate for the section loss in the existing vertical plate. A new horizontal plate will be welded to the bottom of the new vertical plate. The repair does not replace the bottom angles in kind because built-up members are more likely to accumulate pack rust.	No change.
Exterior Stringers	The proposed deck system will not bear on the stringers. The exterior stringers will remain as-is for historic appearances only.	The exterior stringers will carry structural loads as they have historically. To do so, they must be repaired. The repairs to the exterior stringers will be surgical in nature. The 7 stringers which have holes in the middle of the bottom inside angles will have this bottom angle replaced in-kind; the connection angles and fill plates for these exterior stringers will be replaced in-kind as they possess the highest level of corrosion. In four locations, a repair plate will be added to the bottom of the angle.
Interior Stringers	Because the stringers will not be required structurally and their close spacing inhibits the floor beam repairs, the two interior stringers will be removed and not replaced.	The interior stringers are beyond repair and will be removed. In addition, the interior stringers need to be removed to allow for the structurally needed floor beam vertical repair plate. The holes and significant corrosion in the existing floor beam vertical web plate are between the interior and exterior stringers. With only 6" between the bottom angles of the exterior and interior angles, there is not enough space to adequately repair the floor beams if the interior stringers remain. The interior stringers will be replaced with a similar sized I-beam as a bid alternate if funds allow.

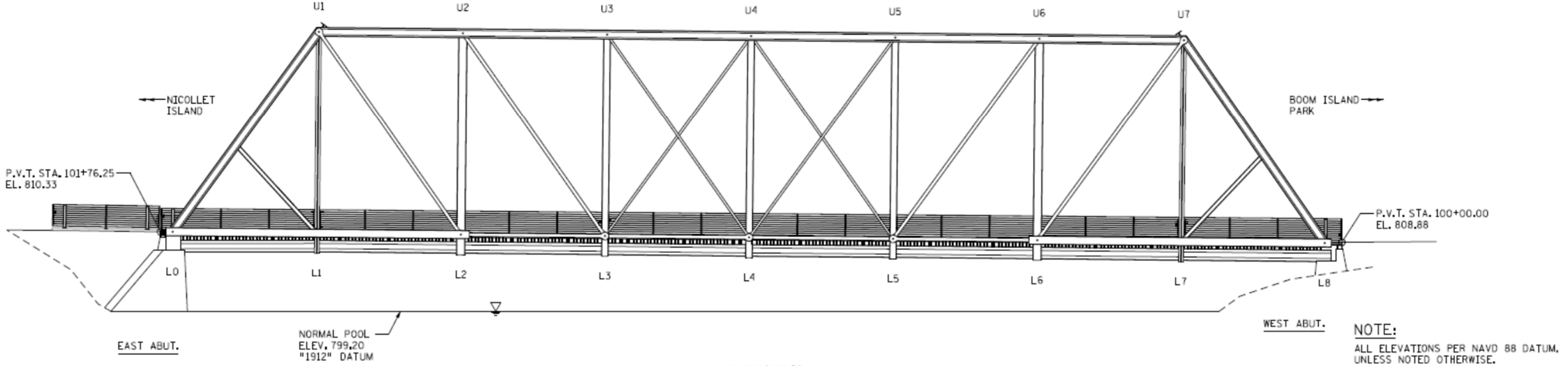
Bottom Lateral Bracing	The bottom lateral bracing will be removed and not replaced.	The in-place bottom lateral bracing is mostly not original construction. The original elements will be retained, and the non-historic members will be replaced in-kind with new plates and shelf angles.
Decking	The proposed deck system is a precast concrete deck spanning from floor beam to floor beam.	The proposed deck system will be similar to the current decking except the proposed timber planks and stringers will be 3x12 sections instead of 2x6 for greater durability.
Timber Ties	The original timber ties need to be removed and are not planned for replacement. This is due to the lack of space between the top of the floor beam and the top of the stringers.	The timber ties need to be removed due to their condition but will be replaced in-kind. The proposed timber ties will have similar size and spacing, but the lengths will be longer to carry the loads from the deck to the stringers.
Railing	The chain-link fence will be removed and replaced with a vertical picket type railing on a concrete curb.	A new 42" metal railing will be installed that will consist of 4" wide tube posts, top rail and bottom rail sections and ¼ inch diameter cables that will be spaced at 3.5 inches, horizontally between the posts. The cables are thin and will not obscure the truss members.
Bearings	After the ends of the stringers are modified, a concrete pedestal will be poured for a bearing pad. The modifications to the ends of the exterior stringers and new concrete pedestal will be obscured between the two large truss bearings.	No Change
Paint System	The entire truss will be cleaned and painted.	No Change
Timber Walls	The timber walls will be reconstructed.	No Change
Lighting	An alternate will be included to add a proposed LED lighting system in a manner that makes the fixtures appear secondary to the structure. Efforts will be made to conceal the fixtures.	No Change

The funding for the Bridge No. 93835 Rehabilitation project does not require State Historic Preservation Office review.


Boom Island
ST. ANTHONY FALLS
HISTORIC DISTRICT
BOOM ISLAND PARK
BOOM ISLAND BRIDGE
(BR. NO. 93835)
NICOLLET ISLAND
ST. ANTHONY FALLS
HISTORIC DISTRICT



PLAN



ELEVATION

NOTE:
ALL ELEVATIONS PER NAVD 88 DATUM, UNLESS NOTED OTHERWISE.

4. PHOTOGRAPHS/IMAGES OF THE EXISTING CONDITION OF THE BRIDGE

i. Elevation

Existing Elevation

ii. View of the Deck

Condition of Existing Timber Deck

Condition of Existing Timber Deck

iii. Views of Deteriorated Components

Cracks and Spalls on North Abutment; temporary repairs to the stringer supports are also visible; corrosion visible on bottom angles of interior and exterior stringers; limited space can be seen between exterior and interior stringers – spacing is the same along the entire length of the bridge

Cracks and Spalls on South Abutment

North Portal Lower Horizontal; can see additional plates and missing parts of angle; South Portal similar

Typical Floor Beam - deterioration outside of stringers; propose to remove bottom angles to end of cover plate seen above.

Typical Floor Beam and Interior Stringers; the bottom leg of the angle for the floor beam is completely deteriorated

Typical Floor Beam and Stringers; Interior stringer is to the left and exterior stringer is to the right.

Typical Floor Beam and Interior Stringers – note hole in floor beam web plate

Typical Floor Beam – bottom leg of angles; severe deterioration begins under stringer; mainly only cover plate

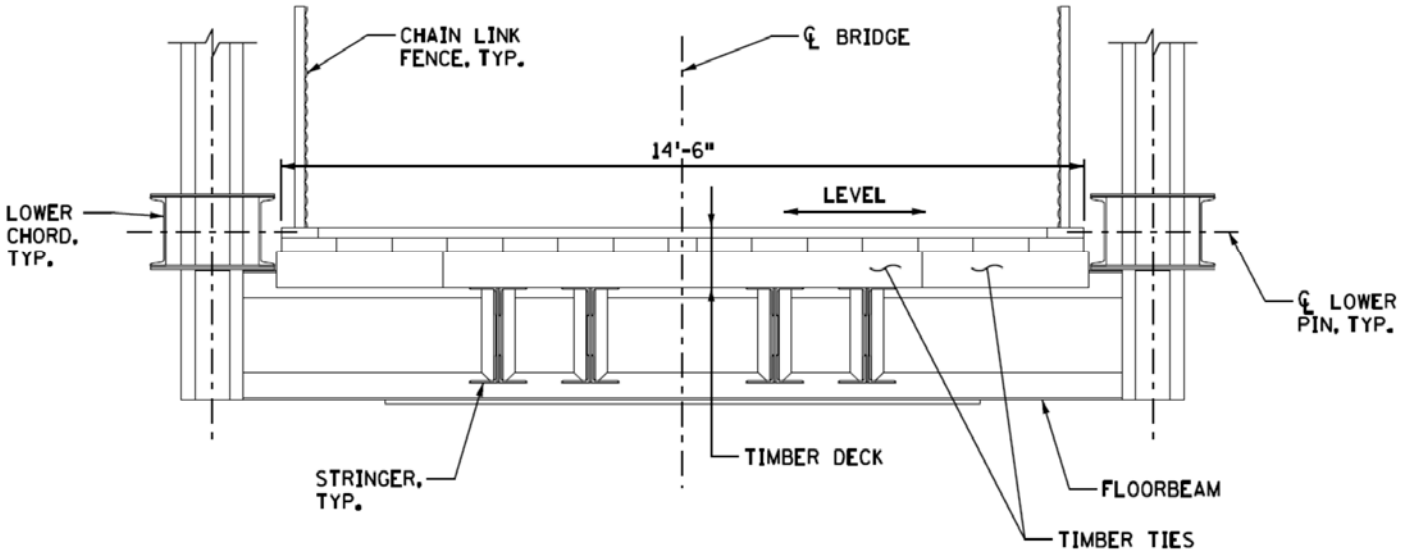
Typical Floor Beam and Interior Stringers

Typical Interior Stringer - bottom leg of angle is gone which upper leg is almost gone.

Bottom Lateral Bracing – severed from non-original plate. There is where new lateral bracing will be added to historic angle. Welds to attach the angle to the exterior stringer shows this was added later.

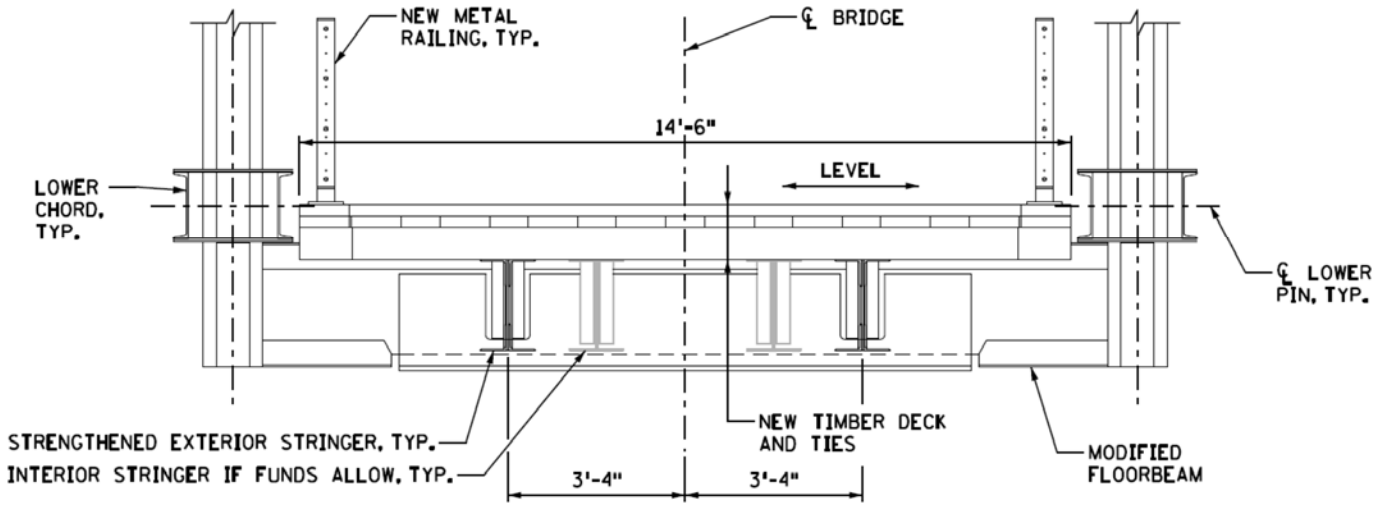
5. CONSTRUCTION DETAILS OF PROPOSED REPAIRS

i. Proposed Deck System



Existing Transverse Section

In addition to the floor beams, the existing stringers are deteriorated, and the timber ties and non-original deck are decayed. The timber deck, timber ties, and non-original chain link fence will be removed. The interior stringers possess the worst deterioration and need to be removed.

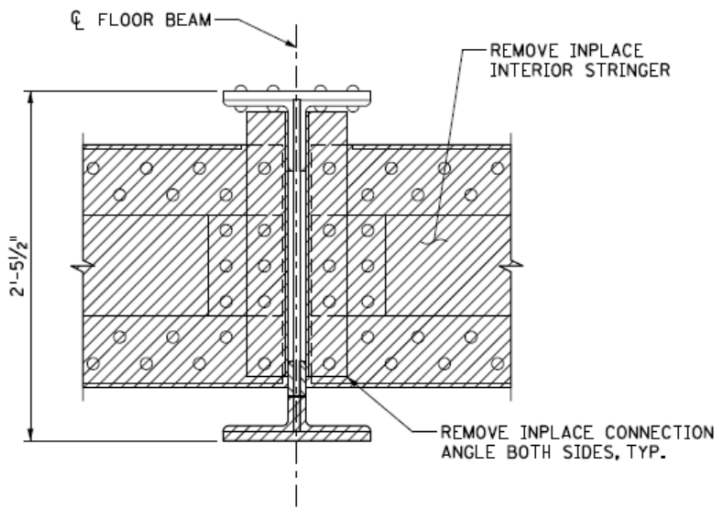


Proposed Transverse Section

The proposed deck will be similar to the existing deck system except the size of the timber stringers and transverse planks will be 3x12 instead of 2x6 for greater durability. The proposed timber ties will have similar size and spacing but the lengths will be longer. For a railroad bridge, the timber ties only need to carry load from exterior stringer to exterior stringer, thus the ties typically ended just beyond the stringer. For a pedestrian bridge, the timber ties need to carry load out to the curb.

The interior stringers are shown lighter. These will be replaced as a bid alternate; they will be replaced if funds allow.

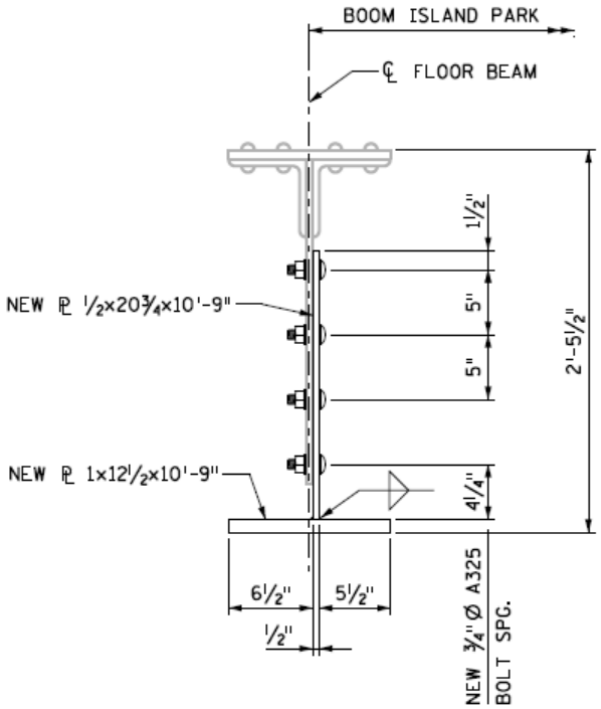
ii. Proposed Floor Beam Repairs



Existing Section of Floor Beam

The existing floor beam is a built-up member consisting of back-to-back 6”x6” angles on the top and bottom with a vertical plate between the angles and horizontal cover plates below and above the angles. The bottom two angles have significant deterioration. We are removing the two deteriorated bottom angles and 3” off the bottom of the vertical plate which is also deteriorated.

The two interior strings have the worst deterioration and will be removed. If they were to remain, their close spacing would inhibit access to adequately repair the floor beams to support the stringers and deck system.



Proposed Section of Floor Beam

The existing vertical plate has deterioration above the existing 6”x6” bottom angles where the stringers tie into the floor beam. Our proposed repair includes a new vertical plate which will extend up as shown to compensate for the section loss in the existing vertical plate. In addition, a new horizontal plate will be welded to the bottom of the new vertical plate. This detail retains the historic “I” shape of the floor beams.

We are not suggesting to replace the existing bottom angles in kind because built-up members are more likely to accumulate pack rust.

PLAN SYMBOLS

CHAIN LINK FENCE..... XC
CATCH BASIN..... CB
MANHOLE..... MH

UTILITY SYMBOLS

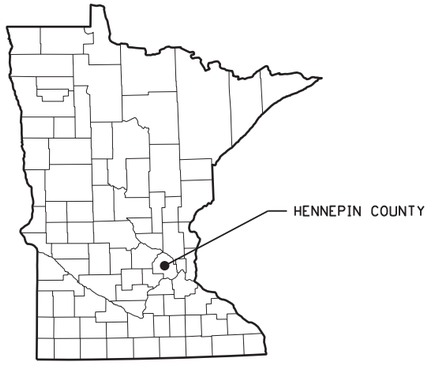
BURIED ELECTRIC CABLES..... P-BUR
GAS MAIN..... G
SANITARY SEWER..... >> >>
OVERHEAD POWER..... OHP OHP
WATER MAIN.....

MINNEAPOLIS PARK AND RECREATION BOARD

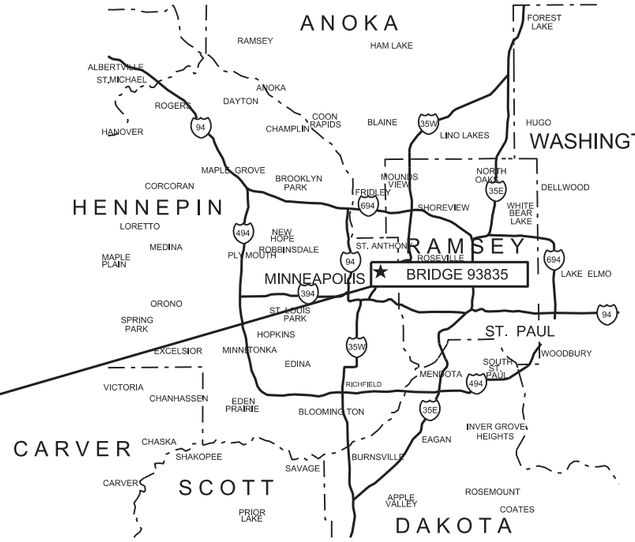
HENNEPIN COUNTY

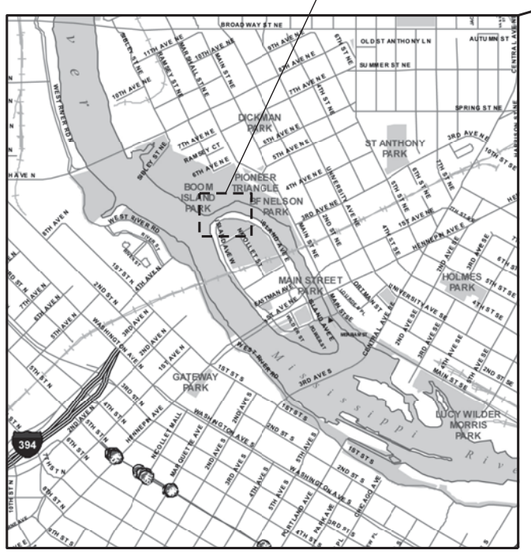
CONSTRUCTION PLAN FOR: BRIDGE NO. 93835 REHABILITATION

LOCATION: W. ISLAND AVE. OVER MISSISSIPPI RIVER BETWEEN NICOLLET ISLAND AND BOOM ISLAND PARK
SEC. 32 TWP. 29 N. R. 24 W.



PROJECT LOCATION





SCHEDULE OF QUANTITIES FOR BRIDGE

ITEM	UNIT	QUANTITY TOTAL
MOBILIZATION	LUMP SUM	1
REMOVALS	LUMP SUM	1
RECONSTRUCT BEARINGS	LUMP SUM	1
CONCRETE SURFACE REPAIR	SQ. FT.	55
FLOOR BEAM REPAIR	EACH	7
EXTERIOR STRINGER REPAIR TYPE 1	EACH	2
EXTERIOR STRINGER REPAIR TYPE 2	EACH	3
EXTERIOR STRINGER REPAIR TYPE 3	EACH	2
EXTERIOR STRINGER REPAIR TYPE 4	EACH	4
EXTERIOR STRINGER REPAIR TYPE 5	EACH	9
EXTERIOR STRINGER WEB STRENGTHENING	EACH	1
LATERAL BRACING REPLACEMENT	EACH	8
PORTAL REPAIR	EACH	2
ADD NEW BOLT	EACH	9
TIMBER DECK SYSTEM	LUMP SUM	1
METAL RAILING	LIN. FT.	411
ORGANIC ZINC-RICH PAINT SYSTEM	LUMP SUM	1
RECONSTRUCT TIMBER WALLS	LUMP SUM	1

SCHEDULE OF QUANTITIES FOR ALTERNATES①

ITEM	UNIT	QUANTITY TOTAL
NEW LIGHTING SYSTEM	LUMP SUM	1
INTERIOR STRINGER REPLACEMENT	LUMP SUM	1

SCHEDULE OF QUANTITIES FOR CIVIL

ITEM	UNIT	QUANTITY TOTAL
TRAFFIC CONTROL	LUMP SUM	1
COMMON EXCAVATION	LUMP SUM	1
CLEAR AND GRUB	LUMP SUM	1
REMOVE BITUMINOUS TRAIL	SQ. YD.	36
SITE GRADING	LUMP SUM	1
6" AGGREGATE BASE, CLASS 5	LUMP SUM	1
10" CONCRETE SIDEWALK	SQ. FT.	522
TRENCH DRAIN	LIN. FT.	15
CASTING (NEENAH R-4990-HX) TYPE Q LID	LIN. FT.	15
EROSION & SEDIMENT CONTROL	LUMP SUM	1
SITE RESTORATION (SEED & MULCH)	LUMP SUM	1

SCHEDULE OF QUANTITIES FOR ELECTRICAL②

ITEM	UNIT	QUANTITY TOTAL
REMOVE INPLACE LIGHT SYSTEM	LUMP SUM	1

LIST OF SHEETS

BRIDGE PLANS

THIS PLAN SET CONTAINS 45 SHEETS.

① BID ALTERNATES:

THESE PLANS AND SPECIFICATIONS INCLUDE TWO BID ALTERNATIVES.

BID ALTERNATE 1 IS TO A PROVIDE NEW LIGHTING SYSTEM. THE DETAILS ARE PROVIDED ON SHEETS E2 TO E5.

BID ALTERNATE 2 IS TO REPLACE THE INTERIOR STRINGERS. THE DETAILS TO REPLACE THE INTERIOR STRINGERS ARE PROVIDED ON SHEETS 23 TO 27.

② NOTE:

REMOVAL OF THE INPLACE LIGHT SYSTEM IS INCLUDED IN THE BASE BID. DETAILS ARE PROVIDED ON SHEETS EO AND E1.

Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED OR TYPED NAME: SARA L. NELSON LIC. NO.: 42330 DATE: 9/12/2017

DES: SLN	DR: DPC
CHK: DPC	CHK: SLN

TITLE SHEET

SHEET NO. 1 OF 27 SHEETS

Plotted by: Dan.Crawford
Plotted on: 9/12/2017 at 12:37:53 PM
File path: \\oneserver\public\projects\1114-1-mpls boom island\2 - production\c - work\cd\BR93835_TTL001.dgn

DESIGN DATA

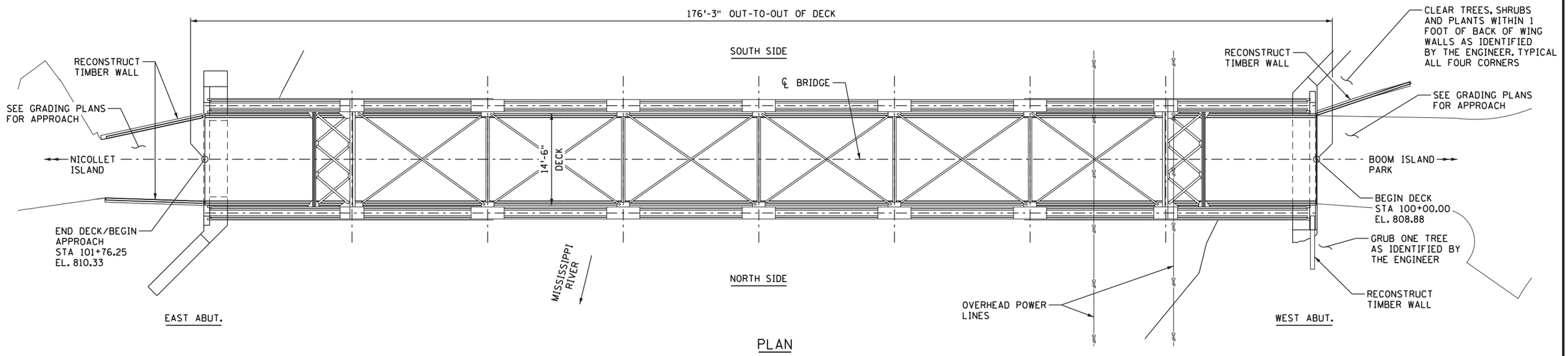
2014 AND CURRENT INTERIM AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

LOAD AND RESISTANCE FACTOR DESIGN METHOD.

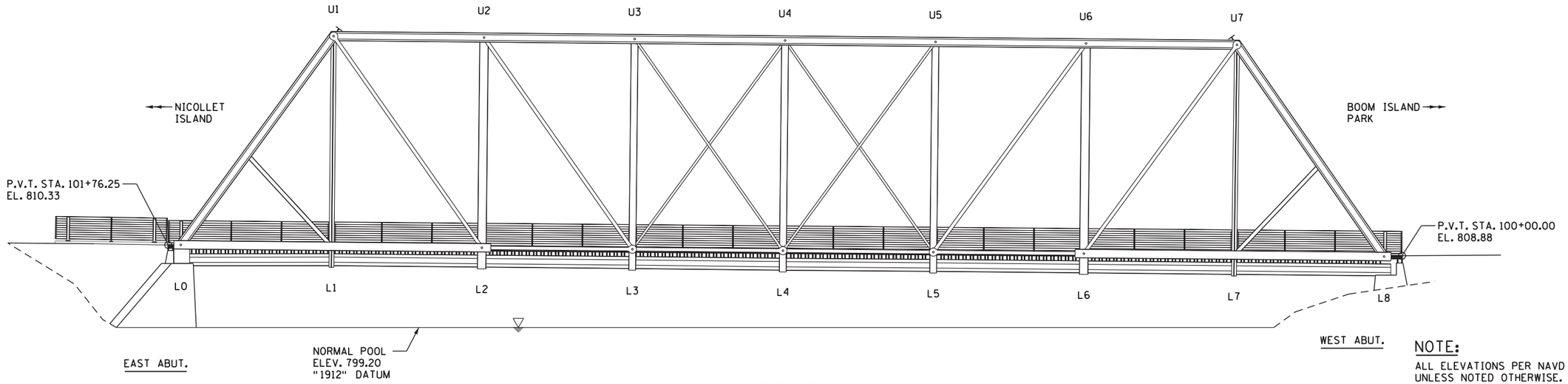
H10 OR 90 PSF LIVE LOAD.

MATERIAL DESIGN PROPERTIES:
- NEW STRUCTUAL STEEL:
  - Fy = 50 k.s.i.
- REINFORCED CONCRETE:
  - f'c = 4 k.s.i., n = 8
  - fy = 60 k.s.i. FOR REINFORCEMENT

APPROXIMATE DECK AREA = 2,556 SQ. FT.



PLAN



ELEVATION

NOTE:
ALL ELEVATIONS PER NAVD 88 DATUM, UNLESS NOTED OTHERWISE.

REVISIONS	DATE	BY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

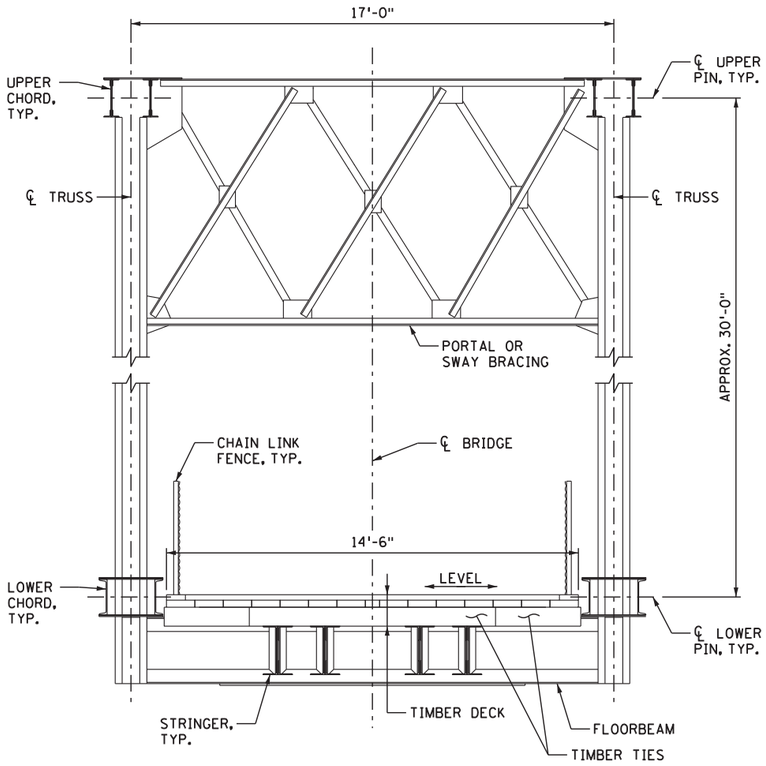
PRINTED OR TYPED NAME: SARA L. NELSON — LIC. NO.: 42330 — DATE: 9/12/2017

Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

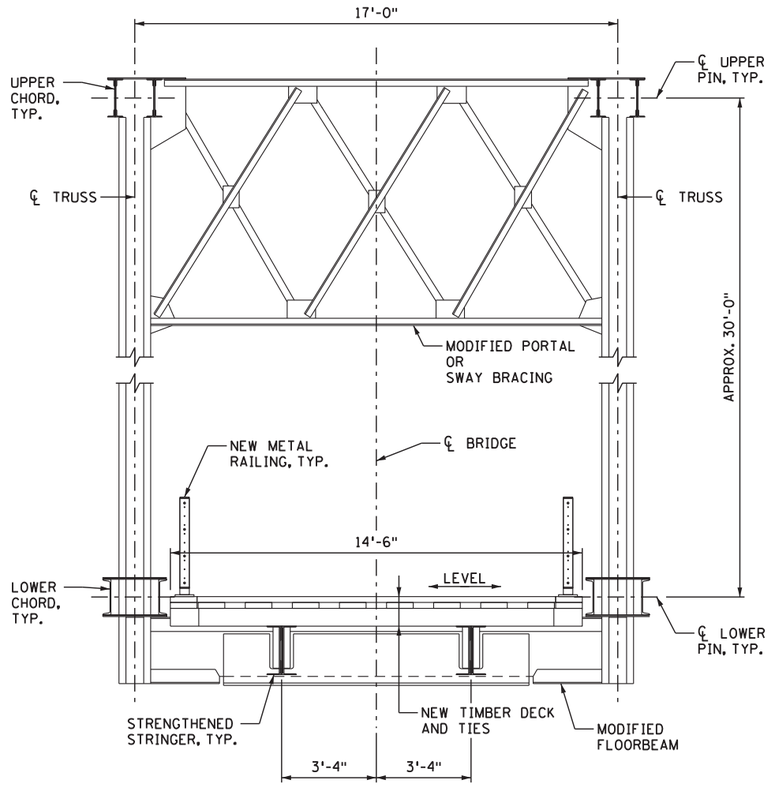
TITLE: GENERAL PLAN & ELEVATION

DES: SLN	DR: DPC	APPROVED:	BRIDGE NO. 93835
CHK: DPC	CHK: SLN		
SHEET NO. 2 OF 27 SHEETS			

Plotted by: Dan.Crawford
Plotted on: 9/12/2017 at 12:38:13 PM
File path: \\oneserver\public\projects\1114-1-mpls boom island\2 - production\c - work\cd\BR93835_S12001.dgn



EXISTING TRANSVERSE SECTION



PROPOSED TRANSVERSE SECTION ①

GENERAL NOTES:

THE GENERAL NOTES CONTAINED HEREIN ARE INTENDED TO FEATURE BROAD REQUIREMENTS OF THE CONSTRUCTION AND ARE NOT COMPREHENSIVE. ADDITIONAL DETAIL AND REQUIREMENTS ARE CONTAINED THROUGHOUT THE PLANS AND SPECIFICATIONS.

THE BRIDGE CAN ACCOMMODATE THE WEIGHT OF A H10 VEHICLE IN ITS CURRENT CONDITION.

DIMENSIONS SHALL NOT BE DETERMINED BY SCALING FROM DRAWINGS.

THE DIMENSIONS AND ELEVATIONS OF THE INPLACE STRUCTURE AS SHOWN IN THE PLANS SHALL BE CONSIDERED APPROXIMATE.

PLAN DETAILS ARE BASED ON FIELD MEASUREMENTS FROM SEVERAL DATES AND LASER SCAN DATA COLLECTED IN 2015 AND 2016. THE CONTRACTOR SHALL MAKE FIELD MEASUREMENTS AS NECESSARY PRIOR TO CONSTRUCTION TO ESTABLISH DIMENSIONS AND ELEVATIONS OF INPLACE BRIDGE ELEMENTS TO ASSURE PROPER FIT IN FINAL WORK.

ALL REINFORCEMENT TO BE EPOXY COATED.

THE FIRST DIGIT OF EACH BAR MARK INDICATES THE BAR SIZE USING U.S. CUSTOMARY DESIGNATIONS.

THE USE OF FLAME-CUTTING TORCH SHALL NOT BE USED TO REMOVE RIVETS OR CUT BOLT HEADS FROM ANY ELEMENT TO REMAIN IN PLACE ON THE BRIDGE.

PAYMENT FOR STEEL REPAIR CONNECTIONS SHALL BE INCLUDED IN REPAIR WORK TO WHICH IT PERTAINS.

ALL BOLTED CONNECTIONS SHALL BE MADE WITH BUTTON HEAD MECHANICALLY GALVANIZED ASTM A325 TYPE 1 - ¾ INCH DIAMETER BOLTS AND WASHERS WITH $^{13}/_{16}$ INCH DIAMETER HOLES, UNLESS NOTED OTHERWISE ON THE PLANS.

BOLT HOLES SHALL BE FIELD OR SHOP DRILLED THROUGH NEW AND INPLACE STEEL. VERIFY LOCATION OF INPLACE RIVETS BEFORE DRILLING NEW STEEL.

NEW STEEL TO INPLACE STEEL SHALL BE FIRMLY CLAMPED TOGETHER BY TEMPORARY MEANS OTHER THAN WELDING DURING FIELD DRILLING OPERATIONS OR WHILE SCRIBING INPLACE HOLE PATTERNS TO NEW STEEL.

THE USE OF A FLAME-CUTTING TORCH FOR MAKING NEW HOLES WILL NOT BE PERMITTED, UNLESS NOTED OTHERWISE.

ALL BOLTED FIELD CONNECTIONS FOR STEEL BRIDGES SHALL BE INSTALLED USING DIRECT TENSION INDICATOR (DTI) WASHERS.

SEE SPECIFICATIONS FOR RIVET REMOVAL PROCEDURE.

TREE CLEARING:

CLEAR TREES, SHRUBS AND PLANTS WITHIN 1 FOOT OF BACK OF WING WALLS AS IDENTIFIED BY THE ENGINEER, TYPICAL ALL FOUR CORNERS. CLEAR AND GRUB ONE TREE BEHIND THE INPLACE TIMBER WALL IN NW CORNER AS IDENTIFIED BY THE ENGINEER.

① BID ALTERNATES:

THESE PLANS AND SPECIFICATIONS INCLUDE TWO BID ALTERNATIVES.

BID ALTERNATE 1 IS TO PROVIDE NEW LIGHTING PROVIDED ON SHEETS E2 TO E5.

BID ALTERNATE 2 IS TO REPLACE THE INTERIOR STRINGERS. THE DETAILS TO REPLACE THE INTERIOR STRINGERS ARE PROVIDED ON SHEETS 23 TO 27.

REVISIONS	DATE	BY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

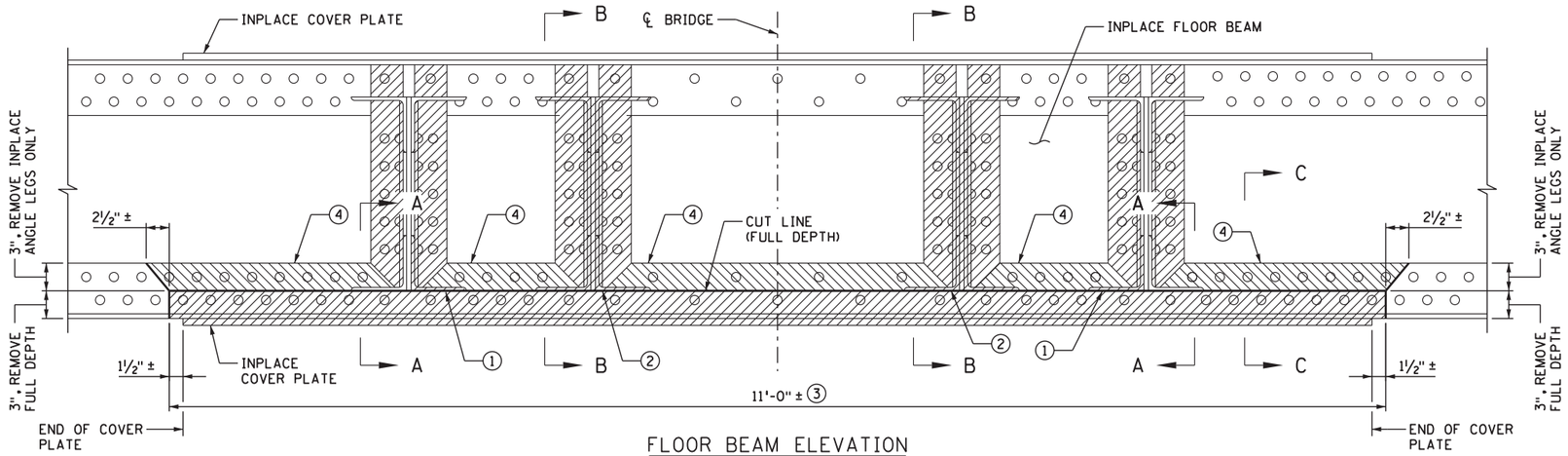
PRINTED OR TYPED NAME: SARA L. NELSON — LIC. NO. 42330 — DATE 9/12/2017

Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

TITLE: TRANSVERSE SECTION & GENERAL NOTES

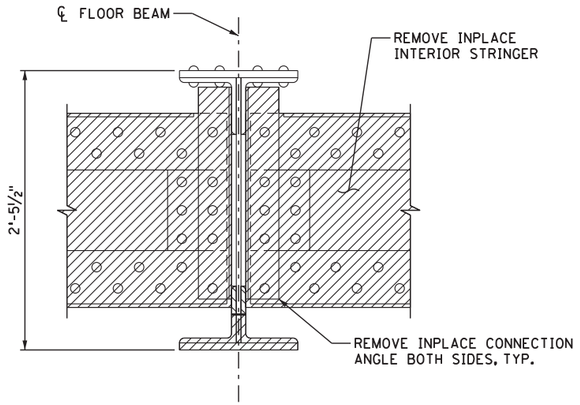
DES: SLN	DR: DPC	APPROVED:	BRIDGE NO. 93835
CHK: DPC	CHK: SLN		
SHEET NO. 3 OF 27 SHEETS			

Plotted by: Dan.Crawford
Plotted on: 9/12/2017 at 12:38:15 PM
File path: \\oneserver\public\projects\1114-1-mpls boom island\2 - production\c - work\cd\BR93835_S12002.dgn

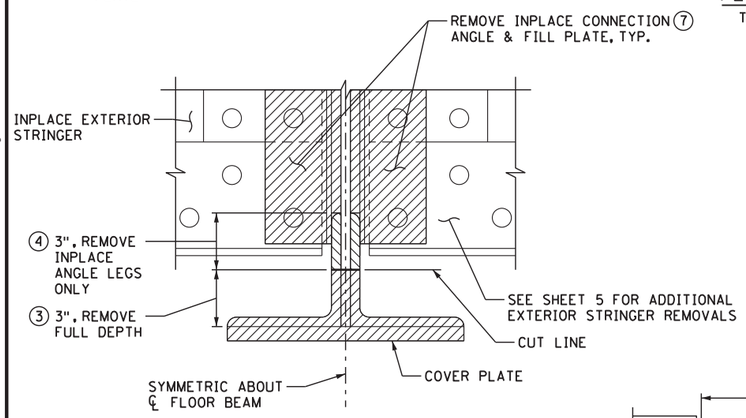


FLOOR BEAM ELEVATION

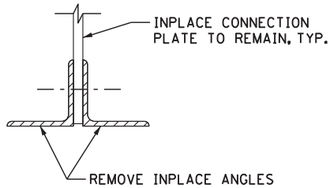
TYPICAL AT ALL FLOOR BEAMS (WEST SIDE ONLY)



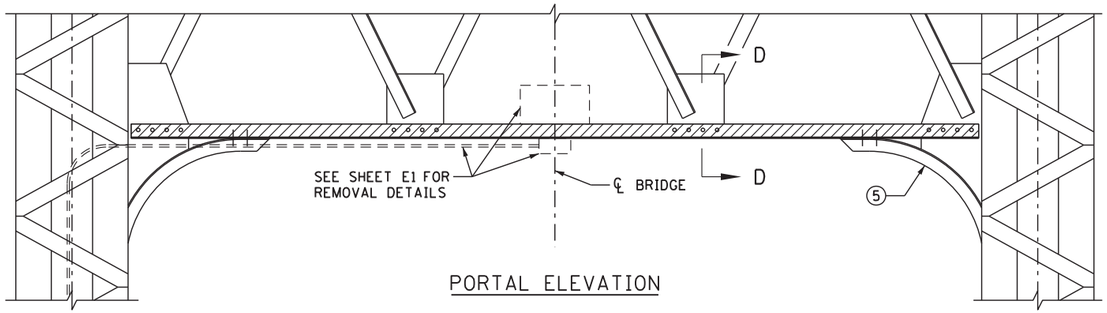
SECTION B-B



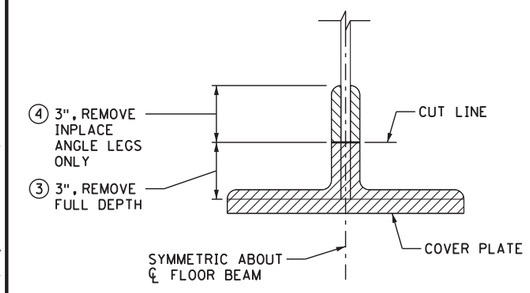
SECTION A-A



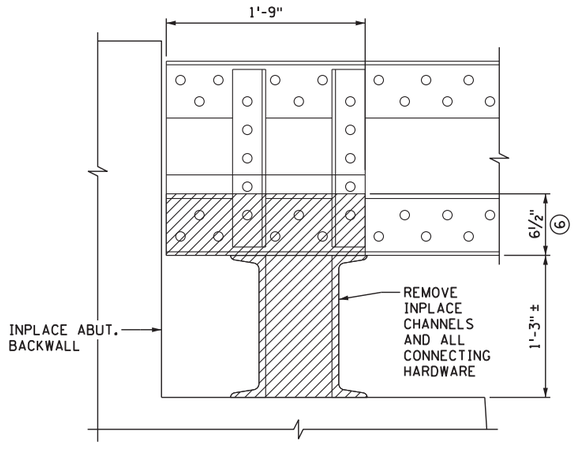
SECTION D-D



PORTAL ELEVATION

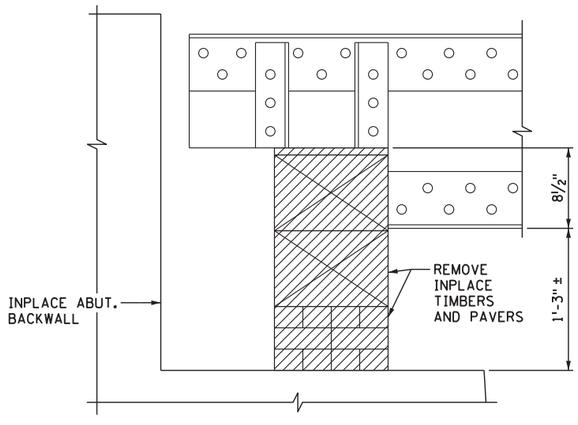


SECTION C-C



STRINGER BEARING ELEVATION

EAST ABUTMENT



STRINGER BEARING ELEVATION

WEST ABUTMENT

NOTES:

DENOTES REMOVAL.

1. REMOVE INSIDE BOTTOM ANGLE AT EXTERIOR STRINGER REPAIR TYPES 1, 2 AND 3 LOCATIONS. CLEAN HOLES.
2. REMOVE INTERIOR STRINGER (INCLUDES STRINGER AND ANGLES ATTACHED TO FLOOR BEAM).
3. REMOVE LOWER HALF OF FLANGE ANGLE AND WEB PLATE (INCLUDING COVER PLATE) AT CUT LINE.
4. REMOVE UPPER HALF OF FLANGE ANGLE AT CUT LINE. CLEAN HOLES FOR USE IN FLOOR BEAM REPAIR.
5. CARE SHALL BE TAKEN WHEN REMOVING THE HORIZONTAL ANGLES TO NOT DAMAGE THE CURVED ANGLES TO REMAIN.
6. REMOVE EXISTING ANGLES AND WEB PLATE AS SHOWN. MAY BE FLAME CUT.
7. REMOVE CONNECTION ANGLES AND FILL PLATE ON BOOM ISLAND PARK SIDE AT ALL FLOOR BEAMS. REMOVE CONNECTION ANGLES AND FILL PLATE ON NICOLLET ISLAND SIDE AT EXTERIOR STRINGER REPAIR TYPES 1 AND 2 LOCATIONS.

REVISIONS	DATE	BY

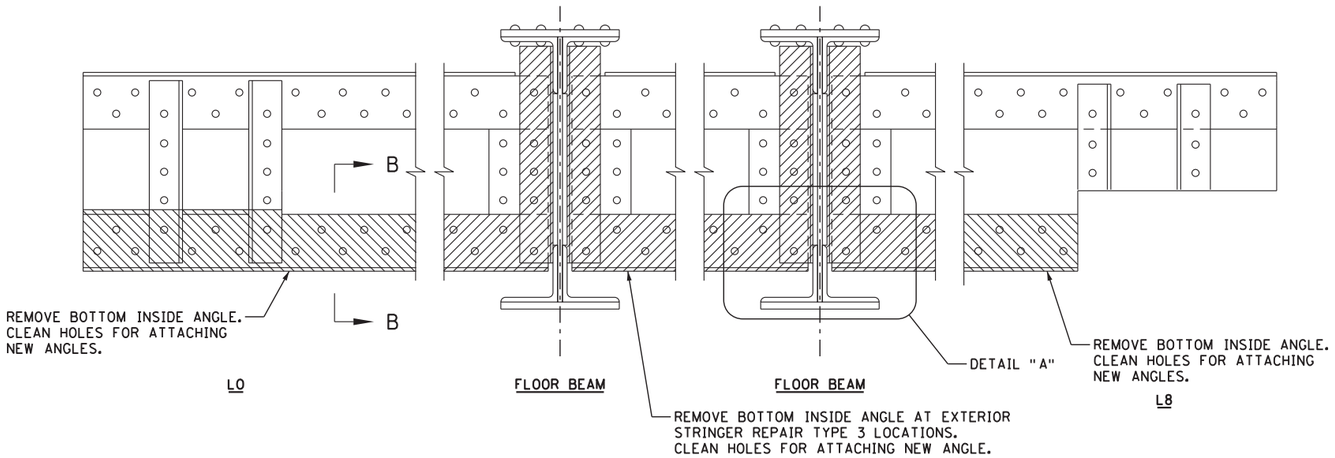
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED OR TYPED NAME: SARA L. NELSON — LIC. NO.: 42330 — DATE: 9/12/2017

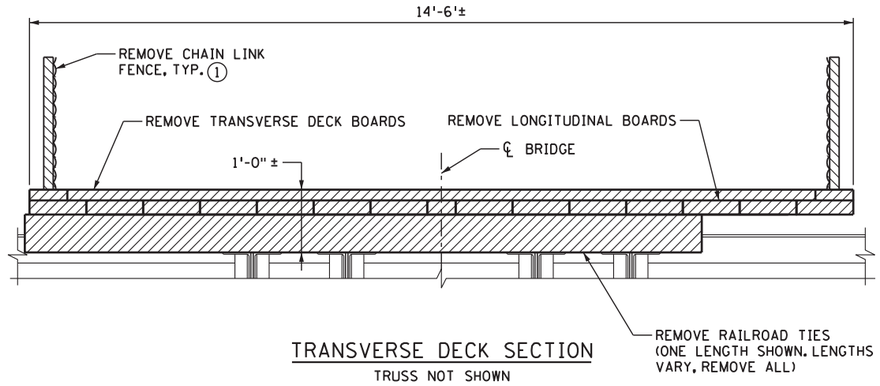
Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

TITLE: REMOVAL DETAILS (1 OF 3)

DES: SLN	DR: DPC	APPROVED:	BRIDGE NO.
CHK: DPC	CHK: SLN		93835
SHEET NO. 4 OF 27 SHEETS			

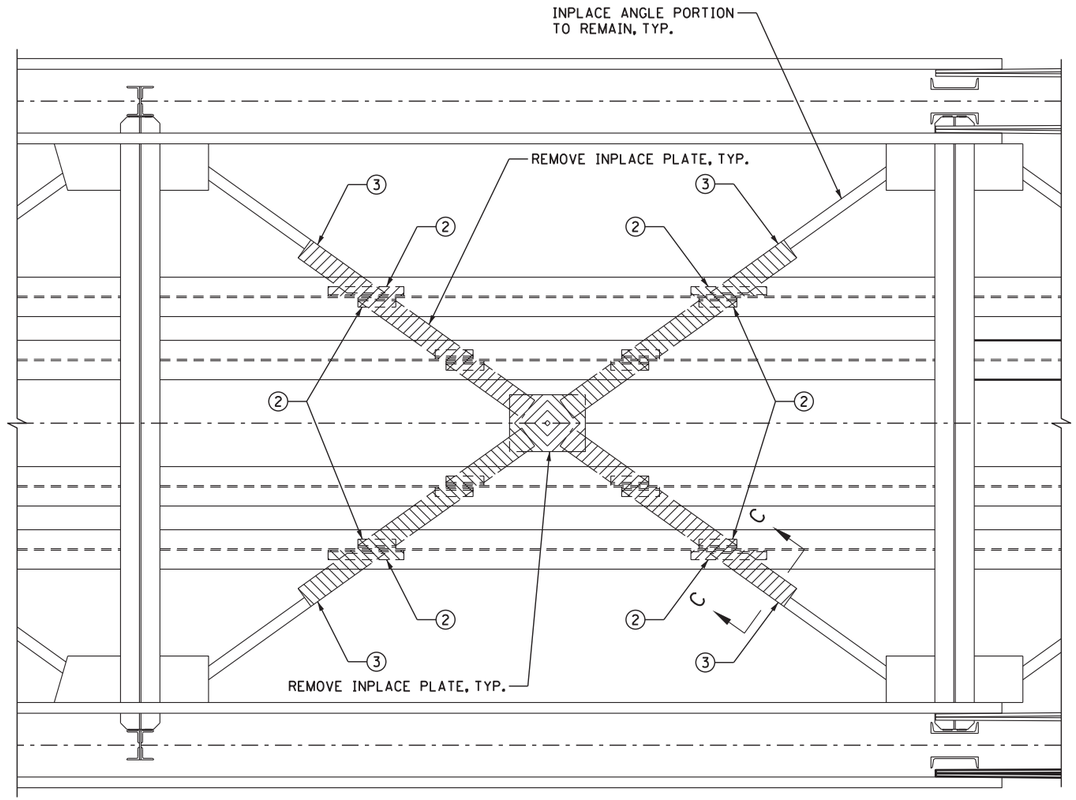


INSIDE ELEVATION OF EXTERIOR STRINGER



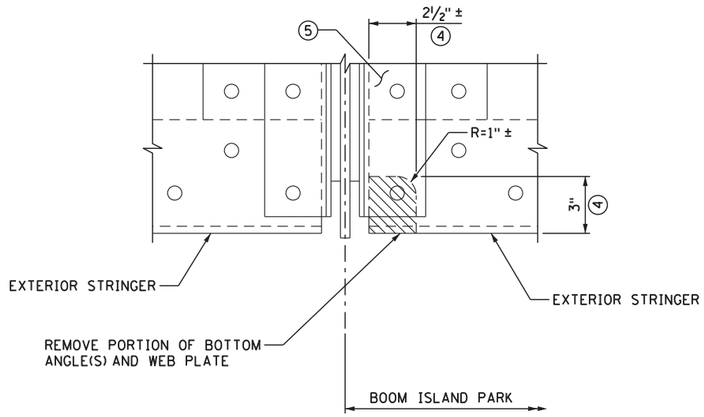
TRANSVERSE DECK SECTION

TRUSS NOT SHOWN



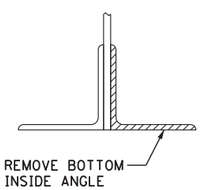
PLAN

LATERAL BRACING REMOVALS

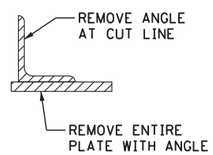


DETAIL "A"

INPLACE CONNECTION ANGLE, FILL PLATE, AND INSIDE ANGLE REMOVALS NOT SHOWN FOR CLARITY



SECTION B-B



SECTION C-C

ACTUAL CONFIGURATION MAY DIFFER

NOTES:

DENOTES REMOVAL.

1. GRIND FENCE SUPPORT WELDS SMOOTH ON TRUSS MEMBERS AFTER FENCE RAILING IS REMOVED.
2. REMOVE CONNECTION ANGLE FROM EXTERIOR STRINGER WEB. GRIND WELDS SMOOTH ON STRINGER WEB AFTER CONNECTION ANGLE IS REMOVED.
3. REMOVE PORTION OF INPLACE ANGLE THAT IS ATTACHED TO INPLACE PLATE.
4. REMOVE FULL DEPTH TO ACCOMMODATE FLOOR BEAM REPAIR.
5. ALL CONNECTION ANGLES AND FILL PLATES ON BOOM ISLAND PARK SIDE TO BE REMOVED.

REVISIONS	DATE	BY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

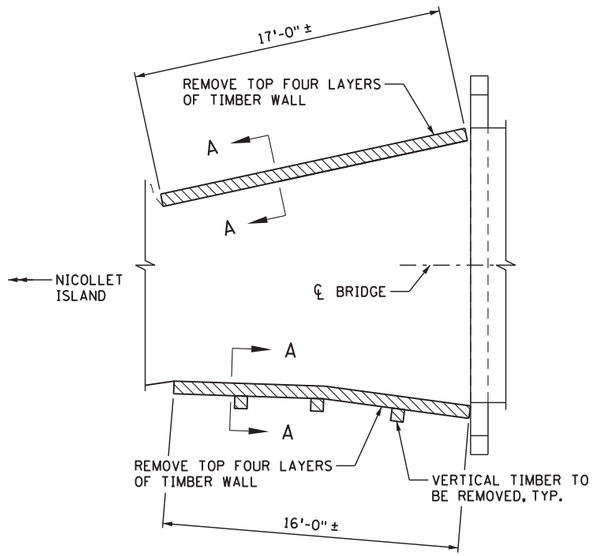
PRINTED OR TYPED NAME: SARA L. NELSON — LIC. NO. 42330 — DATE 9/12/2017

Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

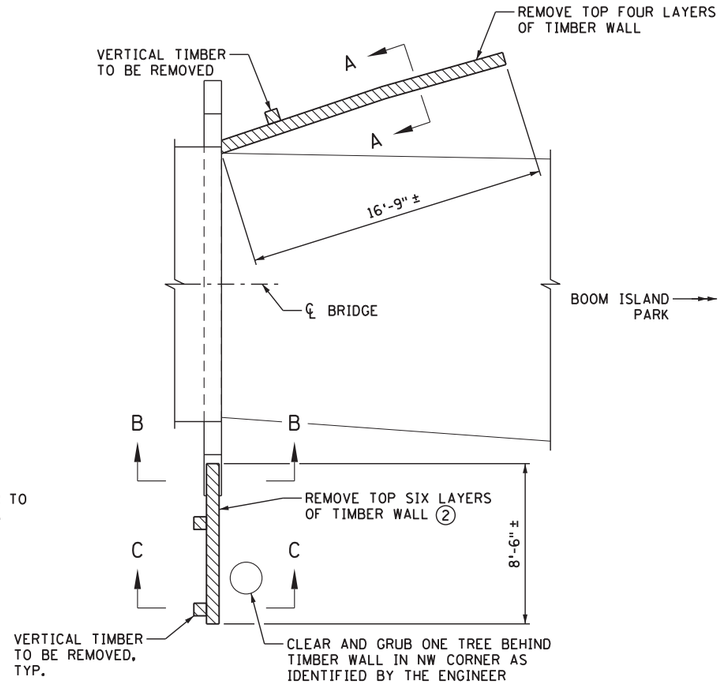
TITLE: REMOVAL DETAILS (2 OF 3)

DES: SLN	DR: DPC	APPROVED:	BRIDGE NO.
CHK: DPC	CHK: SLN		93835
SHEET NO. 5 OF 27 SHEETS			

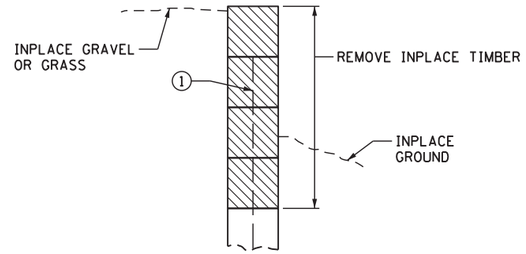
Plotted by: Dan.Crawford
Plotted on: 9/12/2017 at 12:38:18 PM
File path: \\oneserver\public\projects\1114-1-mpls boom island\2 - production\c - work\cd\BR93835_REM002.dgn



EAST ABUT.

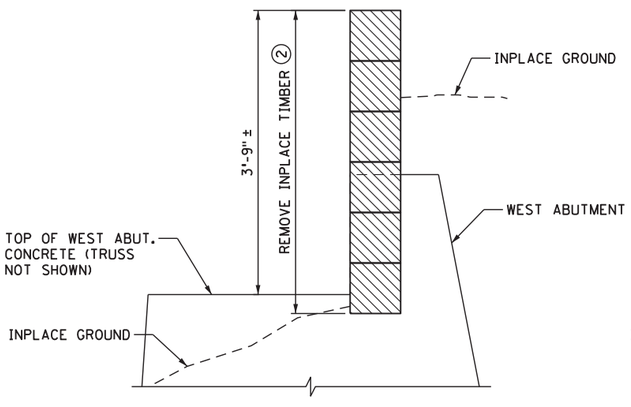


WEST ABUT.

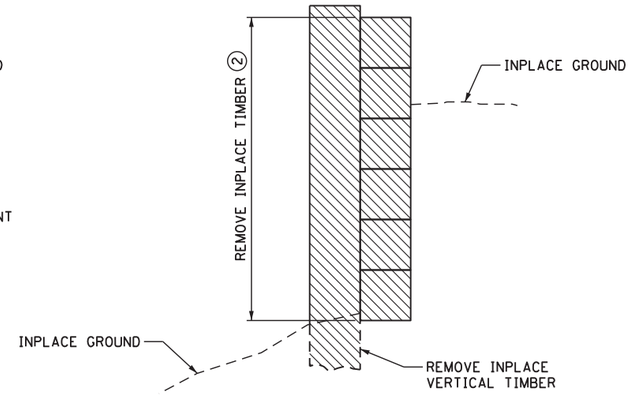


SECTION A-A

TIMBER WALL PLAN



SECTION B-B



SECTION C-C

NOTES:

▨ DENOTES REMOVAL.

(1) TRIM INPLACE THROUGH BOLTS OR DOWELS IF PRESENT.

(2) THE FIFTH LAYER FROM THE TOP APPEARS TO BE ROTTED AWAY BUT MAY BE PRESENT DURING REMOVALS. ADDITIONAL TIMBERS MAY BE PRESENT BELOW THE SIXTH LAYER.

REVISIONS	DATE	BY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

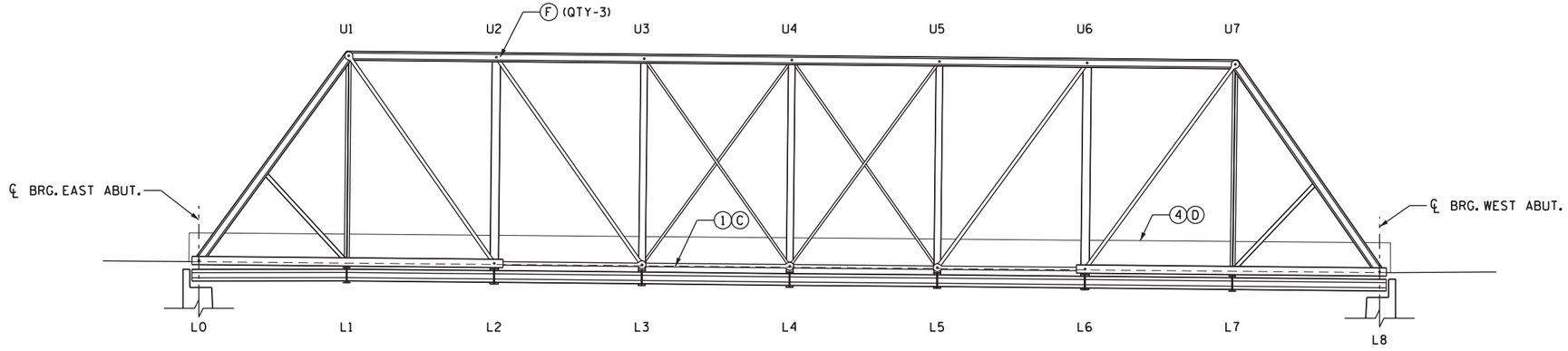
PRINTED OR TYPED NAME SARA L. NELSON LIC. NO. 42330 DATE 9/12/2017

Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

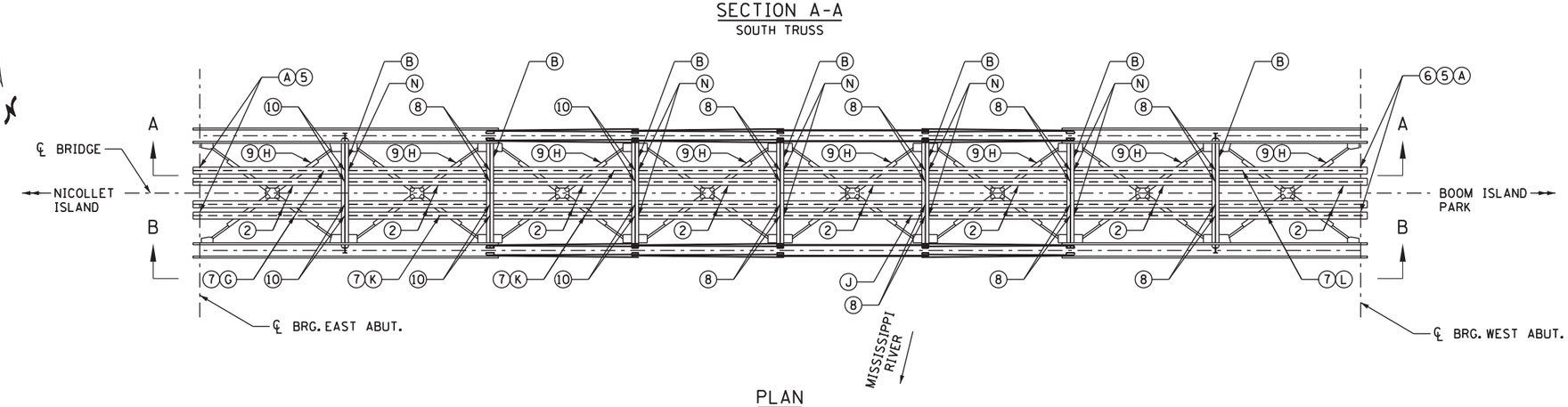
TITLE: REMOVAL DETAILS (3 OF 3)

DES: SLN	DR: DPC	APPROVED:	BRIDGE NO. 93835
CHK: DPC	CHK: SLN		
SHEET NO. 6 OF 27 SHEETS			

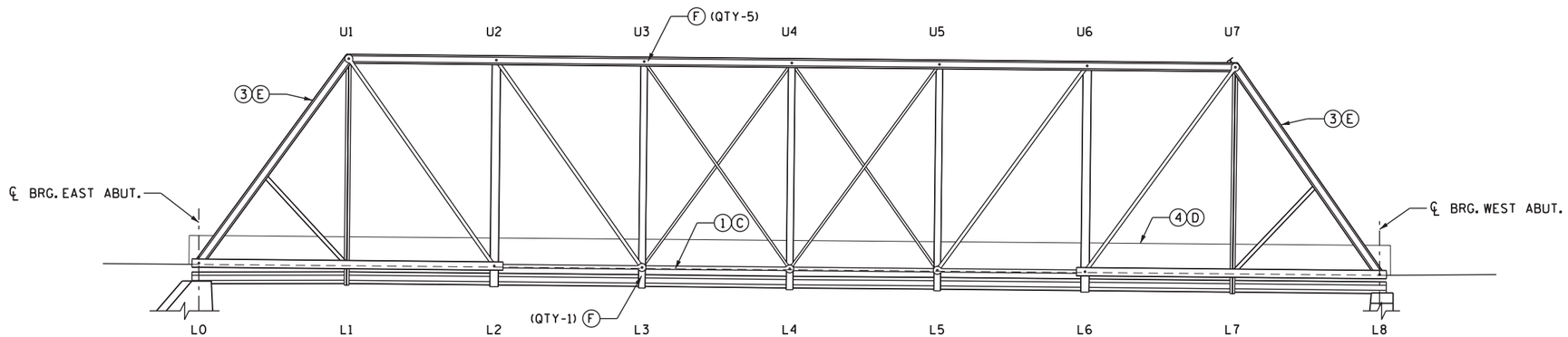
Plotted by: Dan.Crawford
Plotted on: 9/12/2017 at 12:38:20 PM
File path: \\oneserver\public\projects\1114-1-mpls boom island\2 - production\c - work\cd\BR93835_REM003.dgn



SECTION A-A
SOUTH TRUSS



PLAN
UPPER CHORD, SWAY BRACING, PORTAL & UPPER LATERAL BRACING NOT SHOWN FOR CLARITY



SECTION B-B
NORTH TRUSS

REPAIR IDENTIFICATION

- (A) RECONSTRUCT BEARINGS (SHEETS 17-18)
- (B) FLOOR BEAM REPAIR (SHEET 10)
- (C) NEW TIMBER DECK AND TIES (SHEETS 15-16)
- (D) NEW METAL RAILING (SHEETS 19-22)
- (E) PORTAL REPAIR (SHEET 13)
- (F) RIVETS MISSING, ADD NEW BOLT(S)
- (G) EXTERIOR STRINGER REPAIR TYPE 1 (SEE SHEETS 11-12)
- (H) LATERAL BRACING REPLACEMENT (SEE SHEET 14)
- (J) EXTERIOR STRINGER WEB STRENGTHENING (SEE SHEET 13)
- (K) EXTERIOR STRINGER REPAIR TYPE 2 (SEE SHEET 11-12)
- (L) EXTERIOR STRINGER REPAIR TYPE 3 (SEE SHEET 11-12)
- (11)(M) EXTERIOR STRINGER REPAIR TYPE 4 (SEE SHEET 11-12)
- (N) EXTERIOR STRINGER REPAIR TYPE 5 (SEE SHEET 11-12)

REMOVALS

1. (1) REMOVE INPLACE TIMBER DECK AND TIES (SEE SHEET 5)
2. (2) REMOVE INTERIOR STRINGER (SEE SHEET 4)
3. (3) REMOVE LOWER HORIZONTAL PORTAL MEMBERS (SEE SHEET 4)
4. (4) REMOVE INPLACE FENCE (SEE SHEET 5)
5. (5) REMOVE INPLACE BEARINGS (SEE SHEET 4)
6. (6) REMOVE PORTION OF EXTERIOR STRINGER AT BEARING (SEE SHEET 4)
7. (7) REMOVE INPLACE BOTTOM INSIDE ANGLE OF EXTERIOR STRINGERS (SEE SHEET 5)
8. (8) REMOVE INPLACE CONNECTION PLATES AND FILL PLATES BETWEEN FLOOR BEAMS AND STRINGERS ON BOOM ISLAND PARK SIDE OF FLOOR BEAM (SEE SHEETS 4-5)
9. (9) REMOVE INPLACE LATERAL BRACING (SEE SHEET 5)
10. (10) REMOVE INPLACE CONNECTION PLATES AND FILL PLATE BETWEEN FLOOR BEAMS AND STRINGERS ON BOTH SIDES OF FLOOR BEAMS (SEE SHEETS 4-5)

PAINT SYSTEM:

CLEAN AND PRIME ALL INPLACE STEEL TO REMAIN. AFTER ALL REMOVALS, IF INPLACE STEEL WILL BE COVERED WITH REPAIR STEEL MEMBERS, CLEAN AND PRIME PRIOR TO INSTALLATION OF REPAIR STEEL MEMBERS.

PAINT ALL INPLACE AND NEW STEEL. SEE SPECIFICATIONS.

NOTE:

(11) AS DIRECTED BY THE ENGINEER IN THE FIELD. QUANTITY ASSUMED TO BE 4 LOCATIONS.

REVISIONS	DATE	BY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED OR TYPED NAME SARA L. NELSON — LIC. NO. 42330 — DATE 9/12/2017

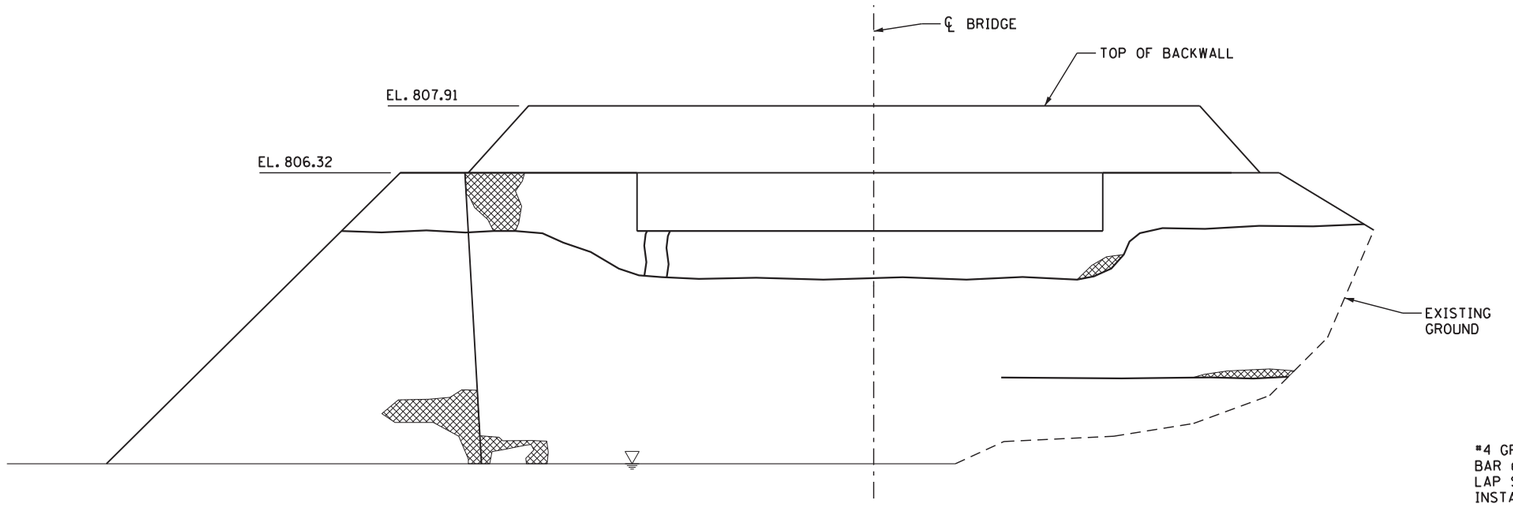
Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

TITLE: TRUSS REPAIRS

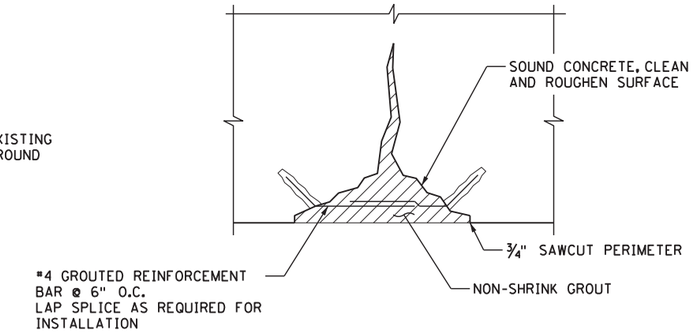
DES: SLN	DR: DPC	APPROVED:
CHK: DPC	CHK: SLN	

SHEET NO. 7 OF 27 SHEETS

BRIDGE NO. 93835

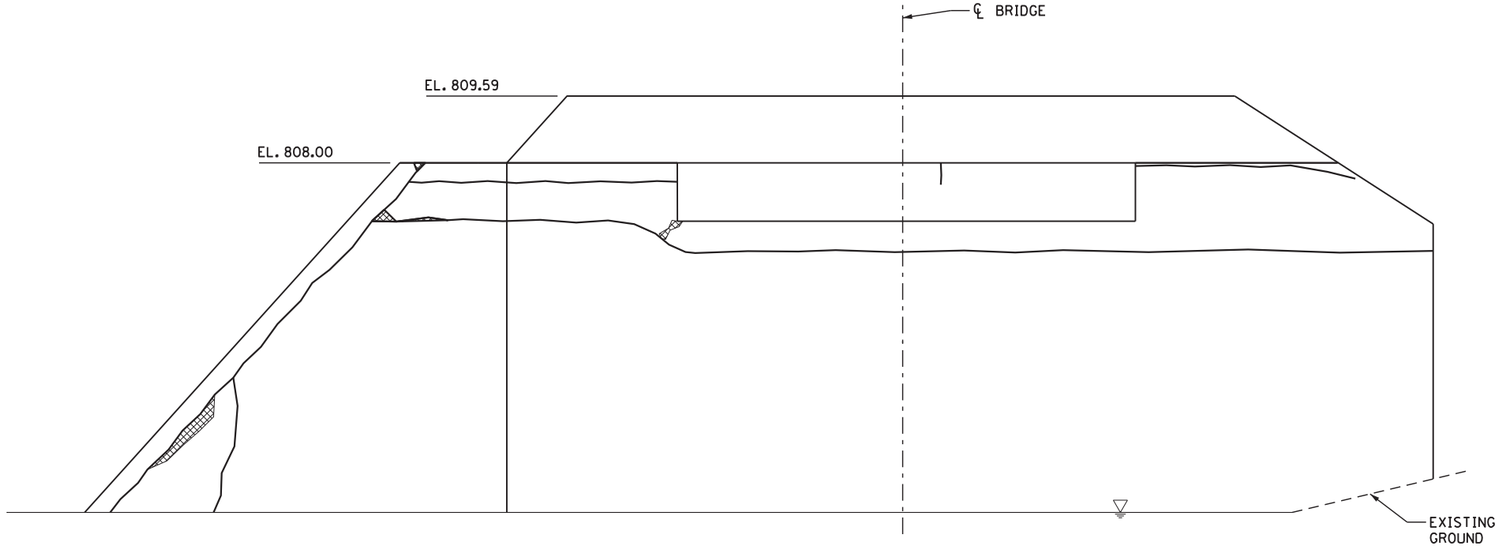


WEST ABUTMENT ELEVATION



CONCRETE SURFACE REPAIR DETAIL

LOOKING AT SECTION THRU SPALL AND CRACK



EAST ABUTMENT ELEVATION

CONCRETE SURFACE REPAIR NOTES:

REMOVE ALL UNSOUND CONCRETE.

IF REINFORCEMENT IS EXPOSED REMOVE CONCRETE TO A MINIMUM OF ¾" BELOW REBAR UNTIL A 2" LENGTH SHOWS NO CORROSION.

SAW CUT AT LEAST ¾" DEEP AT THE EDGES OF REPAIR AREA.

IF REPAIR AREA IS MORE THAN 2 INCHES DEEP AND 1 FOOT WIDE, PLACE ADDITIONAL REINFORCEMENT.

APPLY AND CURE NON-SHRINK GROUT IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS TO ORIGINAL SURFACE PROFILE.

NOTES:

~~ STRUCTURAL CRACK, SEE CONCRETE SURFACE REPAIR DETAIL.

▨ SPALL, SEE CONCRETE SURFACE REPAIR DETAIL.

REVISIONS	DATE	BY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Sara L Nelson

LIC. NO. 42330

PRINTED OR TYPED NAME SARA L. NELSON DATE 9/12/2017

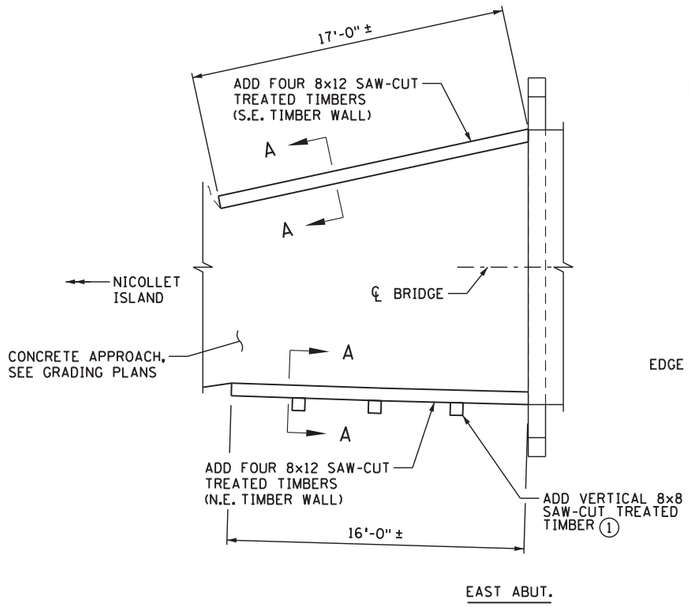
Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

TITLE: ABUTMENT REPAIRS

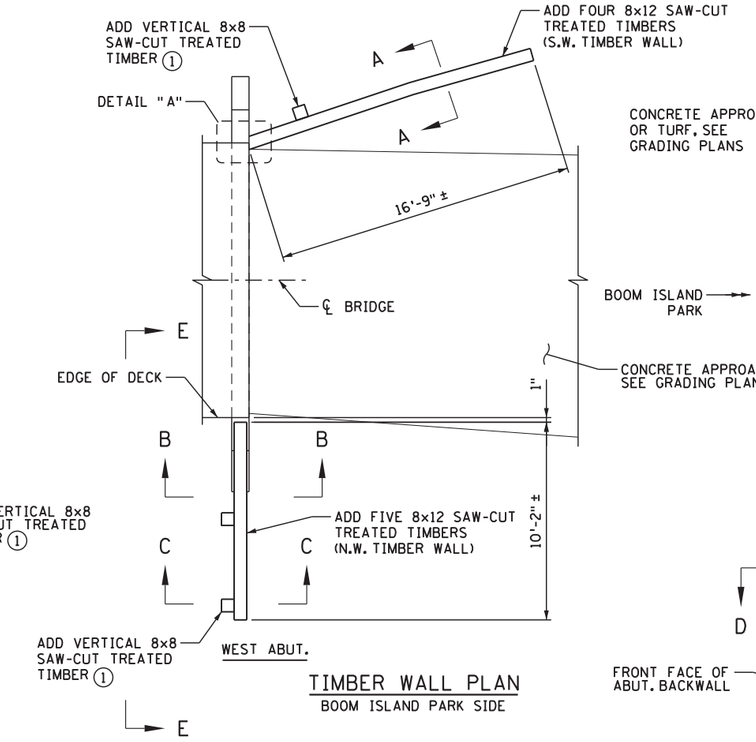
DES: SLN	DR: DPC	APPROVED:
CHK: SAO	CHK: SLN	

SHEET NO. 8 OF 27 SHEETS

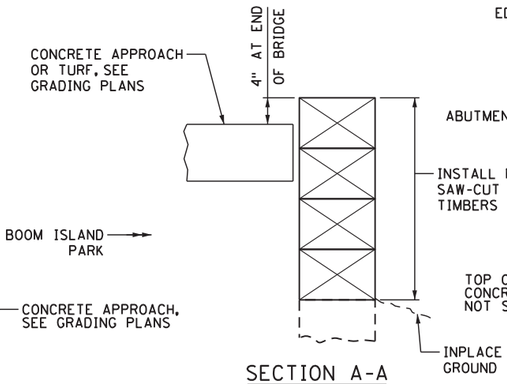
BRIDGE NO. 93835



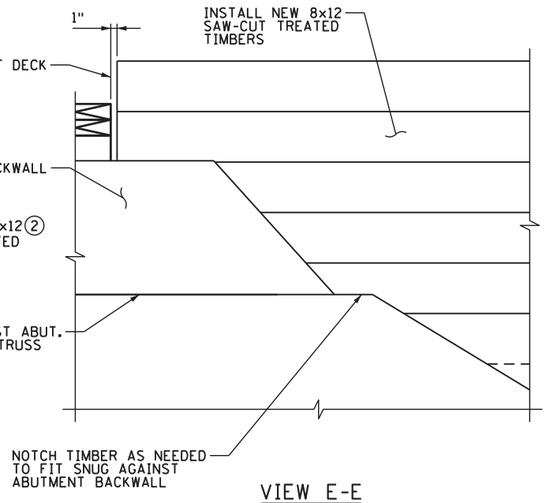
TIMBER WALL PLAN
NICOLLET ISLAND SIDE



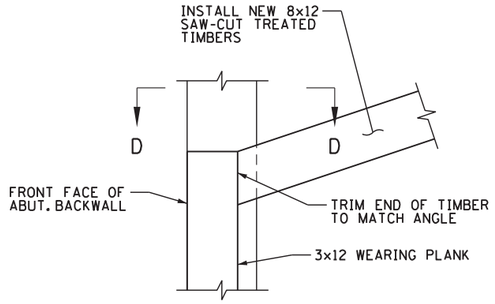
TIMBER WALL PLAN
BOOM ISLAND PARK SIDE



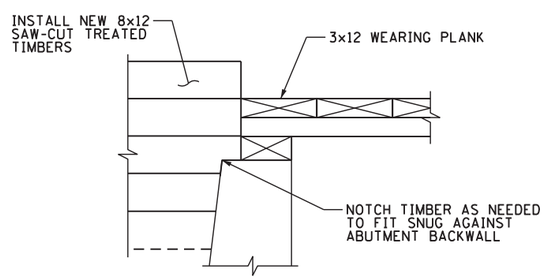
SECTION A-A



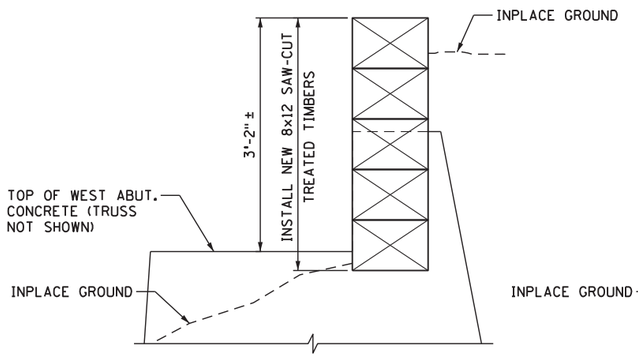
VIEW E-E



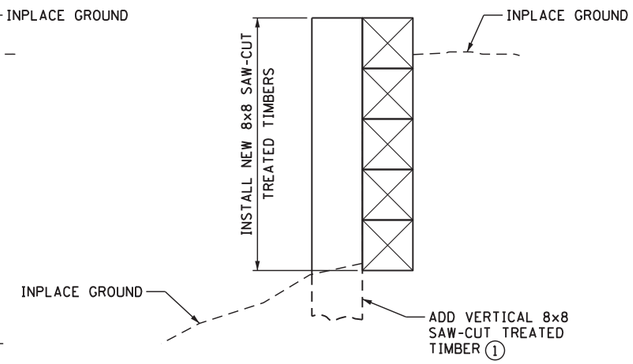
DETAIL "A"
DECK AND APPROACH NOT SHOWN



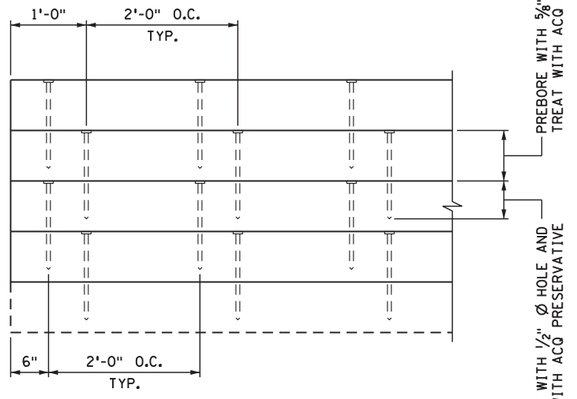
SECTION D-D



SECTION B-B



SECTION C-C



TIMBER WALL ELEVATION

NOTES:

8x8 AND 8x12 TIMBER SPECIES TO BE SOUTHERN YELLOW PINE - GRADE NO. 1 DENSE ST. WITH MAXIMUM MOISTURE CONTENT OF 23% AND INCLUDE "S-DRY" INDICATION.

ALL TIMBER ON THIS SHEET TO BE TREATED WITH ALKALINE COPPER QUATERNARY (ACQ) WITH A CONCENTRATION OF 0.6 LB/FT^3 AND CONFORM TO UC4B MINIMUM.

WOOD SHALL BE PRE-CUT AND/OR PREDRILLED PRIOR TO TREATMENT WHENEVER POSSIBLE OTHERWISE. ALL FIELD CUTS, DRILLING, NOTCHES, ETC..IN WOOD SHALL BE COATED WITH TWO HEAVY COATS (MINIMUM) OF PRESERVATIVE COMPATIBLE WITH EXISTING PRESERVATIVE TREATMENT.

CARE AND HANDLING OF PRESERVATIVE TREATED WOOD PRODUCTS SHALL BE IN ACCORDANCE WITH AWPA STANDARD M4.

CONNECT 8x12 TIMBER WITH 5/8" Ø x 14" LONG 304SS LAG SCREW AND 304SS WASHER. COUNTERSINK HEAD FOR FLUSH SURFACE.

TIMBER SHALL BE A MINIMUM OF 8 FEET LONG. OFFSET SPLICES BY 3 FEET ON ALTERNATING TIMBERS.

(1) DRILL A HOLE 3 FEET DEEP FOR VERTICAL 8x8 SAW-CUT TREATED TIMBER. BACKFILL AND COMPACT SOIL AROUND TIMBER. CONNECT TO HORIZONTAL TIMBERS WITH 5/8" Ø x 10" LONG 304SS LAG SCREW AND 304SS WASHER. COUNTERSINK HEAD 2".

(2) 8X12 TIMBER TIES SHALL BE CUT TO HEIGHT NEEDED TO PROJECT TOP OF TIMBER WALL 4" ABOVE TOP OF DECK AT END OF BRIDGE. HEIGHT OF TIMBER TIES TO BE NO LESS THAN 6" UNLESS AGREED UPON BY THE ENGINEER.

REVISIONS	DATE	BY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED OR TYPED NAME SARA L. NELSON — LIC. NO. 42330 — DATE 9/12/2017

Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

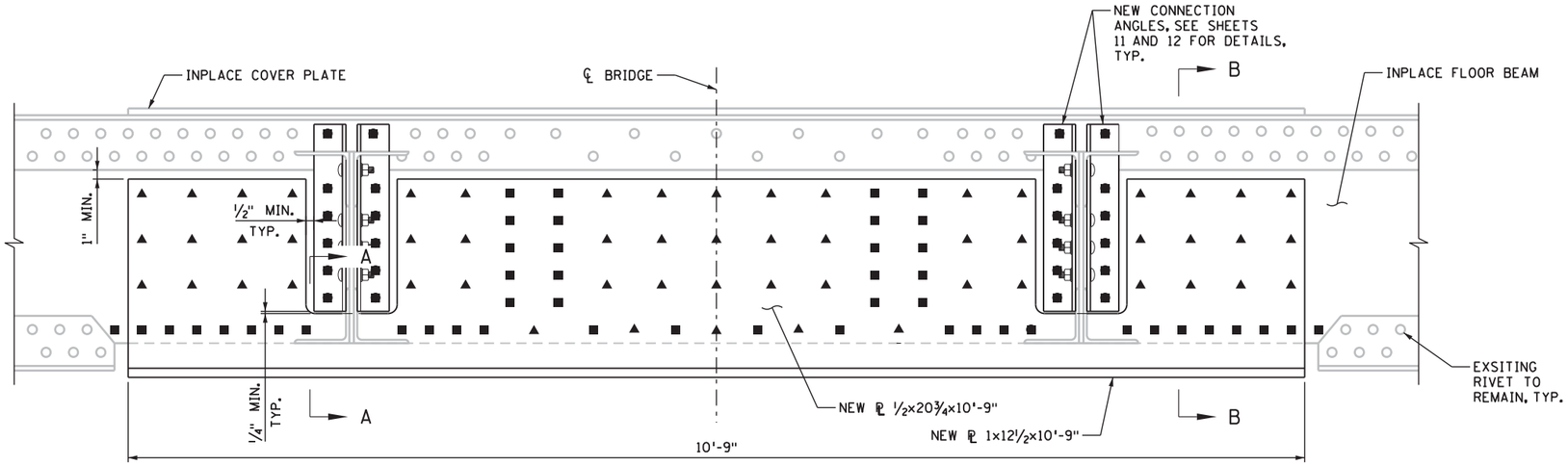
TITLE: TIMBER WALL RECONSTRUCTION

DES: SLN	DR: DPS	APPROVED:
CHK: DPS	CHK: SLN	

SHEET NO. 9 OF 27 SHEETS

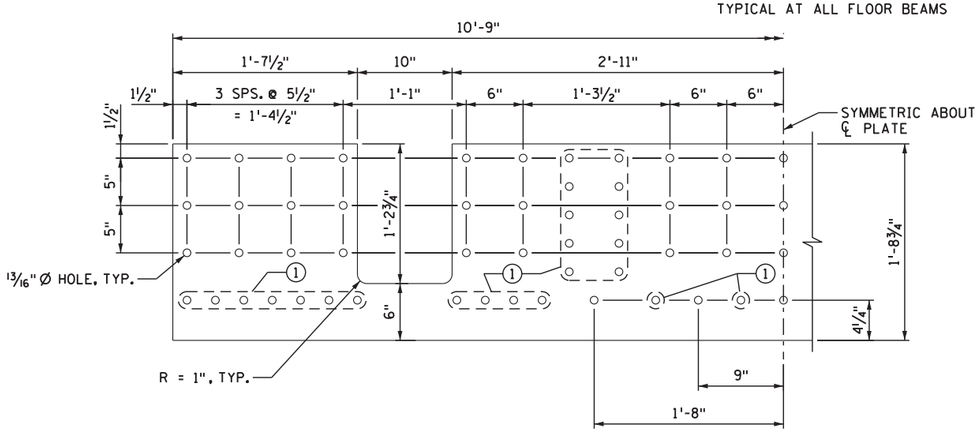
BRIDGE NO. 93835

Plotted by: Dan.Crawford
Plotted on: 9/12/2017 at 12:38:25 PM
File path: \\oneserver\public\projects\1114-1-mpls boom island\2 - production\c - work\cd\BR93835_REP003.dgn

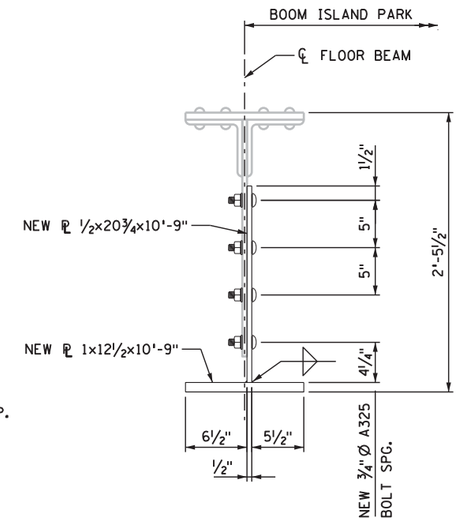


FLOOR BEAM ELEVATION②

TYPICAL AT ALL FLOOR BEAMS



ℙ ½x20¾x10'-9"

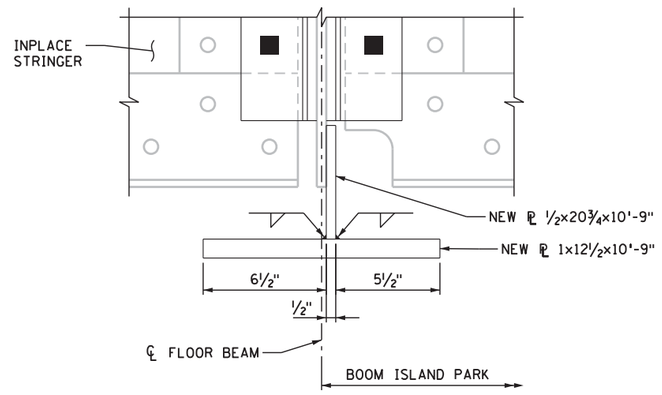


SECTION B-B

BILL OF MATERIALS - FLOOR BEAM REPAIR

PER EACH REPAIR LOCATION (7 TOTAL)

ITEM	NO. REQ'D	LBS
NEW ℙ ½x20¾x10'-9"	1	380
NEW ℙ 1x12½x10'-9"	1	458



SECTION A-A②

NOTES:

BILL OF MATERIALS ARE LISTED FOR THE CONTRACTOR'S CONVENIENCE AND ARE NOT INTENDED TO BE COMPREHENSIVE MATERIAL SUMMARIES.

① FIELD DRILL. NUMBER OR BOLTS BASED ON PICTURES. QUANTITY OF BOLTS MAY VARY ON EACH FLOOR BEAM.

② EXTERIOR STRINGER REPAIRS, INCLUDING NEW CONNECTION PLATES, ARE NOT SHOWN. SEE SHEET 11.

LEGEND:

■ EXISTING RIVET TO BE REPLACED WITH A ¾" Ø A325 BUTTON HEAD BOLT.

▲ NEW ¾" Ø A325 BUTTON HEAD BOLT.

REVISIONS	DATE	BY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED OR TYPED NAME: SARA L. NELSON — LIC. NO. 42330 — DATE 9/12/2017

Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

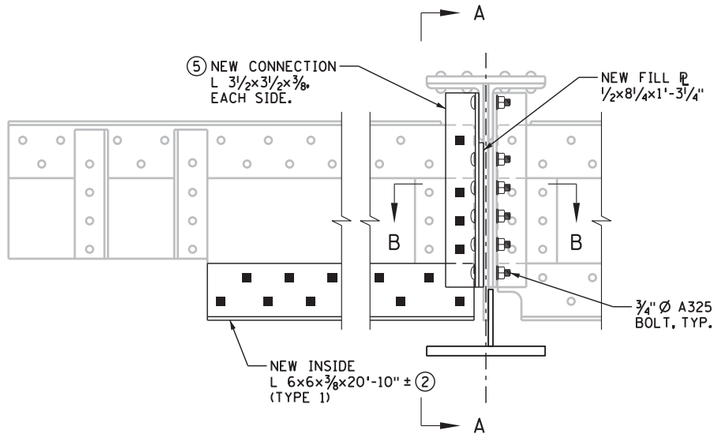
TITLE: FLOOR BEAM REPAIR DETAILS

DES: SLN	DR: DPC	APPROVED:
CHK: SAO	CHK: SLN	

SHEET NO. 10 OF 27 SHEETS

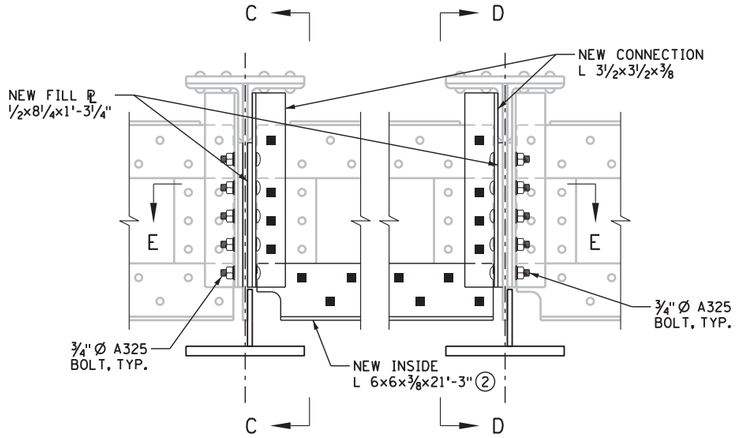
BRIDGE NO. 93835

Plotted by: Dan.Crawford
Plotted on: 9/12/2017 at 12:38:26 PM
File path: \\oneserver\public\projects\1114-1-mpls boom island\2 - production\c - work\cd\BR93835_DET002.dgn



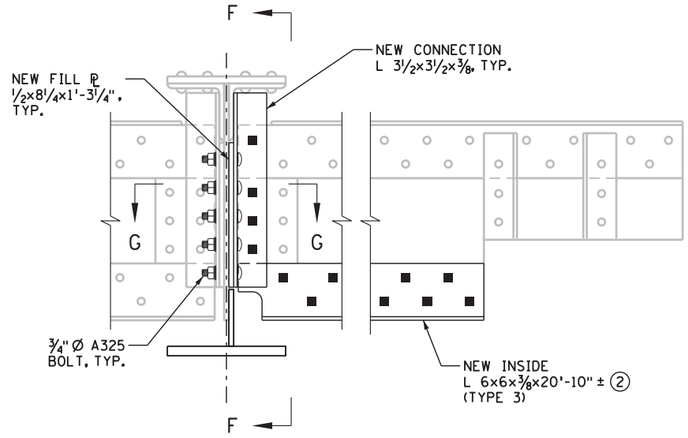
EXTERIOR STRINGER ELEVATION - TYPE 1

(INSIDE ELEVATION)
SOUTH TRUSS SHOWN, NORTH TRUSS OPPOSITE HAND



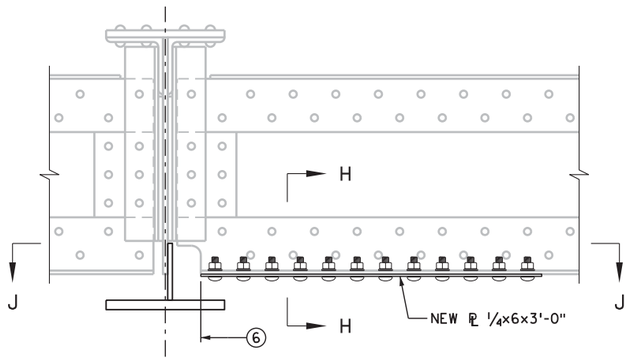
EXTERIOR STRINGER ELEVATION - TYPE 2

(INSIDE ELEVATION)
SOUTH TRUSS SHOWN, NORTH TRUSS OPPOSITE HAND



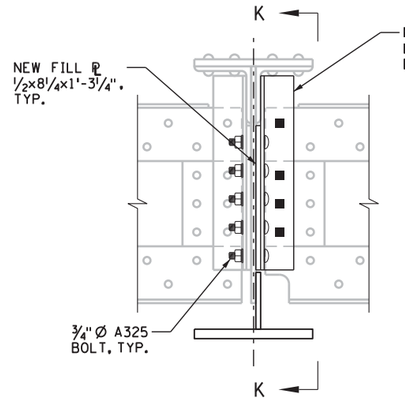
EXTERIOR STRINGER ELEVATION - TYPE 3

(INSIDE ELEVATION)
SOUTH TRUSS SHOWN, NORTH TRUSS OPPOSITE HAND



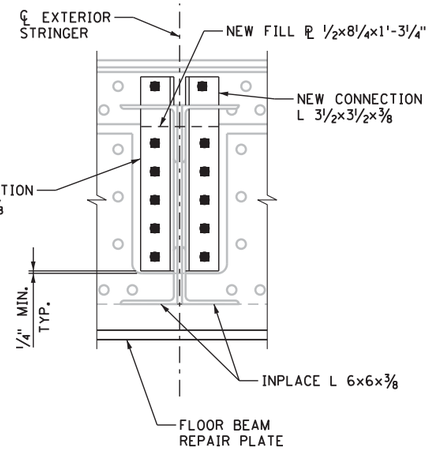
EXTERIOR STRINGER ELEVATION - TYPE 4

(INSIDE ELEVATION)
SOUTH TRUSS SHOWN, NORTH TRUSS OPPOSITE HAND

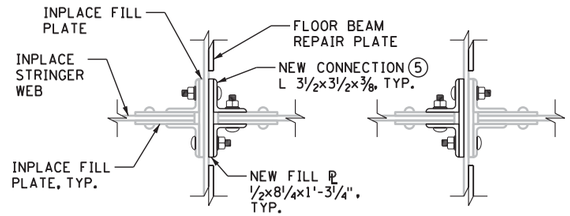


EXTERIOR STRINGER ELEVATION - TYPE 5

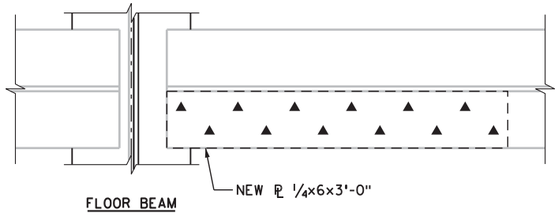
(INSIDE ELEVATION)
SOUTH TRUSS SHOWN, NORTH TRUSS OPPOSITE HAND



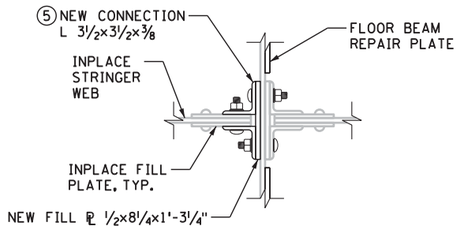
SECTION K-K



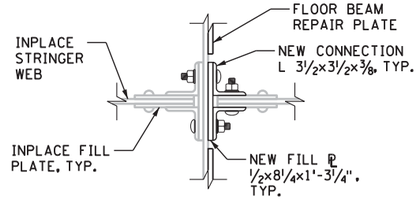
SECTION E-E



SECTION J-J



SECTION B-B



SECTION G-G

NOTES:

SEE SHEET 12 FOR SECTIONS A-A, C-C, D-D, E-E, F-F AND H-H.

BILL OF MATERIALS ARE LISTED FOR CONTRACTOR'S CONVENIENCE AND ARE NOT INTENDED TO BE COMPREHENSIVE MATERIAL SUMMARIES.

① FIELD VERIFY NUMBER OF BOLTS. ADJUST AS NEEDED.

② FIELD VERIFY LENGTH PRIOR TO ORDERING STEEL. ADJUST LENGTH AS NEEDED.

③ FIELD DRILL 13⁄16" Ø HOLES.

④ WEIGHT PER ONE.

⑤ 1-L 3½×3½×⅜ AS SHOWN, 1-L 3½×3½×⅜ OPPOSITE HAND.

⑥ PLACE PLATE AT END OF FLANGE FOR COPED AND NON-COPED ENDS.

LEGEND:

■ EXISTING RIVET TO BE REPLACED WITH A ¾" Ø A325 BUTTON HEAD BOLT.

▲ NEW ¾" Ø A325 BUTTON HEAD BOLT.

REVISIONS	DATE	BY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Sara L Nelson

PRINTED OR TYPED NAME SARA L. NELSON — LIC. NO. 42330 — DATE 9/12/2017

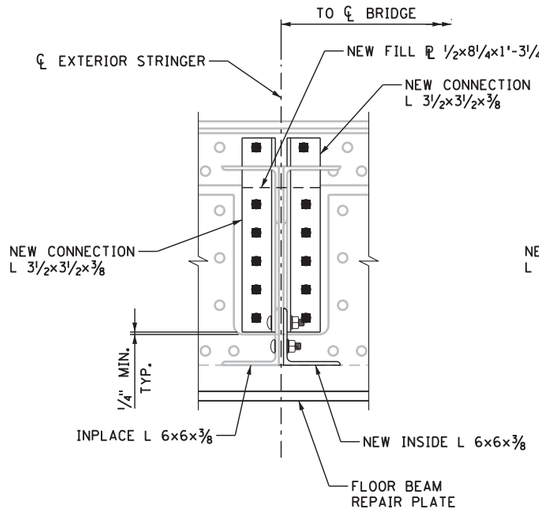
Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

TITLE: EXTERIOR STRINGER REPAIR DETAILS

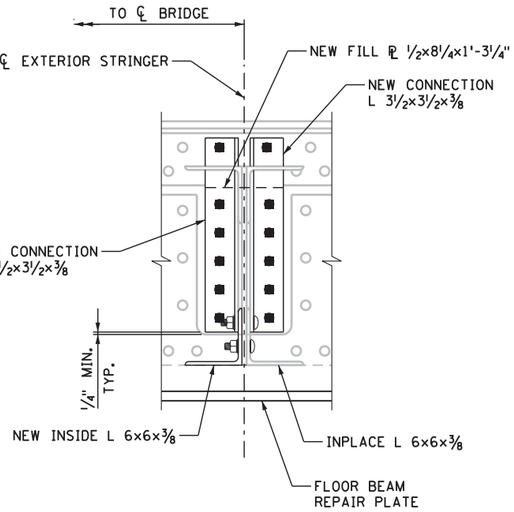
DES: SLN	DR: DPC	APPROVED:
CHK: SAO	CHK: SLN	

SHEET NO. 11 OF 27 SHEETS

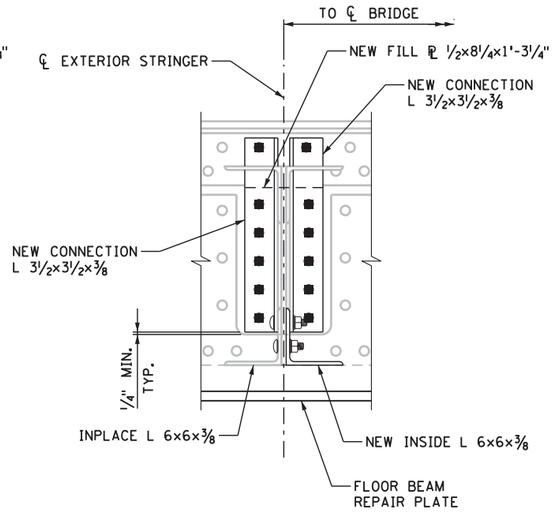
BRIDGE NO. 93835



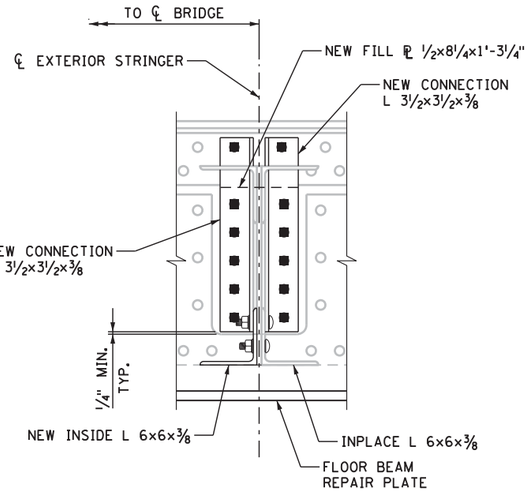
SECTION A-A



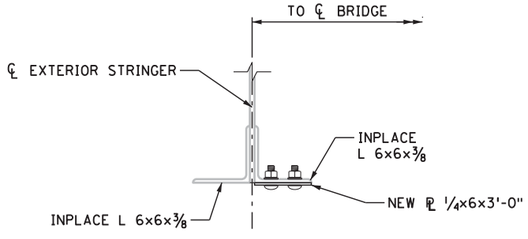
SECTION C-C



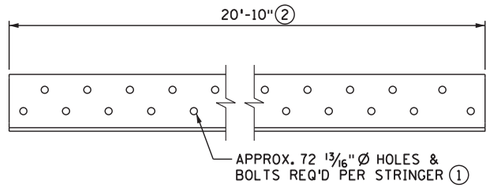
SECTION D-D



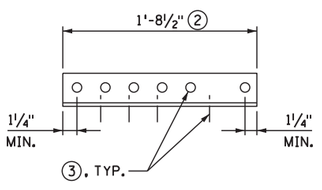
SECTION F-F



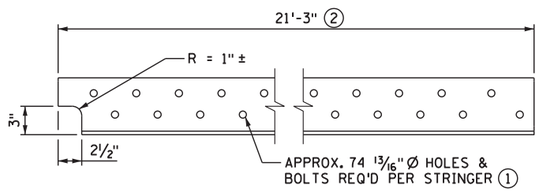
SECTION H-H



NEW L 6x6x⅜x20'-10" (TYPE A)

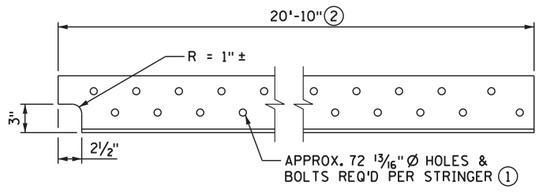


NEW CONNECTION L 3½x3½x⅜x1'-8½"



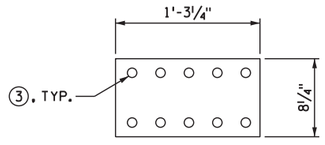
NEW L 6x6x⅜x21'-3"

SOUTH TRUSS SHOWN, NORTH TRUSS OPPOSITE HAND

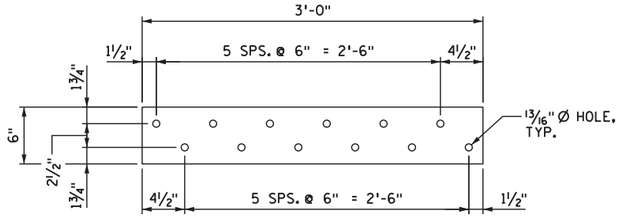


NEW L 6x6x⅜x20'-10" (TYPE B)

SOUTH TRUSS SHOWN, NORTH TRUSS OPPOSITE HAND



NEW FILL PL ½x8¼x1'-3¼"



PL ¼x6x3'-0"

BILL OF MATERIALS - EXTERIOR STRINGER REPAIR TYPE 1

PER EACH REPAIR LOCATION

ITEM	NO. REQ'D	LBS
NEW L 6x6x⅜x20'-10" (TYPE A)	1	311
NEW CONNECTION L 3½x3½x⅜x1'-8½"	2	30
NEW FILL PL ½x8¼x1'-3¼"	1	18

BILL OF MATERIALS - EXTERIOR STRINGER REPAIR TYPE 2

PER EACH REPAIR LOCATION

ITEM	NO. REQ'D	LBS
NEW L 6x6x⅜x20'-10"	1	311
NEW CONNECTION L 3½x3½x⅜x1'-8½"	4	60
NEW FILL PL ½x8¼x1'-3¼"	2	36

BILL OF MATERIALS - EXTERIOR STRINGER REPAIR TYPE 3

PER EACH REPAIR LOCATION

ITEM	NO. REQ'D	LBS
NEW L 6x6x⅜x20'-10" (TYPE B)	1	311
NEW CONNECTION L 3½x3½x⅜x1'-8½"	2	30
NEW FILL PL ½x8¼x1'-3¼"	1	18

BILL OF MATERIALS - EXTERIOR STRINGER REPAIR TYPE 4

PER EACH REPAIR LOCATION

ITEM	NO. REQ'D	LBS
NEW PL ¼x6x3'-0"	1	16

BILL OF MATERIALS - EXTERIOR STRINGER REPAIR TYPE 5

PER EACH REPAIR LOCATION

ITEM	NO. REQ'D	LBS
NEW CONNECTION L 3½x3½x⅜x1'-8½"	2	30
NEW FILL PL ½x8¼x1'-3¼"	1	18

NOTES:

BILL OF MATERIALS ARE LISTED FOR CONTRACTOR'S CONVENIENCE AND ARE NOT INTENDED TO BE COMPREHENSIVE MATERIAL SUMMARIES.

① FIELD VERIFY NUMBER OF BOLTS. ADJUST AS NEEDED.

② FIELD VERIFY LENGTH PRIOR TO ORDERING STEEL. ADJUST LENGTH AS NEEDED.

③ FIELD DRILL 13/16" Ø HOLES.

LEGEND:

■ EXISTING RIVET TO BE REPLACED WITH A ¾"Ø A325 BUTTON HEAD BOLT.

▲ NEW ¾"Ø A325 BUTTON HEAD BOLT.

REVISIONS	DATE	BY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED OR TYPED NAME SARA L. NELSON — LIC. NO. 42330 — DATE 9/12/2017

Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

TITLE: EXTERIOR STRINGER REPAIR DETAILS

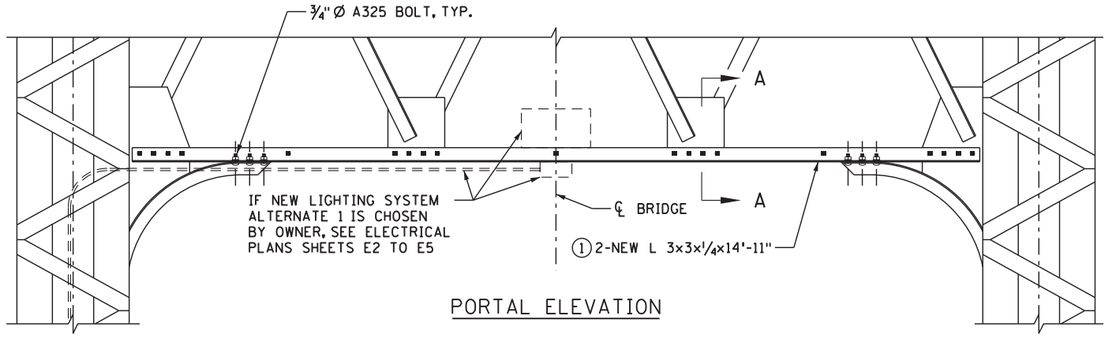
DES: SLN | DR: DPC | APPROVED:

CHK: SAO | CHK: SLN

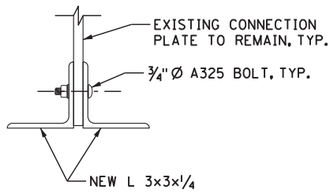
SHEET NO. 12 OF 27 SHEETS

BRIDGE NO. 93835

Plotted by: Dan.Crawford
Plotted on: 9/12/2017 at 12:38:30 PM
File path: \\oneserver\public\projects\1114-1-mpls boom island\2 - production\c - work\cd\BR93835_DET003b.dgn



PORTAL ELEVATION



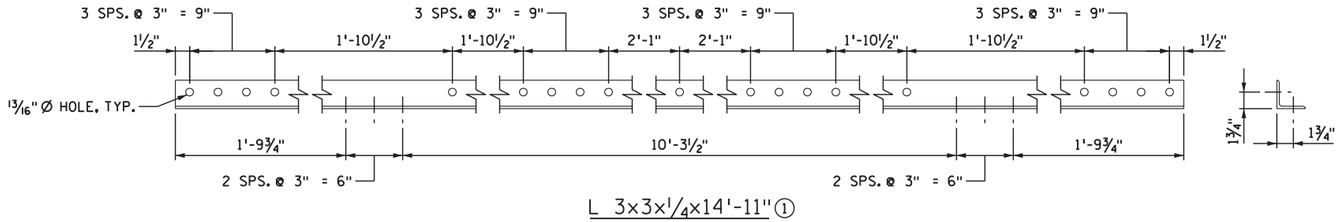
SECTION A-A

BILL OF MATERIALS - PORTAL REPAIR
PER EACH REPAIR LOCATION (2 TOTAL)

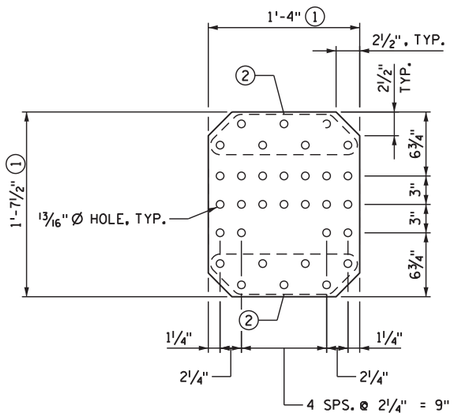
ITEM	NO. REQ'D	LBS
NEW L 3x3x¼x14'-11"	2	146

BILL OF MATERIALS - STRINGER WEB STRENGTHENING
PER EACH REPAIR LOCATION (1 TOTAL)

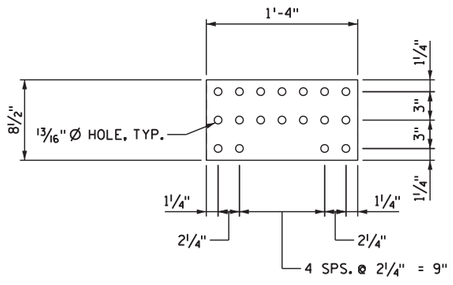
ITEM	NO. REQ'D	LBS
NEW FILL PL ⅜x8½x1'-4"	2	15 (3)
NEW PL ¼x16x1'-7½"	2	23 (3)



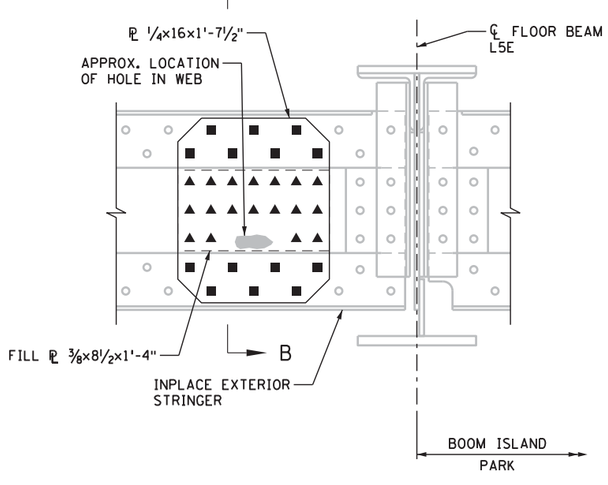
L 3x3x¼x14'-11" ①



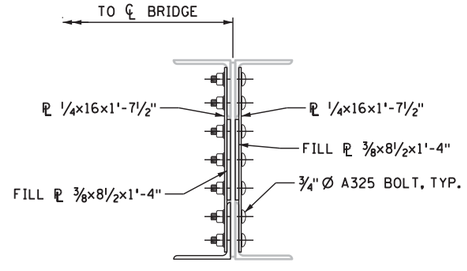
PL ¼x16x1'-7½"



FILL PL ⅜x8½x1'-4"



EXTERIOR STRINGER ELEVATION
WEB STRENGTHENING



SECTION B-B

NOTES:
BILL OF MATERIALS ARE LISTED FOR CONTRACTOR'S CONVENIENCE AND ARE NOT INTENDED TO BE COMPREHENSIVE MATERIAL SUMMARIES.

① FIELD VERIFY PLATE DIMENSIONS PRIOR TO FABRICATION.

② FIELD DRILL ALL HOLES WHICH WILL BE USED TO REPLACE AN EXISTING RIVET.

③ WEIGHT PER ONE.

LEGEND:
■ EXISTING RIVET TO BE REPLACED WITH A ¾"Ø A325 BUTTON HEAD BOLT.

▲ NEW ¾"Ø A325 BUTTON HEAD BOLT.

REVISIONS	DATE	BY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED OR TYPED NAME SARA L. NELSON LIC. NO. 42330 DATE 9/12/2017

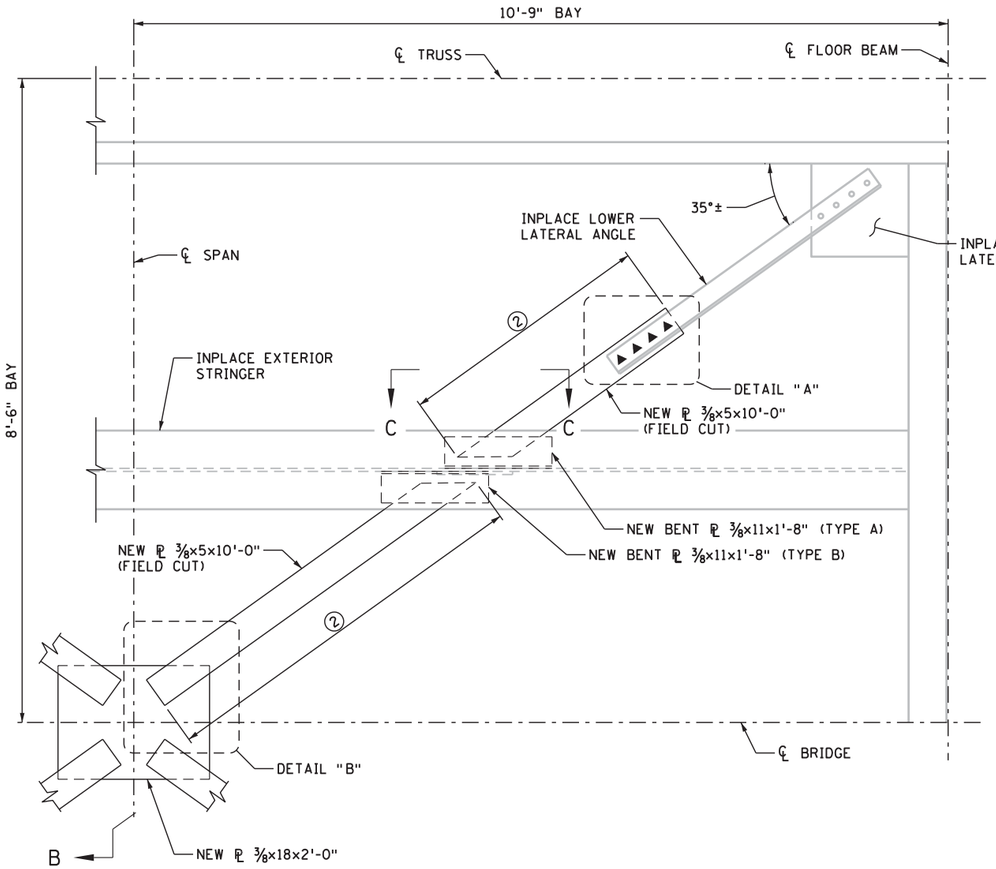
Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

TITLE: PORTAL AND EXTERIOR STRINGER WEB STRENGTHENING DETAILS

DES: SLN	DR: DPC	APPROVED:
CHK: SAO	CHK: SLN	

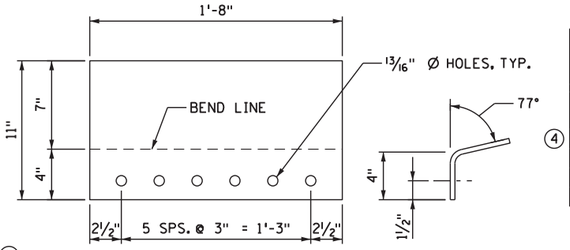
SHEET NO. 13 OF 27 SHEETS

BRIDGE NO. 93835

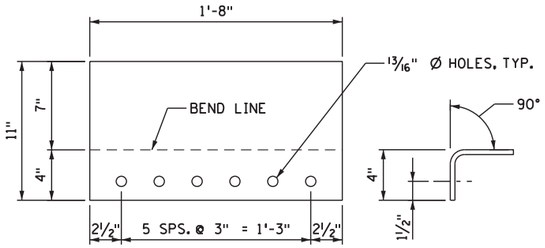


LOWER LATERAL BRACING REPLACEMENT

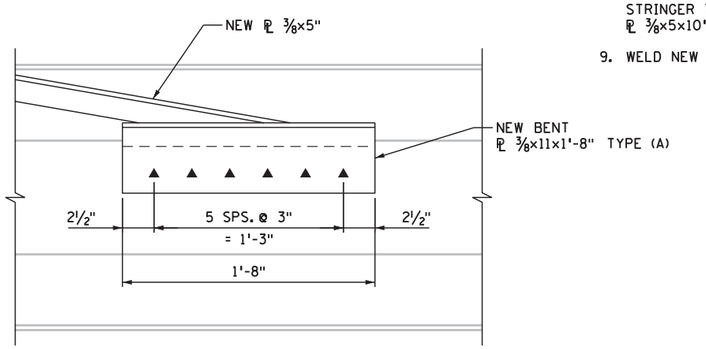
PARTIAL BAY SHOWN, OTHER BAYS SIMILAR

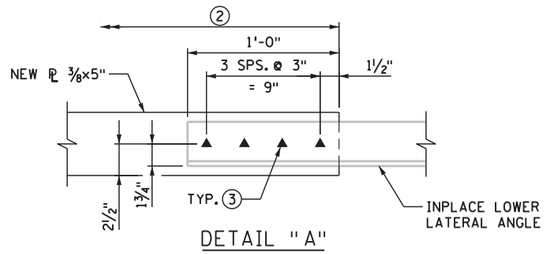


NEW BENT PL 3/8×11×1'-8" (TYPE A)

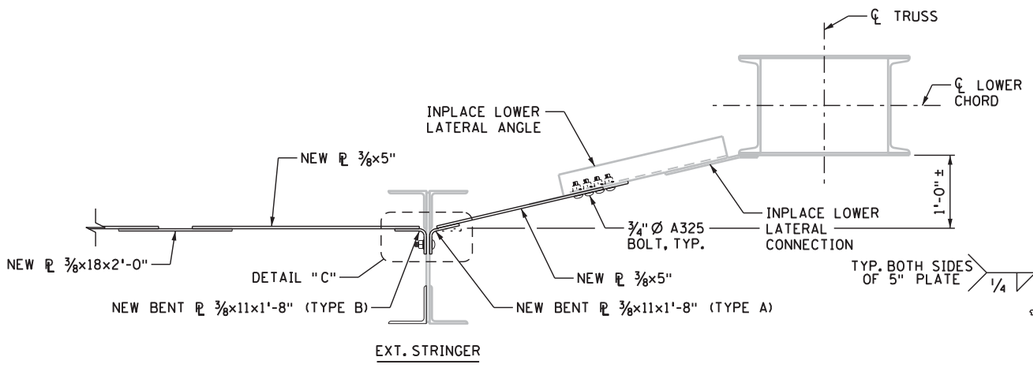


NEW BENT PL 3/8×11×1'-8" (TYPE B)



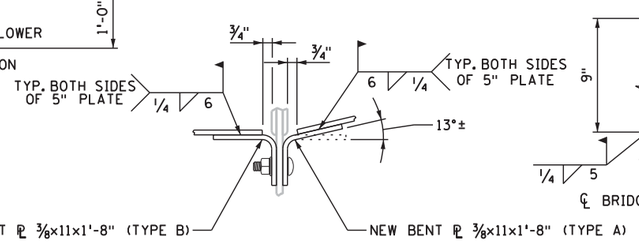


DETAIL "A"

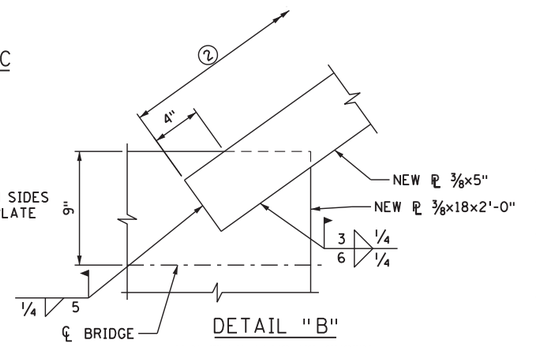


SECTION B-B

SECTION C-C



DETAIL "C"



DETAIL "B"

MIN. WELD LENGTHS SHOWN.
TYP. DETAIL ALL 4 CORNERS

BILL OF MATERIALS - LATERAL BRACING REPLACEMENT

PER EACH REPAIR LOCATION (8 TOTAL)

ITEM	NO. REQ'D	LBS
NEW PL 3/8×5×10'-0"	4	64 (5)
NEW BENT PL 3/8×11×1'-8" (TYPE A)	4	24 (5)
NEW BENT PL 3/8×11×1'-8" (TYPE B)	4	24 (5)
NEW PL 3/8×18×2'-0"	1	46

CONCEPTUAL REPLACEMENT SEQUENCE:

1. REMOVE LATERAL BRACING INPLACE PLATES, ANGLES AS IDENTIFIED IN REMOVALS.
2. TRIM INPLACE LOWER LATERAL ANGLES.
3. MEASURE LENGTH OF NEW 5" PLATE NEEDED TO CONNECT INPLACE LOWER LATERAL ANGLE TO EXTERIOR STRINGER. (NOTE (2)) CUT PL 3/8×5×10'-0" TO THIS LENGTH.
4. ONCE IN POSITION, FIELD DRILL HOLES IN INPLACE LOWER LATERAL ANGLE AND CONNECT NEW 5" PLATE WITH LOOSE FITTED ¾"Ø A325 BOLTS.
5. PLACE NEW BENT PLATE TYPE A INTO POSITION (SAME LOCATION AS REMOVED ANGLE). FIELD DRILL HOLES ON INPLACE EXTERIOR STRINGER AND CONNECT BENT PLATE WITH ¾"Ø A325 BOLTS. WELD NEW 5" PLATE TO BENT PLATE.
6. TIGHTEN BOLTS ON NEW 5" PLATE AND INPLACE LOWER LATERAL ANGLE.
7. POSITION BENT PLATE TYPE B ON THE INSIDE OF THE EXTERIOR STRINGER SUCH THAT 5" PLATE ON EITHER SIDE OF STRINGER LINE UP. FIELD DRILL HOLES IN INPLACE EXTERIOR STRINGER AND CONNECT BENT PLATE TYPE B WITH ¾"Ø A325 BOLTS. (NOTE: LINE HOLES UP WITH OUTSIDE BENT PLATE TYPE A BOLTS IF POSSIBLE.)
8. MEASURE LENGTH NEEDED FOR NEW 5" PLATE TO CONNECT INSIDE OF EXTERIOR STRINGER TO THE CENTER PLATE. (NOTE (2)) CUT REMAINING PORTION OF PL 3/8×5×10'-0" TO THIS LENGTH.
9. WELD NEW 5" PLATE TO BENT PLATE TYPE B AND THE CENTER PLATE.

NOTES:

BILL OF MATERIALS ARE LISTED FOR CONTRACTOR'S CONVENIENCE AND ARE NOT INTENDED TO BE COMPREHENSIVE MATERIAL SUMMARIES.

EACH REPAIR CONSISTS OF ALL FOUR CORNERS OF SINGLE SPAN.

(1) GENERIC LOCATION SHOWN, OTHERS SIMILAR.

(2) CONTRACTOR TO DETERMINE LENGTH IN FIELD.

(3) USE NEW PLATE HOLES AS TEMPLATE TO FIELD DRILL MATCHING HOLES IN INPLACE LOWER LATERAL ANGLE.

(4) 10'-0" ONE PIECE PLATE SHALL BE CUT IN FIELD ONCE CONTRACTOR HAS DETERMINED CORRECT MEASUREMENTS.

(5) WEIGHT PER ONE.

LEGEND:

▲ NEW ¾"Ø A325 BUTTON HEAD BOLT.

REVISIONS	DATE	BY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED OR TYPED NAME SARA L. NELSON — LIC. NO. 42330 — DATE 9/12/2017

Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

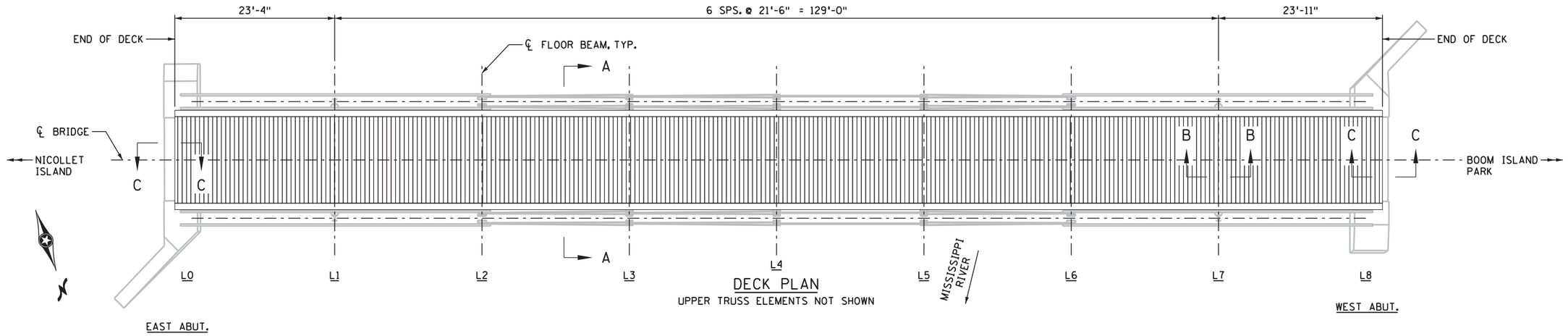
TITLE: LOWER LATERAL BRACING REPAIR DETAILS

DES: SLN	DR: DPC	APPROVED:
CHK: SAO	CHK: SLN	

SHEET NO. 14 OF 27 SHEETS

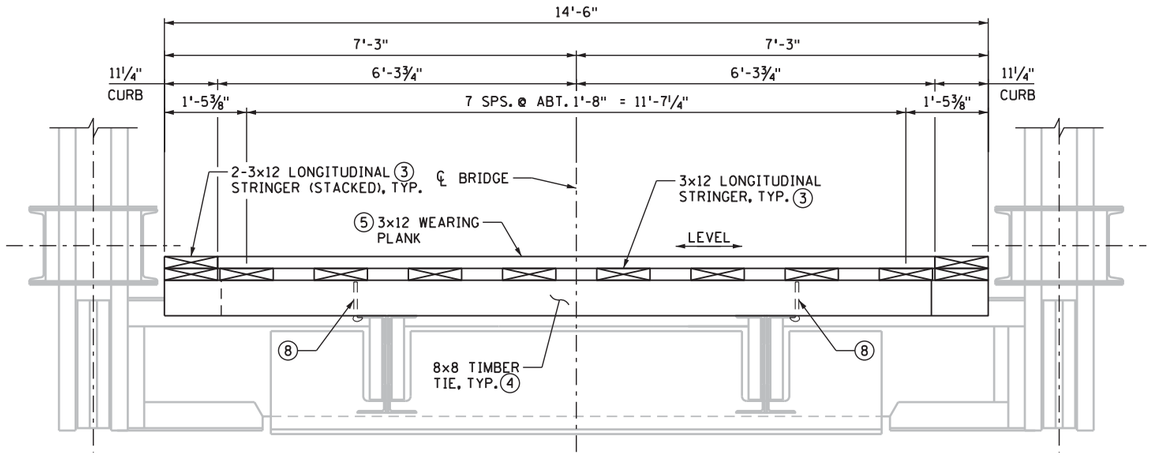
BRIDGE NO. 93835

Plotted by: Dan.Crawford
Plotted on: 9/12/2017 at 12:38:33 PM
File path: \\oneserver\public\projects\1114-1-mpls boom island\2 - production\c - work\cd\BR93835_DET004.dgn

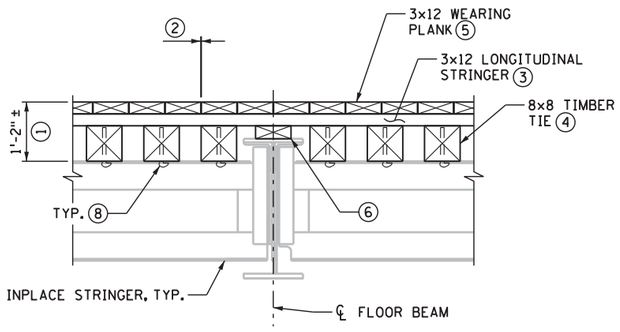


DECK PLAN

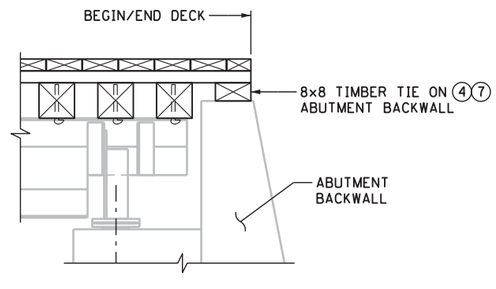
UPPER TRUSS ELEMENTS NOT SHOWN



SECTION A-A



SECTION B-B



SECTION C-C

TIMBER PLANK NOTES:

WEARING PLANK WOOD SPECIES TO BE NO. 1 COAST REGION DOUGLAS FIR WITH MAXIMUM MOISTURE CONTENT OF 23%. LUMBER GRADE AND MOISTURE CONTENT SHALL BE STAMPED OR CERTIFICATION SHALL BE PROVIDED. WEARING PLANKS SHALL BE INCISED AND HAVE A ½" CHAMFER ON TOP SIDE. PROVIDE 12" LONG SAMPLE FOR OWNER APPROVAL PRIOR TO FULL PURCHASE.

LONGITUDINAL STRINGER AND TIE SPECIES TO BE SOUTHERN YELLOW PINE - GRADE NO. 1 DENSE SR. WITH MAXIMUM MOISTURE CONTENT OF 23% AND INCLUDE "S-DRY" INDICATION.

ALL WEARING PLANKS AND TOP LONGITUDINAL STRINGER UNDER RAILING TO BE TREATED WITH ALKALINE COPPER QUATERNARY (ACQ) WITH A CONCENTRATION OF 0.6 LB/FT³ AND CONFORM TO UC4B MINIMUM.

ALL OTHER TIMBER TO BE TREATED WITH COPPER NAPHTHENATE CONCENTRATE, AN OIL-BASED 8% CU ACTIVE, CONFORMING TO AWPA UC4B MINIMUM.

WOOD SHALL BE PRE-CUT AND/OR PREDRILLED PRIOR TO TREATMENT WHENEVER POSSIBLE OTHERWISE. ALL FIELD CUTS, DRILLING, NOTCHES, ETC.. IN WOOD SHALL BE COATED WITH TWO HEAVY COATS (MINIMUM) OF PRESERVATIVE COMPATIBLE WITH EXISTING PRESERVATIVE TREATMENT.

CARE AND HANDLING OF PRESERVATIVE TREATED WOOD PRODUCTS SHALL BE IN ACCORDANCE WITH AWPA STANDARD M4.

SIZES SHOWN ON PLANS ARE NOMINAL.

NOTES:

1. BASED ON NOMINAL TIMBER DIMENSIONS.
2. PROVIDE ⅛" MIN., ¼" MAX. SPACING BETWEEN WEARING PLANKS.
3. 3x12 NOMINAL LONGITUDINAL STRINGERS SHALL BE A MINIMUM OF 8 FT LONG. OFFSET SPLICES BY 3 FT ON ALTERNATING STRINGERS.
4. 8x8 NOMINAL TIMBER TIE SHALL BE 1 PIECE FULL WIDTH.
5. 3x12 NOMINAL TIMBER WEARING PLANK SHALL BE 1 PIECE FULL WIDTH OF DECK BETWEEN CURBS. PLACE BARK SIDE UP.
6. PROVIDE TIMBER BLOCKING BETWEEN TOP OF FLOOR BEAM AND BOTTOM OF 3x12 LONGITUDINAL STRINGERS. POSITION BLOCKING TO ACCOMMODATE RIVETS ON TOP OF FLOOR BEAM COVER PLATE.
7. 8x8 TIMBER TIE TO BE PLACED ON TOP OF ABUTMENT BACKWALL SHALL BE CUT TO HEIGHT NEEDED TO ACCOMMODATE END OF DECK ELEVATIONS. LENGTH SHALL BE 14'-6".
8. 1-⅛" HOOK BOLT WITH ¾" Ø SHAFT x 7½" LONG AND ¾" NUT AND WASHER. HOT DIP GALVANIZE PER ASTM A153 AND COUNTERSINK NUT FOR FLUSH SURFACE. PLACE TWO HOOK BOLTS PER TIE, ONE ON EACH EXTERIOR STRINGER.

REVISIONS	DATE	BY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED OR TYPED NAME: SARA L. NELSON — LIC. NO.: 42330 — DATE: 9/12/2017

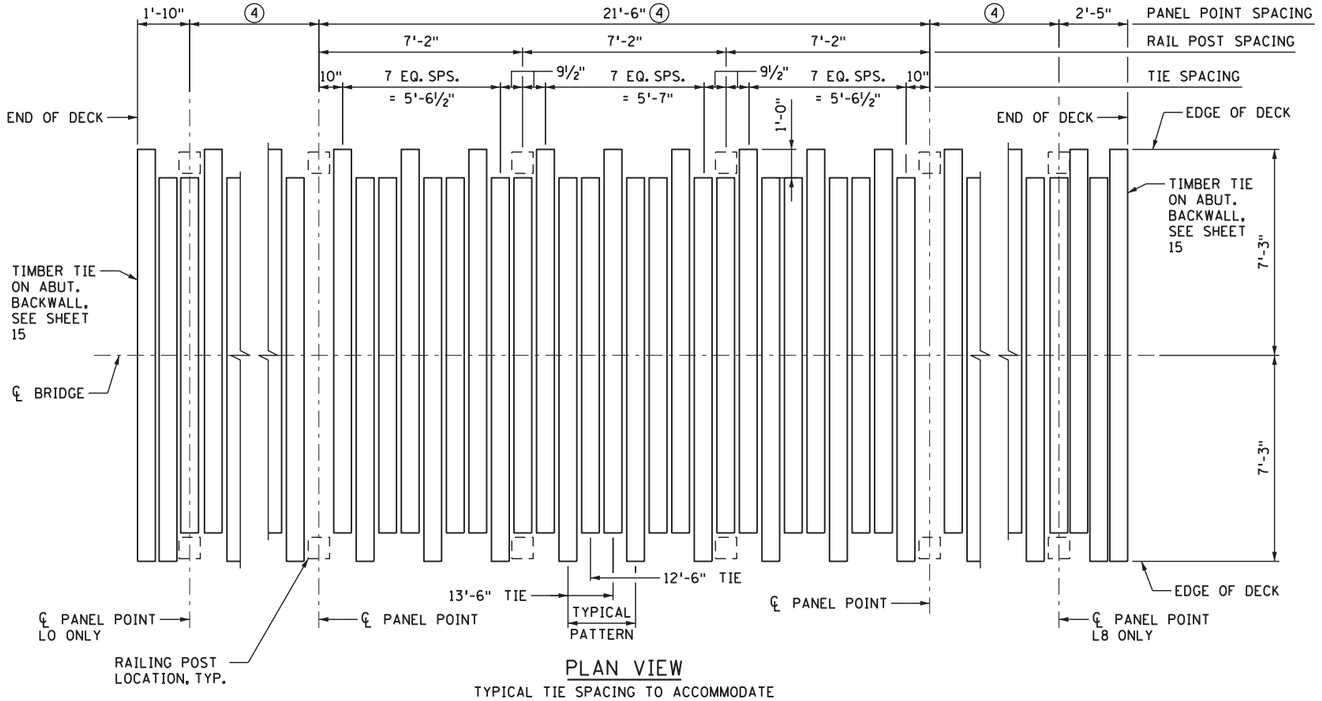
Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

TITLE: DECK REPLACEMENT DETAILS (1 OF 2)

DES: MDS	DR: DPC	APPROVED:
CHK: SLN	CHK: SLN	

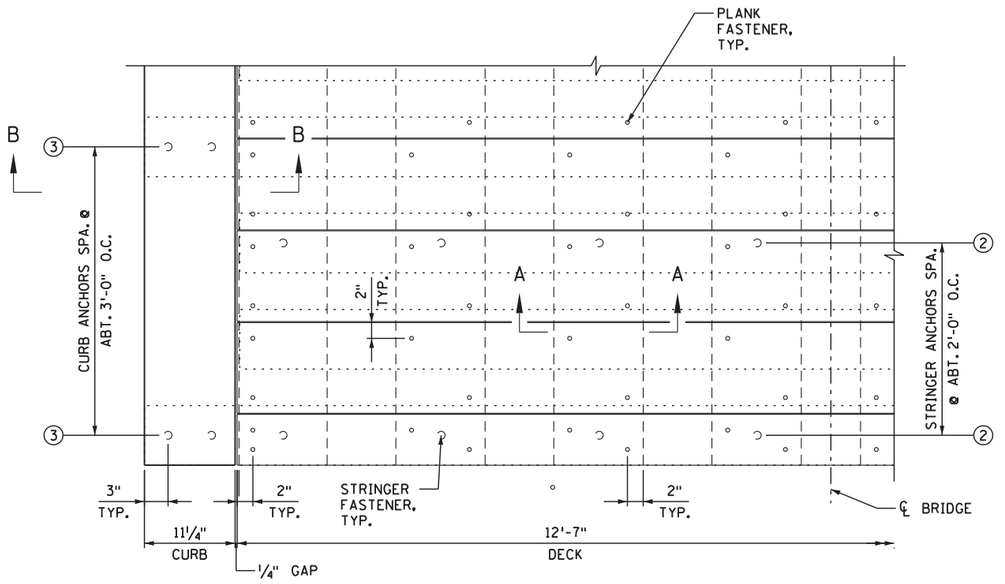
SHEET NO. 15 OF 27 SHEETS

BRIDGE NO. 93835

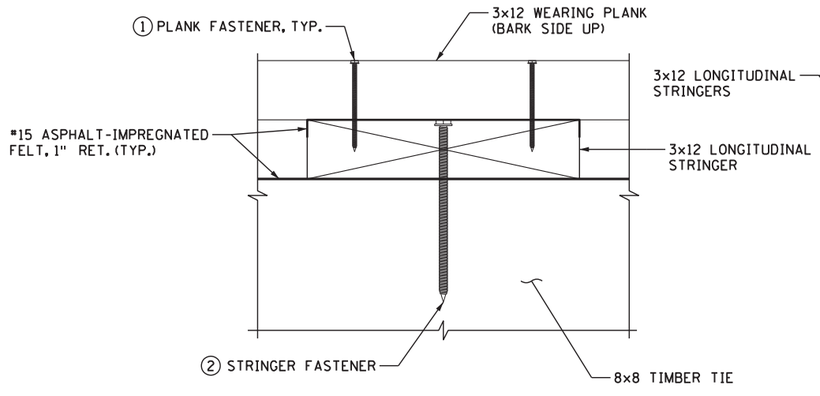


PLAN VIEW

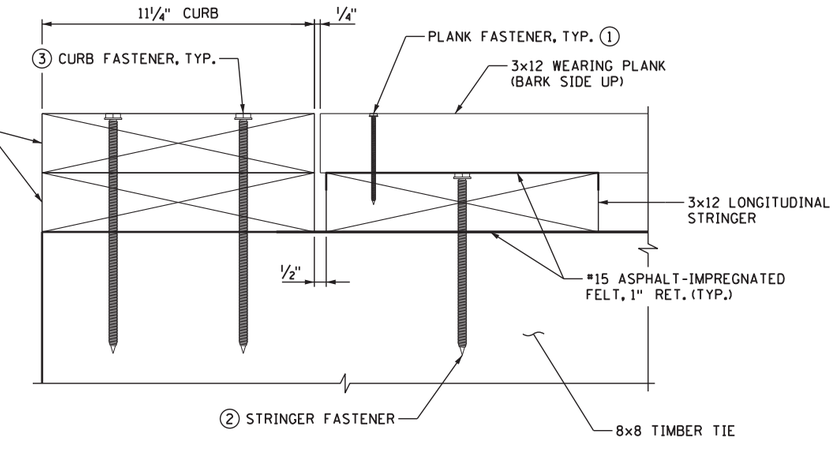
TYPICAL TIE SPACING TO ACCOMMODATE RAILING POST LOCATIONS



TIMBER PLANK DECK HALF-PLAN



SECTION A-A



SECTION B-B

NOTES:

SEE SHEET 15 FOR TIMBER NOTES.

① (2)-⅜"Ø x 4½" LONG 316SS LAG SCREW AND 316SS WASHER AT EACH STRINGER. COUNTERSINK HEAD FOR FLUSH SURFACE. PREBORE WEARING PLANK WITH ⅜"Ø HOLE. PREBORE STRINGERS WITH ¼"Ø HOLE. TREAT HOLES WITH ACQ PRESERVATIVE.

② (1)-⅝"Ø x 7" LONG. 316SS LAG SCREW WITH 316SS WASHER @ ABT. 2'-0" O.C.. CENTER ON STRINGER AND CENTER ON TIE. PREBORE WITH ⅝"Ø HOLE AND TREAT WITH ACQ PRESERVATIVE. COUNTER SINK HEAD FOR FLUSH SURFACE.

③ (2)-⅝"Ø x 10" LONG 316SS LAG SCREW WITH 316SS WASHER @ ABT. 3'-0" O.C.. CENTER ON TIE. PREBORE WITH ⅝"Ø HOLE AND TREAT WITH ACQ PRESERVATIVE. COUNTER SINK HEAD FOR FLUSH SURFACE.

④ TYPICAL TIE AND RAILING POST CONFIGURATION BETWEEN PANEL POINTS. PANEL POINTS LO AND L8 HAVE NO FLOOR BEAMS AND WILL HAVE A TIE. PANEL POINTS L1 THRU L7 HAVE FLOOR BEAMS AND WILL HAVE NO TIE.

REVISIONS	DATE	BY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED OR TYPED NAME: SARA L. NELSON — LIC. NO. 42330 — DATE 9/12/2017

Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

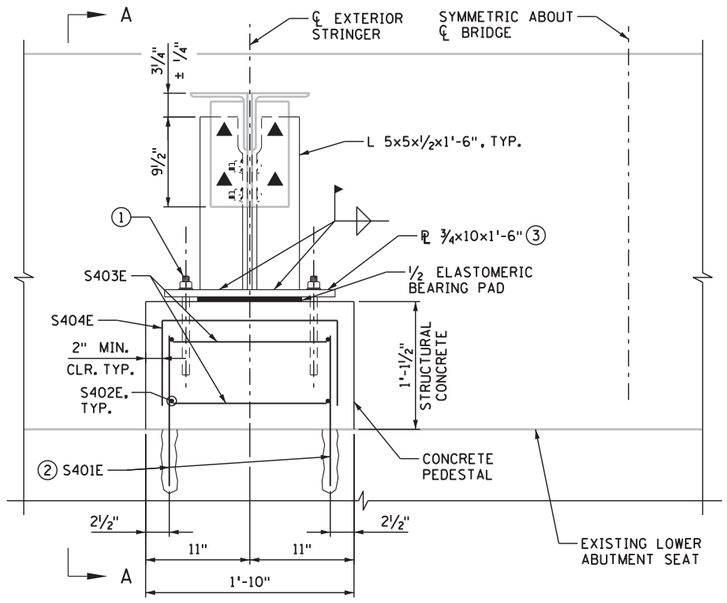
TITLE: DECK REPLACEMENT DETAILS (2 OF 2)

DES: MDS	DR: DPC	APPROVED:
CHK: SLN	CHK: SLN	

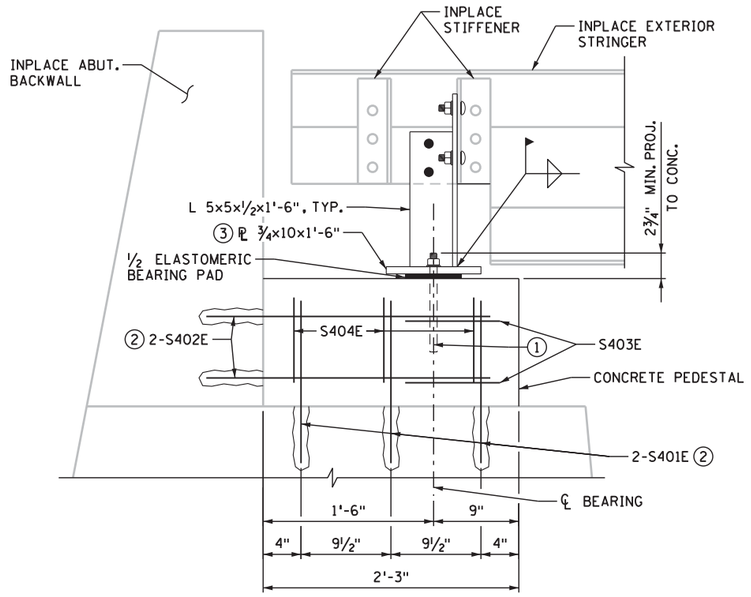
SHEET NO. 16 OF 27 SHEETS

BRIDGE NO. 93835

Plotted by: Dan.Crawford
Plotted on: 9/12/2017 at 12:38:36 PM
File path: \\oneserver\public\projects\1114-1-mpls boom island\2 - production\c - work\cd\BR93835_SUP002.dgn

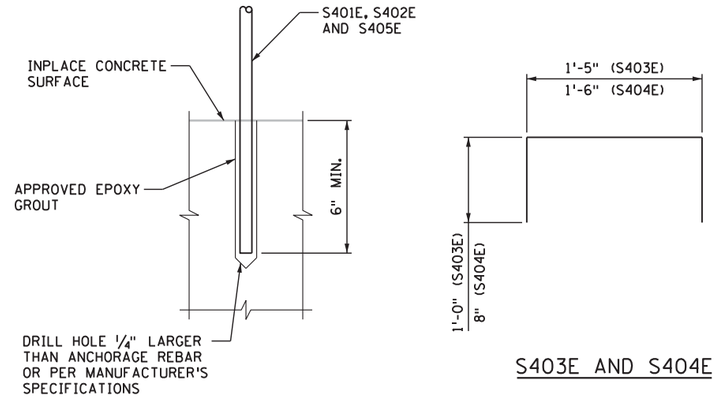


WEST ABUTMENT PARTIAL ELEVATION



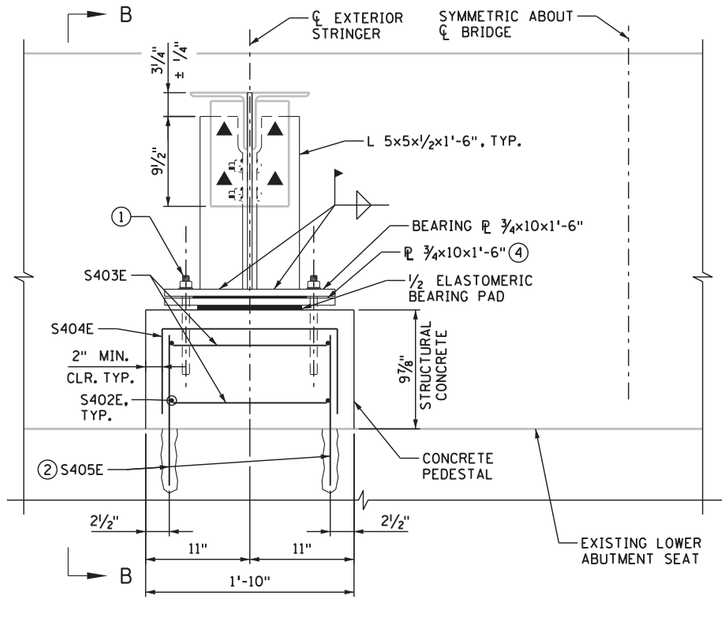
SECTION A-A

BILL OF REINFORCEMENT FOR ALL PEDESTALS				
BAR MARK	NO.	LENGTH	SHAPE	LOCATION
S401E	12	1'-5"	——	WEST DOWELS
S402E	16	2'-6"	——	DOWELS
S403E	8	3'-5"	⌐¬	END CAP
S404E	12	2'-10"	⌐¬	TOP CAP
S405E	12	1'-2"	——	EAST DOWELS

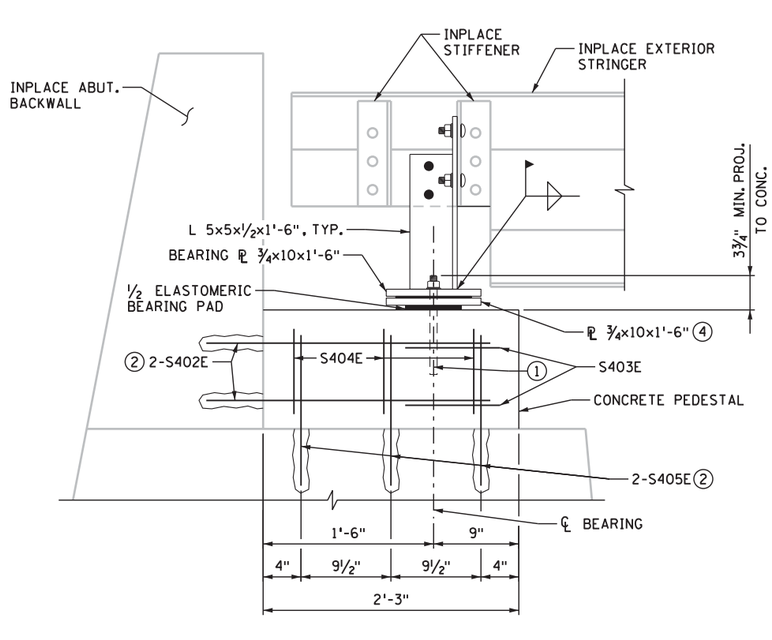


S403E AND S404E

GROUTED REINFORCEMENT DETAIL



EAST ABUTMENT PARTIAL ELEVATION



SECTION B-B ⑤

NOTES:

GALVANIZE STRUCTURAL STEEL BEARING ASSEMBLY AFTER FABRICATION, BUT BEFORE TEFLON IS ATTACHED, WHERE REQUIRED, PER MnDOT SPEC. 3394.

FOR EAST BEARINGS, SANDBLAST 10 GAGE STEEL PLATES AFTER GALVANIZING TO ACHIEVE A PROFILE TO ADHERE TEFLON TO.

PROVIDE STEEL PLATES PER MnDOT SPEC. 3306.

PROVIDE ELASTOMERIC MATERIALS AND PAD CONSTRUCTION PER MnDOT SPEC. 3741.

① ¾"Ø x 10½" LONG ANCHOR ROD CONFORMING TO MnDOT SPEC. 3385.2 TYPE A AND GALVANIZED IN ACCORDANCE WITH MnDOT SPEC. 3392. CAST ANCHOR ROD IN CONCRETE.

② SEE GROUTED REINFORCEMENT DETAIL ON THIS SHEET.

③ WITHOUT TEFLON.

④ WITH TEFLON.

⑤ BEARING PLATE AND ℙ ¾x10x1'-6" WITH TEFLON LINE UP AT 45°F.

LEGEND:

▲ NEW ¾"Ø A325 BUTTON HEAD BOLT.

● FIELD DRILL NEW ¾"Ø A325 BUTTON HEAD BOLT.

REVISIONS	DATE	BY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED OR TYPED NAME SARA L. NELSON — LIC. NO. 42330 — DATE 9/12/2017

Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

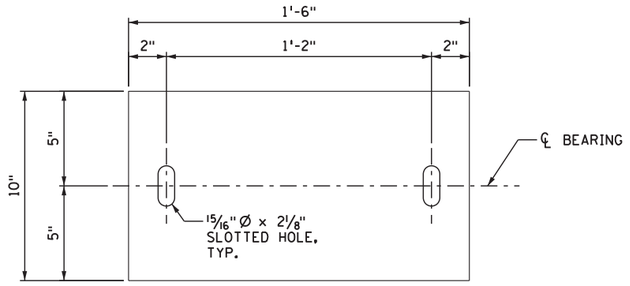
TITLE: BEARING REPAIR DETAILS (1 OF 2)

DES: SAO	DR: DPC	APPROVED:
CHK: DPC	CHK: SLN	

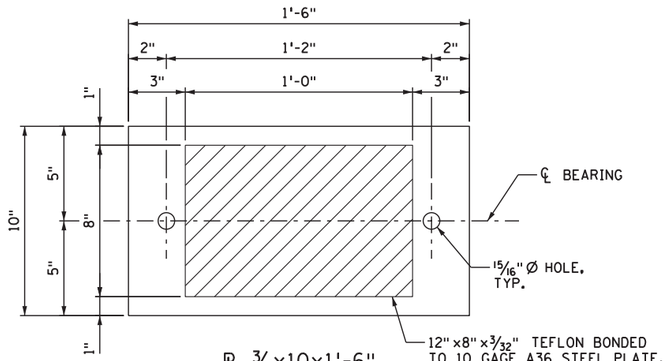
SHEET NO. 17 OF 27 SHEETS

BRIDGE NO. 93835

Plotted by: Dan.Crawford
Plotted on: 9/12/2017 at 12:38:38 PM
File path: \\oneserver\public\projects\1114-1-mpls boom island\2 - production\c - work\cd\BR93835_DETO01.dgn



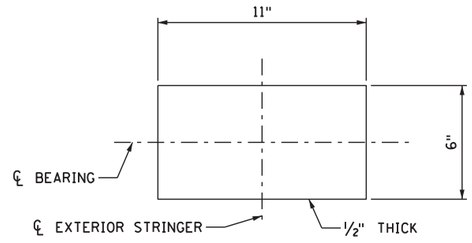
℄ 3/4x10x1'-6"
WITHOUT TEFLON



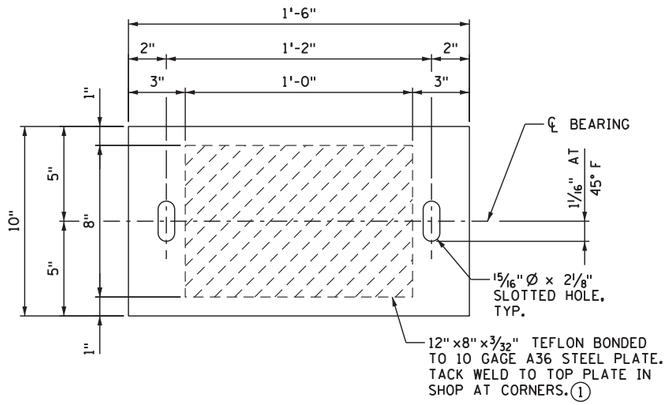
℄ 3/4x10x1'-6"
WITH TEFLON

BILL OF MATERIALS - RECONSTRUCT BEARINGS
TOTAL FOR BOTH ABUTMENTS

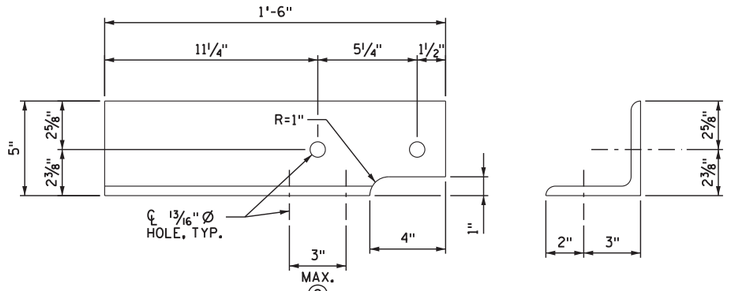
ITEM	NO. REQ'D	LBS
L 5x5x1/2" x1'-6"	8	25 (3)
℄ 3/4x10x1'-6" (WITH TEFLON)	2	39 (3)
℄ 3/4x10x1'-6" (WITHOUT TEFLON)	2	39 (3)
BEARING ℄ 3/4x10x1'-6"	2	39 (3)
1/2" ELASTOMERIC BEARING PAD	4	



ELASTOMERIC BEARING PAD



BEARING ℄ 3/4x10x1'-6"



L 5x5x1/2" x1'-6"

NOTES:

BILL OF MATERIALS ARE LISTED FOR CONTRACTOR'S CONVENIENCE AND ARE NOT INTENDED TO BE COMPREHENSIVE MATERIAL SUMMARIES.

GALVANIZE STRUCTURAL STEEL BEARING ASSEMBLY AFTER FABRICATION, BUT BEFORE TEFLON IS ATTACHED, WHERE REQUIRED, PER MnDOT SPEC. 3394.

FOR EAST BEARINGS, SANDBLAST 10 GAGE STEEL PLATES AFTER GALVANIZING TO ACHIEVE A PROFILE TO ADHERE TEFLON TO.

PROVIDE STEEL PLATES PER MnDOT SPEC. 3306.

PROVIDE ELASTOMERIC MATERIALS AND PAD CONSTRUCTION PER MnDOT SPEC. 3741.

(1) TEFLON TO BE COVERED UP DURING SHIPMENT AND LIFTING TO AVOID DAMAGE TO THE TEFLON PRIOR TO BRIDGE PLACEMENT.

(2) FIELD DRILL ALL HOLES.

(3) WEIGHT PER ONE.

REVISIONS	DATE	BY

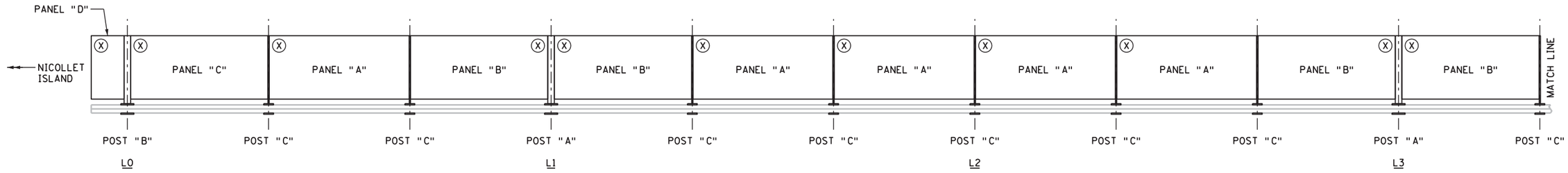
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
LIC. NO. 42330
PRINTED OR TYPED NAME SARA L. NELSON DATE 9/12/2017

Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

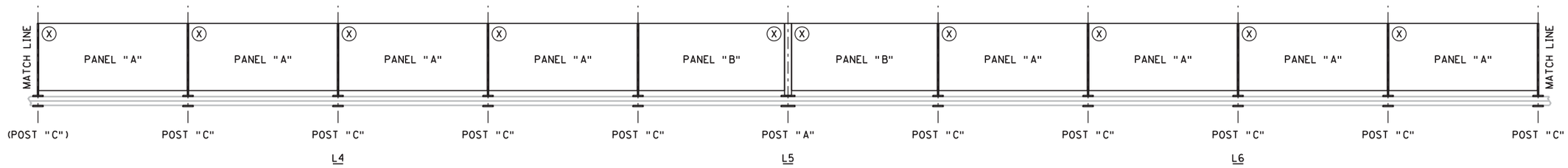
TITLE: BEARING REPAIR DETAILS (2 OF 2)

DES: SAO	DR: DPC	APPROVED:	BRIDGE NO.
CHK: DPC	CHK: SLN		93835
SHEET NO. 18 OF 27 SHEETS			

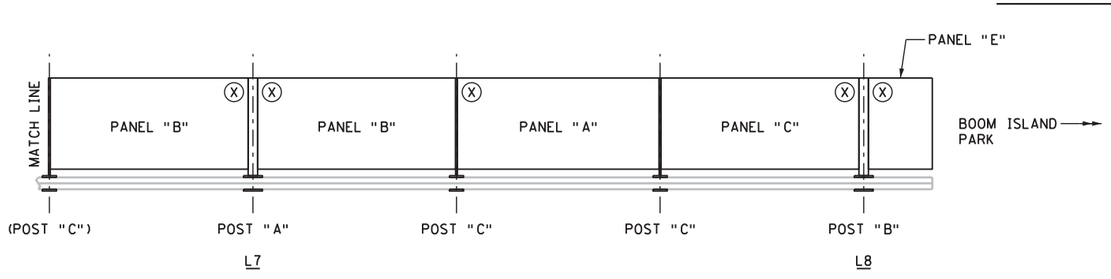
Plotted by: Dan.Crawford
Plotted on: 9/12/2017 at 12:38:40 PM
File path: \\oneserver\public\projects\1114-1-mpls boom island\2 - production\c - work\cd\BR93835_DET006.dgn



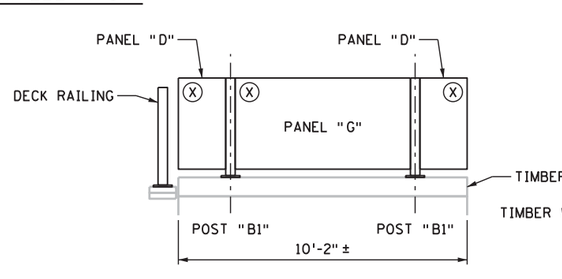
DECK RAILING ELEVATION



DECK RAILING ELEVATION

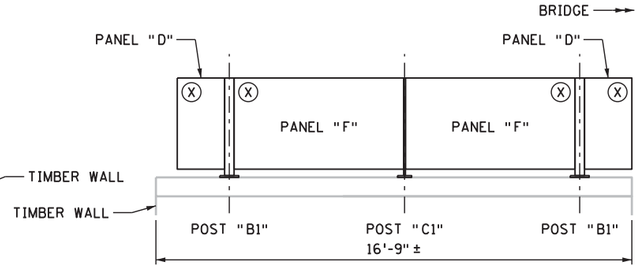


DECK RAILING ELEVATION



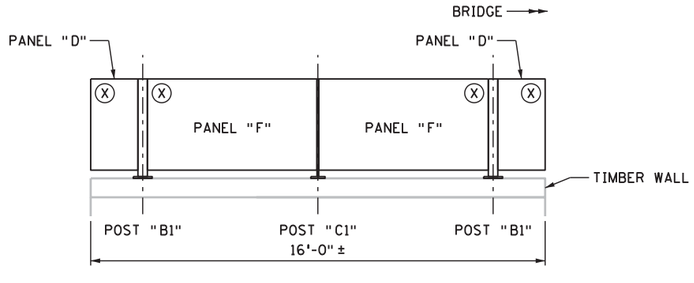
N.W. TIMBER WALL RAILING ELEVATION

LOOKING N.W.



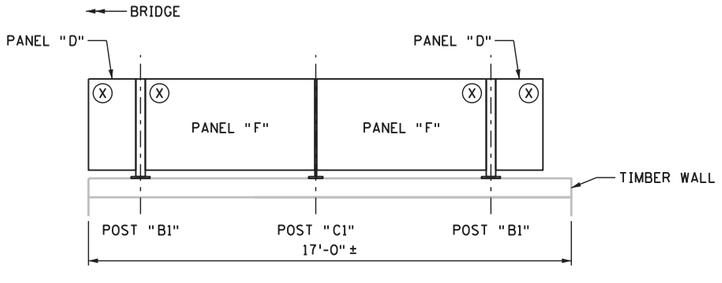
S.W. TIMBER WALL RAILING ELEVATION

LOOKING N.E.



N.E. TIMBER WALL RAILING ELEVATION

LOOKING S.W.



S.E. TIMBER WALL RAILING ELEVATION

LOOKING N.E.

NOTES:

SEE SHEET 21 FOR POST DETAILS.

SEE SHEET 22 FOR PANEL DETAILS.

(X) DENOTES "X" CORNER OF PANEL FOR PLACEMENT.

REVISIONS	DATE	BY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

LIC. NO. 20760

PRINTED OR TYPED NAME MICHAEL D. SPEEDLING DATE 9/12/2017

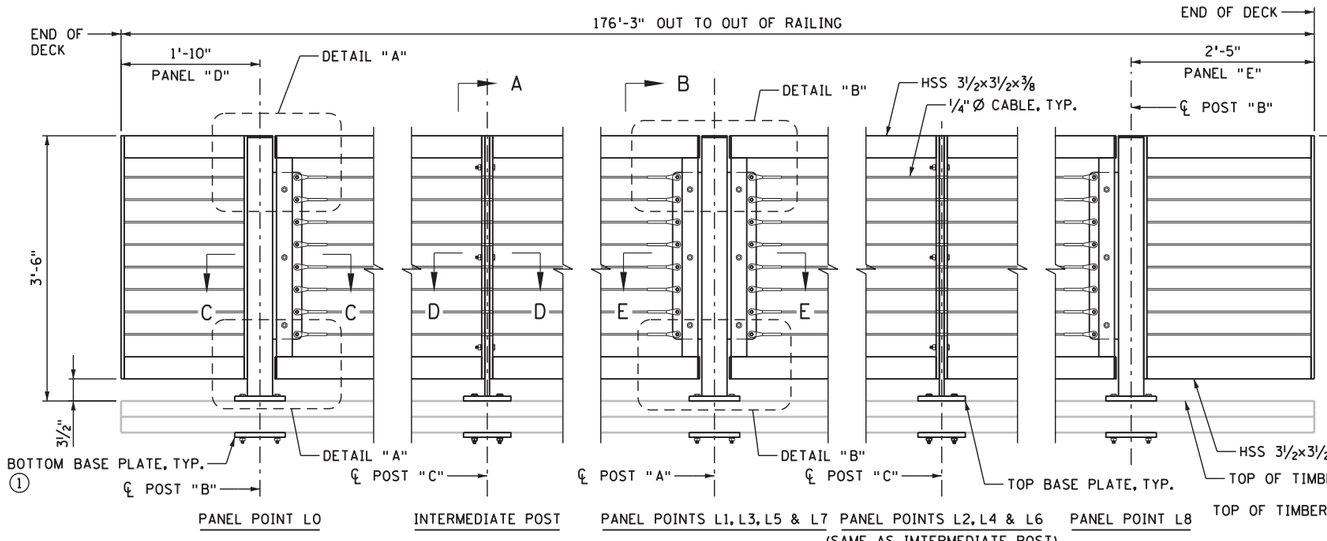
Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

TITLE: RAILING DETAILS (1 OF 4)

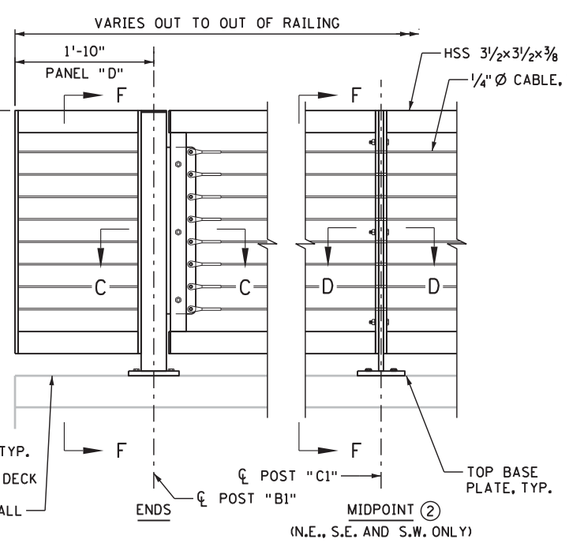
DES: UMD	DR: DPC	APPROVED:
CHK: MDS	CHK: UMD	

SHEET NO. 19 OF 27 SHEETS

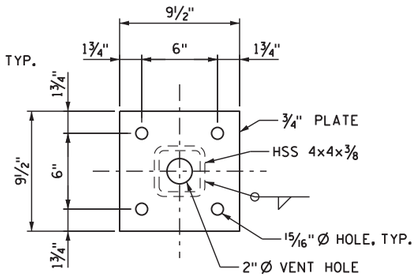
BRIDGE NO. 93835



DECK RAILING ELEVATION

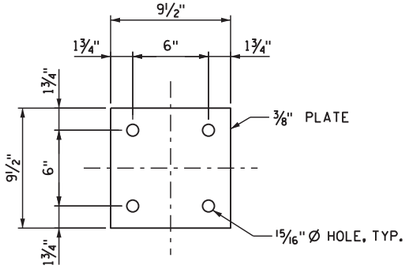


TIMBER WALL RAILING ELEVATION



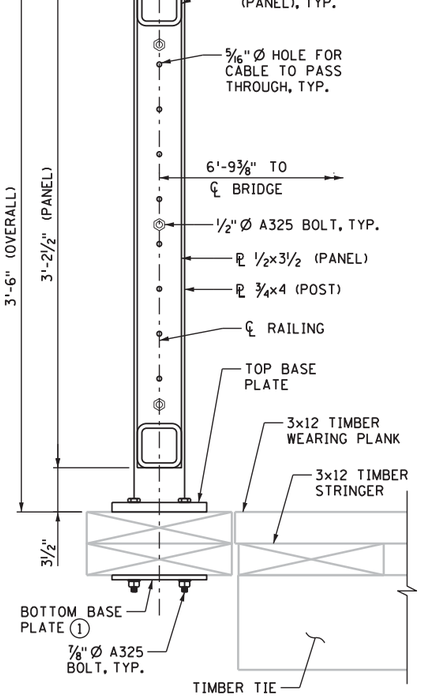
TOP BASE PLATE DETAIL

POSTS "A", "B" & "B1"

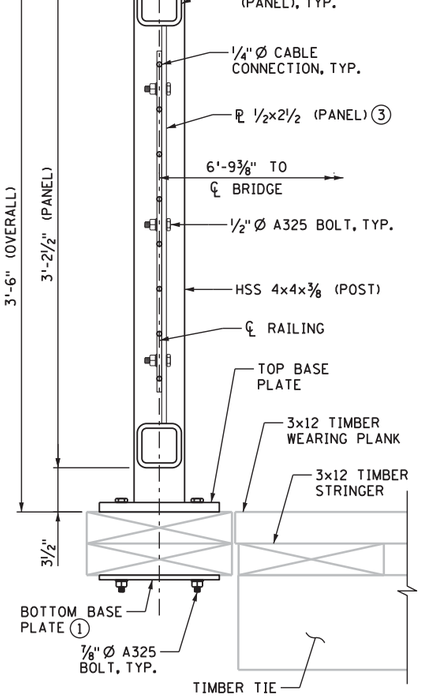


BOTTOM BASE PLATE DETAIL

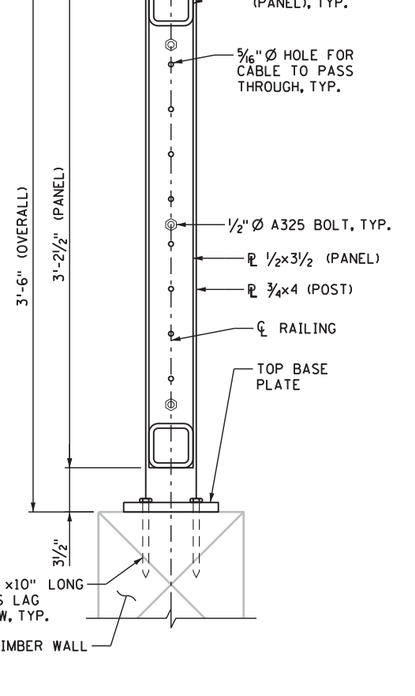
POSTS "A" & "B"



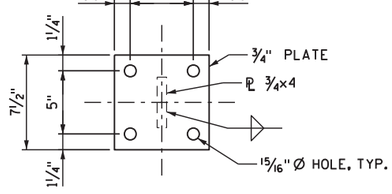
SECTION A-A



SECTION B-B

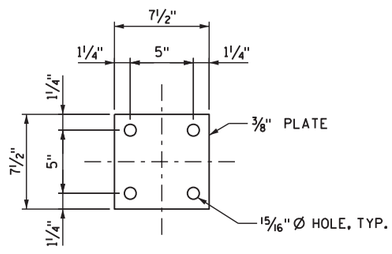


SECTION F-F



TOP BASE PLATE DETAIL

POSTS "C" & "C1"



BOTTOM BASE PLATE DETAIL

POST "C"

NOTES:

CONTINUOUSLY GROUND ALL METAL RAILINGS; SEE THE SPECIFICATIONS.

PAYMENT LENGTH SHALL BE MEASURED AS THE OUT TO OUT LENGTH ALONG THE CENTERLINE OF THE RAILING BETWEEN THE OUTSIDE ENDS.

PROVIDE A500, GRADE B STRUCTURAL STEEL TUBING (HSS) IN THE RAIL CONFORMING TO MnDOT SPEC. 3361. ALL OTHER STEEL SHALL CONFORM TO MnDOT SPEC. 3306.

FOR ALL RAILING DETAILS, PROVIDE BOLTS, NUTS, AND WASHERS PER MnDOT SPEC. 3391.

GALVANIZE BOLTS, NUTS, AND WASHERS PER MnDOT SPEC. 3392. GALVANIZE ALL OTHER STRUCTURAL STEEL PER MnDOT SPEC. 3394, AFTER FABRICATION.

COAT THE GALVANIZED RAILING, BASE PLATES, AND PROTRUDING PORTIONS OF BOLTS, NUTS, AND WASHERS.

SEE SHEET 21 FOR DETAILS "A" AND "B".

SEE SHEET 21 FOR SECTIONS C-C, D-D AND E-E.

POSTS "A", "B" AND "C" WILL HAVE A TOP AND BOTTOM PLATE AND INSTALLED WITH ⅞"Ø A325 THROUGH BOLTS.

POSTS "B1" AND "C1" WILL HAVE A TOP PLATE ONLY AND INSTALLED WITH ⅞"Ø x 10" LAG SCREWS.

① BOTTOM BASE PLATE FOR POSTS "A", "B" AND "C" ONLY.

② N.W. TIMBER WALL RAILING DOES NOT HAVE A MIDPOINT POST.

③ PLACE THIS SIDE TOWARDS DECK.

REVISIONS	DATE	BY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

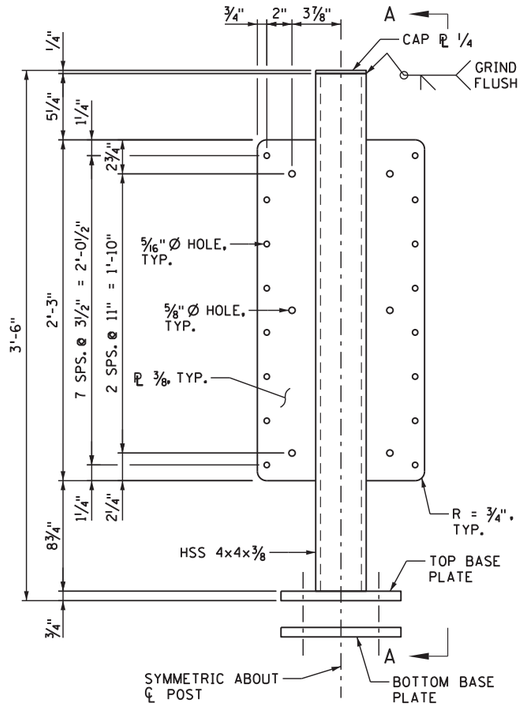
PRINTED OR TYPED NAME: MICHAEL D. SPEEDLING — LIC. NO. 20760 — DATE 9/12/2017

Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

TITLE: RAILING DETAILS (2 OF 4)

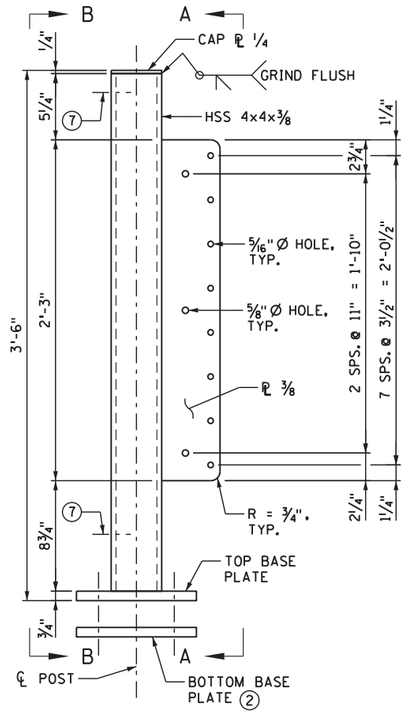
DES: UMD	DR: DPC	APPROVED:	BRIDGE NO.
CHK: MDS	CHK: UMD		93835
SHEET NO. 20 OF 27 SHEETS			

Plotted by: Dan.Crawford
Plotted on: 9/12/2017 at 12:38:43 PM
File path: \\oneserver\public\projects\1114-1-mpls boom island\2 - production\c - work\cd\BR93835_RAL002.dgn



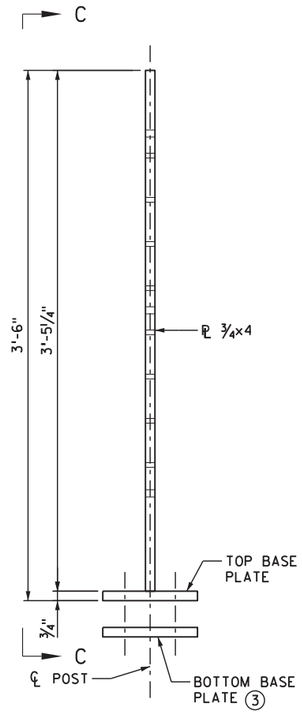
POST "A" ELEVATION

8 REQ'D



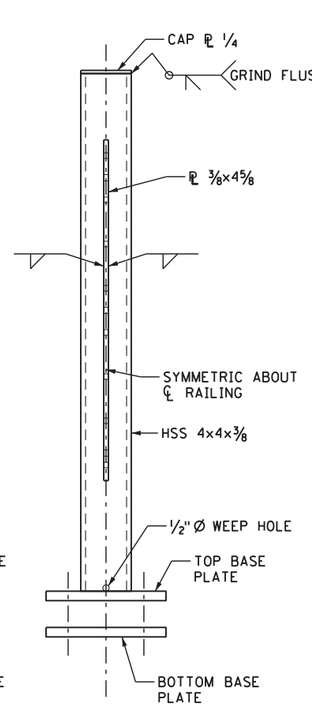
POST "B" & "B1" ELEVATION

POST "B" - 4 REQ'D
POST "B1" - 8 REQ'D

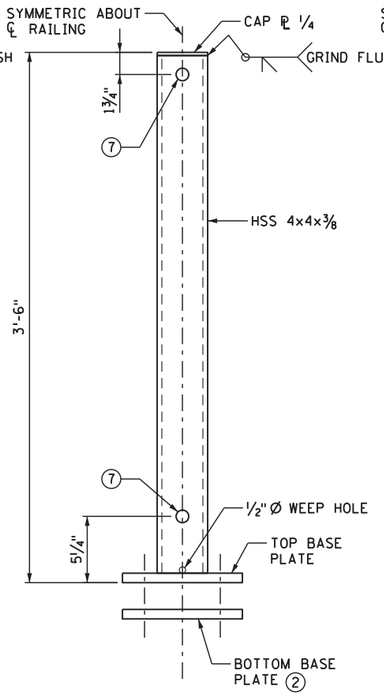


POST "C" & "C1" ELEVATION

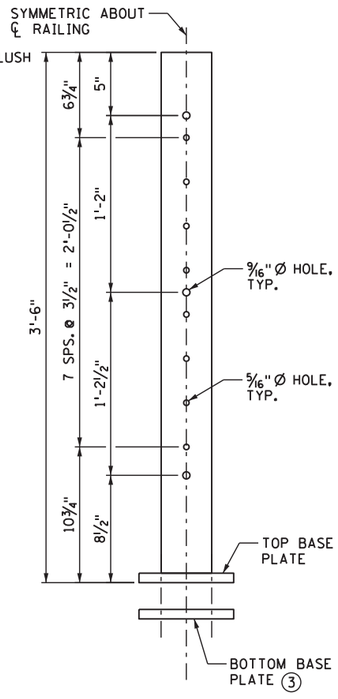
POST "C" - 38 REQ'D
POST "C1" - 3 REQ'D



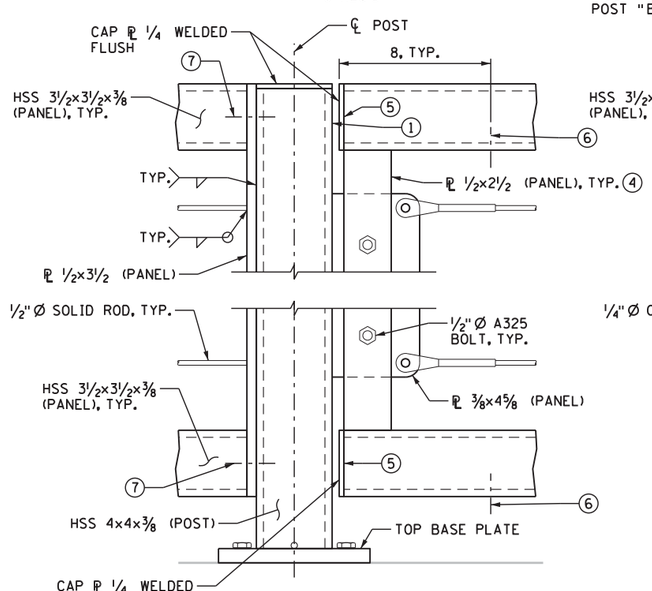
VIEW A-A



VIEW B-B

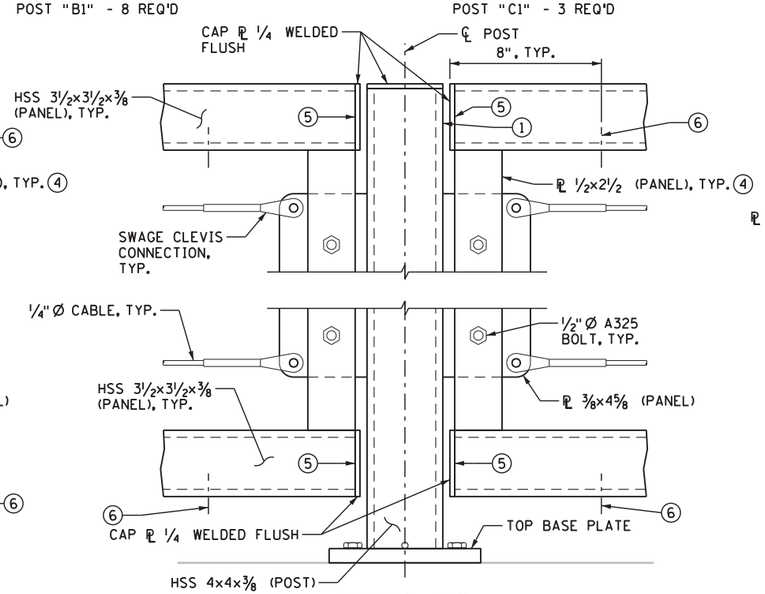


VIEW C-C



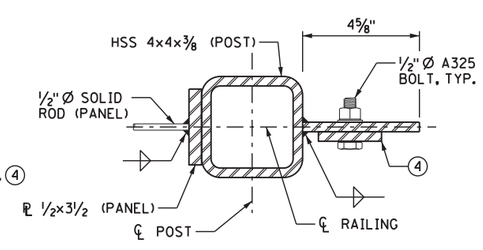
DETAIL "A"

TOP & BOT. OF POST SHOWN



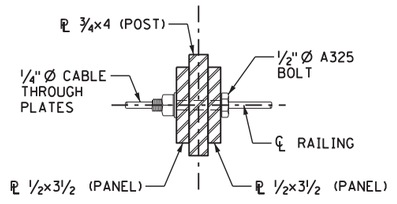
DETAIL "B"

TOP & BOT. OF POST SHOWN



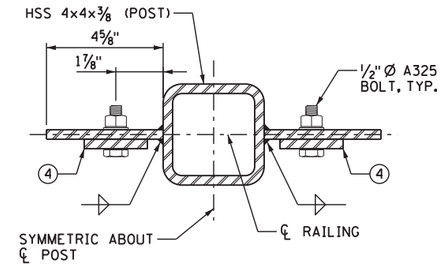
SECTION C-C

POSTS "B" & "B1"



SECTION D-D

POSTS "C" & "C1"



SECTION E-E

POST "A"

NOTES:

SEE SHEET 20 FOR SECTION C-C, D-D AND E-E LOCATIONS.

① DRILL VENT HOLE IN THE RAIL POST WITHIN 2" OF THE UNDERSIDE OF THE CAP PLATE, ON THE RIVER SIDE OF THE POST AS NECESSARY TO FACILITATE GALVANIZING. MAXIMUM HOLE SIZE IS ½"Ø.

② BOTTOM BASE PLATE FOR POST "B" ONLY.

③ BOTTOM BASE PLATE FOR POST "C" ONLY.

④ PLACE THIS SIDE TOWARDS DECK.

⑤ ½"Ø VENT HOLE IN PANEL CAP PLATE.

⑥ ℄ ½"Ø WEEP HOLE AT UNDERSIDE CENTER.

⑦ 1"Ø VENT HOLE THROUGH PANEL AND POST.

REVISIONS	DATE	BY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

LIC. NO. 20760

PRINTED OR TYPED NAME MICHAEL D. SPEEDLING DATE 9/12/2017

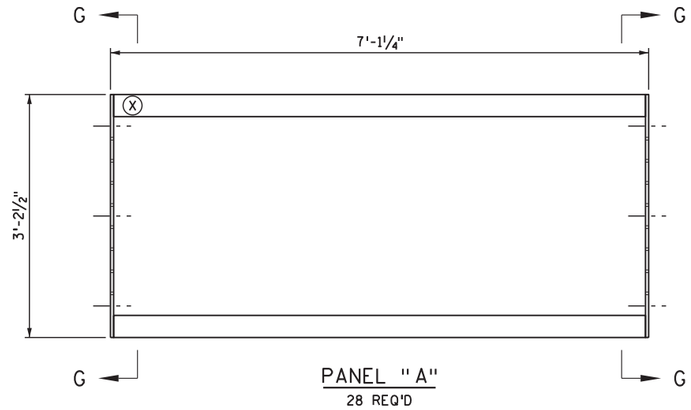
Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

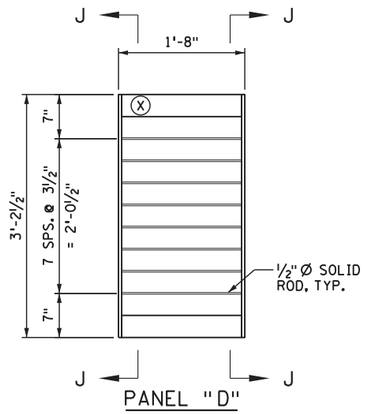
TITLE: RAILING DETAILS (3 OF 4)

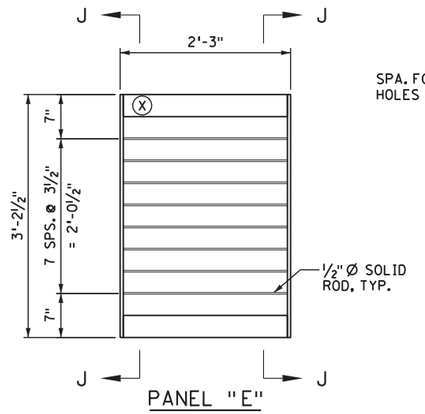
DES: UMD	DR: DPC	APPROVED:
CHK: MDS	CHK: UMD	

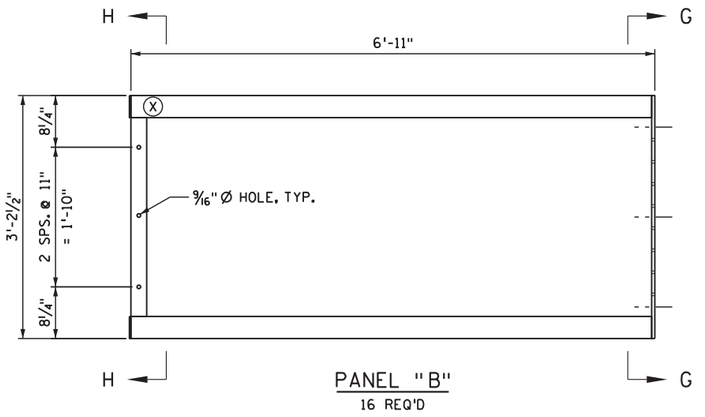
SHEET NO. 21 OF 27 SHEETS

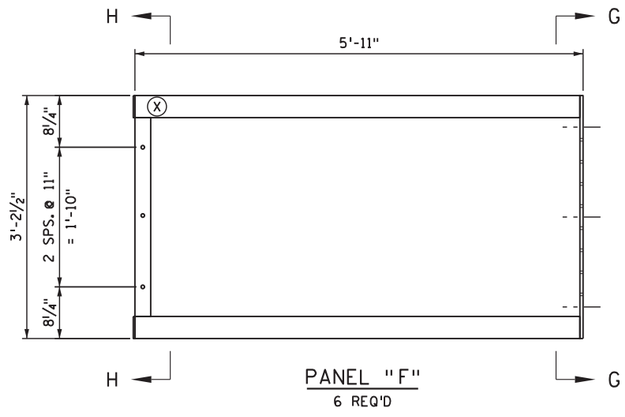
BRIDGE NO. 93835

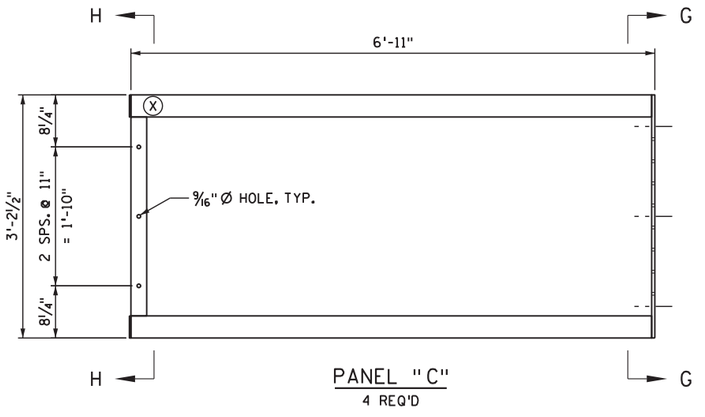


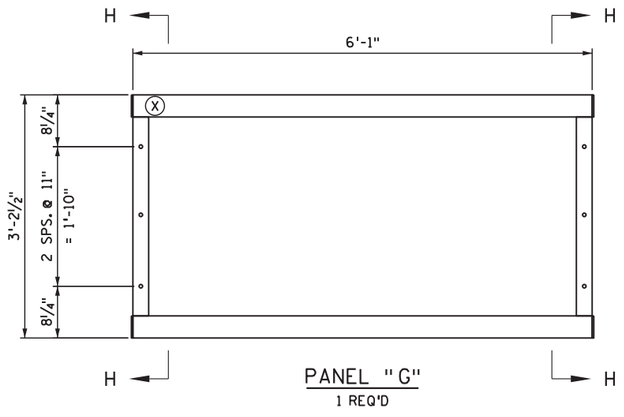


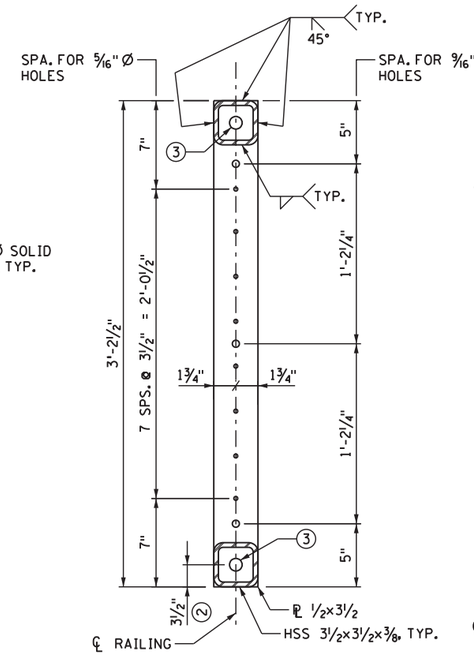




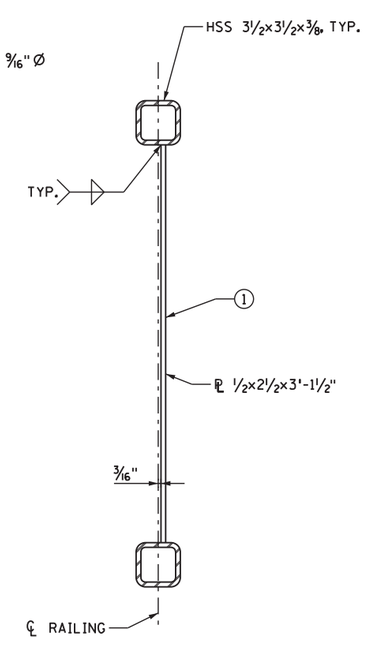




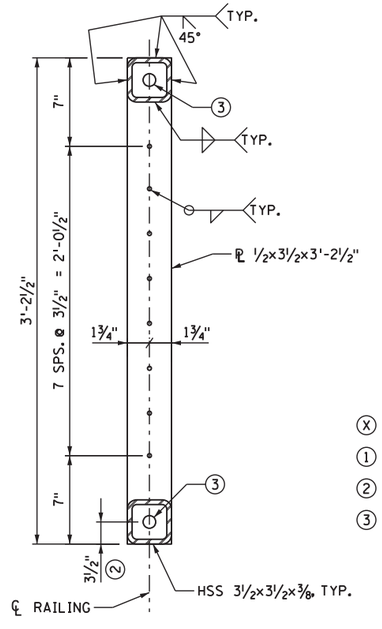




SECTION G-G



SECTION H-H



SECTION J-J

NOTES:

(X) DENOTES "X" CORNER OF PANEL FOR PLACEMENT.

(1) PLACE THIS SIDE TOWARDS DECK.

(2) TYPICAL TOP AND BOTTOM.

(3) 1" Ø VENT HOLE.

REVISIONS	DATE	BY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED OR TYPED NAME: MICHAEL D. SPEEDLING — LIC. NO. 20760 — DATE 9/12/2017

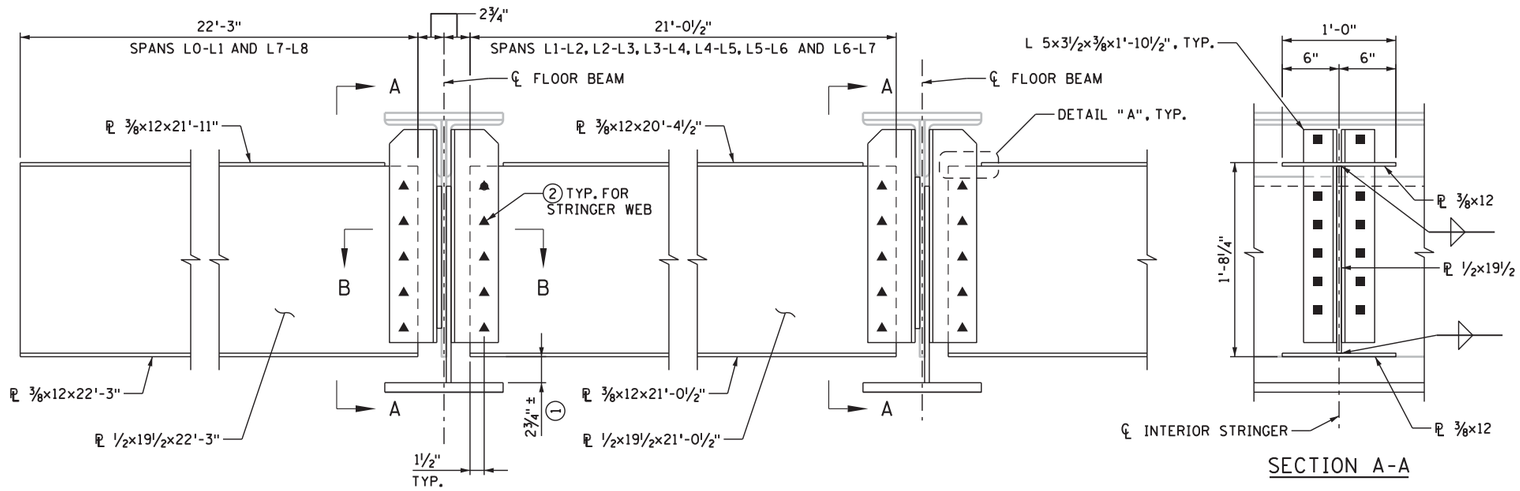
Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

TITLE: RAILING DETAILS (4 OF 4)

DES: UMD	DR: DPC	APPROVED:
CHK: MDS	CHK: UMD	

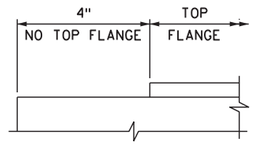
SHEET NO. 22 OF 27 SHEETS

BRIDGE NO. 93835

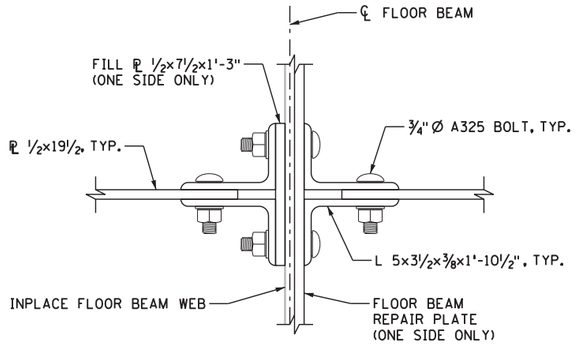


INTERIOR STRINGER ELEVATION

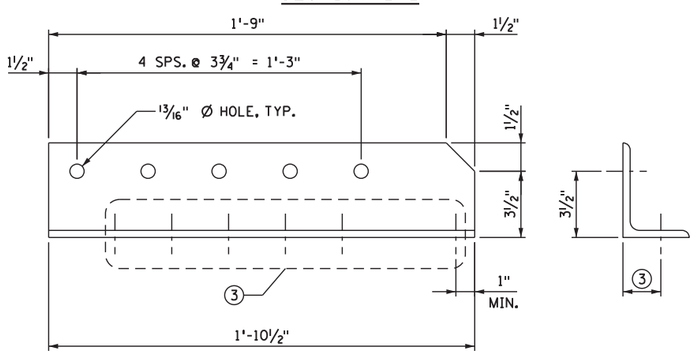
SECTION A-B



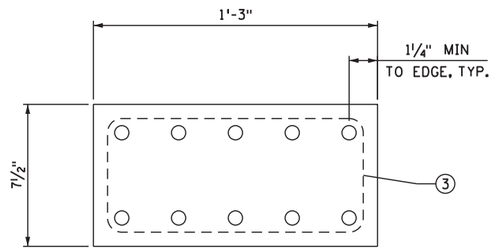
DETAIL "A"



SECTION B-B



L 5×3½×⅜×1'-10½"



FILL PL ½×7½×1'-3"

BILL OF MATERIALS - INTERIOR STRINGER REPLACEMENT (SPANS L0-L1 AND L7-L8)

PER EACH REPAIR LOCATION (4 TOTAL)

ITEM	NO. REQ'D	LBS
PL ½×19½×22'-3"	1	739
PL ⅜×12×21'-11"	1	336
PL ⅜×12×22'-3"	1	341
FILL PL ½×7½×1'-3"	1	16
L 5×3½×⅜×1'-10½"	2	20 (4)

BILL OF MATERIALS - INTERIOR STRINGER REPLACEMENT (SPANS L1-L2 THRU L6-L7)

PER EACH REPAIR LOCATION (12 TOTAL)

ITEM	NO. REQ'D	LBS
PL ½×19½×21'-0½"	1	698
PL ⅜×12×20'-4½"	1	312
PL ⅜×12×21'-0½"	1	323
FILL PL ½×7½×1'-3"	2	16 (4)
L 5×3½×⅜×1'-10½"	4	20 (4)

NOTES:

DETAILS ON THIS SHEET REPRESENT AN INTERIOR STRINGER REPLACEMENT ALTERNATE 2. IF INTERIOR STRINGER REPLACEMENT ALTERNATE 2 IS SHOWN BY OWNER, THESE DETAILS WILL APPLY.

BILL OF MATERIALS ARE LISTED FOR CONTRACTOR'S CONVENIENCE AND ARE NOT INTENDED TO BE COMPREHENSIVE MATERIAL SUMMARIES.

(1) DISTANCE FROM BOTTOM OF INTERIOR STRINGER TO TOP OF FLOOR BEAM BOTTOM FLANGE TO MATCH EXTERIOR STRINGERS. THERE WILL BE A GAP BETWEEN TOP OF INTERIOR STRINGER AND TIMBER TIES.

(2) DRILL HOLES IN WEB ONCE THE LOCATION OF INTERIOR STRINGER HAS BEEN SET TO NOTE (1).

(3) FIELD DRILL 13/16" Ø HOLES.

(4) WEIGHT PER ONE.

LEGEND:

■ EXISTING RIVET TO BE REPLACED WITH A ¾"Ø A325 BUTTON HEAD BOLT.

▲ NEW ¾"Ø A325 BUTTON HEAD BOLT.

REVISIONS	DATE	BY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Sara L Nelson

LIC. NO. 42330

PRINTED OR TYPED NAME SARA L. NELSON DATE 9/12/2017

Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

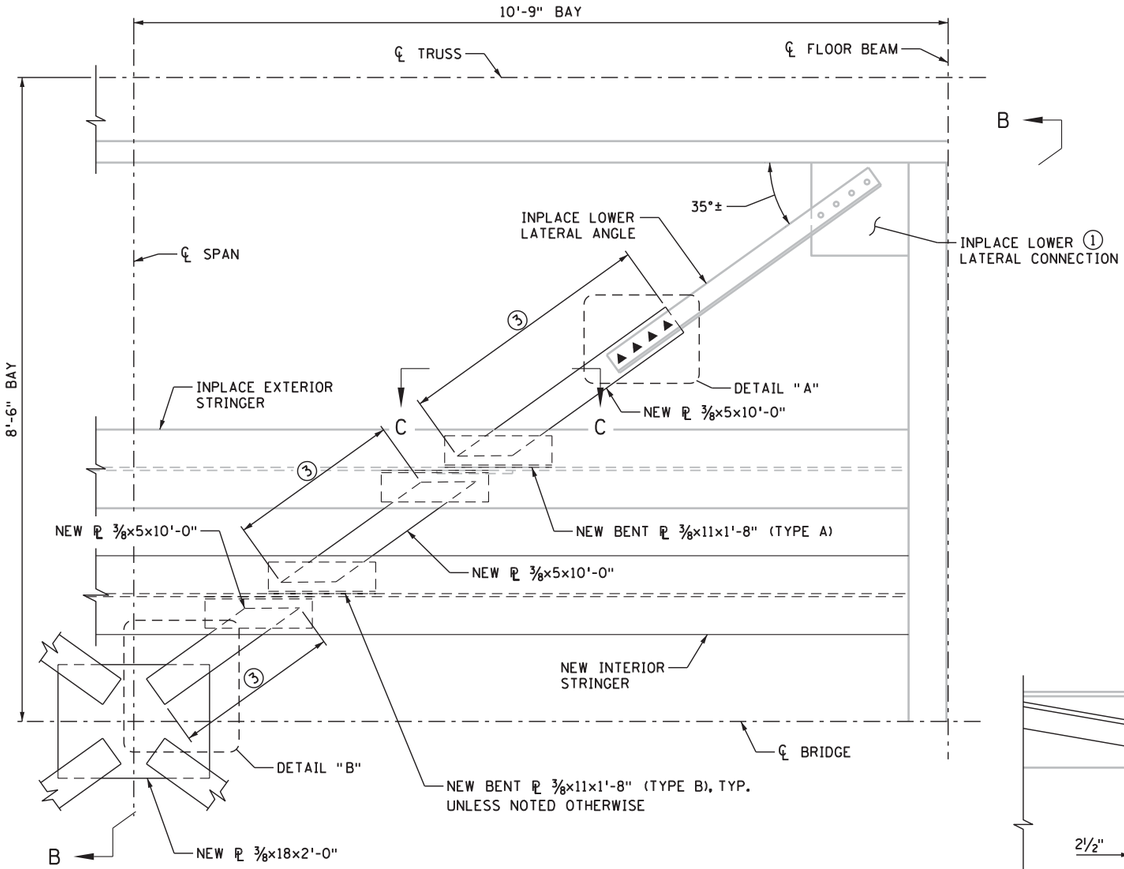
TITLE: INTERIOR STRINGER REPLACEMENT ALTERNATE DETAILS (1 OF 5)

DES: SLN	DR: DPC	APPROVED:
CHK: SAO	CHK: SLN	

SHEET NO. 23 OF 27 SHEETS

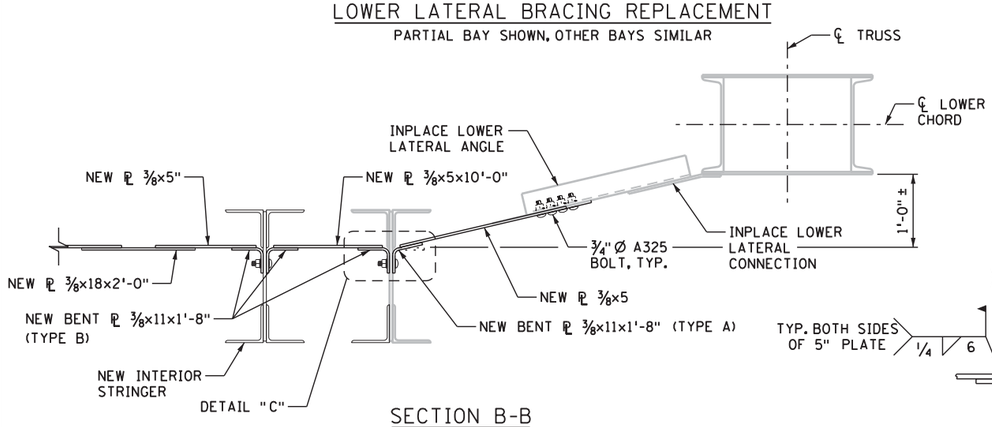
BRIDGE NO. 93835

Plotted by: Dan.Crawford
Plotted on: 9/12/2017 at 12:38:48 PM
File path: \\oneserver\public\projects\1114-1-mpls boom island\2 - production\c - work\cd\BR93835_DET005.dgn

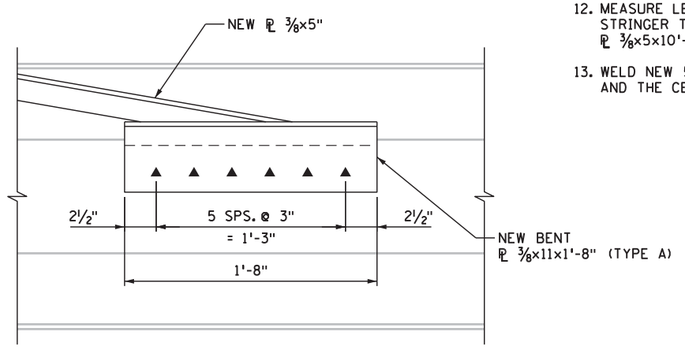


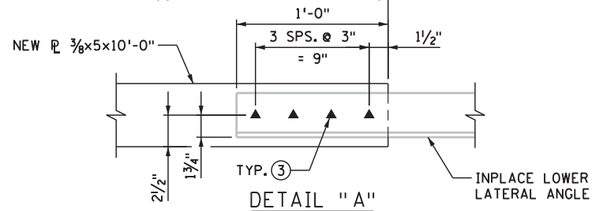
LOWER LATERAL BRACING REPLACEMENT

PARTIAL BAY SHOWN, OTHER BAYS SIMILAR

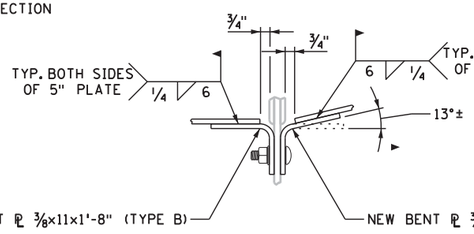


SECTION B-B





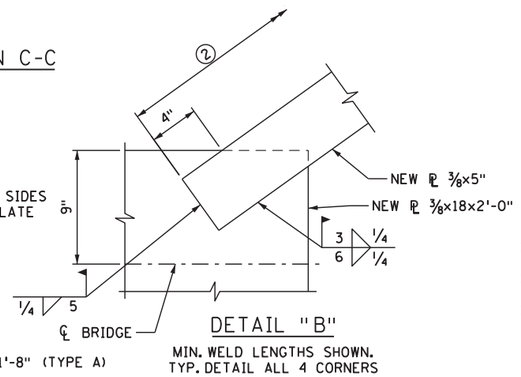
DETAIL "A"



DETAIL "C"

EXTERIOR STRINGER SHOWN, INTERIOR STRINGER SIMILAR

SECTION C-C



DETAIL "B"

MIN. WELD LENGTHS SHOWN. TYP. DETAIL ALL 4 CORNERS

CONCEPTUAL REPLACEMENT SEQUENCE:

1. REMOVE LATERAL BRACING INPLACE PLATES, ANGLES AS IDENTIFIED IN REMOVALS.
2. TRIM INPLACE LOWER LATERAL ANGLES.
3. MEASURE LENGTH OF NEW 5" PLATE NEEDED TO CONNECT INPLACE LOWER LATERAL ANGLE TO EXTERIOR STRINGER. (NOTE ②) CUT PL ⅜×5×10'-0" TO THIS LENGTH.
4. ONCE IN POSITION, FIELD DRILL HOLES IN INPLACE LOWER LATERAL ANGLE AND CONNECT NEW 5" PLATE WITH LOOSE FITTED ¾"Ø A325 BOLTS.
5. PLACE NEW BENT PLATE TYPE A INTO POSITION (SAME LOCATION AS REMOVED ANGLE). FIELD DRILL HOLES ON INPLACE EXTERIOR STRINGER AND CONNECT BENT PLATE WITH ¾"Ø A325 BOLTS. WELD NEW 5" PLATE TO BENT PLATE.
6. TIGHTEN BOLTS ON NEW 5" PLATE AND INPLACE LOWER LATERAL ANGLE.
7. POSITION BENT PLATE TYPE B ON THE INSIDE OF THE EXTERIOR STRINGER SUCH THAT 5" PLATE ON EITHER SIDE OF STRINGER LINE UP. FIELD DRILL HOLES IN INPLACE EXTERIOR STRINGER AND CONNECT BENT PLATE TYPE B WITH ¾"Ø A325 BOLTS. (NOTE: LINE HOLES UP WITH BENT PLATE TYPE A BOLTS IF POSSIBLE.)
8. MEASURE LENGTH NEEDED FOR NEW 5" PLATE TO CONNECT INSIDE OF EXTERIOR STRINGER TO THE OUTSIDE OF THE INTERIOR STRINGER. (NOTE ②) CUT REMAINING PORTION OF PL ⅜×5×10'-0" TO THIS LENGTH.
9. POSITION BENT PLATE TYPE B ON OUTSIDE OF INTERIOR STRINGER TO RECEIVE NEW 5" PLATE. FIELD DRILL HOLES IN INTERIOR STRINGER WEB AND CONNECT BENT PLATE TYPE B WITH ¾" Ø A325 BOLTS (CONTRACTOR MAY WELD BENT PLATE TO INTERIOR STRINGER. IF CONTRACTOR CHOOSES TO FIELD WELD, NO HOLES SHALL BE IN BENT PLATE).
10. WELD NEW 5" PLATE TO INSIDE OF EXTERIOR STRINGER BENT PLATE AND OUTSIDE OF INTERIOR STRINGER BENT PLATE.
11. POSITION BENT PLATE TYPE B ON OUTSIDE OF INTERIOR STRINGER TO RECEIVE NEW 5" PLATE. FIELD DRILL HOLES IN INTERIOR STRINGER WEB AND CONNECT BENT PLATE TYPE B WITH ¾" Ø A325 BOLTS (CONTRACTOR MAY WELD BENT PLATE TO INTERIOR STRINGER. IF CONTRACTOR CHOOSES TO FIELD WELD, NO HOLES SHALL BE IN BENT PLATE).
12. MEASURE LENGTH NEEDED FOR NEW 5" PLATE TO CONNECT INSIDE OF INTERIOR STRINGER TO THE CENTER PLATE. (NOTE ②) CUT REMAINING PORTION OF PL ⅜×5×10'-0" TO THIS LENGTH.
13. WELD NEW 5" PLATE TO INSIDE OF INTERIOR STRINGER BENT PLATE AND THE CENTER PLATE.

NOTES:

DETAILS ON THIS SHEET REPRESENT AN INTERIOR STRINGER REPLACEMENT ALTERNATE 2. IF INTERIOR STRINGER REPLACEMENT ALTERNATE 2 IS CHOSEN BY OWNER, DETAILS ON THIS SHEET REPLACE ALL DETAILS PROVIDED ON SHEET 14.

EACH REPAIR CONSISTS OF ALL FOUR CORNERS OF SINGLE SPAN.

① GENERIC LOCATION SHOWN, OTHERS SIMILAR.

② CONTRACTOR TO DETERMINE LENGTH IN FIELD.

③ USE NEW PLATE HOLES AS TEMPLATE TO FIELD DRILL MATCHING HOLES IN INPLACE LOWER LATERAL ANGLE.

LEGEND:

▲ NEW ¾"Ø A325 BUTTON HEAD BOLT.

REVISIONS	DATE	BY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

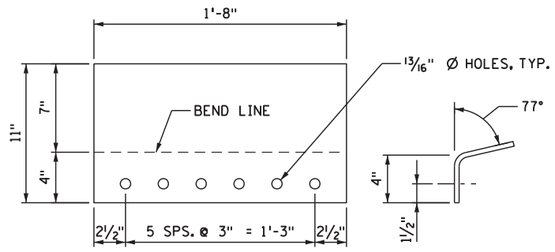
PRINTED OR TYPED NAME: SARA L. NELSON — LIC. NO.: 42330 — DATE: 9/12/2017

Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

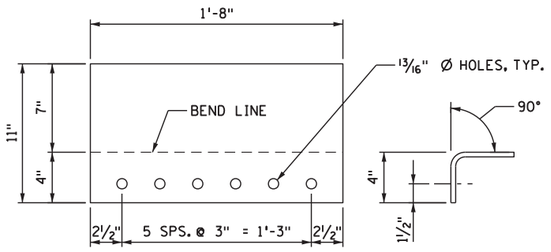
TITLE: INTERIOR STRINGER REPLACEMENT ALTERNATE DETAILS (2 OF 5)

DES: SLN	DR: DPC	APPROVED:	BRIDGE NO.
CHK: SAO	CHK: SLN		93835
SHEET NO. 24 OF 27 SHEETS			

Plotted by: Dan.Crawford
Plotted on: 9/12/2017 at 12:38:50 PM
File path: \\oneserver\public\projects\1114-1-mpls boom island\2 - production\c - work\cd\BR93835_DET004A.dgn



NEW BENT PL 3/8×11×1'-8" (TYPE A)



NEW BENT PL 3/8×11×1'-8" (TYPE B)

BILL OF MATERIALS - LATERAL BRACING REPLACEMENT
PER EACH REPAIR LOCATION (8 TOTAL)

	ITEM	NO. REQ'D	LBS
(1)	NEW PL 3/8×5×10'-0"	4	64 (2)
	NEW BENT PL 3/8×11×1'-8" (TYPE A)	4	24 (2)
	NEW BENT PL 3/8×11×1'-8" (TYPE B)	12	24 (2)
	NEW PL 3/8×18×2'-0"	1	46

NOTES:

BILL OF MATERIALS ARE LISTED FOR CONTRACTOR'S CONVENIENCE AND ARE NOT INTENDED TO BE COMPREHENSIVE MATERIAL SUMMARIES.

DETAILS ON THIS SHEET REPRESENT AN INTERIOR STRINGER REPLACEMENT ALTERNATE 2. IF INTERIOR STRINGER REPLACEMENT ALTERNATE 2 IS CHOSEN BY OWNER, DETAILS ON THIS SHEET REPLACE ALL DETAILS PROVIDED ON SHEET 14.

(1) 10'-0" ONE PIECE PLATE SHALL BE CUT IN FIELD ONCE CONTRACTOR HAS DETERMINED CORRECT MEASUREMENTS.

(2) WEIGHT PER ONE.

REVISIONS	DATE	BY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED OR TYPED NAME: SARA L. NELSON — LIC. NO. 42330 — DATE 9/12/2017

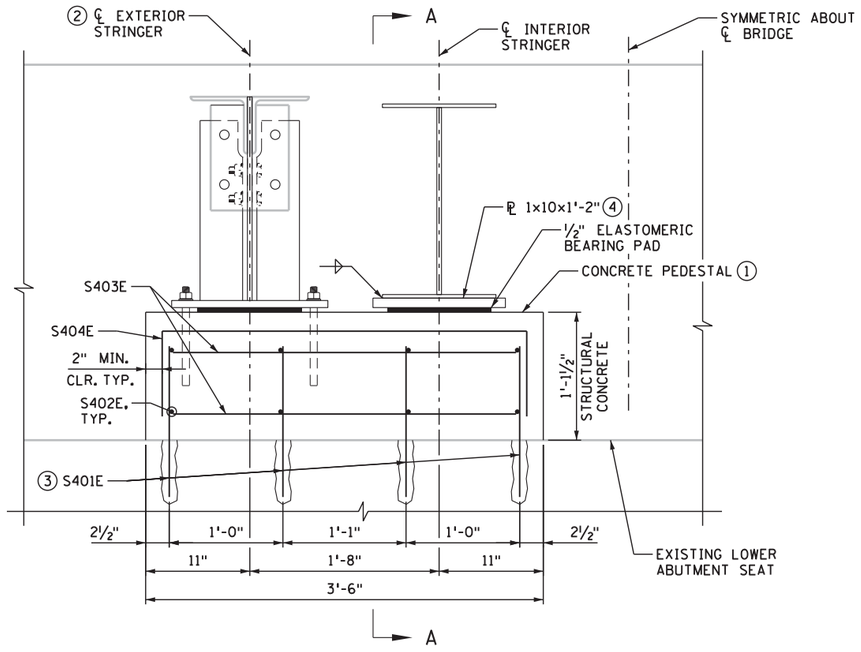
Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

TITLE: INTERIOR STRINGER REPLACEMENT ALTERNATE DETAILS (3 OF 5)

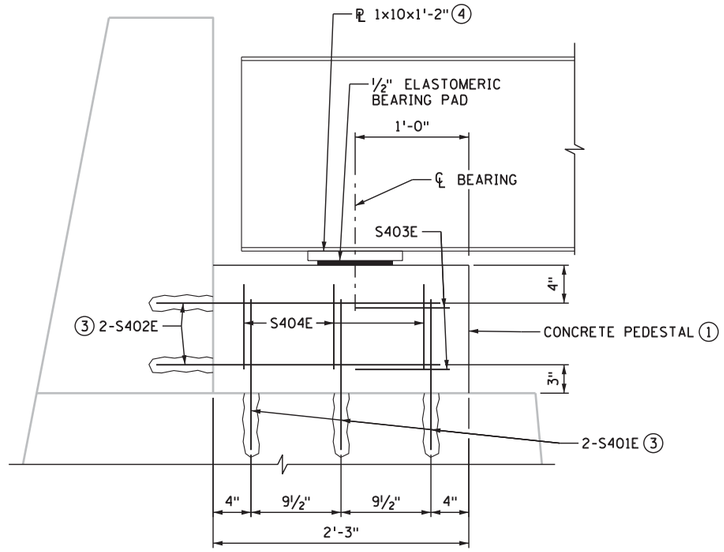
DES: SLN	DR: DPC	APPROVED:
CHK: SAO	CHK: SLN	

SHEET NO. 25 OF 27 SHEETS

BRIDGE NO. 93835

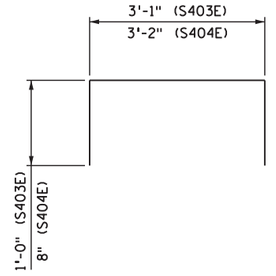


WEST ABUTMENT PARTIAL ELEVATION

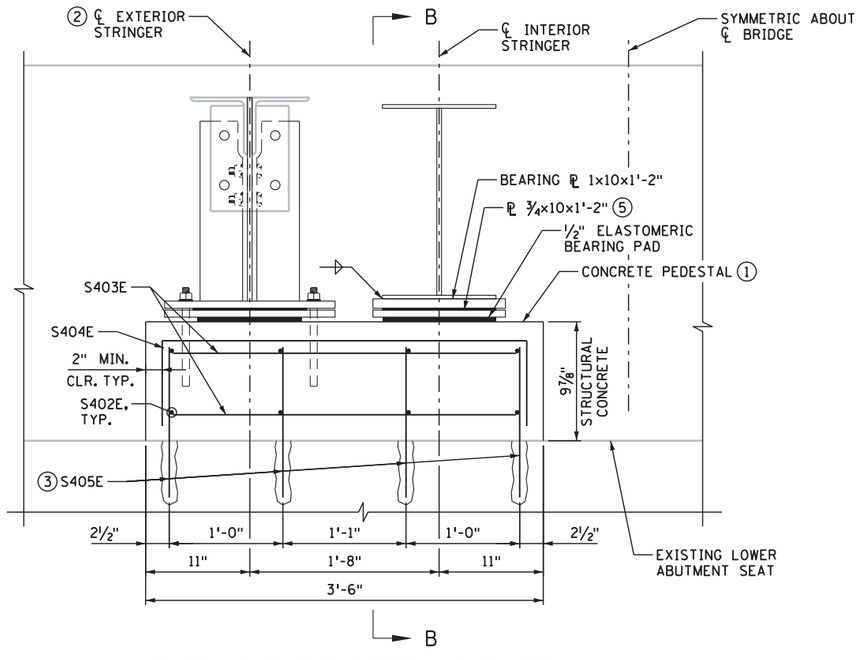


SECTION A-A

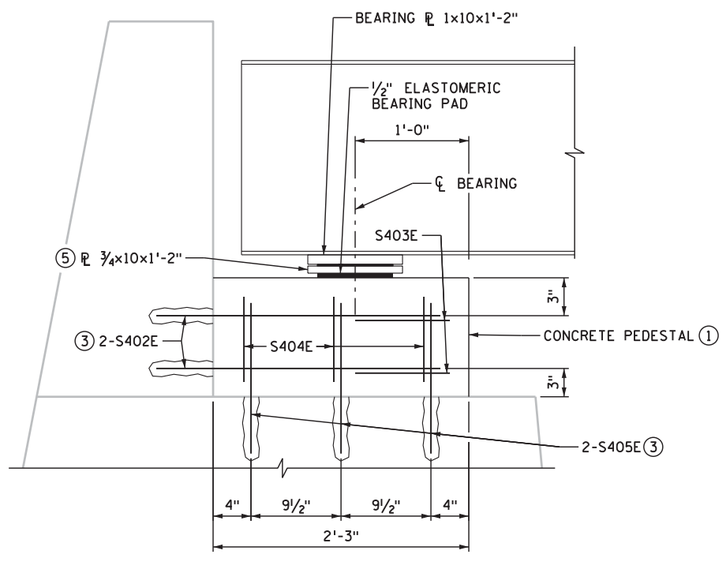
BILL OF REINFORCEMENT FOR ALL PEDESTALS				
BAR MARK	NO.	LENGTH	SHAPE	LOCATION
S401E	24	1'-5"	——	WEST DOWELS
S402E	32	2'-6"	——	DOWELS
S403E	8	5'-1"	⊓	END CAP
S404E	12	4'-6"	⊓	TOP CAP
S405E	24	1'-2"	——	EAST DOWELS



S403E AND S404E



EAST ABUTMENT PARTIAL ELEVATION



SECTION B-B ⑥

NOTES:

DETAILS ON THIS SHEET REPRESENT AN INTERIOR STRINGER REPLACEMENT ALTERNATE 2. IF INTERIOR STRINGER REPLACEMENT ALTERNATE 2 IS CHOSEN BY OWNER, CONCRETE PEDESTAL AND REINFORCEMENT DETAILS ON THIS SHEET REPLACE CONCRETE PEDESTAL DETAILS AND REINFORCEMENT DETAILS ON SHEET 17.

GALVANIZE STRUCTURAL STEEL BEARING ASSEMBLY AFTER FABRICATION, BUT BEFORE TEFLON IS ATTACHED, WHERE REQUIRED, PER MnDOT SPEC. 3394.

FOR EAST BEARINGS, SANDBLAST 10 GAGE STEEL PLATES AFTER GALVANIZING TO ACHIEVE A PROFILE TO ADHERE TEFLON TO.

PROVIDE STEEL PLATES PER MnDOT SPEC. 3306.

PROVIDE ELASTOMERIC MATERIALS AND PAD CONSTRUCTION PER MnDOT SPEC. 3741.

① TO REPLACE CONCRETE PEDESTAL SHOWN ON SHEET 17 IF INTERIOR STRINGER REPLACEMENT ALTERNATE 2 IS USED.

② SEE EXTERIOR STRINGER BEARING DETAILS ON SHEET 17. BEARING DETAILS REMAIN THE SAME IF INTERIOR STRINGER REPLACEMENT ALTERNATE 2 IS CHOSEN.

③ SEE GROUTED REINFORCEMENT DETAIL ON SHEET 17.

④ WITHOUT TEFLON.

⑤ WITH TEFLON.

⑥ BEARING PLATE AND ℄ ¾x10x1'-2" WITH TEFLON LINE UP AT 45°F.

REVISIONS	DATE	BY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

LIC. NO. 42330

PRINTED OR TYPED NAME SARA L. NELSON DATE 9/12/2017

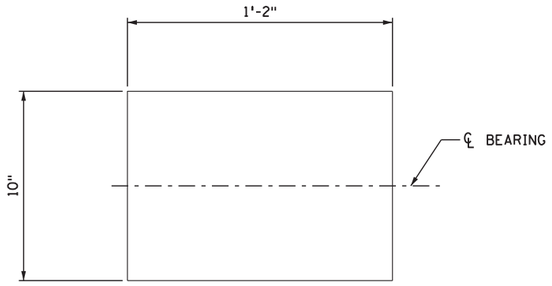
Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

TITLE: INTERIOR STRINGER REPLACEMENT ALTERNATE DETAILS (4 OF 5)

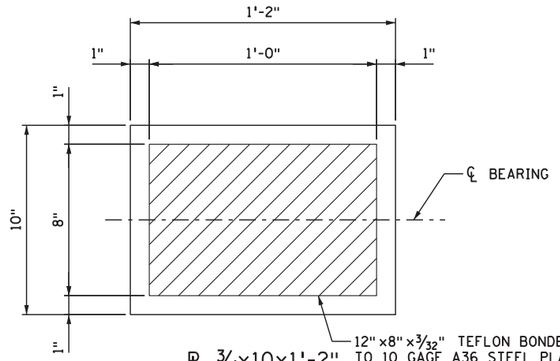
DES: SAO	DR: DPC	APPROVED:
CHK: DPC	CHK: SLN	

SHEET NO. 26 OF 27 SHEETS

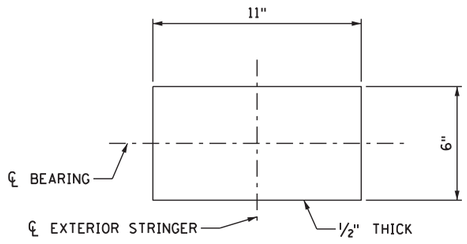
BRIDGE NO. 93835



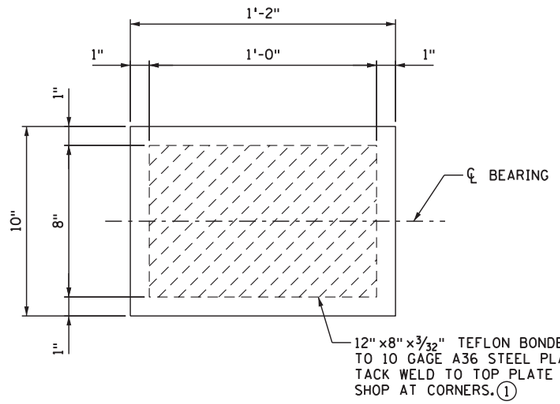
PL 1x10x1'-2"
WITHOUT TEFLON



PL 3/4x10x1'-2"
WITH TEFLON



ELASTOMERIC BEARING PAD



BEARING PL 1x10x1'-2"

BILL OF MATERIALS - RECONSTRUCT BEARINGS
TOTAL FOR BOTH ABUTMENTS

ITEM	NO. REQ'D	LBS
PL 3/4x10x1'-2" (WITH TEFLON)	2	30 (2)
PL 1x10x1'-2" (WITHOUT TEFLON)	2	40 (2)
BEARING PL 1x10x1'-2"	2	40 (2)
1/2" ELASTOMERIC BEARING PAD	4	

NOTES:

BILL OF MATERIALS ARE LISTED FOR CONTRACTOR'S CONVENIENCE AND ARE NOT INTENDED TO BE COMPREHENSIVE MATERIAL SUMMARIES.

GALVANIZE STRUCTURAL STEEL BEARING ASSEMBLY AFTER FABRICATION, BUT BEFORE TEFLON IS ATTACHED, WHERE REQUIRED, PER MnDOT SPEC. 3394.

FOR EAST BEARINGS, SANDBLAST 10 GAGE STEEL PLATES AFTER GALVANIZING TO ACHIEVE A PROFILE TO ADHERE TEFLON TO.

PROVIDE STEEL PLATES PER MnDOT SPEC. 3306.

PROVIDE ELASTOMERIC MATERIALS AND PAD CONSTRUCTION PER MnDOT SPEC. 3741.

(1) TEFLON TO BE COVERED UP DURING SHIPMENT AND LIFTING TO AVOID DAMAGE TO THE TEFLON PRIOR TO BRIDGE PLACEMENT.

(2) WEIGHT PER ONE.

REVISIONS	DATE	BY

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
LIC. NO. 42330
PRINTED OR TYPED NAME SARA L. NELSON DATE 9/12/2017

Olson & Nesvold Engineers, P.S.C.
7825 Washington Ave. S., Suite 100
Bloomington, MN 55439-2431

TITLE:
INTERIOR STRINGER REPLACEMENT
ALTERNATE DETAILS (5 OF 5)

DES: SAO	DR: DPS	APPROVED:
CHK: DPC	CHK: SLN	

SHEET NO. 27 OF 27 SHEETS

BRIDGE NO. 93835

Plotted by: Dan.Crawford
Plotted on: 9/12/2017 at 12:38:55 PM
File path: \\oneserver\public\projects\1114-1-mpls boom island\2 - production\c - work\cd\BR93835_DET006a.dgn

EXISTING

	IRON PIPE MONUMENT SET		ELECTRIC TRANSFORMER		SEMAPHORE TRAFFIC LIGHT
	MONUMENT FOUND	EV	EXHAUST VENT		SIGNAL BOX
	CAST IRON MONUMENT FOUND		FLAG POLE		SIGNAL POLE - RR
	STONE MONUMENT FOUND		FILL PIPE		SOIL BORING
	POST SET	G	GAS MANHOLE		SIREN
	BENCH MARK		GAS REGULATOR		SPRINKLER HEAD
AS	AUTO SPRINKLER		GAS VALVE	D	STORM MANHOLE
	ANTENNA		GAS METER	T	TELEPHONE MANHOLE
	AIR CONDITIONER		ACCESS GRATE		PUBLIC TELEPHONE
	ANCHOR		HANDICAPPED PARKING		TILE INLET
AP	AIR PUMP		HAND HOLE		TILE RISER
	APRON		HYDRANT		TRAFFIC ARM BARRIER
	BASKETBALL HOOP		IRRIGATION CONTROL VALVE		TRAFFIC SIGN
	BIRD FEEDER		LIGHT DECORATIVE		TRANSMISSION TOWER
	BENCH		LIGHT POLE		UTILITY POLE
	BRACE POLE	MB	MAILBOX		VACUUM
	CATCH BASIN	M	METER	V	VENT PIPE
	CLOTHES LINE POLE		POST		DECIDUOUS TREE
	CONTROL POINT	U	MANHOLE		CONIFEROUS TREE
	CLEAN OUT	L	LIFT STATION MANHOLE	S	STUMP
CP	COMMUNICATION PEDESTAL		MONITORING WELL		BUSH
	CURB STOP VALVE		ORDER MICROPHONE	A	WELL
	DITCH TOP		PARK GRILL	W	WATER MANHOLE
	DRINKING FOUNTAIN		GAS PUMP	M	WATER METER
	DOWN SPOUT		POST INDICATOR VALVE		WATER SPIGOT
E	ELECTRIC MANHOLE		PARKING METER		WATER VALVE
E	ELECTRIC METER	S	SANITARY MANHOLE		WETLAND / MARSH
E	ELECTRIC PEDESTAL		SATELLITE DISH		WETLAND - DELINEATED

OHE	OVERHEAD ELECTRIC LINE		EASEMENT LINE
UGE	UNDERGROUND ELECTRIC LINE		BUILDING SETBACK LINE
G	GAS LINE	x x x x	FENCE LINE
FO	FIBER OPTIC LINE	O C O O	GUARD RAIL
UGC	UNDERGROUND COMMUNICATIONS LINE		ACCESS CONTROL LINE
OHU	OVERHEAD UTILITY LINE		CENTERLINE
W	WATER SYSTEM		PROPERTY / LOT LINE
	STORM SEWER		ROAD RIGHT-OF-WAY LINE
	TILE LINE		RAILROAD RIGHT-OF-WAY LINE
	SANITARY SEWER		GRAVEL EDGE
	SANITARY FORCEMAIN		BITUMINOUS EDGE
	CULVERT		CONCRETE EDGE
	INTERMEDIATE CONTOURS		CURB & GUTTER
	INDEX CONTOURS		WATER EDGE
	COUNTY LINE		WATER CENTERLINE
	CITY LIMITS		HIGHWATER LINE
	SIXTEENTH LINE		WETLAND EDGE
	QUARTER LINE		SWALE CENTERLINE
	SECTION LINE		RAILROAD TRACKS
	ADJACENT LINES		TREE DRIP LINE

PROPOSED

22+00	ALIGNMENT/CENTERLINE
	CONSTRUCTION LIMITS
	DESIGN V CURB
	SILT FENCE-PREASSEMBLED
	BIO LOG

H:\OLSONNES_PR\T11111655\CAD\C3D\1116556002 - legend.dwg 1/5/2017 8:45 AM

BOLTON & MENK
12224 NICOLLET AVENUE
BURNSVILLE, MINNESOTA 55337
Phone: (952) 890-0509
Email: Burnsville@bolton-menk.com
www.bolton-menk.com

REV	ISSUED FOR	DATE

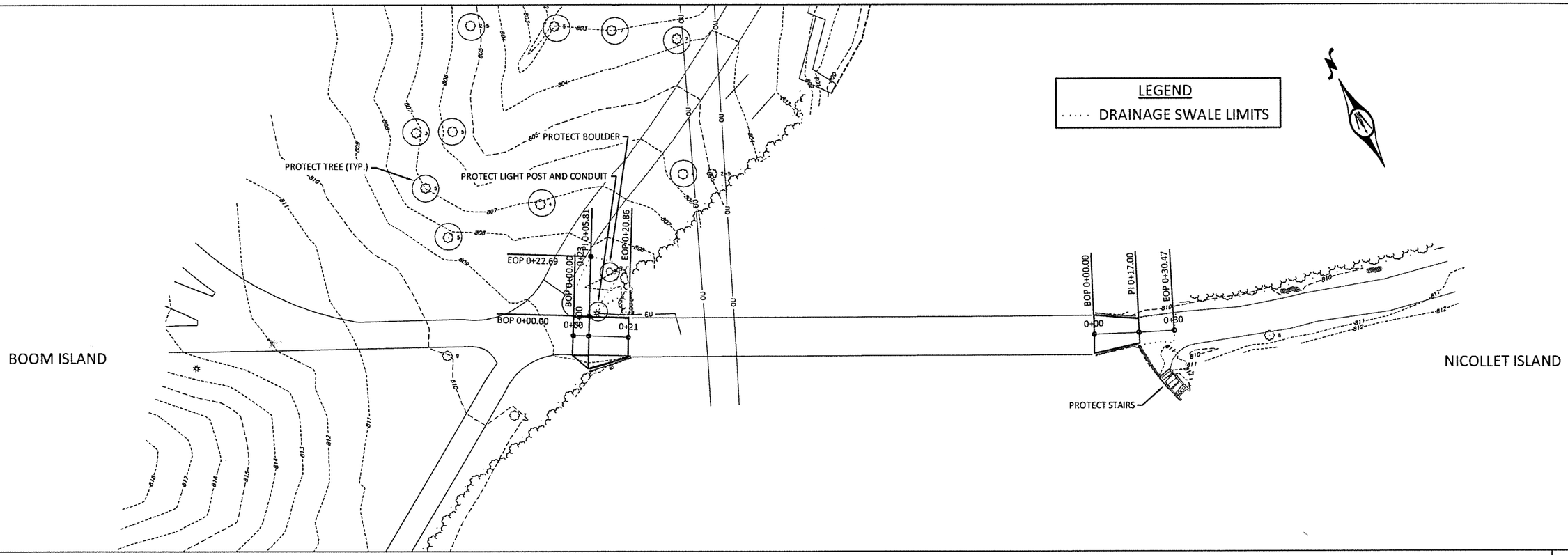
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

JOHN W. MORAST
LIC. NO. 50518 DATE 9/12/17

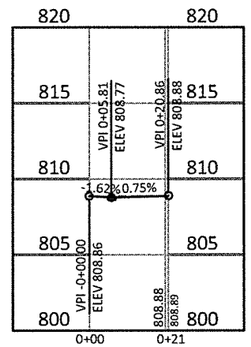
DESIGNED	JWM
DRAWN	SER
CHECKED	JWM

MINNEAPOLIS PARK AND RECREATION BOARD
BRIDGE 93835 REHABILITATION
LEGEND

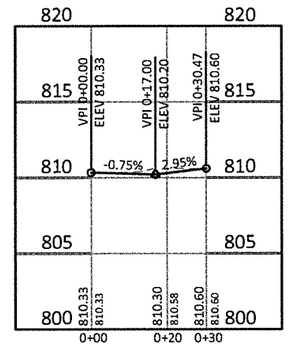
SHEET G0.01



TRAIL PROFILE



GRAVEL PATH PROFILE



HORZ. SCALE 0 20 40 FEET
VERT. SCALE 0 5 10 FEET

H:\OLSONNES_PA\T11111655\CAD\C3D\111655_COR1 - conc - Copy (2) 5-8.dwg 7/6/2017 2:25 PM

BOLTON & MENK
12224 NICOLLET AVENUE
BURNSVILLE, MINNESOTA 55337
Phone: (952) 890-0509
Email: Burnsville@bolton-menk.com
www.bolton-menk.com

REV	ISSUED FOR	DATE

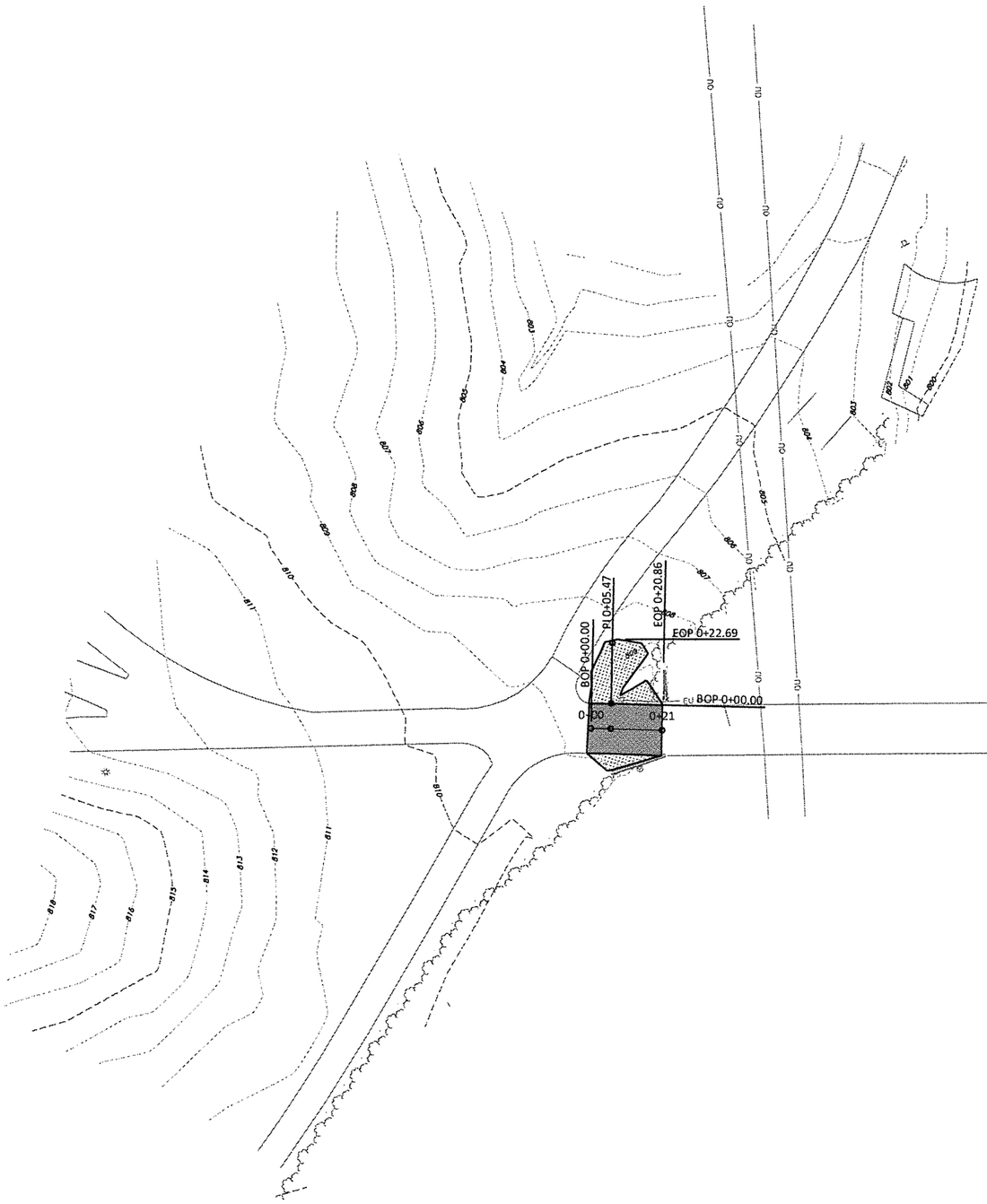
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

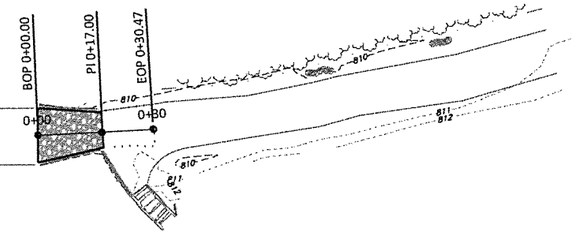
JOHN W. MORAST
LIC. NO. 50518 DATE 9/12/17

DESIGNED	JWM
DRAWN	SER
CHECKED	JWM

MINNEAPOLIS PARK AND RECREATION BOARD
BOOM 93835 REHABILITATION
PLAN AND PROFILE

SHEET C1.01





LEGEND

- REMOVE BITUMINOUS TRAIL
- REMOVE GRAVEL TRAIL
- REMOVE GRASS
- DRAINAGE SWALE LIMITS

CONSTRUCTON NOTES:

1) THE EXACT REMOVAL LIMITS OF PATH SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER. BITUMINOUS SURFACES DESIGNATED FOR REMOVAL SHALL BE SAW CUT TO FULL DEPTH OF SURFACE PRIOR TO REMOVAL.
2) EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO BEGINNING OF ANY EARTH DISTURBANCE.
3) ALL CONSTRUCTION RELATED TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO BEGINNING OF ANY PORTION OF DEMOLITION.
4) CONTRACTOR SHALL PROTECT ALL ITEMS NOT DESIGNATED FOR REMOVAL. ANY ITEMS THAT ARE DAMAGED OR REMOVED WITHOUT PRIOR CONSENT OF THE ENGINEER SHALL BE REPAIRED OR REPLACED TO NEW OR LIKE NEW CONDITIONS AT NO COST TO OWNER.
5) PROTECT TRAIL STEPS DURING CONSTRUCTION AND MAINTAIN ACCESS TO STAIRS.
6) WOOD WALLS ARE IN PLACE TIMBER WALLS. SEE BRIDGE PLANS.
7) REGRADE EXISTING GRAVEL TRAIL TO DRAIN AND MATCH EXISTING TRAIL.

TOP SOIL CONSTRUCTION NOTE:

1) DURING EXCAVATION TOPSOIL SHALL BE STOCKPILED SEPARATELY, CARE SHOULD BE TAKEN DURING EXCAVATION/BACKFILLING OPERATIONS NOT TO BLEND IN CLAYS, SAND, ETC, WITH TOP SOIL.
2) A MINIMUM OF 6" OF TOPSOIL SHALL BE PLACED OVER ALL EXCAVATED DISTURBED AREAS PRIOR TO ANY SEEDING OPERATIONS.

HORZ. SCALE 0 20 40 FEET

H:\OLSONNES_PA\T11111655\CAD\C3D\111655_BSN1 Removal.dwg 7/6/2017 12:56 PM

BOLTON & MENK
12224 NICOLLET AVENUE
BURNSVILLE, MINNESOTA 55337
Phone: (952) 890-0509
Email: Burnsville@bolton-menk.com
www.bolton-menk.com

REV	ISSUED FOR	DATE

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

JOHN W. MORAST
LIC. NO. 50518 DATE 9/12/17

DESIGNED JWM
DRAWN SER
CHECKED JWM

MINNEAPOLIS PARK AND RECREATION BOARD
BRIDGE 93835 REHABILITATION
REMOVALS

SHEET C2.01

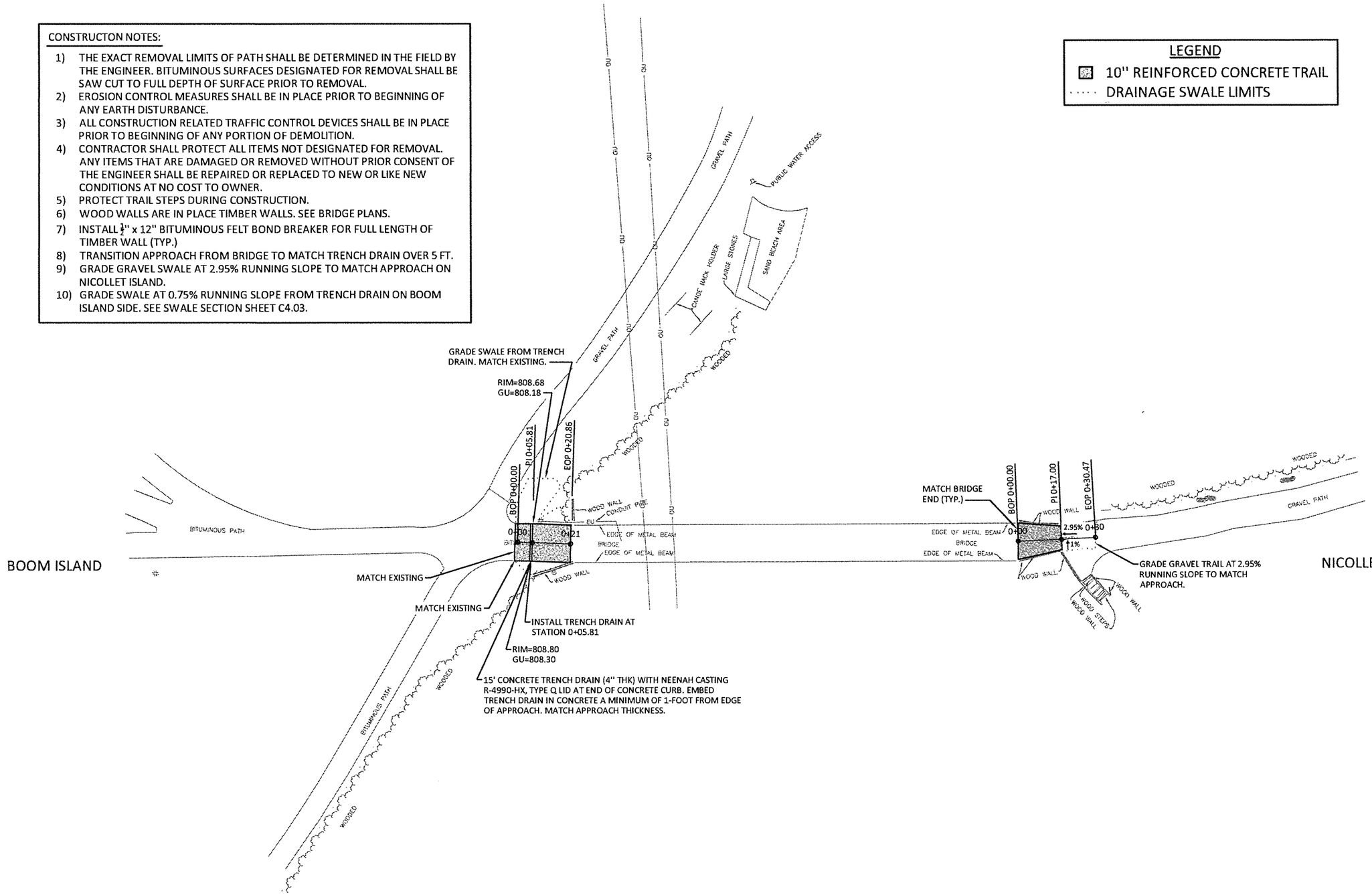
CONSTRUCTON NOTES:

1) THE EXACT REMOVAL LIMITS OF PATH SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER. BITUMINOUS SURFACES DESIGNATED FOR REMOVAL SHALL BE SAW CUT TO FULL DEPTH OF SURFACE PRIOR TO REMOVAL.
2) EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO BEGINNING OF ANY EARTH DISTURBANCE.
3) ALL CONSTRUCTION RELATED TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO BEGINNING OF ANY PORTION OF DEMOLITION.
4) CONTRACTOR SHALL PROTECT ALL ITEMS NOT DESIGNATED FOR REMOVAL. ANY ITEMS THAT ARE DAMAGED OR REMOVED WITHOUT PRIOR CONSENT OF THE ENGINEER SHALL BE REPAIRED OR REPLACED TO NEW OR LIKE NEW CONDITIONS AT NO COST TO OWNER.
5) PROTECT TRAIL STEPS DURING CONSTRUCTION.
6) WOOD WALLS ARE IN PLACE TIMBER WALLS. SEE BRIDGE PLANS.
7) INSTALL ½" x 12" BITUMINOUS FELT BOND BREAKER FOR FULL LENGTH OF TIMBER WALL (TYP.)
8) TRANSITION APPROACH FROM BRIDGE TO MATCH TRENCH DRAIN OVER 5 FT.
9) GRADE GRAVEL SWALE AT 2.95% RUNNING SLOPE TO MATCH APPROACH ON NICOLLET ISLAND.
10) GRADE SWALE AT 0.75% RUNNING SLOPE FROM TRENCH DRAIN ON BOOM ISLAND SIDE. SEE SWALE SECTION SHEET C4.03.

LEGEND

10" REINFORCED CONCRETE TRAIL

DRAINAGE SWALE LIMITS



HORZ. SCALE 0 20 40 FEET

H:\OLSONNES_PR\T11111655\CAD\C3D\111655_BSN1_trail improvements.dwg 7/6/2017 4:11 PM

BOLTON & MENK
12224 NICOLLET AVENUE
BURNSVILLE, MINNESOTA 55337
Phone: (952) 890-0509
Email: Burnsville@bolton-menk.com
www.bolton-menk.com

REV	ISSUED FOR	DATE

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

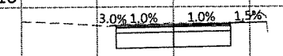
JOHN W. MAASS LIC. NO. 50518 DATE 9/12/17

DESIGNED JWM
DRAWN SER
CHECKED JWM

MINNEAPOLIS PARK AND RECREATION BOARD
BRIDGE 93835 REHABILITATION
TRAIL IMPROVEMENTS

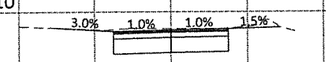
SHEET C3.01

STA 0+12



EXIST EL = 808.92
DESIGN EL = 808.82

STA 0+08



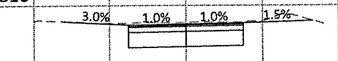
EXIST EL = 808.90
DESIGN EL = 808.79

LEGEND

EXISTING SURFACE

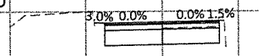
PROPOSED SURFACE

STA 0+05.81



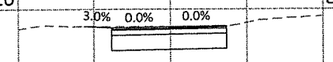
EXIST EL = 808.91
DESIGN EL = 808.77

STA 0+20.86



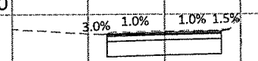
EXIST EL = 808.88
DESIGN EL = 808.88

STA 0+00



EXIST EL = 808.9
DESIGN EL = 808.86

STA 0+16



EXIST EL = 808.91
DESIGN EL = 808.84

HORIZ. SCALE 0 10 20 FEET

VERT. SCALE 0 5 10 FEET

X:\C302014\Template\Plan Production\BMI - XSection.dwg 2/25/14 1:46 pm

BOLTON & MENK
12224 NICOLLET AVENUE
BURNSVILLE, MINNESOTA 55337
Phone: (952) 890-0509
Email: Burnsville@bolton-menk.com
www.bolton-menk.com

REV	ISSUED FOR	DATE

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

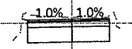
JOHN W. MORAST
LIC. NO. 50518 DATE 9/12/17

DESIGNED JWM
DRAWN SER
CHECKED JWM

MINNEAPOLIS PARK AND RECREATION BOARD
BRIDGE 93835 REHABILITATION
BOOM ISLAND CONCRETE APPROACHES

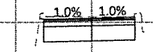
SHEET C4.01

STA 0+12



EXIST EL = 810.40
DESIGN EL = 810.24

STA 0+08



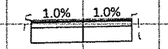
EXIST EL = 810.36
DESIGN EL = 810.27

LEGEND

EXISTING SURFACE

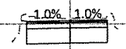
PROPOSED SURFACE

STA 0+04



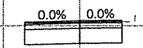
EXIST EL = 810.32
DESIGN EL = 810.30

STA 0+17



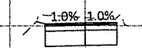
EXIST EL = 810.54
DESIGN EL = 810.20

STA 0+00



EXIST EL = 810.33
DESIGN EL = 810.33

STA 0+16



EXIST EL = 810.55
DESIGN EL = 810.21

HORIZ. SCALE 0 10 20 FEET

VERT. SCALE 0 5 10 FEET

X:\C3D2014\Template\Plan Production\BMI - XSection.dwg 2/25/14 1:46 pm

BOLTON & MENK
12224 NICOLLET AVENUE
BURNSVILLE, MINNESOTA 55337
Phone: (952) 890-0509
Email: Burnsville@bolton-menk.com
www.bolton-menk.com

REV	ISSUED FOR	DATE

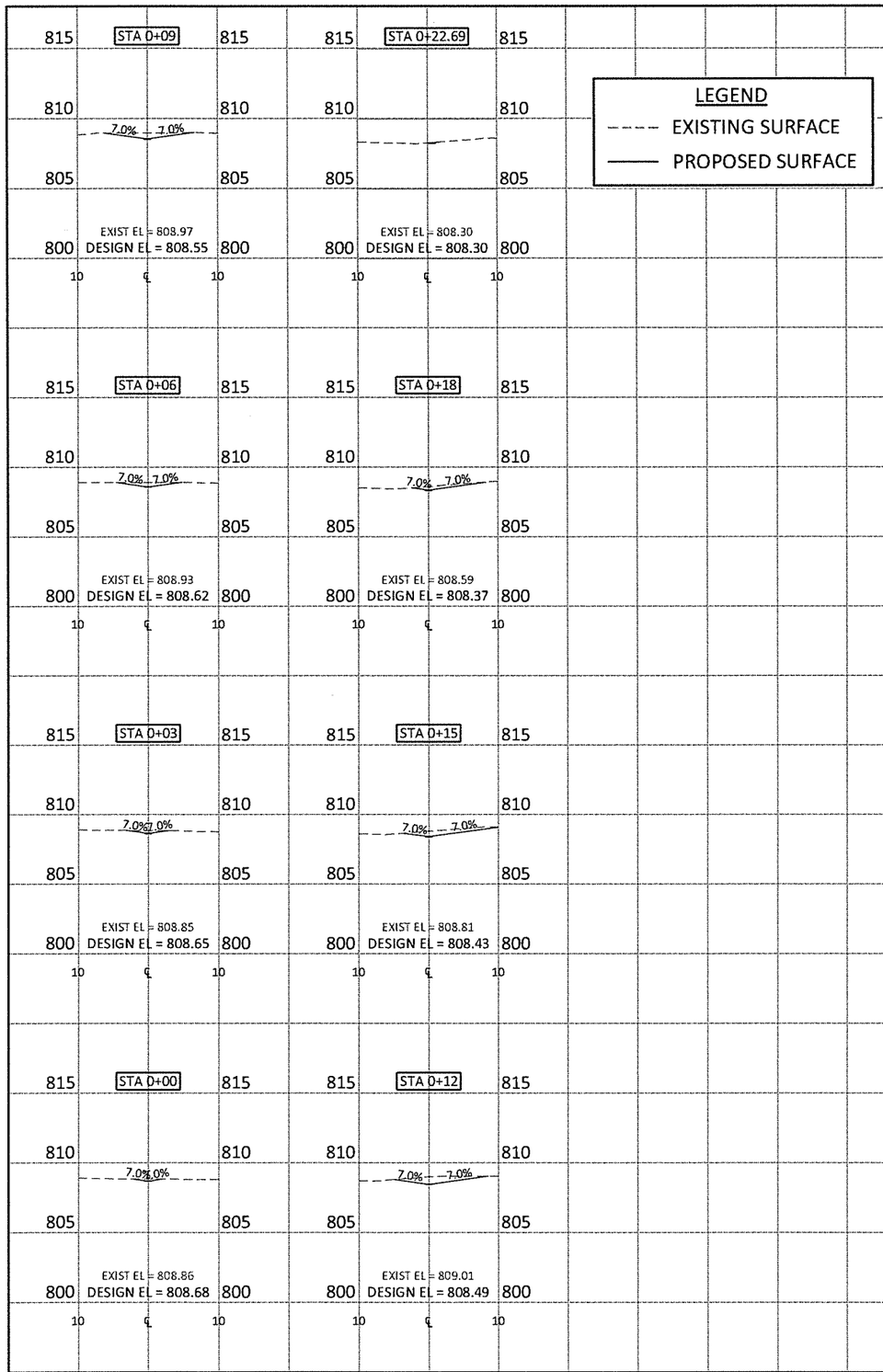
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

JOHN W. MORAST
LIC. NO. 50518
DATE 9/12/17

DESIGNED	JWM
DRAWN	SER
CHECKED	JWM

MINNEAPOLIS PARK AND RECREATION BOARD
BRIDGE 93835 REHABILITATION
NICOLLET ISLAND CONCRETE APPROACH SECTIONS

SHEET
C4.02



HORIZ. 0 10 20 SCALE FEET

VERT. 0 5 10 SCALE FEET

X:\C3D2014\Template\Plan Production\BMI - XSection.dwg 2/25/14 1:46 pm

BOLTON & MENK
12224 NICOLLET AVENUE
BURNSVILLE, MINNESOTA 55337
Phone: (952) 890-0509
Email: Burnsville@bolton-menk.com
www.bolton-menk.com

REV	ISSUED FOR	DATE

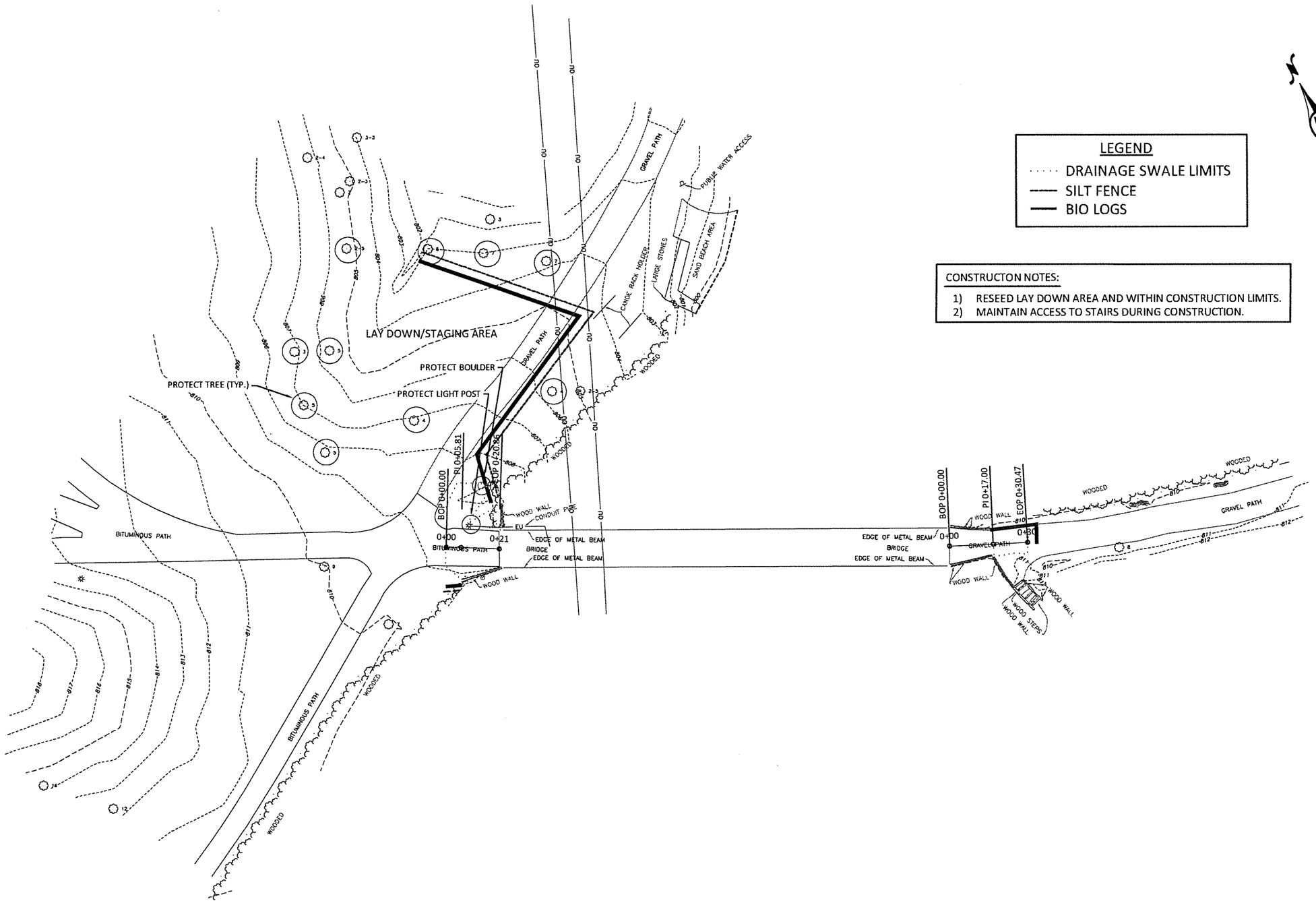
I HEREBY CERTIFY THAT THIS SEAL, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

JOHN W. MOORST
LIC. NO. 50518 DATE 9/12/17

DESIGNED JWM
DRAWN SER
CHECKED JWM

MINNEAPOLIS PARK AND RECREATION BOARD
BRIDGE 93835 REHABILITATION
SWALE SECTIONS

SHEET C4.03



0 20 40
HORZ. SCALE FEET

H:\OLSONNES_PR\T11111655\CAD\C3D\111655_Erosion Control.dwg 7/5/2017 9:19 AM

BOLTON & MENK
12224 NICOLLET AVENUE
BURNSVILLE, MINNESOTA 55337
Phone: (952) 890-0509
Email: Burnsville@bolton-menk.com
www.bolton-menk.com

REV	ISSUED FOR	DATE

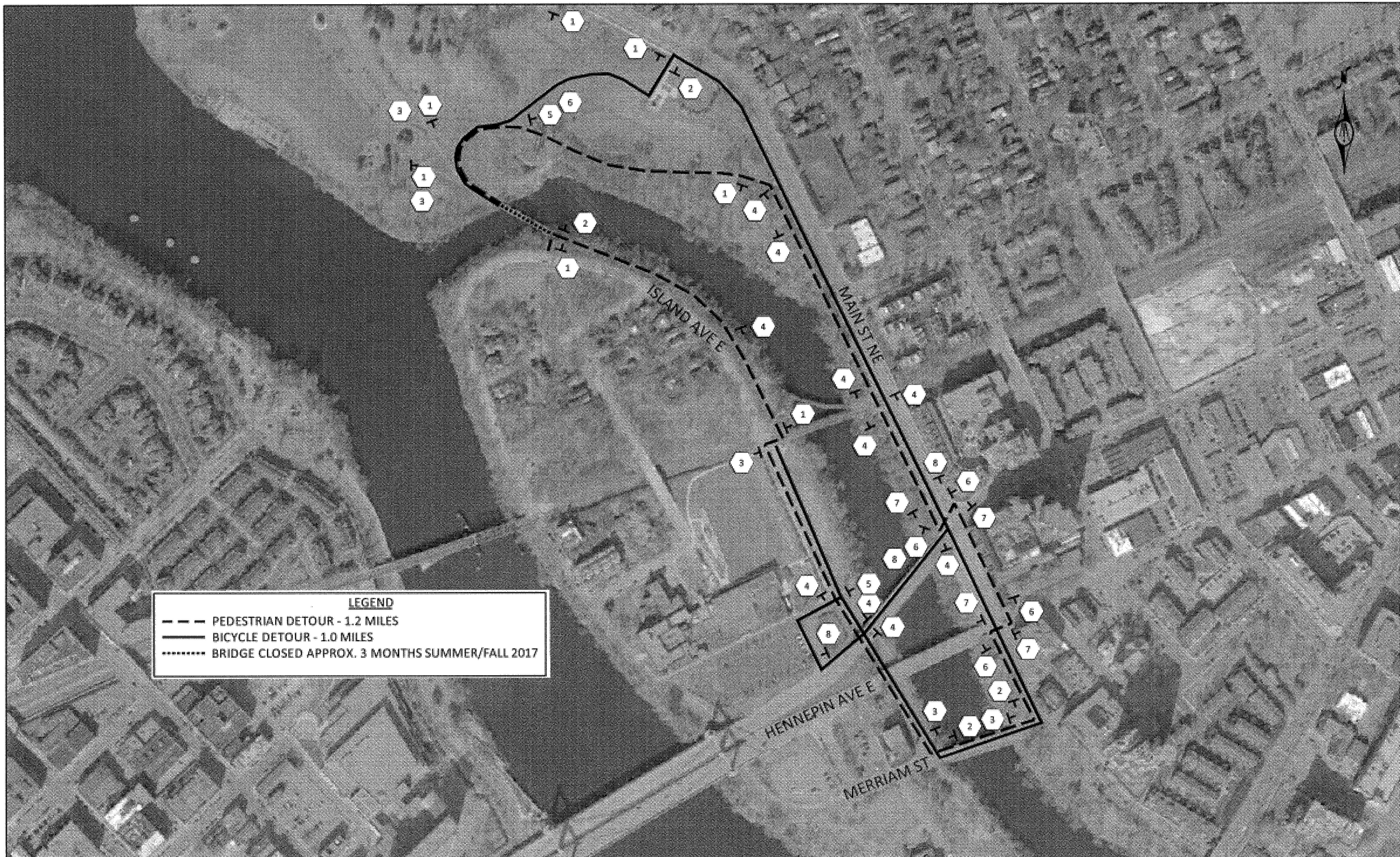
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

JOHN W. MORAST
LIC. NO. 50518 DATE 9/12/17

DESIGNED	JWM
DRAWN	SER
CHECKED	JWM

MNNEAPOLIS PARK AND RECREATION BOARD
BRIDGE 93835 REHABILITATION
EROSION CONTROL & TURF ESTABLISHMENT

SHEET C5.01



HORZ. 0 100 200 SCALE FEET

BOLTON & MENK
12224 NICOLLET AVENUE
BURNSVILLE, MINNESOTA 55337
Phone: (952) 890-0509
Email: Burnsville@bolton-menk.com
www.bolton-menk.com

JOHN W. MORAST 50518 9/12/17

DESIGNED JWM | DRAWN SER | CHECKED JWM

MINNEAPOLIS PARK AND RECREATION BOARD

BRIDGE 93835 REHABILITATION

PEDESTRIAN/BIKE DETOUR PLAN

SHEET C6.01

STAGE 1 TABULATION

ID.	SIGN ASSEMBLY	DESIGNATOR / SIZE	QUANT.
1		R11-2 48" X30" TYPE-III BARRICADE (3 EA)	7
2		M4-9 30" X24"	4
3		M4-9mATL 30" X24"	5
4		M4-9mT 30" X24"	10
5		M4-9cL 30" X24"	2
6		M4-9bR 30" X24"	5
7		M4-9bL 30" X24"	4
8		M4-9cR 30" X24"	3

NOTE: DETAILS ARE NOT TO SCALE

H:\OLSONNES_PR\T11111655\CAD\C3D\111655_DET2.dwg 1/13/2017 10:47 AM

BOLTON & MENK
12224 NICOLLET AVENUE
BURNSVILLE, MINNESOTA 55337
Phone: (952) 890-0509
Email: Burnsville@bolton-menk.com
www.bolton-menk.com

REV	ISSUED FOR	DATE

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

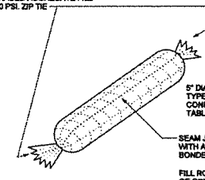
JOHN W. MORAST
LIC NO 50518 DATE 7/12/17

DESIGNED	JWM
DRAWN	SER
CHECKED	JWM

MINNEAPOLIS PARK AND RECREATION BOARD
BRIDGE 93835 REHABILITATION
PEDESTRIAN/BIKE DETOUR PLAN

SHEET
C6.02

ENDS SECURELY CLOSED TO PREVENT LOSS OF OPEN GRADED AGGREGATE FILL SECURED WITH 50 PSI. ZIP TIE

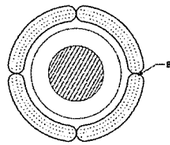


5" DIAMETER GEOTEXTILE SOCK, TYPE WOVEN MONOFILAMENT, CONFORMING TO MNDOT SPEC. 3886, TABLE 3886-1, MACHINE SLICE

SEAM JOINED BY TWO ROWS OF STITCHING WITH A PLASTIC MESH BACKING OR HEAT BONDED (OR APPROVED EQUIVALENT)

FILL ROCK LOG WITH 45 LBS. OF OPEN GRADED AGGREGATE CONSISTING OF SOUND, DURABLE PARTICLES OF CRUSHED QUARRY ROCK OR GRAVEL CONFORMING TO THE FOLLOWING GRADATION

INLET PROTECTION WITH FILTER LOG
DO NOT USE IN LIVE TRAFFIC AREAS



BUTT JOINTS

GRADATION	
SIEVE SIZE	PERCENT PASSING
1 1/2 INCH	100
1 INCH	95-100
3/4 INCH	65-95
3/8 INCH	30-65
NO. 4	10-35
NO.10	5-20
NO. 40	0-8
NO. 200	0-3

NOTE: CRUSHED CONCRETE OR BITUMINOUS SHALL NOT BE USED FOR OPEN GRADED AGGREGATE.

PAYMENT SHALL INCLUDE ALL MATERIALS, FILLING OF LOG, PLACEMENT, MAINTENANCE, & REMOVAL. 50% OF BID PRICE SHALL BE PAID UPON PROPER PLACEMENT WITH THE FINAL 20% PAID UPON REMOVAL.

FILTER LOGS MNDOT SPEC. 3897

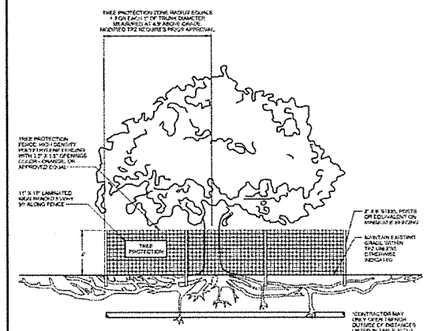
STRAW BIOROLL — GRAIN AND SEED FREE OF WEEDS, 6-8 MONTH POLYPROPYLENE NETTING
WOOD FIBER BIOROLL — EXCELSIOR FIBER LOG, 6-8 MONTH POLYPROPYLENE NETTING
COMPOST LOG — 30-40% WEED FREE COMPOST (3890, GRADE 2), 8" DIAMETER GEOTECHNICAL CYLINDRICAL BAG
ROCK LOG — 4"-8" DIAMETER, SEE SIEVE SIZE CHART ABOVE

FIBER LOG MNDOT SPEC. 3895
12" DIAMETER COCONUT FIBER (COIR).
OUTER COIR NETTING REQUIRED, MINIMUM 5 YEAR LIFE

MINNEAPOLIS CUSTOM
MNDOT SPEC. REF. 3897
NOT TO SCALE

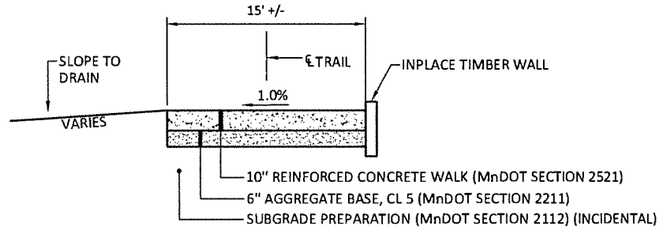
MINNEAPOLIS DEPARTMENT OF PUBLIC WORKS		SEDIMENT CONTROL – FILTER LOG	STANDARD PLATE NO. SEWR-8006
DRAWN: DCD	DATE: 3/03		
APPROVED: HRS	DATE: 4/07		

NOTES:
① SEE SPECIFICATIONS FOR ADDITIONAL TREE PROTECTION REQUIREMENTS.
② TREE PROTECTION FENCE MUST BE MAINTAINED UNTIL COMPLETION OF WORK.
③ NO TREE PRUNING SHALL BE DONE EXCEPT BY MPRB PRUNING PERMIT.
④ NO STORAGE OF MATERIALS OR OPERATION OF EQUIPMENT MAY TAKE PLACE INSIDE TPZ.

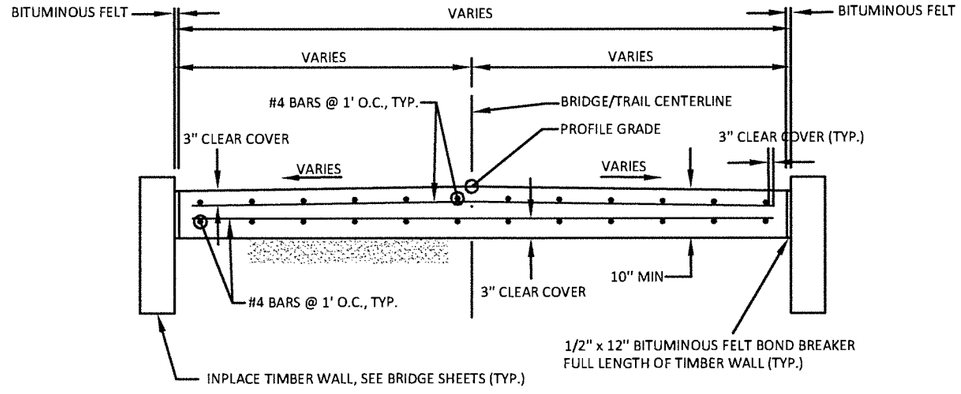


Minneapolis		DRAWN: EP	DATE: 2/19/16	TREE PROTECTION ZONE (TPZ)	STANDARD PLATE NO. FORE-1001
		APP: RCS	DATE: 2/19/16		

15' +/-

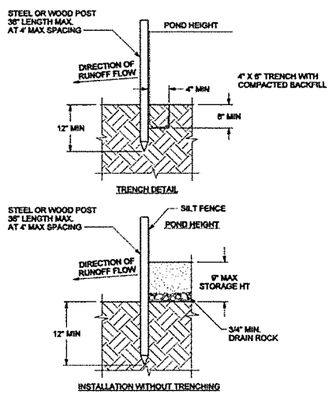


REINFORCED CONCRETE TRAIL
NOT TO SCALE
(SEE DETAIL BELOW FOR REINFORCEMENT)



REINFORCED CONCRETE TRAIL DETAIL
NOT TO SCALE

SILT FENCE INSTALLATION



USE HI-FLOW FILTER FABRIC, 200 GAL. PER MINUTE PER SQUARE FOOT

NOTES:
1. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
2. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY, REQUIRED WHEN 1/3 FULL WITHIN 24 HOURS OF DISCOVERY. 9" MAXIMUM RECOMMENDED STORAGE HEIGHT.
3. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND PERMANENTLY STABILIZED ALSO SEE SEWR-8000.

REFERENCES:
MINNESOTA URBAN SMALL SITES BMP MANUAL
MNDOT EROSION CONTROL HANDBOOK

MINNEAPOLIS CUSTOM
MNDOT SPEC. REF. 2573, 3886, 3886.2 TYPE I
NOT TO SCALE

MINNEAPOLIS DEPARTMENT OF PUBLIC WORKS		SEDIMENT CONTROL – SILT FENCE	STANDARD PLATE NO. SEWR-8001
DRAWN: CKD	DATE: 3/03		
APPROVED: HRS	DATE: 4/07		

EROSION AND SEDIMENT CONTROL NOTES

INSTALL PERIMETER EROSION CONTROLS AS INDICATED IN PLANS PRIOR TO START OF WORK. HAY BALES ARE NOT ALLOWED AS EROSION & SEDIMENT CONTROL DEVICE IN MINNEAPOLIS.

ESTABLISH ROCK CONSTRUCTION ENTRANCES PRIOR TO BEGINNING LAND DISTURBING ACTIVITIES. 1 1/2" - 3" WASHED AGGREGATE IS RECOMMENDED FOR ROCK ENTRANCES, A GEOTEXTILE FABRIC IS REQUIRED.

REMOVE ALL SOILS AND SEDIMENTS DEPOSITED ONTO PUBLIC AND/OR PRIVATE PAVEMENT AREAS WITHIN 24 HOURS OF DEPOSITION. REMOVAL OF TRACKING MATERIALS SHALL BE COMPLETED AT THE END OF EACH WORK DAY WHEN TRACKING OCCURS. SWEEPING MAY BE ORDERED AT ANY TIME IF CONDITIONS WARRANT. SWEEPING SHALL BE MAINTAINED THROUGHOUT THE DURATION OF CONSTRUCTION AND IN SUCH A MANNER TO PREVENT DUST BEING BLOWN TO ADJACENT PROPERTIES.

INSTALL INLET PROTECTION IN ALL DOWNSTREAM CATCH BASINS WHICH RECEIVE RUNOFF FROM THE DISTURBED AREA. CATCH BASIN INSERTS ARE REQUIRED AT ALL LOCATIONS NOT WITHIN THE DISTURBED AREA WHICH RECEIVE RUNOFF (MNDOT TYPE C INLET PROTECTION). NOTE HAY BALES AND SILT FENCE WRAPPED GRATES ARE NOT EFFECTIVE AND ARE NOT APPROVED FOR USE AS INLET PROTECTION DEVICES.

LOCATE ALL SOIL AND DIRT PILES NO LESS THAN 25 FEET FROM ANY PUBLIC OR PRIVATE ROADWAY OR DRAINAGE CHANNEL. ALL STOCK PILES THAT REMAIN IN PLACE FOR 7 DAYS OR MORE SHALL BE STABILIZED BY MULCHING, VEGETATIVE COVER, TARPING OR OTHER MEANS. TEMPORARY STOCK PILES LOCATED ON PAVED SURFACES MUST BE AT LEAST 2 FEET OR MORE AWAY FROM THE DRAINAGE/GUTTER LINE AND SHALL BE COVERED IF REMAINING MORE THAN 24 HOURS.

MAINTAIN ALL TEMPORARY EROSION CONTROL DEVICES IN PLACE UNTIL THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED. INSPECT TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES ON A WEEKLY BASIS AND REPLACE DETERIORATED, DAMAGED OR ROTTED EROSION CONTROL DEVICES IMMEDIATELY.

MAINTENANCE OF EROSION AND SEDIMENT CONTROL DEVICES SHALL BE PERFORMED WHENEVER THE DEVICE IS 30% FULL. FAILURE TO MAINTAIN EROSION CONTROL DEVICES MAY LEAD TO FURTHER ENFORCEMENT ACTION. WEEKLY INSPECTIONS REQUIRED AND AFTER EACH 1/2" OR MORE RAIN EVENT WITHIN 24 HRS.

READY MIXED CONCRETE AND BATCH PLANT WASHOUTS PROHIBITED WITHIN THE PUBLIC RIGHT OF WAY. DESIGNATE CONCRETE WASHOUT AND MIXING LOCATIONS IN THE EROSION CONTROL PLANS. UNDER NO CIRCUMSTANCES MAY WASHOUT WATER DRAIN ONTO THE PUBLIC RIGHT OF WAY OR INTO THE PUBLIC STORM DRAIN.

TEMPORARILY OR PERMANENTLY STABILIZE ALL DENUDED AREAS WHICH HAVE BEEN FINISH GRADED WITHIN 7-14 DAYS (SLOPE DEPENDENT). USE SEEDING AND MULCHING, EROSION CONTROL MATTING AND/OR SODDING WITH TEMPORARY STAKING IN GREEN SPACE AREAS. USE EARLY APPLICATION OF GRAVEL BASE FOR AREAS DESIGNATED FOR PAVED SURFACING.

REMOVE ALL TEMPORARY SYNTHETIC, STRUCTURAL AND NON-BIODEGRADABLE EROSION AND SEDIMENT CONTROL AFTER THE SITE HAS UNDERGONE FINAL STABILIZATION AND PERMANENT VEGETATION HAS BEEN ESTABLISHED, MINIMUM VEGETATION COVER OF 70% REQUIRED. ALL TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES SHALL BE MAINTAINED UNTIL THE SITE HAS 70% ESTABLISHED VEGETATIVE COVER AND ALL PAVED AREAS HAVE BEEN STABILIZED WITH THE SELECTED PAVEMENT TYPE.

ADDITIONAL EROSION CONTROL MAY BE REQUIRED BY OTHER PERMITTING AGENCIES. IT IS THE RESPONSIBILITY OF THE PROJECT ENGINEER TO VERIFY THAT THE CITY AND ALL OTHER AGENCY REQUIREMENTS ARE MET.

MINNEAPOLIS CUSTOM
MNDOT SPEC. REF. 2573
NOT TO SCALE

MINNEAPOLIS DEPARTMENT OF PUBLIC WORKS		EROSION CONTROL NOTES	STANDARD PLATE NO. SEWR-8007
DRAWN: DCD	DATE: 9/08		
APPROVED: HRS	DATE: 3/07		

NOTE: DETAILS ARE NOT TO SCALE

H:\OLSONNES_P\T\111111655\CAD\C3D\111655_DETAILS.dwg 7/5/2017 6:24 PM

BOLTON & MENK
12224 NICOLLET AVENUE
BURNSVILLE, MINNESOTA 55337
Phone: (952) 890-0509
Email: Burnsville@bolton-menk.com
www.bolton-menk.com

REV	ISSUED FOR	DATE

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

JOHN W. MORAST
LIC. NO. 50518 DATE 9/12/17

DESIGNED	JWM
DRAWN	SER
CHECKED	JWM

MINNEAPOLIS PARK AND RECREATION BOARD
BRIDGE 93835 REHABILITATION
DETAILS

SHEET C7.01

EROSION PREVENTION PRACTICES

The location of areas not to be disturbed must be delineated on the project before site work begins.

Disturbance on steep slopes (>33.3%) shall be minimized. Where required, techniques such as phasing and stabilizing practices designed for steep slopes shall be used.

All exposed soils must be stabilized as soon as possible, but in no case later than 14 days after the construction activity has temporarily or permanently ceased.

For public waters that have been promulgated "work in water restrictions" during fish spawning time frames, all exposed soil areas that are within 200 feet of the water's edge, and drain to these waters must complete stabilization within 24-hours during the time period.

Stormwater conveyance channels shall be routed around unstabilized areas. Erosion controls and velocity dissipation devices shall be used at outlets within and along the length of any constructed conveyance channel.

The normal wetted perimeter of all ditches or swales, including storm water management pond slopes, that drain waters from the site must be stabilized within 200' of any property edge or discharge point, including storm sewer inlets, within 24 hours of connection.

Stabilization of the remaining portions of any temporary or permanent ditches or swales within 14 calendar days after connecting to a surface water or property edge and construction in that portion of the ditch has temporary or permanently ceased.

Temporary or permanent ditches or swales used as sediment containment during construction do not need to be stabilized during temporary period of use and shall be stabilized within 24 hours after no longer used as sediment containment.

Mulch, hydromulch, tackifier, or similar practice shall not be used in any portion of a temporary or permanent drainage ditch. Refer to erosion and sediment control plan for temporary and permanent stabilization measures for ditches and swales.

Stormwater discharges shall be directed to vegetated areas where feasible. Velocity dissipation devices shall be used at discharge point.

Phased construction will be used to extent practical or as indicated in the plans to minimize exposed soils.

Rapid stabilization shall be of type and quantity indicated in the project specifications. Additional rapid stabilization may be necessary to minimize erosion throughout the duration of the project. Type and quantity shall be determined by the engineer or inspector prior to installation. In extreme cases, the contractor shall use any available rapid stabilization to immediately mitigate erosion, then further remedy the situation with approval by owner or engineer.

SEDIMENT CONTROL PRACTICES

Practices must be established on all down gradient perimeters and be located up gradient of any buffer zones. Perimeter controls must be in place before up gradient land- disturbing activities begin and shall remain in place until final stabilization.

All sediment controls practices shall be re-installed if they have been adjusted or removed to accommodate short-term activities and replaced immediately after the short term activity has ceased. Short term activities shall be performed as quickly as possible. Sediment control practices shall be re-installed even before the next precipitation event if the activity is not complete.

All storm drains must be protected by appropriate BMPs during construction until all sources to the inlet have been stabilized. Inlet protection may be removed for specific safety concerns identified by the Permittee or jurisdictional authority. The removal shall be documented in the SWPPP and retained on site. Temporary stockpiles must have silt fence or other effective sediment controls and shall not be placed in surface waters or natural buffers.

Vehicle tracking BMPs shall be installed to minimize track out of sediment from the construction site. Method shall be approved by engineer prior to commencement of construction activities. Street sweeping shall be used if vehicle tracking BMPs are not adequate to prevent sediment from being tracked onto the street.

Soil compaction shall be minimized and topsoil shall be preserved, unless infeasible or if construction activities dictate soil compaction or topsoil stripping.

A 50 foot natural buffer, or redundant BMPs (where a buffer is infeasible) must be maintained when a surface water is located within 50 feet of disturbance activities and site runoff flows to the surface water.

If polymers, flocculants, or other sedimentation treatment chemicals are used on site, 1) conventional erosion and sediment controls shall be sowed prior to chemical placement, 2) chemicals shall be chosen based on soil types, and expected turbidity, pH, and flow rate of stormwater flowing into the treatment system, and 3) chemicals shall be used with accepted engineering practices and dosing specifications.

POLLUTION PREVENTION

Building products that have the potential to leach pollutants must be under cover to prevent discharge or protected by an effective means designed to minimize contact with stormwater.

Pesticides, herbicides, insecticides, fertilizers, treatment chemicals, and landscape materials must be under cover.

Hazardous materials and toxic waste must be properly stored in sealed containers to prevent spills, leaks or other discharge. Restricted access storage areas must be provided to prevent vandalism.

Solid waste must be stored, collected and disposed of in compliance with Minn. R. CH 7035.

Portable toilets must be positioned so that they are secure and will not be tipped or knocked over. Sanitary waste must be disposed of properly in accordance with Minn. R. CH 7041.

Discharge of spilled or leaked chemicals, including fuel, from any area where chemicals or fuel will be loaded or unloaded shall be prevented using drip pans or absorbents. Supplies shall be available at all times to clean up discharged materials and that an appropriate disposal method must be available for recovered spilled materials.

Exterior vehicle or equipment washing on the project site shall be limited to a defined area of the site. Runoff from the washing area shall be contained in a sediment basin or other similarly effective controls and waste from the washing activity must be properly disposed of. No engine degreasing is allowed on site. Effective containment for all liquid and solid wastes generated by concrete and other washout operations related to construction activity shall be effectively contained. Liquid and solid washout waste shall not contact the ground, and containment must be designed so that it does not result in runoff from the washout operations or areas. A sign must be installed adjacent to each washout facility that requires site personnel to utilize the proper facilities for disposal of concrete and other washout wastes.

INSPECTION & MAINTENANCE

A trained person shall routinely inspect the entire construction site at least once every 7 days during active construction and within 24-hours after a rainfall event greater than 0.5 inches in 24 hours. Following an inspection that occurs within 24-hours after a rainfall event, the next inspection must be conducted within 7 days.

All inspections and maintenance conducted during construction must be recorded within 24 hours in writing and records must be retained. Inspection report forms are available in the Project Specifications. Inspection report forms other than those provided shall be approved by the engineer.

Where parts of the project site have permanent cover, but work remains on other parts of the site, inspections may be reduced on these areas to once per month.

Where the site has permanent cover on all exposed areas and no construction activity is occurring anywhere on site, the site must be inspected during non-frozen conditions at least once per month for 12 months. Following the 12th month of permanent cover and no construction activity, inspections shall be terminated until construction activity resumes or notification from MPCA has been issued that erosion has been detected at the site.

During frozen ground conditions, inspections may be suspended and shall resume within 24 hours after runoff occurs or 24 hours prior to resuming construction activity, whichever is first.

Inspection and maintenance shall resume until another Permittee has obtained coverage under this Permit or the project has undergone Final Stabilization, and an NOT has been submitted.

All erosion prevention and sediment control BMPs shall be inspected to ensure integrity and effectiveness during all routine and post-rainfall inspections. All non-functioning BMPs must be repaired, replaced, or supplemented with functional BMPs by the end of the next business day after discovery, or as soon as field conditions allow access.

All perimeter control devices must be repaired, replaced, or supplemented when they become non-functional or the sediment reaches one-half (1/2) of the height of the device. These repairs must be made by the end of the next business day after discovery, or as soon as field conditions allow.

Temporary and permanent sediment basins must be drained and the sediment removed when the depth of sediment collected in the basin reaches one-half (1/2) the storage volume. Drainage and sediment removal must be completed within 72 hours of discovery, or as soon as field conditions allow.

Surface waters, including drainage ditches and conveyance systems, must be inspected for erosion and sediment deposition during each inspection. All deltas and sediment deposited in drainage ways, catch basins, and other drainage systems shall be removed. The removal and stabilization must take place within seven (7) days of discovery unless precluded by legal, regulatory, or physical access constraints. The Permittee is responsible for obtaining all applicable permits prior to conducting any work in surface waters.

Construction site vehicle exit locations must be inspected for evidence of off-site sediment tracking onto paved surfaces. Tracked sediment must be removed from all paved surfaces both on and off site within 24-hours of discovery, or if applicable, within a shorter time to comply with the permit.

Streets and other areas adjacent to the project must be inspected for evidence of off-site accumulations of sediment. If sediment is present, it must be removed in a manner and at a sufficient frequency to minimize off-site impacts.

All infiltration areas must be inspected to ensure that no sediment from ongoing construction activity is reaching the infiltration area and that equipment is not being driven across the infiltration area.

FINAL STABILIZATION

Final Stabilization is not complete until all of the following requirements have been met:

1. All soil disturbing activities at the site have been completed and all soils are stabilized by a uniform perennial vegetative cover with a density of 70% of its expected final growth density over the entire pervious surface area, or other equivalent means necessary to prevent soil failure under erosive conditions.
2. Permanent stormwater management system is constructed, meets all requirements of the Permit, and is operating as designed. Temporary or permanent sedimentation basins that are to be used as permanent water quality management basins have been cleaned of any accumulated sediment. All sediment has been removed from conveyance systems, and ditches are stabilized with permanent cover.
3. All temporary synthetic and structural erosion prevention and sediment control BMPs have been removed. BMPs designed to decompose on site may be left in place.
4. For residential construction only, individual lots are considered finally stabilized if the structure(s) are finished, temporary erosion protection and down gradient perimeter control has been completed and the residence has been sold to the homeowner. Also, the "Homeowner Fact Sheet" has been provided to the homeowner

H:\OLSONNES_PR\T11111655\CAD\C3D\111655_DETAILS.dwg 1/13/2017 5:08 PM

BOLTON & MENK
12224 NICOLLET AVENUE
BURNSVILLE, MINNESOTA 55337
Phone: (952) 890-0509
Email: Burnsville@bolton-menk.com
www.bolton-menk.com

REV	ISSUED FOR	DATE

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

JOHN W MORAST
LIC. NO. 50518 DATE 9/12/17

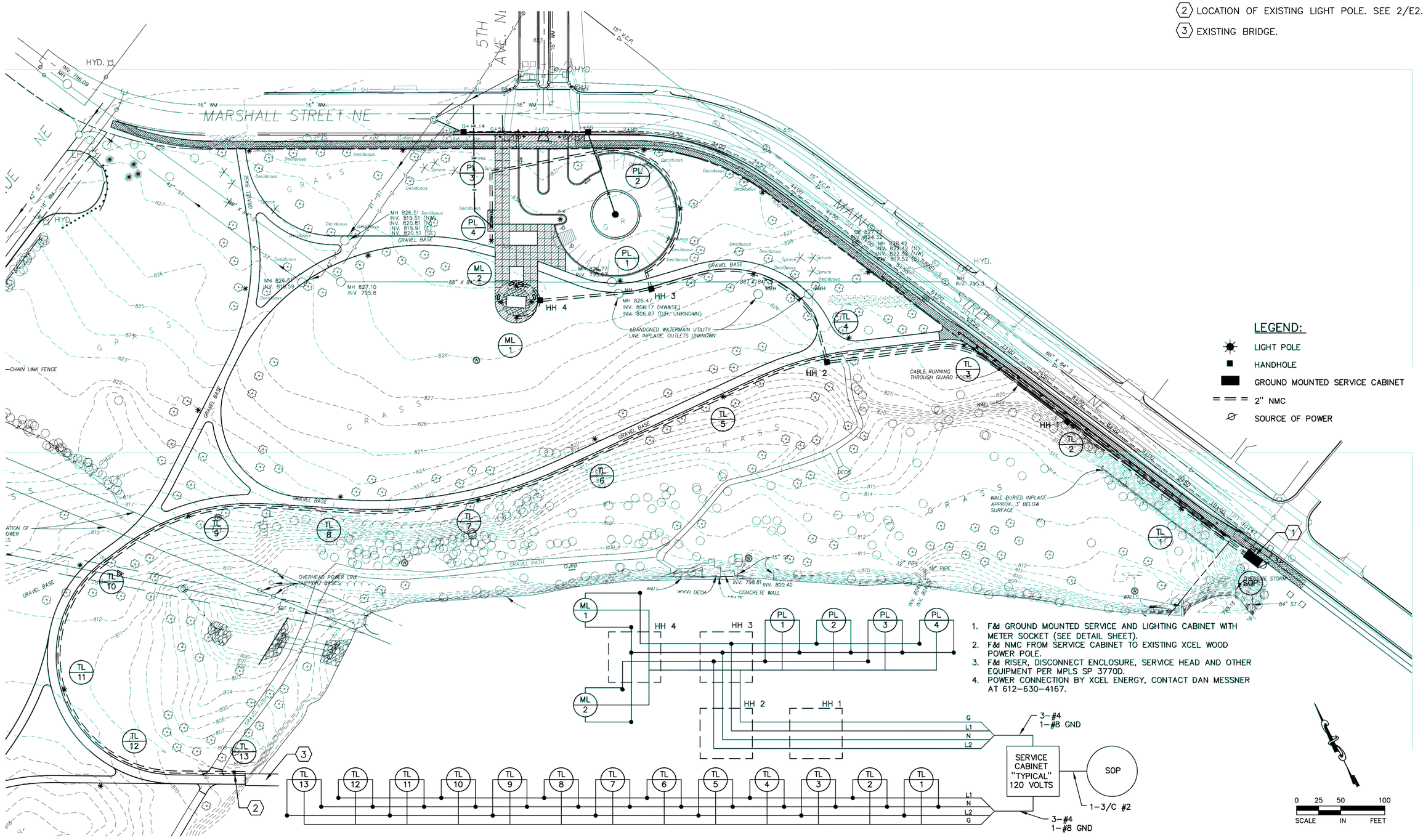
DESIGNED JWM
DRAWN SER
CHECKED JWM

MINNEAPOLIS PARK AND RECREATION BOARD
BRIDGE 93835 REHABILITATION
EROSION AND SEDIMENTATION CONTROL NOTES

SHEET C7.02

SPECIFIC NOTES:

1. EXISTING SERVICE CABINET.
2. LOCATION OF EXISTING LIGHT POLE. SEE 2/E2.
3. EXISTING BRIDGE.



LEGEND:

- LIGHT POLE
- HANDHOLE
- GROUND MOUNTED SERVICE CABINET
- = = = 2" NMC
- SOURCE OF POWER

1. F&I GROUND MOUNTED SERVICE AND LIGHTING CABINET WITH METER SOCKET (SEE DETAIL SHEET).
2. F&I NMC FROM SERVICE CABINET TO EXISTING XCEL WOOD POWER POLE.
3. F&I RISER, DISCONNECT ENCLOSURE, SERVICE HEAD AND OTHER EQUIPMENT PER MPLS SP 3770D.
4. POWER CONNECTION BY XCEL ENERGY, CONTACT DAN MESSNER AT 612-630-4167.

0 25 50 100
SCALE IN FEET

1 / E0 PARTIAL SITE PLAN – EXISTING CONDITION
SCALE: 1" = 50' FOR REFERENCE ONLY

0 50 100 Feet

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Engineer under the laws of the State of Minnesota.

Name Neal R. Wunderlich

Registration No. 14878 Date 1/24/17

Wunderlich-Malec
Engineering | Systems | Services
6101 Blue Circle Dr, Eden Prairie, MN 55343 Phone (952)933-3222 Fax (952)933-0606

SCALE	AS NOTED
DRAWN BY	WME
DATE	1/24/17
CHECKED BY	JRO
DATE	1/24/17
APPROVED BY	JRO
DATE	1/24/17

BRIDGE NO. 93835 REHABILITATION
MINNEAPOLIS PARK AND RECREATION BOARD
724 SIBLEY ST. NE
MINNEAPOLIS, MN 55413

PARTIAL SITE PLAN - EXISTING CONDITION

SHEET	E0
PROJECT NO.	1116051
DRAWING NO.	1116051-E0

3/E1 PHOTO – ELECTRICAL – DEMOLITION
SCALE: N.T.S.

GENERAL NOTES:

A. ALL CONDUIT, CONDUIT FITTINGS, JUNCTION BOXES, LIGHT FIXTURES, AND TRANSFORMER ENCLOSURE SHALL BE PAINTED TO MATCH BRIDGE COLOR. VERIFY COLOR.

B. ALL CONDUIT EXPOSED ABOVE GRADE SHALL BE RIGID STEEL. PROVIDE CONDUIT SUPPORTS NOT MORE THAN 5'–0" ON CENTER WHEN EXPOSED.

C. ALL CONDUIT, CONDUIT FITTINGS, AND JUNCTION BOXES TO BE CONCEALED OR MOUNTED SUCH THAT VIEW FROM BRIDGE DECK IS MINIMIZED. VERIFY ALL CONDUIT ROUTING WITH OWNER AND ENGINEER PRIOR TO INSTALLATION.

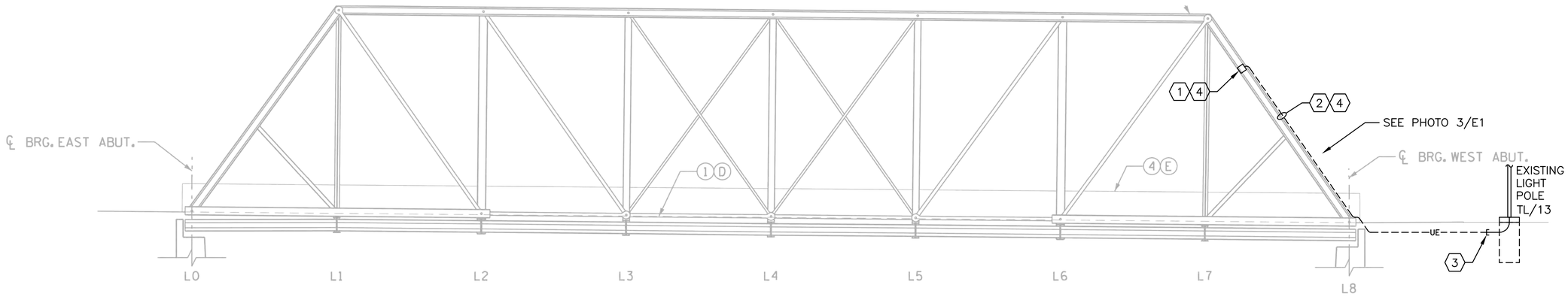
D. COVER AND PROTECT CONCRETE SLABS, CURBS AND GUTTERS AS REQUIRED TO PREVENT UNDERMINING, DISTRESS AND DAMAGE DUE TO WORK IN THIS CONTRACT, ALL DAMAGED CONCRETE TO BE REPLACED AT CONTRACTORS EXPENSE.

E. LOCATIONS AND SIZES OF ALL UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE ONLY. VERIFY ALL UTILITIES. CONTRACTOR RESPONSIBLE FOR REPAIR TO ANY DAMAGED UNDERGROUND UTILITIES.

F. CONTRACTOR RESPONSIBLE FOR LOCATING AND PROTECTING ALL SITE UTILITIES, INCLUDING PRIVATE UTILITIES. CONTACT GOPHER STATE ONE CALL PRIOR TO ANY EXCAVATION.

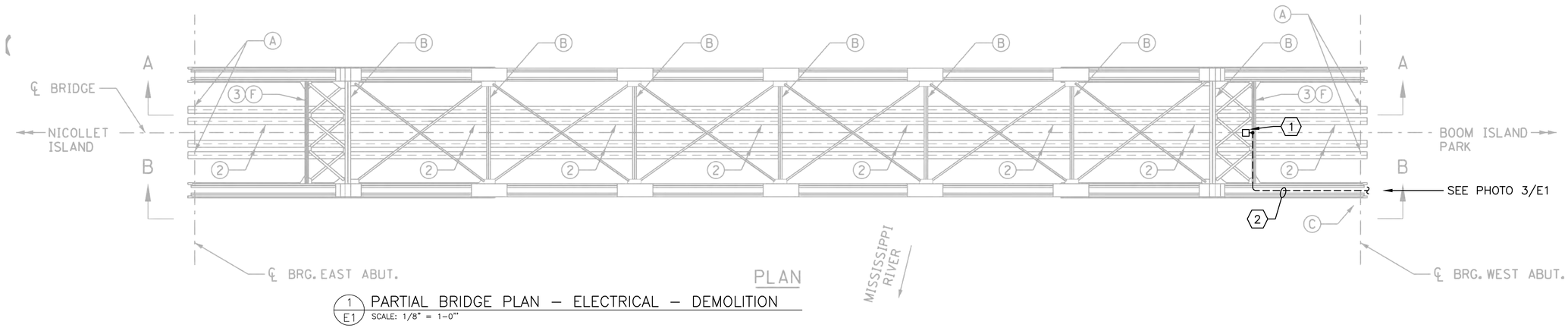
SPECIFIC NOTES:

1. DISCONNECT AND REMOVE EXISTING LIGHT FIXTURE AND ALL ASSOCIATED MOUNTING BRACKETS/DEVICES.
2. DISCONNECT AND REMOVE EXISTING 3/4" CONDUIT AND ALL ASSOCIATED MOUNTING BRACKETS/DEVICES TO LIGHT POLE. REMOVE CONDUCTORS TO LIGHT POLE.
3. MAINTAIN CONDUIT STUB FOR NEW EXTENSION OF CONDUIT.
4. ELECTRICAL CONTRACTOR SHALL GRIND SMOOTH BRIDGE MEMBERS AT ALL REMOVED CONDUIT AND FIXTURE MOUNTING POINTS.



SECTION A-A

2/E1 BRIDGE SECTION – ELECTRICAL – DEMOLITION
SCALE: 1/8" = 1–0"



PLAN

1/E1 PARTIAL BRIDGE PLAN – ELECTRICAL – DEMOLITION
SCALE: 1/8" = 1–0"

0 8 16 Feet

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Engineer under the laws of the State of Minnesota.

Name Neal R. Wunderlich
Registration No. 14878 Date 1/24/17

Wunderlich-Malec
Engineering | Systems | Services
6101 Blue Circle Dr, Eden Prairie, MN 55343 Phone (952)933-3222 Fax (952)933-0608

SCALE	AS NOTED	
DRAWN BY	WME	DATE 1/24/17
CHECKED BY	JRO	DATE 1/24/17
APPROVED BY	JRO	DATE 1/24/17

BRIDGE NO. 93835 REHABILITATION
MINNEAPOLIS PARK AND RECREATION BOARD
724 SIBLEY ST. NE
MINNEAPOLIS, MN 55413

BRIDGE DETAILS - ELECTRICAL - DEMOLITION

SHEET	E1
PROJECT NO.	1116051
DRAWING NO.	1116051-E1

3/E2 PHOTO – ELECTRICAL
SCALE: N.T.S.

GENERAL NOTES:

A. ALL CONDUIT, CONDUIT FITTINGS, JUNCTION BOXES, LIGHT FIXTURES, AND TRANSFORMER ENCLOSURE SHALL BE PAINTED TO MATCH BRIDGE COLOR. VERIFY COLOR.

B. ALL CONDUIT EXPOSED ABOVE GRADE SHALL BE RIGID STEEL. PROVIDE CONDUIT SUPPORTS NOT MORE THAN 5'–0" ON CENTER WHEN EXPOSED.

C. ALL CONDUIT, CONDUIT FITTINGS, AND JUNCTION BOXES TO BE CONCEALED OR MOUNTED SUCH THAT VIEW FROM BRIDGE DECK IS MINIMIZED. VERIFY ALL CONDUIT ROUTING WITH OWNER AND ENGINEER PRIOR TO INSTALLATION.

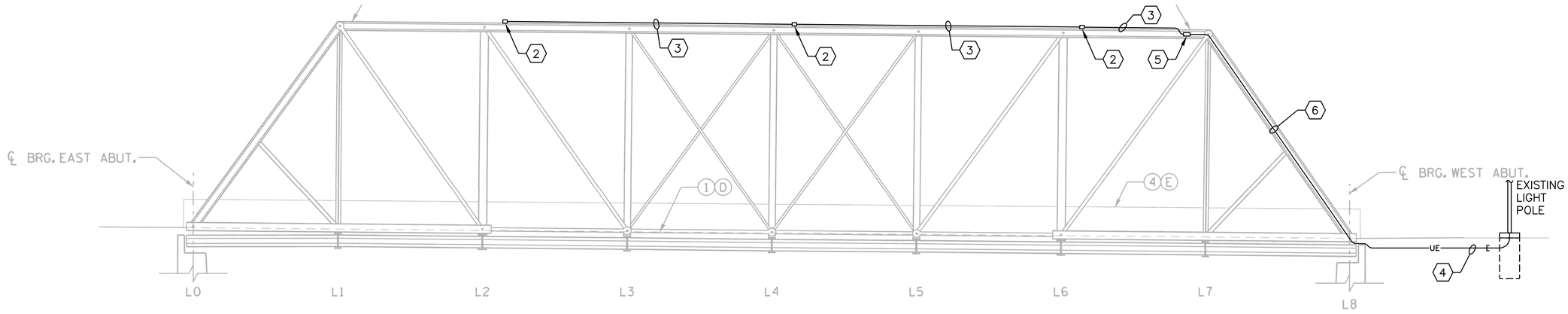
D. COVER AND PROTECT CONCRETE SLABS, CURBS AND GUTTERS AS REQUIRED TO PREVENT UNDERMINING, DISTRESS AND DAMAGE DUE TO WORK IN THIS CONTRACT, ALL DAMAGED CONCRETE TO BE REPLACED AT CONTRACTORS EXPENSE.

E. LOCATIONS AND SIZES OF ALL UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE ONLY. VERIFY ALL UTILITIES. CONTRACTOR RESPONSIBLE FOR REPAIR TO ANY DAMAGED UNDERGROUND UTILITIES.

F. CONTRACTOR RESPONSIBLE FOR LOCATING AND PROTECTING ALL SITE UTILITIES, INCLUDING PRIVATE UTILITIES. CONTACT GOPHER STATE ONE CALL PRIOR TO ANY EXCAVATION.

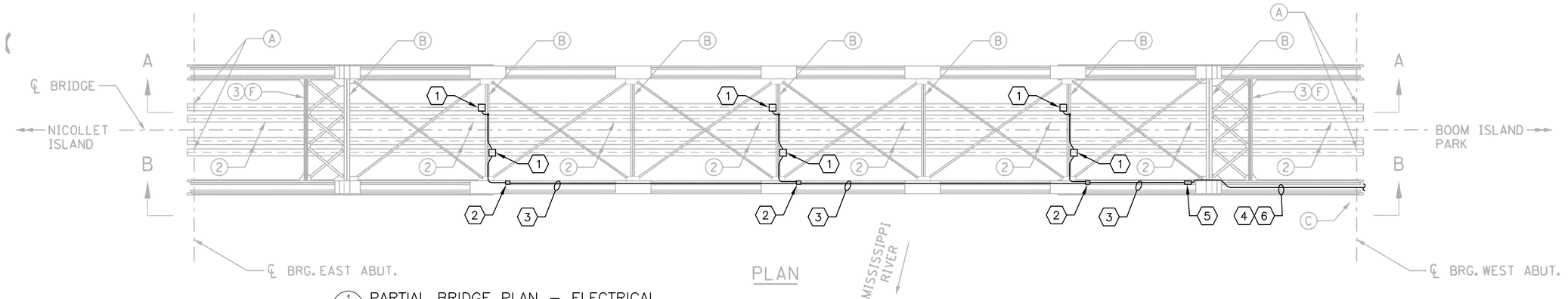
SPECIFIC NOTES:

1. TYPE AA LIGHT FIXTURE SEE 1/E3 AND 2/E3.
2. POWER DISTRIBUTION JUNCTION BOX, SEE 1/E3.
3. 1/2"C, 2#14 + GND, MOUNT ON TOP OF UPPER CORD ANGLE.
4. 3/4"C, 2#4 + GND, XHHW, CU.
5. TRANSFORMER ENCLOSURE, MOUNT TO SIDE OF BEAM. APPROXIMATE DIMENSIONS 12"L x 6"W x 6"D.
6. REMOVE EXISTING CONDUIT, PROVIDE NEW CONDUIT CONCEALED IN TRUSS. COORDINATE PLACEMENT WITH ENGINEER AND OWNER. EXTEND FROM EXISTING LIGHT POLE TO NEW TRANSFORMER ENCLOSURE.



SECTION A-A

2/E2 BRIDGE SECTION – ELECTRICAL
SCALE: 1/8" = 1–0"



PLAN

1/E2 PARTIAL BRIDGE PLAN – ELECTRICAL
SCALE: 1/8" = 1–0"

0 8 16 Feet

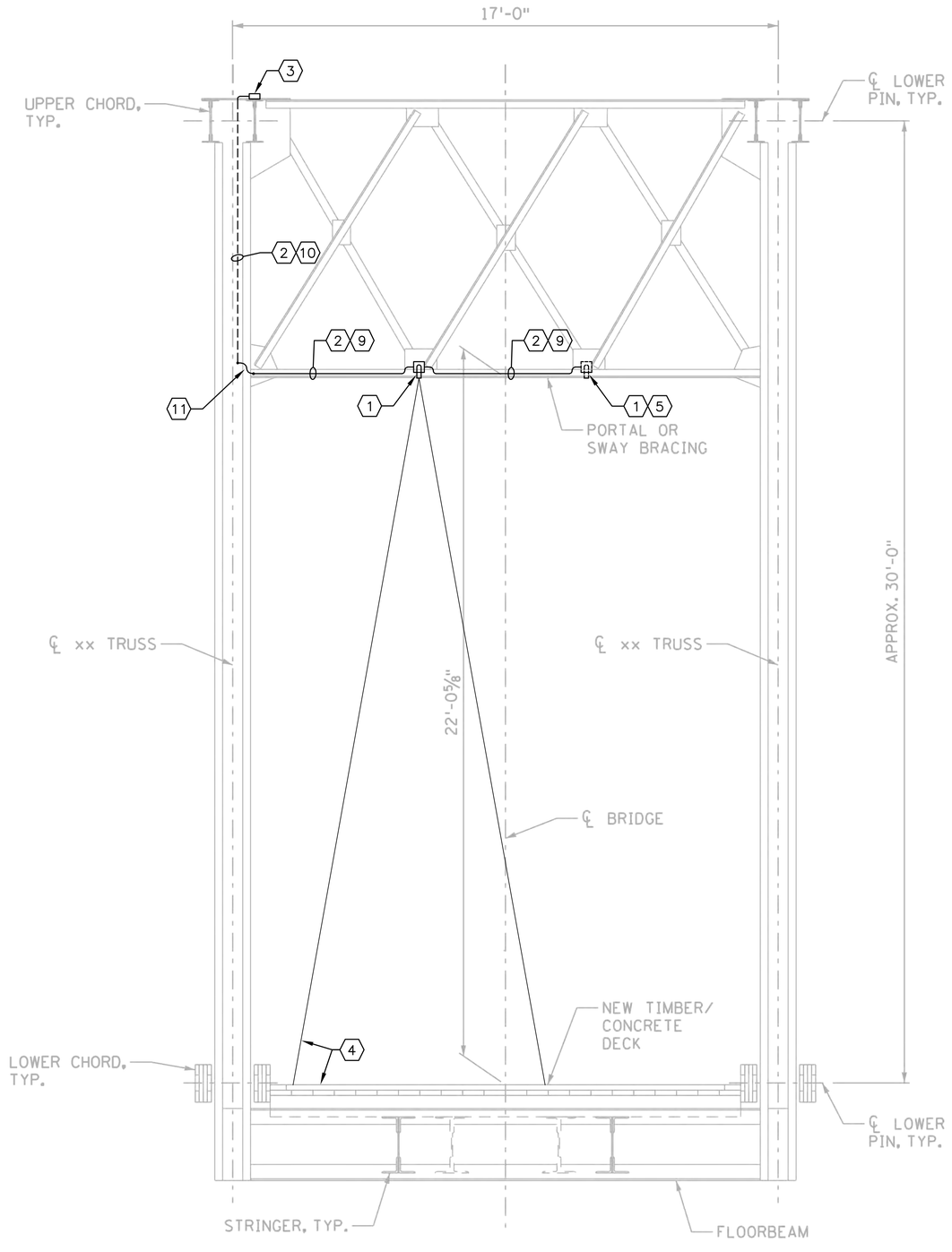
I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Engineer under the laws of the State of Minnesota.
Name Neal K Wunderlich
Registration No. 14878 Date 1/24/17

Wunderlich-Malec
Engineering | Systems | Services
6101 Blue Circle Dr, Eden Prairie, MN 55343 Phone (952)933-3222 Fax (952)933-0608

SCALE	AS NOTED
DRAWN BY	WME
DATE	1/24/17
CHECKED BY	JRO
DATE	1/24/17
APPROVED BY	JRO
DATE	1/24/17

BRIDGE NO. 93835 REHABILITATION
MINNEAPOLIS PARK AND RECREATION BOARD
724 SIBLEY ST. NE
MINNEAPOLIS, MN 55413
BRIDGE DETAILS - ELECTRICAL - NEW

SHEET E2
PROJECT NO. 1116051
DRAWING NO. 1116051-E2



1 E3 TRANSVERSE SECTION – ELECTRICAL
SCALE: 1/2" = 1-0"'

LIGHT FIXTURE SCHEDULE

FIXTURE LETTER TYPE	FIXTURE TYPE	VOLT	FLUOR	HID	LED	MOUNTING	LAMP	CONTROL MEDIA	MANUFACTURER'S CATALOG NUMBERS		REMARKS
AA	SMALL CYLINDER FLOODLIGHT	120/12			X	SURFACE	NOTE 1	SQUARE CUT ADJUSTABLE VISOR, GLASS LENS, REPLACEABLE LAMPS	TOUCHSTONE, FIXTURE # A212-SQ-CC, TRANSFORMER # TR75 USC-CKO	OR APPROVED EQUAL	NOTE 2,3

NOTES:

1. MR 16, 7 WATT, 20 DEGREE BEAM SPREAD, 80 CRI, 3000K LED.
2. CUSTOM COLOR TO MATCH BRIDGE, VERIFY COLOR WITH OWNER/ARCHITECT.
3. TRANSFORMER, (1) THUS. PROVIDE CUSTOM KNOCK OUTS AS REQUIRED BY DESIGN AND CABINET MOUNTING ORIENTATION.

GENERAL NOTES:

A. ALL CONDUIT, CONDUIT FITTINGS, JUNCTION BOXES, LIGHT FIXTURES, AND TRANSFORMER ENCLOSURE SHALL BE PAINTED TO MATCH BRIDGE COLOR. VERIFY COLOR.

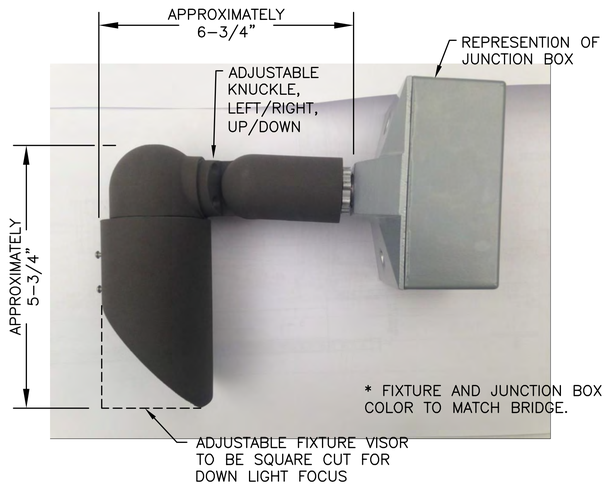
B. ALL CONDUIT EXPOSED ABOVE GRADE SHALL BE RIGID STEEL. PROVIDE CONDUIT SUPPORTS NOT MORE THAN 5'–0" ON CENTER WHEN EXPOSED.

C. ALL CONDUIT, CONDUIT FITTINGS, AND JUNCTION BOXES TO BE CONCEALED OR MOUNTED SUCH THAT VIEW FROM BRIDGE DECK IS MINIMIZED. VERIFY ALL CONDUIT ROUTING WITH OWNER AND ENGINEER PRIOR TO INSTALLATION.

D. COVER AND PROTECT CONCRETE SLABS, CURBS AND GUTTERS AS REQUIRED TO PREVENT UNDERMINING, DISTRESS AND DAMAGE DUE TO WORK IN THIS CONTRACT, ALL DAMAGED CONCRETE TO BE REPLACED AT CONTRACTORS EXPENSE.

E. LOCATIONS AND SIZES OF ALL UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE ONLY. VERIFY ALL UTILITIES. CONTRACTOR RESPONSIBLE FOR REPAIR TO ANY DAMAGED UNDERGROUND UTILITIES.

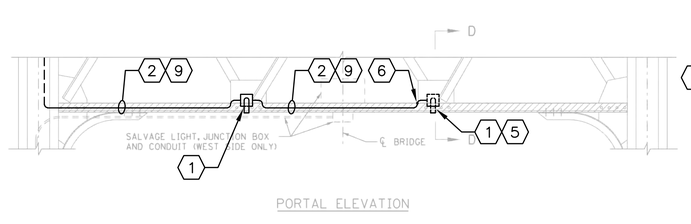
F. CONTRACTOR RESPONSIBLE FOR LOCATING AND PROTECTING ALL SITE UTILITIES, INCLUDING PRIVATE UTILITIES. CONTACT GOPHER STATE ONE CALL PRIOR TO ANY EXCAVATION.

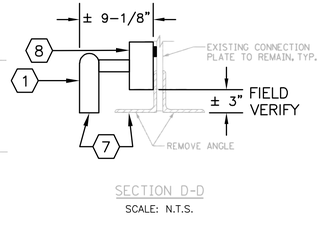


3 E3 FIXTURE TYPE 'AA'
SCALE: N.T.S.

SPECIFIC NOTES:

1. TYPE 'AA' FIXTURE. SEE 2/E3 AND 3/E3.
2. 1/2"C, 2#14 + GND.
3. 4" SQUARE, WEATHERPROOF, POWER DISTRIBUTION JUNCTION BOX. MOUNT ON TOP OF UPPER CORD.
4. APPROXIMATE CONE OF ILLUMINATION, AT BRIDGE DECK, ANTICIPATED TO BE 0.6–1.0foot–candles IN 8' DIAMETER CIRCLE WITH FIXTURE IN VERTICAL ORIENTATION. CONTRACTOR SHALL FIELD AIM AND PROVIDE ALLOWANCE FOR ONE NIGHT TIME AIMING ADJUSTMENT AS DIRECTED BY OWNER AND ENGINEER.
5. TYPE 'AA' FIXTURE AND JUNCTION BOX ON OPPOSITE SIDE OF PLATE.
6. CONDUIT TRANSITION TO OPPOSITE SIDE OF PLATE TO BE ROUTED OVER TOP OF ANGLE, NOT BELOW.
7. BOTTOM OF REFLECTOR TO BE FLUSH WITH BOTTOM OF ANGLE.
8. 4" SQUARE, WEATHERPROOF JUNCTION BOX. MOUNT ON VERTICAL FACE OF PLATE. PROVIDE SHIM(S) AS REQUIRED.
9. CONCEAL ON TOP OF ANGLE.
10. CONCEAL IN TRUSS.
11. OFFSET CONNECTION FROM TRUSS TO ANGLE.





2 E3 LIGHT FIXTURE TYPE 'AA' MOUNTING DETAILS AT PORTAL
SCALE: 1/2" = 1-0"'

0 2 4 Feet

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Engineer under the laws of the State of Minnesota.
Name Neal R. Wunderlich
Registration No. 14878 Date 1/24/17

Wunderlich-Malec
Engineering | Systems | Services
6101 Blue Circle Dr, Eden Prairie, MN 55343 Phone (952)933-3222 Fax (952)933-0608

SCALE	AS NOTED
DRAWN BY	WME
DATE	1/24/17
CHECKED BY	JRO
DATE	1/24/17
APPROVED BY	JRO
DATE	1/24/17

BRIDGE NO. 93835 REHABILITATION
MINNEAPOLIS PARK AND RECREATION BOARD
724 SIBLEY ST. NE
MINNEAPOLIS, MN 55413
LIGHT FIXTURE MOUNTING DETAILS AND SCHEDULE

SHEET	E3
PROJECT NO.	1116051
DRAWING NO.	1116051-E3

26 01 00 GENERAL PROVISIONS

PART 1 GENERAL

1.1 SCOPE

A. The General Conditions, Supplemental General Conditions, and Special Conditions apply to all work in this Division.

1. This Contractor shall furnish all labor, equipment, materials, tools, methods, operations, permits, etc. required or necessary for or incidental to the installation of new systems and/or the modification of existing systems to provide complete lighting, power, and auxiliary systems in accordance with these Specifications and/or the accompanying Drawings.

2. Electrical work shall be complete from the location designated by the electric utility company as the point of electrical service connection to the final connection of motors, light fixtures, devices, apparatus, and all other miscellaneous loads as shown on the Drawings and/or specified herein.

3. Electrical work for systems shall include all labor and material, resulting upon completion, in functioning systems in compliance with performance requirements specified. The omission of express reference to any parts necessary for or reasonably incidental to a complete installation shall not be construed as a release from furnishing such parts.

4. Wiring as specified or shown on the Drawings is for a complete and workable system. Any deviations from the wiring shown due to a particular manufacturer's requirements shall be made at no additional cost to the Owner.

1.2 DRAWINGS AND COORDINATION

A. All drawings are diagrammatic and are not intended to indicate exact installation details or locations. The Contractor shall refer to the Architectural, Structural, and Mechanical Drawings for dimensions, suspended ceilings, location of equipment, etc. Field measurements, however, take precedence over dimensioned drawings. Discrepancies between different plans, or between drawings and specification, or regulations and coded governing the installation shall be brought to the attention of the Engineer in writing before the date of bid opening. If discrepancies are not reported, the Contractor shall bid the greater quantity or better quality, and appropriate adjustments will be made after contract award. Contractor shall be responsible to field measure and confirm mounting heights and location of electrical equipment with respect drawings. Use actual building dimensions.

1.3 CODES AND STANDARDS

A. All work shall meet all requirements of the latest edition of the National Electrical Code (NFPA 70) and all national, state, and local regulations that may apply. Standards of the following associations or organizations shall be followed and applied where applicable as minimum requirements:

UL Underwriters Laboratories
IEEE Institute of Electrical and Electronic Engineering
NEMA National Electrical Manufacturers Association
NFPA National Fire Protection Association
NBFU National Board of Fire Underwriters
ASTM American Society of Testing Materials
ADA Americans with Disabilities Act

1. Where requirements indicated on the Drawings or specified herein are in excess of the applicable codes and standards, the requirements of the Drawings and Specifications shall govern.

1.4 SHOP DRAWINGS

A. Submit shop drawings in electronic format, properly labeled to contractor, project, subject, manufacturers names, etc. with catalog numbers, features, dimensions, etc. clearly indicated and pointed out. Manufacturer not specified or not given prior approval will not be considered. Any product submitted which has not been named by Manufacturer and catalog number must be submitted as an add or deduct alternate to specified product.

1. Shop drawings are required on all major equipment items. Shop drawings are required for:

a. Lighting Fixtures/Poles.

b. Special Purpose Receptacle and Outlet Devices.

c. Grade Junction Boxes.

2. Time of shop drawing submittals:

a. Shall occur as soon as practical after award of Contract (no more than 15 days).

b. Engineer requires minimum of seven working days for review.

c. Special processing to meet project conditions shall be noted.

d. Shop drawings approval must be achieved before fabrication of equipment starts.

3. Contractor shall:

a. Review all shop drawings prior to submittal of Engineer.

b. Contractor to bind Owner's shop drawings with maintenance/operating instructions and deliver to Engineer at project completion.

c. Identify project's name, project Contractor, and Specification section for each shop drawing.

d. Sign and date each shop drawing submitted.

1. Signature to represent the Contractor's review of shop drawings such that they comply with Contract Documents.

2. Shop drawings without Contractor's signature will be returned unchecked.

e. All drawings shall be submitted in a neatly organized and bound format. Submittals in disorganized format will be rejected.

f. Should the Contractor purchase and or erect equipment before review of Drawings by the Engineers, any expense incurred to alter or replace the equipment to meet the Specifications shall be borne by the Contractor.

1.5 PRODUCT SPECIFICATION

A. Catalog numbers used to identify specific products shall not be construed as product ordering or purchase order numbers. Contractor shall provide all specified products to comply with verbal description and catalog numbers where indicated. Notify Engineer of any discrepancies.

1.6 SUBSTITUTIONS OF MATERIAL AND EQUIPMENT

A. Request for substitutions shall be made in writing to the Electrical Engineer. Request must be received ten days prior to the bid date. All submittals shall be complete with all necessary product and performance data required to allow the Engineer to compare submitted products to those specified. Product submittals judged to be incomplete in the Engineer's opinion will not be considered.

B. Light fixture substitution requests for fixtures used for the purpose of illuminating outdoor playing fields, roadways, pedestrian areas, parking structures, building perimeters and parking lots shall be accompanied with a computer generated point-by-point photometric analysis.

C. Submittal data will be retained by the Electrical Engineer to evaluate final performance of project.

1.7 OPERATING INSTRUCTIONS

A. Prior to final acceptance of the work, the Electrical Contractor shall furnish three copies of the complete portfolio covering all electrical systems and equipment furnished by him under these Specifications. The complete portfolio shall include approved shop drawings, operating and maintenance instructions, and replacement parts of such equipment listed with all material carefully segregated and identified. Information shall be printed to typewritten material, neatly folded, and bound in an 8 1/2" x 11" size expansion post binder. One electronic copy shall also be provided.

1.8 AS-BUILTS

A. This Contractor shall keep a complete and up-to-date record of deviations from installation as shown on the Drawings (including addends, change orders, conduit routing, circuiting, etc.). At the completion of the work, he shall submit the as-built drawings for the project. One electronic copy shall also be provided.

1.9 FEES AND PERMITS

A. All service charges, fees, permits, licenses, etc. required in connection with work in this Division shall be secured by and paid for by this Contractor.

1.10 OWNER PURCHASED EQUIPMENT

A. Where indicated, this Contractor shall install equipment purchased by the Owner. Secure equipment from and coordinate the installation with Owner's on-site storage location to installation point.

1.11 COST BREAKDOWN

A. The Contractor shall submit a detailed cost breakdown for all work under this contract.

1. The breakdown shall be submitted ten working days after award of Contract. Breakdown shall be itemized by Specification section and shall have material and labor cost separated.

PART 2 PRODUCTS

2.1 IDENTIFICATION PLATES

A. Laminated white plastic plates with black engrave characters at least 3/16" high with self-tapping screws or rivets. Use wherever "Nameplates" are indicated.

2.2 MARKING PEN

A. Permanent, waterproof, quick drying.

2.3 ENGRAVED COVERPLATES

A. As described under "Weatherproof Coverplates" in Section 26 05 20 – Basic Materials and Methods, machine engraved with minimum 3/16" high characters filled with an enamel paint color contrasting with coverplate finish.

2.4 ELECTRICAL ENCLOSURE KEYING

A. Corbin No. 15767 or Yale equal. For equipment not suitable to physically accommodate this lockset, provide a lock having a key which matches this lockset key.

2.5 MANUFACTURERS NAMEPLATES

A. Each major component of equipment shall have the manufacturer's name, address, model number, and rating on a plate securely affixed in a conspicuous place. The nameplate of a distributing agent is not acceptable.

2.6 GUARANTEE

A. All material and workmanship shall be unconditionally guaranteed for a period of one year as described in the General Conditions.

PART 3 EXECUTION

3.1 GENERAL INSTRUCTION

A. Conceal all raceway and flush mount all electrical boxes, equipment, and devices unless indicated or approved otherwise. Repair building surfaces when altered by electrical work.

1. In unfinished areas, unless indicated otherwise, install raceways and devices exposed.

2. Install all electrical materials as recommended by the respective manufacturers and as required to maintain UL listings.

3. Secure equipment using fasteners suitable for the use, materials, and loads encountered. If required, submit evidence proving suitability. Do not attach electrical materials to roof decking, removable or knockout panels, or temporary walls and partitions unless indicated otherwise.

4. Install all outlets and devices at heights indicated on the Plans.

5. Coordinate with the other trades before installing equipment so that conflicts will be adjusted before installation.

6. All equipment shall be installed with ample space allowed for removal, repair, or changes to the equipment. Ready accessibility to removal parts of moving equipment which is installed or which is already in place.

3.2 INSPECTION

A. Regularly request electrical inspection of duly authorized electrical inspectors. All charges for such inspection shall be paid for as part of this Contract.

3.3 IDENTIFICATION PLATES

A. Center on the device or enclosure. Install identification plates inside covers in finished areas and outside covers in unfinished areas.

1. Label all switchboards, motor control centers, feeder overcurrent devices, safety switches, motors, motor starters, panelboards, transformers, telephone cabinets, special system cabinets, annuciators, and other indicated equipment.

2. Typical label examples:

PANELBOARDS "PANELBOARD H-1"
MOTORS "SUP.FAN S-1"
SPECIAL SYSTEM CABINETS "FIRE ALARM CAB NO. 2"

3. Attach plates to equipment with bolts, sheet metal screws, or epoxy cement.

3.4 MANUFACTURERS NAMEPLATES

A. Located so as to be visible or exposed to view in unfinished areas. Conceal in accessible locations in finished areas.

3.5 ENGRAVED COVERPLATES

A. Label devices with special labeling indicated.

3.6 LABEL TAPES

A. Use for feeder conductors and control conductors. Indicate feeder numbers on feeders and terminal numbers for control conductors. Label conductors at origin and destination points and at all junction boxes where two or more feeder or control circuits are present.

3.7 PROTECTION OF WORK

A. Protect all work from damage during construction. Cap or plug all conduit or keep drained. Provide tarps, barricades, temporary heaters, and auxiliary equipment required. Remove and replace any materials or equipment damaged.

3.8 PAINTING

A. All shop fabricated and factory build equipment not galvanized or protected by painting shall be cleaned and given one shop coat of red lead or zinc chromate primer before delivery to the site. Any portions of the shop coat damaged in delivery or during construction shall be recoated. All finish painting will be done in the "Painting" section of the General Work. Do not paint nameplates, labels, tags, stainless steel, or chromium plated items such as shafts, levels, handles, trim, strips, etc.

3.9 CLEANING

A. Clear away all debris and surplus material resulting from electrical work. Remove all dust and debris from interiors and exterior of electrical equipment. Clean accessible current carrying elements prior to being energized.

3.10 EXCAVATING, TRENCHING, AND BACKFILLING

A. Perform work as required, or indicated in. All excavation depths indicated are below finished grade.

1. Do not excavate below required depth except as necessary for removal of unstable soil or when rock is encountered. When rock is encountered, excavate 6" below the required depth. Unless indicated otherwise, pitch all electrical conduit runs downward away from buildings and pad mounted equipment. Pitch toward manholes.

2. Install a minimum envelope of 3" (top, bottom, and sides: 3" each) of fine grain sand around all electrical cable and conduit installed below grade unless indicated otherwise.

END OF SECTION

26 05 20 BASIC MATERIALS AND METHODS

PART 1 GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

A. Provide control, communications, signal, and special systems wire and cable as specified in the particular Sections involved.

PART 2 PRODUCTS

2.1 CONDUITS AND FITTINGS

A. Rigid Metal Conduit: Hot dipped galvanized or metalized steel with smooth interior and reamed ends. Fittings for conduit and to be Threaded type.

B. Intermediate Metal Conduit (IMC): Conduit similar to rigid metal conduit except with thinner walls and using the same fittings as specified for rigid metal conduit.

C. Liquidtight Flexible Metal Conduit: Galvanized steel interlocked banding with extruded PVC jacket and with clamping watertight type fittings which permanently retain the conduit in the fittings.

D. Rigid Nonmetallic Conduit: Schedule forty heavy wall PVC or other UL listed rigid plastic conduit with fittings and solvent cement as recommended by the manufacturer.

E. Conduit and Fitting Manufacturers (except where specifically noted above): Youngstown, Republic, or Triangle. Fittings may also be as manufactured by Raco, O.Z. Gedney, Pyle-National, or Regal.

F. Expansion/Contraction Fittings: With bonding conductors to maintain ground path continuity. Raintight type when exposed to weather.

2.2 BOXES AND FITTINGS

A. FS and FD Boxes: Acceptable manufacturers are Appleton, Crouse-Hinds, Killark, Red Dot.

B. Polymer-Concrete Handholes and Boxes with Polymer-Concrete Cover: Molded of sand and aggregate, bound together with polymer resin, and reinforced with steel, fiberglass, or a combination of the two.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following.

2. Basis-of-Design Product: Subject to compliance with requirements, provide comparable product by one of the following:
a. Quazite.
b. Carson Industries LLC.
c. CDR Systems Corporation; Hubbell Power Systems.
d. Oldcastle Precast, Inc.; Christy Concrete Products.

3. Standard: Comply with SCTE 77.

4. Configuration: Designed for flush burial with open bottom unless otherwise indicated.

5. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure and handhole location. Covers to be "Vehicle Traffic" rated.

6. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.

7. Cover Legend: Molded lettering, "ELECTRIC", or as noted.

2.3 WIRE AND CABLE (600 VOLT CLASS)

A. No. 12 and No. 10 AWG: Solid copper conductors. Insulation Types: XHHW. Acceptable manufacturers: Rome Cable, Okonite, South Wire.

A. No. 8 and Larger: Stranded copper conductors with type XHHW insulation. Acceptable manufacturers: Rome Cable, Okonite, South Wire.

B. Connectors for Solid Conductors: Acceptable manufacturers: Ideal, 3M "Scotchlok-Hyflex" series, Thomas & Betts "PT" series.

C. Connectors for Stranded Conductors: Crimp-on connectors, large enough to encompass all strands of attached conductors. Acceptable Manufacturers: Amp, Burndy, Lico, O.Z. Gedney, 3M, Thomas & Betts.

D. Tapes: Acceptable manufacturers are General Electric, Plymouth, 3M Scotch Brand.

E. Cord Assemblies: Size as indicated or required. Type SO moisture and sunlight resistant with stranded copper conductors. Provide with insulated green grounding conductor.

2.4 GROUNDING CLAMPS AND PRESSURE CONNECTORS

A. Cast copper, copper alloy, or bronze alloy suitable for use with aluminum and copper. Double bolt type with formed shoe and "U" cable clamp for connection to pipe or conduit, connection to flat bar or metal and double bolt, parallel conductor split clamp type for cable-to-cable connections.

PART 3 EXECUTION

3.1 RACEWAY INSTALLATION

A. Size all raceway as required by the NEC with oversize conduits as indicated. Minimum conduit size: 1/2" unless indicated otherwise. Install exposed raceway parallel or perpendicular to structural members. All raceways shall be installed parallel and/or perpendicular to building lines.

1. Use rigid steel or IMC conduit in outside walls, concrete slabs on grade, crawl spaces between floor slabs and grade, exposed exterior locations, hazardous locations.

2. Use liquidtight flexible metal conduit where indicated or when flexible metal conduit is required in damp or wet locations. Comply with the requirements for flexible metal conduit, and make all fittings and couplings watertight.

3. Use rigid nonmetallic conduit only where specifically indicated. Make all joints and connections using fittings designed for the purpose bonded permanently and watertight using solvent cement. Comply with the manufacturers recommendations for bending and cutting. When conduits are stubbed-out for future use or for use by others, cap conduits with end caps designed for the purpose by the conduit manufacturer.

4. Rigidly support all raceway from the building structure using pipe hangers, clamps, or rigid straps. Perforated straps or tie wires are not acceptable.

5. Provide expansion-contraction fittings for all conduit 1" or larger in excess of 100' or where they pass building expansion joints.

3.2 BOXES AND FITTINGS INSTALLATION

A. Install all boxes rigidly, plumb, and level. Protect boxes to prevent entrance of concrete, plaster, paint, or other foreign material during construction.

1. Provide FS and FD boxes with required covers surface mounted in damp or wet locations and as indicated on Plans.

2. Install all pullboxes and fittings used for pulling so they are accessible when construction is complete. Do not place pullboxes and fittings in finished areas without specific permission. Do not use conduit bodies when conductors are No. 2 AWG or larger unless indicated otherwise or unless specifically approved. Where used, all conduit bodies shall be mogul type.

3.3 WIRE AND CABLE (600 VOLT CLASS) INSTALLATION

A. Inspect all wire and cable prior to installation, and do not use wire and cable with any sign of damage. All conductors are No. 12 AWG copper unless otherwise indicated or specified. Do not substitute smaller conductors with higher temperature rated insulations in lieu of conductor size shown on the Drawings.

1. Use conductors with not less than 90 degrees C. rated insulation when wiring is attached to heat producing equipment or when installed within light fixtures.

2. Use type XHHW insulated conductors outside of the building or whenever raceway may be subject to moisture or condensation.

3. Color code branch circuit and feeder wiring per the NEC.

4. All wire and cable to be installed in conduit.

END OF SECTION

26 05 26 GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 REFERENCE STANDARDS

A. National Electrical Manufacturers Association (NEMA).

B. American National Standards Institute (ANSI).

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Thomas and Betts, Appleton, Raco, O.Z. Gedney, Blackburn.

2.2 GENERAL BRANCH CIRCUITS

A. All grounding conductor wire shall be insulated green, green with yellow stripe or bare copper conductor.

B. All conduit bushings shall be grounding type.

C. All grounding connections shall be made with solderless lugs with non-ferrous hardware.

D. Ground rods shall be minimum 3/4" by 10 feet copper clad steel ground rods.

PART 3 EXECUTION

3.1 GENERAL BRANCH CIRCUITS

A. All conduit systems, equipment housings, material housings, junction boxes, cabinets, motors, ducts, wireways, cable trays, light fixtures, portable equipment and all other conductive surfaces shall be solidly grounded in accordance with the National Electrical Code to form a continuous, permanent, and effective grounding system.

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Engineer under the laws of the State of Minnesota.
Name Neal R. Wunderlich
Registration No. 14878 Date 1/24/17

Wunderlich-Malec
Engineering | Systems | Services
6101 Blue Circle Dr, Eden Prairie, MN 55343 Phone (952)933-3222 Fax (952)933-0608

SCALE	AS NOTED		
DRAWN BY	WME	DATE	1/24/17
CHECKED BY	JRO	DATE	1/24/17
APPROVED BY	JRO	DATE	1/24/17

BRIDGE NO. 93835 REHABILITATION
MINNEAPOLIS PARK AND RECREATION BOARD
724 SIBLEY ST. NE
MINNEAPOLIS, MN 55413
ELECTRICAL SPECIFICATION

SHEET E4
PROJECT NO. 1116051
DRAWING NO. 1116051-E4

B. All panelboards, junction boxes, pullboxes, wireways, and equipment enclosures shall be bonded to the conduit systems.

C. Where non–metallic raceways are allowed as a substitution to metal raceway, a continuous ground wire shall be installed with branch conductors although not shown on the plans.

D. All expansion joints shall be bonded.

3.2 FEEDER CIRCUITS

A. All feeder conduits shall be bonded at pullboxes, panelboards, and expansion joints.

B. Feeder conduits embedded in concrete or installed in direct contact with earth shall have a ground wire pulled with the phase conductors. The ground wire shall be bonded to all pullboxes and panelboards.

3.3 EQUIPMENT GROUND

A. Form the equipment ground circuits with rigid metallic raceways, e.g., EMT, rigid steel conduit, unless indicated otherwise. Make all threaded coupling connections wrench tight. Install bonding jumpers for continuity around all fittings and terminations where the conductive raceway is made non–continuous. Where indicated or specified, install ground conductors in raceways to augment the circuits formed by the metallic raceway system. Bond the conductors to boxes or enclosures in which access is possible. Size conductors as specified, indicated, or required by code, whichever is larger. Install grounding bushings and bonding jumpers to enclosures or contained ground bussing.

3.4 FLEXIBLE RACEWAY GROUNDING

A. Install a ground conductor inside flexible raceways (e.g. flexible steel, liquid tight) exceeding six feet in length. Bond the conductor to the enclosure or ground bus in the nearest box or access on either side of the flexible section. Size conductor as specified, indicated or required by code, whichever is larger.

3.5 NON–CONDUCTIVE RACEWAY

A. Install a ground conductor in all raceways of non–conductive materials. Bond conductor to conductive enclosures. Bond all non–current carrying conductive equipment contained in a non–conductive enclosure. Install insulated or bare conductors, sized as specified, indicated, or required by code.

END OF SECTION

26 05 53 IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SCOPE

A. This section includes all labor, material, equipment, and related services necessary to furnish and install identification labels on all protective devices on unit substations, all switchboard switches or circuit breakers, metering, terminal cabinets, panelboards, transformers, motor control centers, pull boxes, system junction boxes, relays, control switches, disconnect switches, feeder and branch circuit wires and cables, installed by this contractor to permit ready identification by the operating personnel.

PART 2 PRODUCTS

2.1 LAMINATED PLASTIC NAMEPLATES

A. Identification labels for equipment or devices shall be black–white–black laminated 1/8" thick plastic plates. Characters shall be cut through the black to show the white of the plate. Inscriptions shall be symmetrical to the centerline of plates.

B. Labels shall be equal to Trophy House, Minneapolis, Minnesota or Seton Name Plate Corporation, New Haven, Connecticut.

2.2 STAINLESS STEEL PLATES

A. Stainless steel plates shall be Type 430 satin finish. Inscriptions shall be engraved 1/4" high and filled with black.

2.3 WIRE MARKERS

A. Wire markers shall be as manufactured by Brady Manufacturing, T & B, Panduit, or Ideal.

2.4 EMBOSSED TAPE

A. Embossed adhesive tape shall not be utilized.

2.5 BURIED PLASTIC TAPE

A. Buried plastic tape shall be of inert plastic 6" wide, yellow or orange colored with the words "Caution Buried Electric Lines Below" repeatedly printed along the length of the tape. Tape shall be Griffolyn Company Terra Tape" or approved equal.

PART 3 EXECUTION

3.1 FASTENING

A. Laminated plastic nameplates shall be attached to the equipment or device surfaces with two self–tapping chrome–headed screws or with a permanently bonding epoxy glue. Adhesive backed nameplates are not acceptable.

3.2 IDENTIFICATION–EQUIPMENT

A. Certain items of equipment, controls, and switchplates are to be labeled with identifying words, names, numbers, or characters. Hand printing is not acceptable.

3.3 IDENTIFICATION–CONDUCTORS

A. All branch circuit conductors shall be identified as follows:

1. In junction boxes and pull boxes, all branch circuit conductors shall be identified by one of the following options:

a) Option 1 – With full wrap self–adhesive wire markers to indicate panelboard and circuit number (e.g.: "H1–2").

b) Option 2 – The inside of the box shall be marked with a black indelible "pen" to indicate circuit numbers of the conductors contained in the box (e.g.: "L4–1,3,5"). Marking for each conduit shall be placed next to the location where each conduit enters the box.

c) Option 3 – A tag shall be attached by string to each group of conductors that enter the pull box or junction box (e.g.: one tag per conduit). Each tag shall be marked with a black indelible pen to indicate the circuit numbers of the conductors (e.g.: H1–1,3,5").

2. Conductors in panelboards and other electrical enclosures shall be identified with tags attached to the conductors by strings. Each tag shall be marked with a black indelible pen to indicate the load served by that conductors shall be identified at the originating and terminating ends with matching labeling.

3.4 EXTERIOR UNDERGROUND AND DIRECT BURIED LINES

A. Provide buried plastic tape approximately 12" below finished grade and directly over all buried lines for future digging precautions.

END OF SECTION

26 22 50 SERVICE AND DISTRIBUTION

PART 1 GENERAL

1.1 DESCRIPTION OF SYSTEM

A. Service equipment is existing.

B. The general use voltage for power and lighting shall be:

1. 120/240V, 1–phase, 3–wire, 60 Hz AC.

END OF SECTION

26 56 19 LED EXTERIOR LIGHTING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Exterior solid–state luminaires that are designed for and exclusively use LED lamp technology.

2. Luminaire supports.

3. Luminaire–mounted photoelectric relays.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of luminaire.

1. Arrange in order of luminaire designation.

2. Include data on features, accessories, and finishes.

3. Include physical description and dimensions of luminaire.

4. Lamps, include life, output (lumens, CCT, and CRI), and energy–efficiency data.

5. Photometric data and adjustment factors based on laboratory tests, complying with IES Lighting Measurements Testing and Calculation Guides, of each luminaire type. The adjustment factors shall be for lamps and accessories identical to those indicated for the luminaire as applied in this Project.

a. Manufacturer's Certified Data: Photometric data certified by manufacturer's laboratory with a current accreditation under the NVLAP for Energy Efficient Lighting Products.

b. Testing Agency Certified Data: For indicated luminaires, photometric data certified by a qualified independent testing agency. Photometric data for remaining luminaires shall be certified by manufacturer.

6. Wiring diagrams for power, control, and signal wiring.

7. Photoelectric relays.

8. Means of attaching luminaires to supports and indication that the attachment is suitable for components involved.

B. Product Schedule: For luminaires and lamps. Use same designations indicated on Drawings.

1.4 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Luminaires.

2. Structural members to which luminaires will be attached.

B. Qualification Data: For testing laboratory providing photometric data for luminaires.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For luminaires to include in operation and maintenance manuals.

1. Provide a list of all lamp types used on Project. Use ANSI and manufacturers' codes.

1.6 QUALITY ASSURANCE

A. Luminaire Photometric Data Testing Laboratory Qualifications: Luminaire manufacturers' laboratory that is accredited under the NVLAP for Energy Efficient Lighting Products.

B. Luminaire Photometric Data Testing Laboratory Qualifications: Provided by an independent agency, with the experience and capability to conduct the testing indicated, that is an NRTL as defined by OSHA in 29 CFR 1910.7, accredited under the NVLAP for Energy Efficient Lighting Products and complying with applicable IES testing standards.

C. Provide luminaires from a single manufacturer for each luminaire type.

D. Each luminaire type shall be binned within a three–step MacAdam Ellipse to ensure color consistency among luminaires.

E. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Protect finishes of exposed surfaces by applying a strippable, temporary protective covering prior to shipping.

1.8 FIELD CONDITIONS

A. Verify existing and proposed utility structures prior to the start of work associated with luminaire installation.

B. Mark locations of exterior luminaires for approval by Architect prior to the start of luminaire installation.

1.9 WARRANTY

A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures, including luminaire support components.

b. Faulty operation of luminaires and accessories.

c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.

2. Warranty Period: Two years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 LUMINAIRE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. NRTL Compliance: Luminaires shall be listed and labeled for indicated class and division of hazard by an NRTL.

C. UL Compliance: Comply with UL 1598 and listed for wet location.

D. CRI of minimum 70. CCT as scheduled.

E. L70 lamp life of 100,000 hours.

F. Internal driver.

G. Nominal Operating Voltage: As scheduled

H. In–line Fusing: On the primary for each luminaire.

I. Lamp Rating: Lamp marked for outdoor use and in enclosed locations.

J. Source Limitations: Obtain luminaires from single source from a single manufacturer.

K. Source Limitations: For luminaires, obtain each color, grade, finish, type, and variety of luminaire from single source with resources to provide products of consistent quality in appearance and physical properties.

2.2 MATERIALS

A. Metal Parts: Free of burrs and sharp corners and edges.

B. Sheet Metal Components: Corrosion–resistant aluminum. Form and support to prevent warping and sagging.

C. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position. Doors shall be removable for cleaning or replacing lenses.

D. Lens and Refractor Gaskets: Use heat– and aging–resistant resilient gaskets to seal and cushion lenses and refractors in luminaire doors.

E. Reflecting surfaces shall have minimum reflectance as follows unless otherwise indicated:

1. White Surfaces: 85 percent.

2. Specular Surfaces: 83 percent.

3. Diffusing Specular Surfaces: 75 percent.

F. Housings:

1. Rigidly formed, weather– and light–tight enclosure that will not warp, sag, or deform in use.

2. Provide filter/breather for enclosed luminaires.

G. Factory–Applied Labels: Comply with UL 1598. Include recommended lamps. Labels shall be located where they will be readily visible to service personnel, but not seen from normal viewing angles when lamps are in place.

1. Label shall include the following lamp characteristics:

a. "USE ONLY" and include specific lamp type.

b. Lamp diameter, shape, size, wattage and coating.

c. CCT and CRI for all luminaires.

2.3 FINISHES

A. Variations in Finishes: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

B. Luminaire Finish: Manufacturer's standard paint applied to factory–assembled and –tested luminaire before shipping. Where indicated, match finish process and color of pole or support materials.

C. Factory–Applied Finish for Aluminum Luminaires: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

1. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

2. Natural Satin Finish: Provide fine, directional, medium satin polish (AA–M32); buff complying with AA–M20 requirements; and seal aluminum surfaces with clear, hard–coat wax.

3. Class I, Clear–Anodic Finish: AA–M32C22A41 (Mechanical Finish: Medium satin; Chemical Finish: Etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 611.

4. Class I, Color–Anodic Finish: AA–M32C22A42/A44 (Mechanical Finish: Medium satin; Chemical Finish: Etched, medium matte; Anodic Coating: Architectural Class I, integrally colored or electrolytically deposited color coating 0.018 mm or thicker), complying with AAMA 611.

a. Color: As scheduled.

D. Factory–Applied Finish for Steel Luminaires: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

1. Surface Preparation: Clean surfaces to comply with SSPC–SP 1, to remove dirt, oil, grease, and other contaminants that could impair paint bond. Grind welds and polish surfaces to a smooth, even finish. Remove mill scale and rust, if present, from uncoated steel, complying with SSPC–SP 5/NACE No. 1 or SSPC–SP 8.
2. Exterior Surfaces: Manufacturer's standard finish consisting of one or more coats of primer and two finish coats of high–gloss, high–build polyurethane enamel.

Color: As scheduled.
b.

PART 3 EXECUTION

3.1 EXAMINATION
A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Examine roughing–in for luminaire electrical conduit to verify actual locations of conduit connections before luminaire installation.

C. Examine walls, roofs, canopy ceilings and overhang ceilings for suitable conditions where luminaires will be installed.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 GENERAL INSTALLATION REQUIREMENTS

A. Comply with NECA 1.

B. Use fastening methods and materials selected to resist seismic forces defined for the application and approved by manufacturer.

C. Install lamps in each luminaire.

D. Fasten luminaire to structural support.

E. Supports:

1. Sized and rated for luminaire weight.

2. Able to maintain luminaire position after cleaning and relamping.

3. Support luminaires without causing deflection of finished surface.

4. Luminaire–mounting devices shall be capable of supporting a horizontal force of 100 percent of luminaire weight and a vertical force of 400 percent of luminaire weight.

F. Wiring Method: Install cables in raceways. Conceal raceways and cables.

G. Install luminaires level, plumb, and square with finished grade unless otherwise indicated. Coordinate layout and installation of luminaires with other construction.

H. Adjust luminaires that require field adjustment or aiming.

3.3 CORROSION PREVENTION

A. Aluminum: Do not use in contact with earth or concrete. When in direct contact with a dissimilar metal, protect aluminum by insulating fittings or treatment.

3.4 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

3.5 FIELD QUALITY CONTROL

A. Inspect each installed luminaire for damage. Replace damaged luminaires and components.

B. Perform the following tests and inspections:

1. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.

C. Luminaire will be considered defective if it does not pass tests and inspections.

3.6 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain luminaires].

3.7 ADJUSTING

A. Occupancy Adjustments: When requested within 12 months of date of Substantial Completion, provide on–site assistance in adjusting the direction of aim of luminaires to suit occupied conditions. Make up to two visits to Project during other–than–normal hours for this purpose. Some of this work may be required during hours of darkness.

END OF SECTION

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Engineer under the laws of the State of Minnesota.

Name Neal M. Wunderlich
Registration No. 14878 Date 1/24/17

Wunderlich-Malec
Engineering | Systems | Services
6101 Blue Circle Dr, Eden Prairie, MN 55343 Phone (952)933-3222 Fax (952)933-0606

SCALE	AS NOTED		
DRAWN BY	WME	DATE	1/24/17
CHECKED BY	JRO	DATE	1/24/17
APPROVED BY	JRO	DATE	1/24/17

BRIDGE NO. 93835 REHABILITATION
MINNEAPOLIS PARK AND RECREATION BOARD
724 SIBLEY ST. NE
MINNEAPOLIS, MN 55413
ELECTRICAL SPECIFICATION

SHEET	E5
PROJECT NO.	1116051
DRAWING NO.	1116051-E5

Nicollet Island – East Bank
Neighborhood Association (NIEBNA)
132 Bank St SE
Minneapolis, MN 55414
www.niebna.com

Date: October 15, 2016

To: Whom it may Concern

RE: NIEBNA preferences for Nicollet Island – Boom Island bridge materials and design

At the NIEBNA Board meeting on October 13, 2016 Daniel Elias from the Minneapolis Park and Recreation Board (MPRB) presented and discussed plans to repair the bridge between Boom Island and Nicollet Island. Multiple alternatives were presented for deck material, railing design and other design details.

The MPRB soliciting public comments regarding which of the alternatives should be adopted. Daniel encouraged people to make their preferences known either by returning the paper ballot he handed out at the meeting or by using the on-line survey at the project web site here.

In addition, the NEBNA Board adopted the following resolution by unanimous vote:

Resolved: The NIEBNA Board specifies as its preferred options the following:

a) for Decking, Option 1 (wood planking similar to the existing decking) and

b) for Railings, Option 4 (vertical steel members)

Please contact me with any questions.

For the Nicollet Island – East Bank Neighborhood Association

/s/ P. Victor Grambsch
_____
P. Victor Grambsch
President