

PROPOSAL PACKAGE

MINNESOTA SLIP PEDESTRIAN BRIDGE

**City of Duluth, Minnesota
411 West 1st Street
Duluth, MN 55802**

City Project # 1554

Bid # 2016-0643

Opening Date: November 17, 2016

Time: 11:00 AM

Place (Submit Bids): Room 100

PROPOSAL PACKAGE INDEX OF DOCUMENTS

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CITY OF DULUTH INVITATION TO BID

PROJECT NAME/DESCRIPTION: MINNESOTA SLIP PEDESTRIAN BRIDGE REHABILITATION

BID NUMBER: 2016-0643

BID OPENING: Thursday November 17, 2016 AT **11:00 AM**

PROJECT DESCRIPTION: Project consists of the rehabilitation of the Minnesota Slip Pedestrian Bridge to include but not limited to: replacement of the cable driven bridge operating machinery with new pivoting rack operating machinery, replacement and/ or addition of select electrical system components including span drive motors and brakes, limit switches, programmable logic controller (PLC), motor control equipment, modifications to vector motor drives, modifications to raceway and conductor systems, replacement of span lifting tie rods, replacement of span top chord center bearing assemblies, miscellaneous structural steel improvements, miscellaneous structure removals and bridge repainting.

Contractor shall be responsible for all labor, design, materials and incidentals necessary to complete the work except that the following items will be furnished at the project site by the City:

Enclosed Speed Reducers (2). The Enclosed Speed Reducers as outlined in the Plans and Special Provisions will be purchased directly by the City under a different Contract and will be delivered to the project site by the City or their vendor for unloading by the successful bidder of this Contract.

SITE FAMILIARITY: Contractors shall be responsible for review of site/ bridge prior to bidding to be informed of existing conditions. Failure to be informed of existing readily viewable site/structure conditions will not be justifiable cause for increased compensation or extension of Contract Time. If operation of the bridge or access into the bridge operator's booth is desired at time of review Contractor shall contact Joe Litman at 218-279-2455 to arrange for such. No prior arrangements are required to visually review the bridge.

QUESTIONS: Please submit any questions regarding this project via e-mail to Joe Litman at joe.litman@lhbcorp.com. Responses will be provided to all interested bidders as an addendum to this solicitation.

Each bidder must review the 2016 Edition of the City of Duluth Public Works & Utilities Department/Engineering Division "Construction Standards" available on the city website (www.duluthmn.gov) as these Specifications are incorporated by reference and are deemed to be a part hereof this project as if fully incorporated and set forth herein.

The selected contractor will be issued a construction contract (draft attached). Notice to Proceed will be issued once the agreement is fully executed.

Plans and specifications may be obtained at no cost from the City's Purchasing Division website at <http://www.duluthmn.gov/purchasing/bids-request-for-proposals/>. Hard copies of the plans and specifications may be obtained from the City Engineering Office, Room 211 City Hall, 411 West 1st Street, Duluth, MN 55802 for a nominal fee, payable by check or money order.

Plans and specifications are on file for inspection at the City Engineering Office, Duluth Builders Exchange, Minnesota Builder's Exchange, Wisconsin Builder's Exchange, and Blue Book Construction Network.

INSTRUCTIONS TO BIDDERS

All bids must be complete, signed, and transmitted in a sealed envelope plainly marked with the bid number, subject matter, and opening date. The City of Duluth reserves the right to split the award where there is a substantial savings to the City, to waive informalities and to reject any and all bids. Price may not be the only consideration for bid award. Bids must be firm for a minimum of 60 days.

Sealed bids must be received in Purchasing, Room 100 City Hall, 411 West 1st Street, Duluth, MN 55802 before 11:00 AM local time on the bid opening date specified on the Invitation for Bids. The City Purchasing Agent or her designee will conduct a public bid opening in Room 100 immediately following receipt of the bids. Bid results will be posted online at <http://www.duluthmn.gov/purchasing/bids-request-for-proposals/> once all bids have been reviewed.

No alternatives to the specification will be considered unless specifically requested. Erasures or other changes to the bid must be initialed and dated.

The following documents must be submitted with your bid:

1. **Bid Bond** - A certified check or bank draft, payable to the order of the City of Duluth, negotiable U.S. Government Bonds (at par value), or a satisfactory bid bond executed by the bidder and acceptable surety, in an amount equal to five per cent (5%) of the total bid. Bids may be withdrawn without forfeiture of surety if the request is submitted by the Bidder and received at the Purchasing Office in writing or by telephone prior to the scheduled bid opening.
2. **Acknowledgment of Addendum** (if applicable) – any changes to this solicitation will be announced via Addendum. All such Addenda shall become part of the resulting purchase order and/or contract and all bidders shall be bound by such Addenda, whether or not received by the bidders. Acknowledgement of Addenda should be indicated on your bid form by initialing and dating where indicated.
3. **Responsible Contractor** - No construction contract in excess of \$50,000 will be awarded unless the Bidder is a “responsible contractor” as defined in Minnesota Statute §16C.285, subdivision 3. All Bidders submitting a proposal for this project must verify that they meet the minimum criteria specified in the statute by submitting a Responsible Contractor Verification and Certification of Compliance form (attached). The owner or officer of the company must sign the form under oath verifying compliance with each of the minimum criteria. Making a false statement under oath will render the Bidder or subcontractor that makes the false statement ineligible to be awarded a construction project and may result in termination of a contract awarded to a Bidder or subcontractor that submits a false statement. Bidders must obtain verification of compliance from all subcontractors. Bidders must submit signed copies of verifications and certifications of compliance from subcontractors at the City’s request.

Please note that the following requirements also apply to this project, and any additional required documents must be submitted prior to award/contract execution. Submitting these documents with your bid will assist in expediting the process.

1. **Insurance** – Contractor must provide proof of Public Liability and Automobile Liability Insurance with limits not less than \$1,500,000 Single Limit prior to the commencement of work. The City of Duluth must be named as an additional insured. Please refer to the draft Contract, Section 7.
2. **Affidavit of Non-Collusion** – The successful bidder shall be required to execute the attached affidavit stating that he/she has not entered into a collusive agreement with any other person, firm, or corporation in regard to any bid submitted.
3. **Performance & Payment Bonds** – The successful bidder will be required to submit performance and payments bonds in the full amount of the project cost prior to award.
4. **Affirmative Action/EEO** - The contractor must take affirmative action to ensure that the employees and applicants for employment are not discriminated against because of their race, color, creed, sex or national origin, and must meet the affirmative action goals. Contractors are encouraged to subcontract with Disadvantaged Business Enterprises (DBEs) when possible. A current list of certified DBEs is available on the Minnesota Unified Certification website at <http://mnucp.metc.state.mn.us> . Contractor will comply with

all applicable Equal Employment Opportunity laws and regulations. Awarded contractor will submit the attached Equal Employment Opportunity (EEO) Affirmative Action Policy Statement & Compliance Certificate.

5. **Project Labor Agreement (PLA)** - A PLA will be required for any bid that is over or could virtually go over \$150,000. A copy of the City standard PLA is included in this package.

6. **Out of State Contractor** - Unless a State of Minnesota Certificate of Exemption is provided, any out-of-state bidder receiving a bid award will have 8% retained from invoice payments on any contracts over \$50,000. Contractors must submit a signed copy of the exemption form when submitting Payment and Performance Bonds. This form may be found at the following web address: http://www.revenue.state.mn.us/Forms_and_Instructions/sde.pdf

7. **Prevailing Wage** - Not less than the minimum salaries and prevailing wages as set forth in the contract documents must be paid on this project.

The City of Duluth is an Equal Opportunity Employer. Contractor shall comply with all applicable Equal Employment Opportunity laws and regulations.

CITY OF DULUTH

A handwritten signature in black ink, appearing to read 'Amanda Ashbach', written in a cursive style.

Amanda Ashbach
Purchasing Agent

BID FORM

ITEM	PRICE
	\$
Refer to EXHIBIT A - Schedule of Prices (must be returned with Bid)	\$
	\$
TOTAL=	\$

TOTAL PRICE IN WRITING _____

ACKNOWLEDGMENT OF ADDENDA

ADDENDUM #	DATE
ADDENDUM #	DATE
ADDENDUM #	DATE
ADDENDUM #	DATE

Signature _____ Date _____

Name/Title _____

Company Name _____

Address _____

City, State, Zip _____

Tel. _____

If your organization is certified as a disadvantaged business enterprise, please check here - ☐

EXHIBIT A
Schedule of Prices

Line No.	Spec. No.	Description	Unit	Est. Qty	Unit Price	Total Price
1	2013.602	TCLP TEST	EACH	4		
2	2021.501	MOBILIZATION	LUMP SUM	1.0		
3	2402.521	STRUCTURAL STEEL (3310)	LB	23,000.0		
4	2402.590	MISC. STRUCTURAL REPAIRS	EACH	1	\$ 100,000.00	\$ 100,000.00
5	2402.601	CENTER BEARING ASSEMBLY	LUMP SUM	1		
6	2402.601	TIE ROD ASSEMBLY	LUMP SUM	1		
7	2433.501	STRUCTURAL REMOVAL	LUMP SUM	1		
8	2433.601	OPERATING MACHINERY	LUMP SUM	1		
9	2476.601	WASTE COLLECTION AND DISPOSAL	LUMP SUM	1		
10	2478.601	ORGANIC ZINC -RICH PAINT SYSTEM (OLD)	LUMP SUM	1		
11	2545.601	BRIDGE ELECTRICAL SYSTEM	LUMP SUM	1		
12	2563.601	TRAFFIC CONTROL	LUMP SUM	1		

TOTAL: _____

**ATTACHMENT A
PRIME CONTRACTOR RESPONSE**

RESPONSIBLE CONTRACTOR VERIFICATION AND CERTIFICATION OF COMPLIANCE

STATE PROJECT NUMBER: _____

This form includes changes by statutory references from the Laws of Minnesota 2015, chapter 64, sections 1-9. This form must be submitted with the response to this solicitation. A response received without this form, will be rejected.

<p>Minn. Stat. § 16C.285, Subd. 7. IMPLEMENTATION. ... any prime contractor or subcontractor or motor carrier that does not meet the minimum criteria in subdivision 3 or fails to verify that it meets those criteria is not a responsible contractor and is not eligible to be awarded a construction contract for the project or to perform work on the project...</p>	
<p>Minn. Stat. § 16C.285, Subd. 3. RESPONSIBLE CONTRACTOR, MINIMUM CRITERIA. "Responsible contractor" means a contractor that conforms to the responsibility requirements in the solicitation document for its portion of the work on the project and verifies that it meets the following minimum criteria:</p>	
(1)	<p>The Contractor:</p> <ul style="list-style-type: none">(i) is in compliance with workers' compensation and unemployment insurance requirements;(ii) is in compliance with Department of Revenue and Department of Employment and Economic Development registration requirements if it has employees;(iii) has a valid federal tax identification number or a valid Social Security number if an individual; and(iv) has filed a certificate of authority to transact business in Minnesota with the Secretary of State if a foreign corporation or cooperative.
(2)	<p>The contractor or related entity is in compliance with and, during the three-year period before submitting the verification, has not violated section 177.24, 177.25, 177.41 to 177.44, 181.13, 181.14, or 181.722, and has not violated United States Code, title 29, sections 201 to 219, or United States Code, title 40, sections 3141 to 3148. For purposes of this clause, a violation occurs when a contractor or related entity:</p> <ul style="list-style-type: none">(i) repeatedly fails to pay statutorily required wages or penalties on one or more separate projects for a total underpayment of \$25,000 or more within the three-year period, provided that a failure to pay is "repeated" only if it involves two or more separate and distinct occurrences of underpayment during the three-year period;(ii) has been issued an order to comply by the commissioner of Labor and Industry that has become final;(iii) has been issued at least two determination letters within the three-year period by the Department of Transportation finding an underpayment by the contractor or related entity to its own employees;(iv) has been found by the commissioner of Labor and Industry to have repeatedly or willfully violated any of the sections referenced in this clause pursuant to section 177.27;(v) has been issued a ruling or findings of underpayment by the administrator of the Wage and Hour Division of the United States Department of Labor that have become final or have been upheld by an administrative law judge or the Administrative Review Board; or(vi) has been found liable for underpayment of wages or penalties or misrepresenting a construction worker as an independent contractor in an action brought in a court having jurisdiction. Provided that, if the contractor or related entity contests a determination of underpayment by the Department of Transportation in a contested case proceeding, a violation does not occur until the contested case proceeding has concluded with a determination that the contractor or related entity underpaid wages or penalties;*

(3)	The contractor or related entity is in compliance with and, during the three-year period before submitting the verification, has not violated section 181.723 or chapter 326B. For purposes of this clause, a violation occurs when a contractor or related entity has been issued a final administrative or licensing order;*
(4)	The contractor or related entity has not, more than twice during the three-year period before submitting the verification, had a certificate of compliance under section 363A.36 revoked or suspended based on the provisions of section 363A.36, with the revocation or suspension becoming final because it was upheld by the Office of Administrative Hearings or was not appealed to the office;*
(5)	The contractor or related entity has not received a final determination assessing a monetary sanction from the Department of Administration or Transportation for failure to meet targeted group business, disadvantaged business enterprise, or veteran-owned business goals, due to a lack of good faith effort, more than once during the three-year period before submitting the verification;*
	* Any violations, suspensions, revocations, or sanctions, as defined in clauses (2) to (5), occurring prior to July 1, 2014, shall not be considered in determining whether a contractor or related entity meets the minimum criteria.
(6)	The contractor or related entity is not currently suspended or debarred by the federal government or the state of Minnesota or any of its departments, commissions, agencies, or political subdivisions that have authority to debar a contractor; and
(7)	All subcontractors and motor carriers that the contractor intends to use to perform project work have verified to the contractor through a signed statement under oath by an owner or officer that they meet the minimum criteria listed in clauses (1) to (6).

Minn. Stat. § 16C.285, Subd. 5. **SUBCONTRACTOR VERIFICATION.**

A prime contractor or subcontractor shall include in its verification of compliance under subdivision 4 a list of all of its first-tier subcontractors that it intends to retain for work on the project. Prior to execution of a construction contract, and as a condition precedent to the execution of a construction contract, the apparent successful prime contractor shall submit to the contracting authority a supplemental verification under oath confirming compliance with subdivision 3, clause (7). Each contractor or subcontractor shall obtain from all subcontractors with which it will have a direct contractual relationship a signed statement under oath by an owner or officer verifying that they meet all of the minimum criteria in subdivision 3 prior to execution of a construction contract with each subcontractor.

If a prime contractor or any subcontractor retains additional subcontractors on the project after submitting its verification of compliance, the prime contractor or subcontractor shall obtain verifications of compliance from each additional subcontractor with which it has a direct contractual relationship and shall submit a supplemental verification confirming compliance with subdivision 3, clause (7), within 14 days of retaining the additional subcontractors.

A prime contractor shall submit to the contracting authority upon request copies of the signed verifications of compliance from all subcontractors of any tier pursuant to subdivision 3, clause (7). A prime contractor and subcontractors shall not be responsible for the false statements of any subcontractor with which they do not have a direct contractual relationship. A prime contractor and subcontractors shall be responsible for false statements by their first-tier subcontractors with which they have a direct contractual relationship only if they accept the verification of compliance with actual knowledge that it contains a false statement.

Subd. 5a. Motor carrier verification. A prime contractor or subcontractor shall obtain annually from all motor carriers with which it will have a direct contractual relationship a signed statement under oath by an owner or officer verifying that they meet all of the minimum criteria in subdivision 3 prior to execution of a construction contract with each motor carrier. A prime contractor or subcontractor shall require each such motor carrier to provide it with immediate written notification in the event that the motor carrier no longer meets one or more of the minimum criteria in subdivision 3 after submitting its annual verification. A motor carrier shall be ineligible to perform work on a project covered by this section if it does not meet all the minimum criteria in subdivision 3. Upon request, a prime contractor or subcontractor shall submit to the contracting authority the signed verifications of compliance from all motor carriers providing for-hire transportation of materials, equipment, or supplies for a project.

Minn. Stat. § 16C.285, Subd. 4. **VERIFICATION OF COMPLIANCE.**

A contractor responding to a solicitation document of a contracting authority shall submit to the contracting authority a signed statement under oath by an owner or officer verifying compliance with each of the minimum criteria in subdivision 3, with the exception of clause (7), at the time that it responds to the solicitation document.

A contracting authority may accept a signed statement under oath as sufficient to demonstrate that a contractor is a responsible contractor and shall not be held liable for awarding a contract in reasonable reliance on that statement. A prime contractor, subcontractor, or motor carrier that fails to verify compliance with any one of the required minimum criteria or makes a false statement under oath in a verification of compliance shall be ineligible to be awarded a construction contract on the project for which the verification was submitted.

A false statement under oath verifying compliance with any of the minimum criteria may result in termination of a construction contract that has already been awarded to a prime contractor or subcontractor or motor carrier that submits a false statement. A contracting authority shall not be liable for declining to award a contract or terminating a contract based on a reasonable determination that the contractor failed to verify compliance with the minimum criteria or falsely stated that it meets the minimum criteria. A verification of compliance need not be notarized. An electronic verification of compliance made and submitted as part of an electronic bid shall be an acceptable verification of compliance under this section provided that it contains an electronic signature as defined in section 325L.02, paragraph (h).

CERTIFICATION

By signing this document I certify that I am an owner or officer of the company, and I swear under oath that:

- 1) My company meets each of the Minimum Criteria to be a responsible contractor as defined herein and is in compliance with Minn. Stat. § 16C.285, and**
- 2) if my company is awarded a contract, I will submit Attachment A-1 prior to contract execution, and**
- 3) if my company is awarded a contract, I will also submit Attachment A-2 as required.**

Authorized Signature of Owner or Officer:

Printed Name:

Title:

Date:

Company Name:

NOTE: Minn. Stat. § 16C.285, Subd. 2, (c) If only one prime contractor responds to a solicitation document, a contracting authority may award a construction contract to the responding prime contractor even if the minimum criteria in subdivision 3 are not met.

ATTACHMENT A-1

FIRST-TIER SUBCONTRACTORS LIST

SUBMIT PRIOR TO EXECUTION OF A CONSTRUCTION CONTRACT

STATE PROJECT NUMBER: _____

Minn. Stat. § 16C.285, Subd. 5. A prime contractor or subcontractor shall include in its verification of compliance under subdivision 4 a list of all of its first-tier subcontractors that it intends to retain for work on the project. Prior to execution of a construction contract, and as a condition precedent to the execution of a construction contract, the apparent successful prime contractor shall submit to the contracting authority a supplemental verification under oath confirming compliance with subdivision 3, clause (7). Each contractor or subcontractor shall obtain from all subcontractors with which it will have a direct contractual relationship a signed statement under oath by an owner or officer verifying that they meet all of the minimum criteria in subdivision 3 prior to execution of a construction contract with each subcontractor.

FIRST TIER SUBCONTRACTOR NAMES* (Legal name of company as registered with the Secretary of State)	Name of city where company home office is located

*Attach additional sheets as needed for submission of all first-tier subcontractors.

SUPPLEMENTAL CERTIFICATION FOR ATTACHMENT A-1	
By signing this document I certify that I am an owner or officer of the company, and I swear under oath that: All first-tier subcontractors listed on attachment A-1 have verified through a signed statement under oath by an owner or officer that they meet the minimum criteria to be a responsible contractor as defined in Minn. Stat. § 16C.285.	
Authorized Signature of Owner or Officer:	Printed Name:
Title:	Date:
Company Name:	

ATTACHMENT A-2

ADDITIONAL SUBCONTRACTORS LIST

PRIME CONTRACTOR TO SUBMIT AS SUBCONTRACTORS ARE ADDED TO THE PROJECT

STATE PROJECT NUMBER: _____

This form must be submitted to the Project Manager or individual as identified in the solicitation document.

Minn. Stat. § 16C.285, Subd. 5. ... If a prime contractor or any subcontractor retains additional subcontractors on the project after submitting its verification of compliance, the prime contractor or subcontractor shall obtain verifications of compliance from each additional subcontractor with which it has a direct contractual relationship and shall submit a supplemental verification confirming compliance with subdivision 3, clause (7), within 14 days of retaining the additional subcontractors. ...

ADDITIONAL SUBCONTRACTOR NAMES* (Legal name of company as registered with the Secretary of State)	Name of city where company home office is located

*Attach additional sheets as needed for submission of all additional subcontractors.

SUPPLEMENTAL CERTIFICATION FOR ATTACHMENT A-2	
By signing this document I certify that I am an owner or officer of the company, and I swear under oath that: All additional subcontractors listed on Attachment A-2 have verified through a signed statement under oath by an owner or officer that they meet the minimum criteria to be a responsible contractor as defined in Minn. Stat. § 16C.285.	
Authorized Signature of Owner or Officer:	Printed Name:
Title:	Date:
Company Name:	

NOTICE TO BIDDERS
SUSPENSIONS/DEBARMENTS

April 13, 2016
Page 1 of 3

DEPARTMENT OF TRANSPORTATION

NOTICE OF DEBARMENT

NOTICE IS HEREBY GIVEN that MnDOT has ordered that the following vendors be debarred for a period of three (3) years, effective May 6, 2013 until May 6, 2016:

- Gary Francis Bauerly and his affiliates, Rice, MN
- Gary Bauerly, LLC and its affiliates, Rice, MN
- Watab Hauling Co. and its affiliates, Rice, MN

NOTICE IS HEREBY GIVEN that MnDOT has ordered that the following vendors be debarred for a period of three (3) years, effective September 17, 2014 until September 17, 2017:

- Jeffrey Plzak and his affiliates, Loretto, MN
- Laurie Plzak and her affiliates, Loretto, MN
- Honda Electric Incorporated and its affiliates, Loretto, MN
- Fibertech, Inc. and its affiliates, Loretto, MN
- Jeffrey and Laurie Plzak doing business as Honda Electric Logistics, and its affiliates, Loretto, MN

NOTICE IS HEREBY GIVEN that MnDOT has ordered that the following vendors be debarred for a period of three (3) years, effective January 12, 2015 until January 12, 2018:

- Marlin Dahl, Granada, MN
- Dahl Trucking, Elmore, MN
- Elmore Truck and Trailer, Inc., Elmore, MN

Minnesota Statute section 161.315 prohibits the Commissioner, counties, towns, or home rule or statutory cities from awarding or approving the award of a contract for goods or services to a person who is suspended or debarred, including:

- 1) any contract under which a debarred or suspended person will serve as a subcontractor or material supplier,
- 2) any business or affiliate which the debarred or suspended person exercises substantial influence or control, and
- 3) 3) any business or entity, which is sold or transferred by a debarred person to a relative or any other party over whose actions the debarred person exercises substantial influence or control, remains ineligible during the duration of the seller's or transfer's debarment.

**NOTICE TO BIDDERS
SUSPENSIONS/DEBARMENTS**

April 13, 2016
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DEPARTMENT OF ADMINISTRATION

As of the date of this notice and in accordance with Minnesota Rules 1230.1150, the Minnesota Department of Administration has debarred and disqualified the following persons and businesses from entering into or receiving a State of Minnesota contract:

NAME	DATE OF SUSPENSION
Devos, Ltd. d/b/a Guaranteed Returns Dean Volkes, Donna Fallon & Ronald Carlino 100 Colin Drive Holbrook, NY	December 5, 2014 through December 31, 2099
Wide Open Services, LLC Steve Mittelstaedt 6938 Highway 169 Virginia, MN 55792	March 30, 2016 through September 30, 2016
NAME	DATE OF DEBARMENT
Best Electric Thomas Clifton and Earl Standafer 9909 S. Shore Drive #155 Plymouth, MN 55441	May 22, 2015 through May 21, 2018 (eligible for reinstatement on May 21, 2019)
Best Used Trucks of Minnesota, Inc. Jason W. Leas 635 Marin Avenue Crookston, MN 56716	Nov. 20, 2012 through Nov. 20, 2015 (eligible for reinstatement on Nov. 20, 2016)
C & S Electric, Inc. Thomas Clifton and Earl Standafer 9909 S. Shore Drive #155 Plymouth, MN 55441	May 22, 2015 through May 21, 2018 (eligible for reinstatement on May 21, 2019)
Dahl Trucking Marlin Dahl 305 Highway 169 South Elmore, MN 56027	Aug.19, 2014 through January 12, 2018
Elmore Truck and Trailer Repair, Inc. Marlin Dahl 305 Highway 169 South Elmore, MN 56027	Aug.19, 2014 through Jan. 12, 2018 (eligible for reinstatement on Jan. 12, 2019)
Fibertech, Inc. Jeffrey and Laurie Plzak 5075 Nielsen Circle, P.O. Box 236 Loretto, MN 55357	July 24, 2014 through July 23, 2017 (eligible for reinstatement on July 23, 2018)
Groundscape Maintenance, Inc. Rob Sievers 1160 County Road 83 Maple Plain, MN 55359	February 19, 2015 through February 19, 2016 (eligible for reinstatement February 19, 2017)
Honda Electric, Inc. Jeffrey and Laurie Plzak 5075 Nielsen Circle, P.O. Box 236 Loretto, MN 55357	July 24, 2014 through July 23, 2017 (eligible for reinstatement on July 23, 2018)
Hunt's Carpet Service, Inc. ¹ Robert and Joni Hunt 4102 46th Avenue North Robbinsdale, MN 55422	Sept. 15, 2015 through Sept. 15, 2020

¹ Debarred by Hennepin County from working on any Hennepin County projects as a general contractor or subcontractor at any tier. Minn. Rules Part 1230.1150, subpart 2, item B, subitem (1) provides that any vendor debarred by the federal government, the state of Minnesota, or any of its departments, commissions, agencies, or political subdivisions, is automatically debarred by the (Department of Administration, Materials Management) division under the same terms and limits of the original debarment.

**NOTICE TO BIDDERS
SUSPENSIONS/DEBARMENTS**

April 13, 2016
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McCaa, Webster & Associates, Inc. Sammie McCaa 2751 Hennepin Avenue South, #301 Minneapolis, MN 55408-1002	May 1, 2014 through April 30, 2015 (eligible for reinstatement on April 30, 2016)
MG Carlson Construction Company, Inc. Martin Gerald Carlson 701 East First Street Fort Worth, TX 76102-3276	Sept. 5, 2014 through October 5, 2015 (eligible for reinstatement on April 5, 2016)
Ocuture, LLC 11930 Camby Park Drive Houston, TX 77047	Dec. 15, 2014 through Dec. 15, 2015 (eligible for reinstatement Dec. 15, 2016)
Ramco Heating and Air Conditioning Mark and Cheryl Ramquist 605 Ash Street Downing, WI 54734	March 11, 2015 through March 11, 2016 (eligible for reinstatement March 11, 2017)
Southwest Paving, Inc. Greg Brakefield 26412 State Highway 29 Deer Creek, MN 56527	March 30, 2016 through March 30, 2017 (eligible for reinstatement March 30, 2018)
St. Cloud Lawn & Landscaping, Inc. Pat Murphy 10602 County Road 2 Brainerd, MN 56401	February 20, 2015 through February 20, 2016 (eligible for reinstatement on Feb. 20, 2017)
TAC Construction Solutions, Inc. Christina Woods 31767 Deacons Way Pequot Lakes, MN 56472	August 19, 2014 through August 19, 2016 (eligible for reinstatement on August 19, 2017)
Watab Hauling Co. Gary Francis Bauerly 9695 Deerwood Rd. NE Rice, MN 56367	Jan. 14, 2013 through Jan. 14, 2016 (eligible for reinstatement on Jan. 14, 2017)

Minnesota Administrative Rule part 1230.1150, subpart 6 requires the Materials Management Division to maintain a master list of all suspensions and debarments. The master list must retain all information concerning suspensions and debarments as a public record for at least three (3) years following the end of a suspension or debarment. Refer to the following website for the master list:
<http://www.mmd.admin.state.mn.us/debarredreport.asp>.

If the project is financed in whole or in part with federal funds, refer to the following website for vendors debarred by federal government agencies: <http://sam.gov>.

This list does not include preclusion actions taken by cities, counties or local authorities. Consult local authorities to ensure that contractors, subcontractors and materials suppliers are not currently suspended or debarred.

DATA FOR LABOR COST BIDDING

NOTE:

Wage Decisions are subject to change due to lock-in rules and revisions near the bid opening.

Project No.: 1554

Name: MINNESOTA SLIP PEDESTRIAN BRIDGE REHABILITATION

City Project Manager: Duncan Schwensohn, PE

Bid Opening Date: November 17, 2016

This **project is funded** by:

City of Duluth

The **base workweek** may be:

**Five 8-hour days OR four 10-hour days with OT after each
AND
OT after 40 hours per week**

The project DOES contain a *project labor agreement (PLA)*.

Should a project contain a project labor agreement:

- 1) Union scale may **not** be reflected in the prevailing wage schedule(s)
- 2) Note Article II Section 10 for trucking labor costs

City of Duluth funding only:

Each certified payroll must indicate the base workweek on the accompanying MnDOT Statement of Compliance form and beside each employee's name when his/her hours differ from the normal base workweek, if applicable.

OVERTIME REQUIREMENTS:

For projects funded by the City of Duluth: overtime must be paid on daily hours worked in excess of the base daily hours. Contractors (including sub-contractors) are not allowed to pay overtime solely on hours in excess of forty per week.

The overtime rate must be paid at NO LESS than the rate of pay as established in the project's wage decision multiplied by one and one-half OR the base rate the employee is being paid if it is higher than the wage decision base rate.

Project Prevailing Wage Decision: U S DOL MN160105 8/26/2016

>

General Decision Number: MN160105 08/26/2016 MN105

Superseded General Decision Number: MN20150105

State: Minnesota

Construction Type: Heavy

County: St Louis County in Minnesota.

HEAVY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.15 for calendar year 2016 applies to all contracts subject to the Davis-Bacon Act for which the solicitation was issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.15 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2016. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/08/2016
1	03/04/2016
2	04/15/2016
3	06/17/2016
4	07/22/2016
5	07/29/2016
6	08/26/2016

BOIL0647-004 01/01/2013

	Rates	Fringes
BOILERMAKER.....	\$ 32.40	25.37

CARP0361-020 05/01/2015

ST LOUIS COUNTY (Southern 1/3 including Cotton, Floodwood, Fond Du Lac, and Proctor)

	Rates	Fringes
CARPENTER (Including Form Work).....	\$ 34.11	17.08

CARP0361-021 05/01/2015

ST LOUIS (Duluth)

	Rates	Fringes
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CARPENTER (Including Form
Work).....\$ 34.11 17.08

CARP0606-010 05/01/2015

ST LOUIS COUNTY (Northeast 2/3 including Cook, Cusson, Ely; and
Western part including Chisholm, Greaney, and Orr)

	Rates	Fringes
CARPENTER (Including Form Work).....	\$ 34.11	17.08

ELEC0242-012 05/29/2016

ST. LOUIS (South part bounded on the north by the north line of
Kelsey Township extended east & west)

	Rates	Fringes
ELECTRICIAN.....	\$ 34.92	25.05

ELEC0294-006 05/29/2016

ST. LOUIS (North part bounded on the south by the south line of
Ellsburg Township, extended east & west)

	Rates	Fringes
ELECTRICIAN.....	\$ 35.60	71.72%

ENGI0049-064 05/01/2016

	Rates	Fringes
OPERATOR: Power Equipment		
Group 2.....	\$ 34.39	18.90
Group 3.....	\$ 33.84	18.90
Group 4.....	\$ 33.54	18.90
Group 5.....	\$ 30.50	18.90
Group 6.....	\$ 29.29	18.90

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 2: Crane with over 135' Boom, excluding jib; Dragline
& Hydraulic Backhoe with shovel-type controls, 3 cubic
yards and over; Grader/Blade finishing earthwork and
bituminous.

GROUP 3: Dragline & Hydraulic Backhoe with shovel-type
controls up to 3 cubic yards; Loader 5 cu yd and over;
Mechanic; Tandem Scraper; Truck Crane; Crawler Crane

GROUP 4: Bituminous Roller 8 tons & over; Crusher/Crushing
Plant; Drill Rig; Elevating Grader; Loader over 1 cu yd;
Grader; Pump; Scraper up; to 32 cu yd; Farm Tractor with

Backhoe attachment; Skid Steer Loader over 1 cu yd with
Backhoe attachment; Bulldozer over 50 hp.

GROUP 5: Bituminous Roller under 8 tons; Bituminous Rubber
Tire Roller; Loader up to 1 cu yd; Bulldozer 50 hp or less.

GROUP 6: Oiler; Self-Propelled Vibrating Packer 35 hp and
over.

CRANE OVER 135' BOOM, EXCLUDING JIB - \$.25 PREMIUM;
CRANE OVER 200' BOOM, EXCLUDING JIB - \$.50 PREMIUM

UNDERGROUND WORK:
UNNELS, SHAFTS, ETC. - \$.25 PREMIUM
UNDER AIR PRESSURE - \$.50 PREMIUM

HAZARDOUS WASTE PROJECTS (PPE Required):
LEVEL A - \$1.25 PREMIUM
LEVEL B - \$.90 PREMIUM
LEVEL C - \$.60 PREMIUM

* IRON0512-028 06/05/2016

	Rates	Fringes
IRONWORKER, STRUCTURAL AND REINFORCING.....	\$ 31.54	24.90

LABO1091-006 05/01/2016

ST LOUIS (South of T. 55 N)

	Rates	Fringes
LABORERS		
(1) Common or General.....	\$ 29.13	17.12
(2) Mason Tender		
Cement/Concrete.....	\$ 29.33	17.12
(6) Pipe Layer.....	\$ 31.63	17.12

LABO1091-007 05/01/2016

SOUTHERN ST. LOUIS COUNTY

	Rates	Fringes
LABORER		
Common or General (Natural Gas Pipeline only).....	\$ 29.13	17.12

LABO1097-002 05/01/2014

NORTHERN ST. LOUIS COUNTY

	Rates	Fringes
LABORER		
Common or General (Natural Gas Pipeline only).....	\$ 25.02	18.16

LABO1097-005 05/01/2014

ST LOUIS (North of T. 55 N)

	Rates	Fringes
LABORERS		
(1) Common or General.....	\$ 25.02	18.16
(2) Mason Tender		
Cement/Concrete.....	\$ 25.22	18.16
(6) Pipe Layer.....	\$ 27.52	18.16

PLAS0633-036 05/01/2016

ST. LOUIS COUNTY (North of T 55N)

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 33.95	17.63

PLAS0633-039 05/01/2016

ST. LOUIS COUNTY (South of T 55N)

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 33.95	17.63

TEAM0160-018 05/01/2015

	Rates	Fringes
TRUCK DRIVER (DUMP)		
(1) Articulated Dump Truck..	\$ 28.70	15.20
(2) 3 Axles/4 Axles; 5		
Axles receive \$0.30		
additional per hour.....	\$ 28.15	15.20
(3) Tandem Axles; & Single		
Axles.....	\$ 28.05	15.20

SUMN2009-072 09/28/2009

	Rates	Fringes
LABORER: Landscape.....	\$ 12.88	4.61

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.

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Unlisted classifications needed for work not included within
the scope of the classifications listed may be added after
award only as provided in the labor standards contract clauses
(29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in

the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION

AFFIDAVIT AND INFORMATION REQUIRED OF BIDDERS

Affidavit of Non-Collusion:

I hereby swear (or affirm) under penalty of perjury:

- 1) That I am the bidder (if the bidder is an individual), a partner in the bidder (if the bidder is a partnership), or an officer or employee of the bidding corporation having authority to sign on its behalf (if the bidder is a corporation);
- 2) That the attached bid or bids have been arrived at by the bidder independently and have been submitted without collusion with and without agreement, understanding, or planned common course of action with any other vendor or materials, supplied, equipment or services described in the invitation to bid, designed to limit independent bidding or competition;
- 3) That the contents of the bid or bids have not been communicated by the bidder or its employees or agents to any person not an employee or agent of the bidder or its surety on any bond furnished with the bid or bids and will not be communicated to any such person prior to the official opening of the bid or bids; and
- 4) That I have fully informed myself regarding the accuracy of the statements made in this affidavit.

Signed:_____

Firm Name:_____

Subscribed and sworn to me before this____ day of _____, _____

NOTARY PUBLIC_____

My commission expires:_____

Bidder's E.I. Number_____

(Number used on employer's quarterly Federal Tax return)

**EQUAL EMPLOYMENT OPPORTUNITY (EEO) AFFIRMATIVE ACTION
POLICY STATEMENT & COMPLIANCE CERTIFICATE**

TO: City of Duluth, Minnesota **PROJECT NUMBER & DESCRIPTION** _____

FROM: _____

(FIRM's name, address, telephone number)

A) Employment: It is the policy of the above named FIRM to afford equal opportunity for employment to all individuals regardless of race, color, creed, religion, national origin, ancestry, age, sex, marital status, status with respect to public assistance and/or disability. The FIRM will take affirmative action to ensure that we will: (1) recruit, hire, and promote all job classifications without regard to race, color, creed, religion, national origin, ancestry, age, sex, marital status, status with respect to public assistance, and/or disability, except where sex is a bona fide occupational qualification; (2) base decisions on employment so as to further the principle of equal employment opportunity; (3) ensure that promotion decisions are in accord with the principles of equal employment opportunity by imposing only valid requirements for promotional opportunities; (4) ensure that all personnel actions such as compensation, benefits, transfers, layoffs, return from layoff, FIRM sponsored training, education tuition assistance, social and recreational programs will be administered without regard to race, color, creed, religion, national origin, ancestry, age, sex, marital status, status with respect to public assistance, and/or disability. The FIRM also intends full compliance with Veteran affirmative action requirements. Additionally, minority and female employees shall be encouraged to participate in all FIRM activities and refer applicants.

I have designated (name) _____ to direct the establishment of and to monitor the implementation of personnel procedures to guide the FIRM's affirmative action program. Where PROJECTS exceed \$500,000, this official shall also serve as the liaison officer that administers the FIRM's "Minority Business Enterprise Program." This official is charged with designing and implementing audit and reporting systems that will keep management informed on a monthly basis of the status of the equal opportunity area.

Supervisors have been made to understand that their work performance is being evaluated on the basis of their equal opportunity efforts and results, as well as other criteria. It shall be the responsibility of the FIRM and its supervisors to take actions to prevent harassment of employees placed through affirmative action efforts.

B) Reports: Unless exempted by law and regulation, the FIRM shall make available and file those reports related to equal opportunity as may be required by the City of Duluth and State and Federal compliance agencies. Requirements and Reports are defined in 41CFR60 "Compliance Responsibility for Equal Opportunity" published by the U. S. Department of Labor which is incorporated herein by reference. Additional requirements are defined in various State and Federal Civil Rights Legislation and Rules promulgated thereunder.

C) Nonsegregated Facilities: The FIRM certifies that it does not maintain or provide for its employees any segregated facilities at any of its establishments and that it does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The FIRM certifies that it will not maintain or provide for its employees any segregated facilities at any of its establishments and that it will not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The FIRM agrees that a breach of this

certification is a violation of the Equal Opportunity Clause in this certificate. As used in this Certification, the term “segregated facilities” means any waiting rooms, work area, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation for entertainment area, transportation, and housing facilities provided for employees which are segregated by explicit directive or are, in fact, segregated on the basis of race, color, religion, or national origin, because of habit, local custom, or otherwise.

- D) Affirmative Action Compliance Program:** Unless exempted by regulation and law, the FIRM—if the FIRM has 50 or more employees and if the value of current contracts with the City of Duluth exceeds \$50,000—shall prepare and maintain a written affirmative action compliance program that meets the requirement as set forth in 41CFR60.
- E) Non-Compliance:** The FIRM certifies that it is not currently in receipt of any outstanding letters of deficiencies, show cause, probable cause, or other such notification of non-compliance with EEO Laws and Regulations.
- F) Employment Goals - “Construction” Projects:** It shall be the goal of the FIRM if the PROJECT is of a construction nature that in all on-site employment generated that no less than 3% of the on-site workforce will be minority employees and that no less than 7% of the on-site workforce will be female employees. Further, it is the goal of the FIRM if the PROJECT is of a construction nature that in all on-site employment generated that no less than 3% of the work hours generated shall be worked by minority employees and that no less than 7% of the work hours generated shall be worked by female employees.
- G) Subcontractors:** The FIRM will for all its PROJECT subcontractors regardless of tier (unless exempted by law and regulation) that received in excess of \$2,500 require that: (1) the subcontractor shall execute an “EEO Statement and Certification” similar in nature to this “Statement and Certification”, (2) said documentation to be maintained on file with the FIRM or subcontractor as may be appropriate.

Executed this _____ day of _____, 20__ by:

Printed name and title

Signature

NOTE: In addition to the various remedies prescribed for violation of Equal Opportunity Laws, the penalty for false statements is prescribed in 18 U.S.C. 1001.



CITY OF DULUTH
PERFORMANCE BOND

KNOW ALL MEN BY

THESE PRESENTS: That we:

(contractor's name)
(hereinafter called the "Contractor") located at: _____

(contractor's address)

and _____
(surety's name)

(a corporation holding a certificate of the Insurance Commissioner of the State of Minnesota showing that it is authorized to contract as a surety, hereinafter called the "Surety") located at:

(surety's address)

are held and firmly bound unto the City of Duluth (hereinafter called the "Owner"), in the penal sum of _____

Dollars (\$_____) for the payment of which we bind ourselves, our heirs, executors and administrators, successors and assigns, for the faithful performance of a written contract for the purpose of:

according to plans, profiles, and specifications thereto annexed. A copy of that contract is incorporated herein by reference and is made a part hereof as if fully copied herein.

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION ARE SUCH That,

- A) If the Contractor shall in all respects comply with the terms and conditions of the Contract (which includes the contract documents) and such alterations as may be made in said contract as documents therein provide for, and shall complete the contract in accordance with its terms,
- B) If the Contractor shall indemnify, defend and save harmless the owner from all costs, expenses, damages, injury or conduct, want or care or skill, negligence or default, including patent infringement on the part of the Contractor, agents or employees, in the execution or performance of the contract,
- C) If the Contractor shall indemnify the owner for all costs that may accrue on account of the

enforcing of the terms of the bond, if action is brought on the bond, including reasonable attorney's fees, in any case where such action is successfully maintained,

D) If the Contractor shall comply with all laws pertaining to doing the work under the contract,

Then, this obligation shall be void; the Contractor and Surety jointly and severally agree to pay to the Owner any difference between the sum to which the Contractor will be entitled on the completion of the contract and that which the Owner may be obliged to pay for the completion of the work by contract or otherwise, and any damages, direct or indirect, or consequential, which the Owner may sustain on account of the work, or on account of the failure of the Contractor to properly and in all things, keep and execute all of the provisions of the Contract, provided however that Surety's liability to pay damages is limited to the amount of the Performance Bond as set forth above.

And, the said Contractor and Surety hereby further bind themselves, their successors, executors, administrators and assigns, jointly and severally, that they will employ and fully protect the said Owner against and will pay any and all amounts, damages, costs and judgements which may be recovered against or which the Owner may be called upon to pay to any person or corporation by reason of any damage arising from the performance of said work, repair or maintenance thereof, or the manner of doing the same, or the neglect of the said Contractor or his agents or servants, or the improper performance of the said work by the Contractor or his agents or servants, or the infringements of any patent rights by reason of the use of any material furnished or work done, as aforesaid, or otherwise. For the purpose of this paragraph, a subcontractor shall be deemed to be the agent or employee of the Contractor to the extent of his subcontract.

The Contractor and the Sureties do hereby expressly waive any objection that might be interposed as to the right of the Owner to require a bond containing the foregoing provisions, and they do hereby further expressly waive any defense which they or either and any of them might interpose to an action brought hereon by any person, firm, or corporation, including subcontractors, materialmen and third persons, for work, labor, services, supplies or material performed, rendered or furnished as aforesaid, upon the ground that there is no law authorizing the Owner to require the foregoing provisions to be placed in this bond.

And the Surety, for value received, hereby stipulates and agrees that the obligations of the Surety and this bond shall in no way be impaired or affected by any extension of time, modification, omission, addition or change in or to the contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provision thereof, or by any assignment, subletting or other transfer thereof, or of any part thereof, or of any work to be performed, or of any moneys due or to become due thereunder; and

the said Surety does hereby waive notice of any and all such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers, and hereby stipulates and agrees that any and all things done and omitted to be done by and in relation to executors, administrators, successors, assignees, subcontractors and other transferees, shall have the same effect as to said Surety as though done or omitted to be done by and in relation to the Contractor.

Signed this _____ day of _____, 20____.

Name of Principal

By

Name of Surety

By _____
Attorney-in-Fact

ACKNOWLEDGEMENTS

State of Minnesota)
) ss. Principal – Individual
County of St. Louis)

This instrument was acknowledged before me on _____
by _____.

Notary Seal

Notary Public

State of Minnesota)
) ss. Principal – Corporate or Partnership
County of St. Louis)

This instrument was acknowledged before me on _____
by _____ as _____
of _____.

Notary Seal

Notary Public

State of Minnesota)
) ss. Surety
County of St. Louis)

Be It Known, That on this _____ day of _____ A. D., 20____, came before me personally
_____, to me personally known, who being
by me duly sworn, did say that he/she is the _____ (title) of

the above named corporation which executed the foregoing bond as surety; that the seal affixed to the foregoing
instrument is the corporate seal of said corporation; that said instrument was executed in behalf of said corporation, by
authority of its Board of Directors; that said corporation hold a certificate of the Insurance Commissioner of the State of
Minnesota showing that it is authorized to contract as a surety; and said

acknowledged said instrument to be the free act and deed of said corporation.

Notary Seal

Notary Public

APPROVED AS TO FORM, CORRECTNESS AND VALIDTY HEREOF

Dated this _____ day of _____, 20 ____

Assistant City Attorney Duluth MN

Dated this _____ day of _____, 20 ____

Finance Director Duluth MN



CITY OF DULUTH
PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: That we:

(contractor's name)
(hereinafter called the "Contractor") located at: _____

(contractor's address)

and _____
(surety's name)

(a corporation holding a certificate of the Insurance Commissioner of the State of Minnesota showing that it is authorized to contract as a surety, hereinafter called the "Surety") located at:

(surety's address)

are held and firmly bound unto the City of Duluth (hereinafter called the "Owner"), for the benefit of persons furnishing labor and materials for the contract set forth below, in the penal sum of

Dollars (\$_____) for the payment of which we bind ourselves, our heirs, executors and administrators, successors and assigns, for the payment of all labor and materials supplied by any person in the performance of a written contract for the purpose of:

according to plans, profiles, and specifications thereto annexed. A copy of that contract is incorporated herein by reference and is made a part hereof as if fully copied herein.

NOW, THEREFORE, THE CONDITIONS OF THIS OBLIGATION ARE SUCH That,

- A) If the Contractor shall make payments, as they may become due, to all persons supplying "labor and materials," as defined in Minnesota Statutes Section 574.26, used directly or indirectly by the Contractor, or his Subcontractor, in the prosecution of the work provided for in the contract,
- B) If the Contractor shall indemnify the owner or other claimant for all costs that may accrue on account of the enforcing of the terms of the bond, if action is brought on the bond, including reasonable attorney's fees, in any case where such action is successfully maintained,

Then, this obligation shall be void; otherwise it shall remain in full force and effect.

And, the said Contractor and Surety agree that in accordance with Minnesota Statutes Section 574.26 not only said City, but any person furnishing "labor and materials," as defined in Minnesota Statutes 574.26, may sue on this bond for their use on account of any sums due them for anything so furnished.

The Contractor and the Sureties do hereby expressly waive any objection that might be interposed as to the right of the Owner to require a bond containing the foregoing provisions, and they do hereby further expressly waive any defense which they or either and any of them might interpose to an action brought hereon by any person, firm, or corporation, including subcontractors, materialmen and third persons, for work, labor, services, supplies or material performed, rendered or furnished as aforesaid, upon the ground that there is no law authorizing the Owner to require the foregoing provisions to be placed in this bond.

And the Surety, for value received, hereby stipulates and agrees that the obligations of the Surety and this bond shall in no way be impaired or affected by any extension of time, modification, omission, addition or change in or to the contract or the work to be performed thereunder, or by any payment thereunder before the time required therein, or by any waiver of any provision thereof, or by any assignment, subletting or other transfer thereof, or of any part thereof, or of any work to be performed, or of any moneys due or to become due thereunder; and the said Surety does hereby waive notice of any and all such extensions, modifications, omissions, additions, changes, payments, waivers, assignments, subcontracts and transfers, and hereby stipulates and agrees that any and all things done and omitted to be done by and in relation to executors, administrators, successors, assignees, subcontractors and other transferees, shall have the same effect as to said Surety as though done or omitted to be done by and in relation to the Contractor.

Signed this ____ day of _____, 20____.

Name of Principal

By

Name of Surety

By
Attorney-in-Fact

ACKNOWLEDGEMENTS

State of Minnesota)
County of St. Louis) ss. Principal – Individual

This instrument was acknowledged before me on _____
by _____.

Notary Seal

Notary Public

State of Minnesota)
County of St. Louis) ss. Principal – Corporate or Partnership

This instrument was acknowledged before me on _____
by _____ as _____
of _____.

Notary Seal

Notary Public

State of Minnesota)
County of St. Louis) ss. Surety

Be It Known, That on this _____ day of _____ A. D., 20____, came before me personally
_____, to me personally known, who being
by me duly sworn, did say that he/she is the _____ (title)
of _____

the above named corporation which executed the foregoing bond as surety; that the seal affixed to the foregoing
instrument is the corporate seal of said corporation; that said instrument was executed in behalf of said corporation, by
authority of its Board of Directors; that said corporation hold a certificate of the Insurance Commissioner of the State of
Minnesota showing that it is authorized to contract as a surety; and said _____
acknowledged said instrument to be the free act and deed of said corporation.

Notary Seal

Notary Public

APPROVED AS TO FORM, CORRECTNESS AND VALIDTY HEREOF

Dated this _____ day of _____, 20 ____

Assistant City Attorney Duluth MN

Dated this _____ day of _____, 20 ____

Finance Director Duluth MN

City of Duluth Indemnification & Insurance Requirements

INDEMNIFICATION CLAUSE

To the extent allowed by law, Consultant shall defend, indemnify and hold City and its employees, officers, and agents harmless from and against any and all cost or expenses, claims or liabilities, including but not limited to, reasonable attorneys' fees and expenses in connection with any claims resulting from the Consultant's a) breach of this agreement or b) its negligence or misconduct or that of its agents or contractors in performing the Services hereunder or c) any claims arising in connection with Consultant's employees or contractors, or d) the use of any materials supplied by the Consultant to the City unless such material was modified by City and such modification is the cause of such claim. This Section shall survive the termination of this Agreement for any reason.

INSURANCE

- a. Contractor shall provide the following minimum amounts of insurance from insurance companies authorized to do business in the state of Minnesota, which insurance shall indemnify Contractor and City from all liability described in the paragraph above, subject to provisions of subparagraph below.
 - (1) Worker's compensation in accordance with the laws of the state of Minnesota.
 - (2) Public Liability and Automobile Liability Insurance with limits not less than **\$1,500,000** Single Limit, and twice the limits provided when a claim arises out of the release or threatened release of a hazardous substance; shall be in a company approved by the city of Duluth; and shall provide for the following: Liability for Premises, Operations, Completed Operations, Independent Contractors, and Contractual Liability.
 - (3) City of Duluth shall be named as **Additional Insured** under the Public Liability, Excess/Umbrella Liability* and Automobile Liability, or as an alternate, Contractor may provide Owners-Contractors Protective policy, naming itself and the City of Duluth. Contractor shall also provide evidence of Statutory Minnesota Worker's Compensation Insurance. Contractor to provide Certificate of Insurance evidencing such coverage with 30-days' notice of cancellation, non-renewal or material change provisions included. The City of Duluth does not represent or guarantee that these types or limits of coverage are adequate to protect the Contractor's interests and liabilities.
 - (4) *An umbrella policy with a "following form" provision is acceptable if written verification is provided that the underlying policy names the City of Duluth as an additional insured.*
 - (4) If a certificate of insurance is provided, the form of the certificate shall contain an unconditional requirement that the insurer notify the City without fail not less than 30 days' prior to any cancellation, non-renewal or modification of the policy or coverages evidenced by said certificate and shall further provide that failure to give such notice to City will render any such change or changes in said policy or coverages ineffective as against the City.
 - (5) **The use of an "Acord" form as a certificate of insurance shall be accompanied by two forms – 1) ISO Additional Insured Endorsement (CG-2010 pre-2004) and 2) Notice of Cancellation Endorsement (IL 7002) or equivalent, as approved by the Duluth City Attorney's Office.**
- b. The insurance required herein shall be maintained in full force and effect during the life of this Agreement and shall protect Contractor, its employees, agents and representatives from claims and damages including but not limited to personal injury and death and any act or failure to act by Contractor, its employees, agents and representatives in the negligent performance of work covered by this Agreement.
- c. Certificates showing that Contractor is carrying the above described insurance in the specified amounts shall be furnished to the City prior to the execution of this Contract and a certificate showing continued maintenance of such insurance shall be on file with the City during the term of this Contract.
- d. The City shall be named as an additional insured on each liability policy other than the workers' compensation policies of the Contractor.
- e. The certificates shall provide that the policies shall not be changed or canceled during the life of this Contract without at least 30 days advanced notice being given to the City.

- f. Contractor shall be required to provide insurance meeting the requirements of this Paragraph unless Contractor successfully demonstrates to the satisfaction of the City Attorney, in the exercise of his or her discretion, that such insurance is not reasonably available in the market. If Contractor demonstrates to the satisfaction of the City Attorney that such insurance is not reasonably available, the City attorney may approve an alternative form of insurance which is reasonably available in the market which he or she deems to provide the highest level of insurance protection to the City which is reasonably available.

PRE-2004 CG 2010

- A. **Section II - Who Is an Insured** is amended to include as an insured the person or organization shown in the Schedule, but only with respect to liability arising out of your ongoing operations performed for that insured.

NOTICE OF CANCELLATIONS ENDORSEMENT

IL-7002 (10-90)

All Coverage Parts included in this policy are subject to the following condition: If we cancel this policy for any reason other than non-payment of premium, we will mail advance notice to the person(s) or organization(s) as shown in the Schedule.

Schedule	
Person or Organization (Name and Address)	Advance Notice (Days)
City of Duluth Purchasing Division Room 100 City Hall 411 West First Street Duluth MN 55802	30

CONTRACTOR & CITY OF DULUTH

THIS AGREEMENT, effective as of the date of attestation by the City Clerk, is made by and between the **CITY OF DULUTH**, a municipal corporation, hereinafter referred to as the "CITY," party of the first part, and **Contractor, address**, hereinafter referred to as the "Contractor," party of the second part;

WITNESSETH: That the Contractor and the City agree as follows:

1. The following shall be deemed to be part of this contract:
 - a. The annexed resolution and legal advertisement of the City Council.
 - b. The bid request and specifications, as modified by irreconcilable language in this written contract.
 - c. The bid by Contractor, as modified by irreconcilable language in this written contract.
 - d. The performance bond and payment bond certification.
 - e. All provisions of law applicable to a contract of this nature.
2. The Contractor agrees to furnish and deliver to the **Department** all labor, supervision, material, equipment, supplies, insurance, performance bond, payment bond and everything else necessary for general construction of **Project** at **location**, all in strict accordance with plans and specifications prepared by **design co. or city architect**, your bid of \$ and **resolution no. passed on date**. Contractor shall not commence performance of any work under this contract until Contractor receives authorization from the City's Purchasing Agent in writing and dated.
3. The City agrees to pay progress payments and make final payments to the Contractor as stated in the contract specifications. The total amount payable under this contract shall not exceed **dollar amount spelled out (\$)** unless the contract is modified by formal amendment or change order. Payments under this Agreement shall be made from the following **funding** and **RQ no**. Due to the dollar amount of this contract, a Project Labor Agreement **is or is not** included as part of this contract (City Code Section 2-29).
4. The Contractor shall furnish and maintain in full force and effect until this contract is completely performed by the Contractor, a performance bond and payment bond if and when required by law, or if and when required by the City.
5. Inasmuch as this contract concerns work, materials and equipment needed for the public benefit, the provisions of this contract relating to the time of performance and completion of work and delivery of materials or equipment are of the essence of this contract.
6. The Contractor will defend, indemnify and save the City harmless from all costs, charges, damages, and loss of any kind that may grow out of the matters covered by this contract.

Said obligation does not include indemnification of the City for claims of liability arising out of the sole negligent or intentional acts or omissions of City but shall include but not be limited to the obligation to defend, indemnify and save harmless the City in all cases where claims of liability against the City arise out of acts or omissions of City which are derivative of the negligence or intentional acts or omissions of Contractor such as, and including but not limited to, the failure to supervise, the failure to warn, the failure to prevent such act or omission by Contractor and any other such source of liability. In addition Contractor will comply with all local, state and federal laws, rules and regulations applicable to this contract and to the work to be done and things to be supplied hereunder.

7. Insurance

a. Contractor shall provide the following minimum amounts of insurance from insurance companies authorized to do business in the state of Minnesota, which insurance shall indemnify Contractor and City from all liability described in Paragraph 6 above, subject to provisions below.

- (1) Workers' compensation insurance in accordance with the laws of the State of Minnesota.
- (2) Public Liability and Automobile Liability Insurance with limits not less than **\$1,500,000** Single Limit, and twice the limits provided when a claim arises out of the release or threatened release of a hazardous substance; shall be in a company approved by the city of Duluth; and shall provide for the following: Liability for Premises, Operations, Completed Operations, Independent Contractors, and Contractual Liability.
- (3) City of Duluth shall be named as **Additional Insured** under the Public Liability, Excess/Umbrella Liability* and Automobile Liability, or as an alternate, Contractor may provide Owners-Contractors Protective policy, naming itself and the City of Duluth. Contractor shall also provide evidence of Statutory Minnesota Workers Compensation Insurance. Contractor to provide Certificate of Insurance evidencing such coverage with 30-days' notice of cancellation, non-renewal or material change provisions included. The City of Duluth does not represent or guarantee that these types or limits of coverage are adequate to protect the Contractor's interests and liabilities.

**An umbrella policy with a "following form" provision is acceptable if written verification is provided that the underlying policy names the City of Duluth as an additional insured.*

- (4) If a certificate of insurance is provided, the form of the certificate shall contain an unconditional requirement that the insurer notify the City without fail not less than 30 days' prior to any cancellation, non-renewal or modification of the policy or coverages evidenced by said certificate and shall further provide that failure to give such notice to City will render any such change or changes in said policy or coverages ineffective as against the City.

- (5) The use of an “ACORD” form as a certificate of insurance shall be accompanied by two forms – 1) ISO Additional Insured Endorsement (CG-2010 pre-2004) and 2) Notice of Cancellation Endorsement (IL 7002) or equivalent, as approved by the Duluth City Attorney’s Office.
 - b. The insurance required herein shall be maintained in full force and effect during the life of this Agreement and shall protect Contractor, its employees, agents and representatives from claims and damages including but not limited to personal injury and death and any act or failure to act by Contractor, its employees, agents and representatives in the negligent performance of work covered by this Agreement.
 - c. Certificates showing that Contractor is carrying the above described insurance in the specified amounts shall be furnished to the City prior to the execution of this Contract and a certificate showing continued maintenance of such insurance shall be on file with the City during the term of this Contract.
 - d. Contractor shall be required to provide insurance meeting the requirements of this Paragraph 7 unless Contractor successfully demonstrates to the satisfaction of the City Attorney, in the exercise of his or her discretion, that such insurance is not reasonably available in the market. If Contractor demonstrates to the satisfaction of the City Attorney that such insurance is not reasonably available, the City Attorney may approve an alternative form of insurance which is reasonably available in the market which he or she deems to provide the highest level of insurance protection to the City which is reasonably available.
8. No claim whatsoever shall be made by the Contractor against any officer, agent or employee of the City for, or on account of, anything done, or omitted to be done, in connection with this contract. If this contract is not made in conformity with mandatory provisions of any statute or of the ordinances and charter of the City of Duluth, the Contractor agrees to raise no defense and make no claim against the City on the basis of ratification, laches, estoppel, or implied contract.
9. The Contractor shall not assign, transfer, convey or otherwise dispose of this contract, or his right to execute it, or his right, title or interest in or to it, or any part thereof, without the consent of the City, evidenced by a resolution duly adopted by the City Council. The prohibition contained in this paragraph shall not be deemed to prevent the contractor from subcontracting. Contractor shall remain primarily responsible for all work performed by any subcontractor.
10. The Contractor agrees that in the hiring of common or skilled labor for the performance of any work under this contract, Contractor will not discriminate by reason of race, creed or color, religion, national origin, sex, marital status, status with regard to public assistance, disability or age.
11. The Contractor agrees that Contractor shall not in any manner discriminate against or intimidate or prevent the employment of any person or persons, or on being hired, prevent or conspire to prevent any person or persons from the performance or work under this contract on account of race, creed or color, religion, national origin, sex, marital status, status with regard to public assistance, disability or age.

12. The contractor agrees that, as provided in Minnesota Statutes 16C.05, Subd. 5, contractor's books, records, documents, and accounting procedures and practices are subject to examination by the City or the state auditor for six years from the date of final payment under this contract.
13. This contract may be cancelled or terminated by the City and all moneys due or to become due hereunder may be forfeited for any failure to perform any terms or conditions of this contract including but not limited to any violation of the terms or conditions of Section 10 or 11 of this contract.
14. Any waiver by any party of any provision of this contract shall not imply a subsequent waiver of that or any other provision.
15. This contract is made in the state of Minnesota and shall be construed and interpreted in accordance with the laws of the State of Minnesota. The appropriate venue and jurisdiction for any litigation hereunder shall be in a court located in St. Louis, County, Minnesota, and the parties to this Agreement waive objection to the jurisdiction of this court, whether based on convenience or otherwise.
16. This Agreement constitutes the entire agreement between the City and the Contractor on the subject matter hereof. It may not be changed, modified, discharged or extended except by written instrument duly executed on behalf of the City and the Contractor. The Contractor agrees that no representations or warranties made by the City shall be binding upon the City unless expressed in writing herein.
17. This Agreement shall not be in force and effect, or in any way binding upon the City until the same shall have been approved by the Department Head, signed by the Mayor, attested by the Clerk, and countersigned by the City Auditor.
18. The Contractor unconditionally guarantees to perform all work pursuant to this contract in a good and workmanlike manner, in strict compliance with the specifications and instructions hereto attached, and to the satisfaction of the City of Duluth.
19. This Agreement may be executed in counterparts, each of which shall be deemed to be original and all of which together shall constitute the binding and enforceable agreement of the parties hereto. This Agreement may be executed and delivered by a party by facsimile or PDF transmission, which transmission copy shall be considered an original and shall be binding and enforceable against such party.

Countersigned:

CITY OF DULUTH-Client

By

City Auditor
Approved this _____ day of _____

Mayor

Attest:

Department Director
Approved this _____ day of _____

City Clerk
Attested this _____ day of _____

Purchasing Agent
Approved this _____ day of _____

CONTRACTOR/COMPANY
Contractor

By

Assistant City Attorney
Approved this _____ day of _____

Company Representative

Its

Title of Representative
Approved this _____ day of _____

CITY OF DULUTH - PART II -
SUPPLEMENTARY GENERAL CONDITIONS FOR FEDERALLY, STATE OF MINNESOTA, AND/OR CITY ASSISTED ACTIVITIES
(revised 4/15/11)

The following conditions take precedence over any conflicting conditions in this Contract.

<u>Section</u>	<u>Title</u>
1	Restrictions on Disbursements, Subcontractors Federal Agency Requirements, Separability, Property
2	Miscellaneous Provisions
3	Definitions
4	Environmental Provisions
5	Contract Compliance
6	Records, Reports and Information, Audits and Inspections
7	Conflict of Interest and Lobbying
8	Labor Standards - Physical Improvement Projects
9	Minnesota Department of Transportation Specification 1960 Partial Payments
10	Housing and Urban Development (HUD) Section 4010
11	Equal Opportunity and Affirmative Action
12	Employment Opportunities - "HUD Section 3"
13	Federal Requirements for Minority/Women Business Enterprises Contract Guidance - MPFA
14	Forms

E-Mail Addresses

For ease in communication, the e-mail address of the person(s) responsible for preparing certified payroll reports (CPRs) is required from the prime contractor and all subcontractors (regardless of tier). This information will be provided to the project engineer prior to the pre-construction meeting OR with materials required in the Letter of Intent.

Section I

Restrictions on Disbursements

No money under this Contract shall be disbursed by the City to any Contractor except pursuant to a written contract which incorporates the applicable PART II, Supplementary General Conditions for Federally, State of Minnesota, and/or City Assisted Activities, and unless the Contractor is in compliance with the Federal Agency requirements with regard to accounting and fiscal matters to the extent they are applicable.

Subcontractors

(A) The Contractor shall include in any subcontract the clauses set forth in the PART II, Supplementary General Conditions for Federally, State of Minnesota and/or City Assisted Activities in their entirety and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts which they may enter into, together with a clause requiring this insertion in any further subcontracts that may in turn be made.

(B) The Contractor shall not subcontract any part of the work covered by this Contract or permit subcontracted work to be further subcontracted without the City's prior written approval of the subcontractors. The City will not approve any subcontractor for work covered by this Contract who is at the time ineligible under the provisions of any applicable regulations issued by a Federal Agency or the Secretary of Labor, United States Department of Labor, to receive an award of such subcontract.

Federal Agency Requirements

Unearned payments under this Contract may be suspended or terminated upon refusal to accept any additional conditions that may be imposed by the Federal Agency at any time; or if the grant, if applicable, to the City under which this Contract is made is suspended or terminated.

Separability

If any provisions of this Contract is held invalid, the remainder of this Contract shall not be affected thereby if such remainder would then continue to conform to the terms and requirements of applicable law.

Property

Acquisition, use, and disposal of all property, materials and goods acquired as a result of activities made possible by this Contract shall be accomplished in accordance with the applicable provisions of Federal Management Circular (FMC)-74-7, as amended.

Section 2

Miscellaneous Provisions

(A) **Copyrights.** In the event this Contract results in a book or other copyrightable material, the author is free to copyright the work, but Federal Agency and the City reserve a royalty-free, nonexclusive, and irrevocable license to reproduce, publish or otherwise use, all copyrighted material and all material which can be copyrighted.

(B) **Patents.** Any discovery or invention arising out of or developed in the course of work aided by this Contract shall be promptly and fully reported to the Federal Agency and the City for determination by the Federal Agency as to whether patent protection on such invention or discovery shall be sought and how the rights in the invention or discovery, including rights under any patent issued thereon, shall be disposed of and administered in order to protect the public interests.

(C) **Political Activity Prohibited.** None of the funds, materials, property or services provided directly or indirectly under this Contract shall be used in the performance of this Contract on any partisan political activity, or to further the election or defeat of any candidate for public office.

(D) **Lobbying Prohibited.** None of the funds under this Contract shall be used for publicity or propaganda purposes designed to support or defeat legislation pending before the Congress or the City.

(E) **Prohibition of and Elimination of Lead-Based Paint Hazard.** Notwithstanding any other provision, the Agency and Contractor agree to comply with the regulation issued by the Secretary of Housing and Urban Development set forth in 37 F. R. 22732-3 and all applicable rules and orders issued thereunder which prohibit the use of lead-based paint in residential structures undergoing Federally assisted construction or rehabilitation and require the elimination of lead-based paint hazards. Every contract or subcontract, including paint, pursuant to which such Federally assisted construction or rehabilitation is performed shall include appropriate provisions prohibiting the use of lead-based paint.

(F) **Architectural Barriers Act.** The design for and construction of any facility funded in whole or in part by this Contract shall be in conformance with the American Standard Specification for Making Buildings and Facilities Accessible and Usable by the Physically Handicapped, Number A-117.1-1971, as modified.

(G) **Relocation and Acquisition.** Any relocation or acquisition resulting from activities funded in whole or in part by this Contract shall be in conformance with the provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (40 U.S.C. 4601) and the implementing regulations 24CFR Part 42.

(H) **Prohibition Against Payments of Bonus or Commission.** The assistance provided under this Contract shall not be used in the payment of any bonus or commission for the purpose of obtaining Federal Agency approval for such assistance, or Federal Agency approval of applications for additional assistance, or any other approval or concurrence of a Federal Agency required under this Contract, Federal Law or Federal Regulations thereto; provided, however, that reasonable fees or bonafide technical, consultant, managerial or other such services, other than actual solicitation, are not hereby prohibited if otherwise eligible as project costs.

(I) **Hatch Act.** Where applicable, the Contractor will comply with the provisions of the Hatch Act which limits the political activity of the Contractor's employees.

Section 3

Definitions

(A) City means the City of Duluth, Contracting Officer, or other persons authorized to act on behalf of the City of Duluth.

(B) Contracting Officer is the delegated representative of the City who has the responsibility for administering the Project.

(C) Contractor means an entity, whether public or private, which furnishes (other than standard commercial supplies, office space or printing services) to the City, products, services or supplies as described in this project Contract.

(D) Federal Agency means the United States, the District of Columbia, and any executive department, independent establishment, administrative agency, or instrumentality of the United States or of the District of Columbia, including any corporation, all or substantially all of the stock of which is beneficially owned by the United States, by the District of Columbia, or by any of the foregoing departments, establishments, agencies, and instrumentalities. The term Federal Agency shall also include the person or persons authorized to act on behalf of said Federal Agency.

(E) Project means the activities to be undertaken by the Contractor as described in this Contract, which from time to time may be amended by mutual consent of the City and Contractor.

(F) Subcontractor means an entity, regardless of tier, which has entered into an agreement with the Contractor or another Subcontractor, to undertake certain Project activities as described in that agreement.

(G) The term labor standards, as used in the Contract, means the requirements of the Davis-Bacon Act, the Contract Work Hours and Safety Standards Act (other than those relating to safety and health), the Copeland Act, and the prevailing wage provisions of the other statutes listed in 20 CFR 5.1.

(H) Work means all labor necessary to produce the construction required by the Contract Documents, all materials and equipment incorporated or to be incorporated in such construction, products, services, or supplies required by the Contract Documents, or any other requirements set forth in the Contract.

(I) Additional Definitions, that are applicable to the Labor Standards provisions - Section 8 - of this Contract can be found in 29CFR5.2 as published by the U.S. Department of Labor and said definitions are hereby incorporated by reference into the provisions of this Contract.

Section 4

Environmental Provisions

(A) The Contractor agrees to follow the regulations, requirements, policies, goals and procedures set forth by the Council on Environmental Quality (CEQ) under provisions of the National Environmental Policy Act (NEPA) (Pub. L 91-190, 42 U.S.C. 4321 et seq.), Executive Order 11514, and 40 CFR Part 1500.

(B) **Historic Properties.** The Contractor agrees to follow the regulations, requirements, policies, goals, and procedures set forth under provisions of the National Historic Preservation Act of 1966 (Pub. L. 89-665); Preservation of Historic and Archeological Data Act of 1974 (Pub. L. 93-291); Executive Order 11593; 36 CFR , Part 800 and applicable State legislation or regulations.

(C) **Coastal Zones and Wetlands.** The Contractor agrees to follow the regulations, requirements, policies, goals and procedures set forth under provisions of the Coastal Zone Management Act of 1972 (Pub. L. 92-583) and applicable State legislation or regulations.

(D) **Noise.** The Contractor agrees to comply with provisions set forth in the U.S. Department of Housing and Urban Development Handbook 1390.2, Noise Abatement and Control, Department Policy, Responsibility and Standards, 1971.

(E) **Flood Plain.** The Contractor agrees to comply with the provisions set forth in the Flood Disaster Protection Act of 1973 (Pub. L. 93-234) and implementing regulations; Title 24, Chapter X, Subchapter B, National Flood Insurance Program, Executive Order 11296, and Executive Order 11988 relating to the evaluation of flood hazards.

(F) **Air Quality.** The Contractor agrees to comply with provisions set forth in the Clean Air Act (Pub. L. 90-148) and Clean Air Act Amendments of 1970 (Pub. L. 91-604); and applicable U.S. Environmental Protection Agency implementing regulations.

(G) **Water Quality.** The Contractor agrees to comply with the provisions set forth in the Federal Water Pollution Control Act (Pub. L. 92-500) and applicable U.S. Environmental Protection Agency implementing regulations, and Executive Order 11288 relating to the prevention, control, and abatement of water pollution.

(H) **Wildlife.** The Contractor agrees to comply with the provisions of the Fish and Wildlife Coordination Act (Pub. L. 85-264).

Section 5

Contract Compliance

(A) In the event of the Contractor's noncompliance with the provisions of this Contract or with any of the said regulations, the City may withhold payment(s) until evidence of compliance by the Contractor has been demonstrated, or the Contract may be canceled, terminated or suspended in whole or in part and the Contractor may be declared ineligible for further City contracts.

(B) In the event the Contract is terminated or canceled as a result of noncompliance with any of the provisions of this Contract, the City may subject to bids the remainder of the Project for which this Contract was made. The City shall have the right upon termination or suspension to withhold all further payments under this

Contract to the Contractor. Upon the award of a new contract for the remainder of the Project, the City shall pay to the Contractor an amount no more than the balance remaining due to the Contractor less the sum of the costs incurred by the City which are necessary in preparing the new bid specifications. In the event the amount paid the Contractor prior to the date of termination or cancellation exceeds the full amount of this Contract less the cost of the new contract and the additional costs mentioned above, the Contractor agrees to reimburse the City for such excess amount within ninety days after the new contract is awarded by the above procedures.

(C) Provisions contained in subparagraph (A) and (B) above shall not be interpreted as precluding any authorized Federal, State, or County governmental unit from exercising their legal administrative or other responsibilities in respect to the enforcement by said governmental units of laws or regulations concerning activities of the Contractor.

Section 6

Records

(A) **Establishment and Maintenance of Records.** Records shall be maintained in accordance with requirements prescribed by the Federal Agency or the City with respect to all matters covered by this Contract. Except as otherwise authorized by the Federal Agency, such records shall be maintained for a period of three years after receipt of final payment under this Contract.

(B) **Documentation of Costs.** All costs shall be supported by properly executed payrolls, time records, invoices, contracts, or vouchers, or other official documentation evidencing in proper detail the nature and propriety of the charges. All checks, payrolls, invoices, contracts, vouchers, orders, or other accounting documents pertaining in whole or in part to this Contract shall be clearly identified and readily accessible.

Reports and Information

At such times and in such forms as the Federal Agency or the City may require, there shall be furnished to the Federal Agency or the City such statements, records, data and information as the Federal Agency or the City may request pertaining to matters covered by this Contract.

Audits and Inspection

At any time during normal business hours and as often as the City, the Federal Agency and/or the Comptroller General of the United States may deem necessary, there shall be made available to the City, the Federal Agency and/or representatives of the Comptroller General for examination of all its records with respect to all matters covered by this Contract and will permit the City, the Federal Agency and/or representative of the Comptroller General to audit, examine and make excerpts or transcripts from such records, and to make audits of all contracts, invoices, materials, payrolls, records of personnel, conditions of employment, and other data relating to all matters covered by this Contract.

Section 7

Conflict of Interest and Lobbying

(A) **Interest of Members, Officers, or Employees of the City, Members of Local Governing Body, or Other Public Officials.** No member, officer, or employee of the City, or its designees or agents, or member of the governing body of the City, during his/her tenure of for one year thereafter, shall have any interest, direct or indirect in any contract or subcontract, or the proceeds thereof, for work to be performed in connection with the Project assisted under this Contract. Any contract in which any of the above indicated individuals becomes directly or indirectly, interested, personally or as a member of a firm, or as an officer, director, or stockholder of a corporation, shall be and become absolutely void; and any money which shall have been paid on such contract by the City may be recovered back from any or all persons interested therein, by a joint action or several actions.

(B) The Contractor agrees that he will incorporate into every contract required to be in writing the following provisions: **Interest of Contractors and Employees** - The Contractor covenants that he presently has no interest and shall not acquire any interest, direct or indirect, in the Project which would conflict in any manner or degree with the performance of this Contract, and no person having any conflicting interest shall be employed. Any interest on the part of the Contractor or his employees must be disclosed to the Federal Agency and the City. Provided, however, that this paragraph shall be interpreted in such a manner so as not to unreasonably impede any statutory requirements that opportunity be provided for employment of and participation by certain residents of a designated geographical area, if applicable.

(C) **Interest of Member or of Delegate to Congress.** No member of or Delegate to Congress, or Resident Commissioner, shall be admitted to any share or part of this Contract or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this Contract if made with a corporation for its general benefit.

(D) The Contractor by signing this document certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the Contractor, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the Contractor shall complete and submit Standard Form -LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

The above certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1332, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

(E) The parties to this Contract certify and agree that they are under no contractual or other disability which would prevent them from complying with the terms of this Contract.

Section 8

Labor Standards - Physical Improvement Projects

Where applicable, there shall be included in all construction, rehabilitation, alteration or repair contracts with private entities made possible by or resulting from this Contract, the following Labor Standards provisions;

(A) **General Requirements.**

(1) **Subcontracts.** The Contractor shall include in any subcontract the clauses set forth in Section 8, **Labor Standards**, in their entirety and also a clause requiring the subcontractors to include these clauses in any Tower tier subcontract which they may enter into, together with a clause requiring this insertion in any further subcontracts that may in turn be made.

(2) The transporting of materials and supplies to or from the site of the Project or Program to which this Contract pertains by the Employees of the Contractor or of any subcontractor, and the manufacturing or furnishing of materials, articles, supplies, or equipment on the site of the Project or Program to which this Contract pertains by persons employed by the Contractor or by any subcontractor, shall for the purpose of this Contract, and without limiting the generality of the foregoing provisions of this Contract, be deemed to be work to which these **Labor Standards** provisions are applicable.

(3) No person under the age of eighteen years shall be employed on work covered by this Contract.

(4) In connection with the performance of work under this Contract, the Contractor agrees not to employ any person undergoing sentence of imprisonment except as provided by Public Law 89-176, September 10, 1955 (18 U.S.C. 4082 (c) (2)) and Executive Order 11755, December 29, 1973.

(5) The Contractor will permit authorized representatives of the Federal Agency and the City to interview employees during working hours on the job.

(6) No employee to whom the wage, salary, or other **Labor Standards** provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the Labor Standards applicable under this Contract to his employer.

(B) **Safety Standards.** No Contractor or subcontractor contracting for any part of a construction contract shall require any laborer or mechanic, including apprentices and trainees, employed in the performance of the Contract to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous to his health or safety, as determined under construction safety and health standards promulgated by the Secretary of Labor. The Contractor or subcontractor comply with all the rules, regulations, and relevant orders, promulgated by the Secretary of Labor pursuant to Public Law 91-54.

(C) **Davis-Bacon Act - 29 CFR 5.5**

web site: http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title29/29cfr5_main_02.tpl

Refer to Section 10, Page 10 Housing and Urban Development (HUD) form-4010 (06/2009) Ref Handbook 1344.1

City of Duluth "Mini Davis-Bacon"

(D) **City of Duluth - Minimum Wage Ordinance 8940, as Amended.**

(1) On a project (as defined below) funded in whole or in part by federal and/or state funds and/or city of Duluth funds, these local provisions shall prevail in those instances where the requirements of the local provisions are equal to or greater than similar minimum labor standards provisions as set forth in applicable federal and/or state laws and regulations.

(2) In all contracts in excess of \$2,000 for projects (as defined below), the Contractor's particular attention is called to Ordinance 8940, effective June 8, 1989, respectively coded as Article IV of Chapter 2 of the Duluth City Code, and entitled "An Ordinance Pertaining to Wages and Working Hours of Persons on Public Works in the City of Duluth", as set forth below:

(3) **Definitions.**

For the purposes of this section the following words and phrases shall have the meanings respectively ascribed to them in this section:

(a) **Basic hourly rate** - The hourly wage paid to any employee.

(b) **Prevailing wage rate** - The basic hourly rate plus fringe benefits prevailing in the city of Duluth as determined by the United States secretary of labor pursuant to the Davis-Bacon act, as amended; provided that whenever employer and employee organizations employing and representing a majority of a class of workers in a particular industry within the city jointly certify that the prevailing basic hourly rate plus fringe benefits of such workers differs from the amount determined by the secretary of labor, the certified rate shall be considered to be the prevailing wage rate for such class of workers in that industry.

(c) **Fringe benefits** - Employer contribution for health and welfare benefits, vacation benefits, pension benefits, and all other economic benefits other than the basic hourly rate.

(d) **Apprentice** - An employee who is working under a training program which is approved either by the U.S. Department of Labor Bureau of Apprenticeship & Training or the Minnesota Director of Voluntary Apprenticeship; see apprentice ratios on pages 6-7 and HUD 4010 in Section 10.

(e) **Trainee** - An employee registered with the U. S. Department of Labor Employment & Training Administration; see HUD 4010 in Section 10.

(f) **Project** - Erection, construction, demolition, painting, remodeling or repairing of any public building, highway, sidewalk, bridge, water or gas line, sewer and sewage treatment facility or other public work performed under contract with the city.

(f) **Labor, mechanic** - All persons utilized, employed or working on a project who are doing work usually done by mechanics and laborers, including proprietors, partners, and members of cooperatives.

(4) **Wage Rates and Hours for City of Duluth Projects.**

(a) Any contract which provides for a project of estimated total cost of over \$2,000.00 shall contain a stipulation that no laborer, mechanic or apprentice-trainee employed directly upon the project work site by the contractor or any subcontractor shall be permitted or required to work at a rate of pay less than the prevailing wage rate; nor shall any such employee be permitted or required to work more than 8 hours in any work day **OR** 40 hours in any work week unless he is paid at a rate of at least 1½ times the basic hourly rate for all hours in excess of 8 per day **OR** 40 per week [in other words: all hours in excess of eight per day and all hours after 40 per week] and unless he receives fringe benefits that are at least equal to those in the prevailing wage rate; provided that whenever employer and employee organizations employing and representing a majority of a class of workers in a particular industry within the city jointly certify that the maximum number of hours that such persons may work under existing labor agreements before overtime wages must be paid differs from the hours specified in this paragraph, the maximum number of hours specified in such labor agreements shall be substituted for those specified above in applying the provisions of this paragraph to such workers.

(b) The word "or" in the state statute and the city of Duluth Code refers to the number of hours worked in any one week or, in the alternative, the number of hours worked in any one day in the week (the days in one week being totaled for reporting purposes); the law requires use of the alternative which results in the higher number of overtime hours for each employee whose time is being reported.

EXCEPTIONS: Federal government funding only and HUD (Housing and Urban Development) funding - see point "e"

In summary, if a project is solely funded with city of Duluth monies, city ordinance 8940 as amended allows the employees to work four ten-hour days and be paid at the regular hourly rate for those ten hours; exceeding hours must be paid at the overtime rate. An employer may not withhold overtime payment exclusively until 40 hours per week have been worked. Daily overtime must be paid as it is earned.

- **The base workweek hours must be clearly indicated on each payroll. Employees may be assigned a different workweek; however, that must be clearly marked beside the employees' names.**

The following are examples of how these rules apply to different situations.

- TT refers to the total time worked on the day or in the week
- RT refers to the hours worked at the regular rate of pay (straight time)
- OT refers to the hours worked for which overtime must be paid

State Funded with or without federal funding Projects								City-only Funded Projects (4 ten-hour days)							
	Mon	Tues	Wed	Thurs	Fri	Sat	Total		Mon	Tues	Wed	Thurs	Fri	Sat	Total
TT	10	10	10	10	0	6	46		10	10	10	10	0	6	46
RT	8	8	8	8	0	6	38		10	10	10	10	0	0	40
OT	2	2	2	2	0	0	8		0	0	0	0	0	6	6

State Funded with or without federal funding Projects								City-only Funded Projects (4 ten-hour days)							
	Mon	Tues	Wed	Thurs	Fri	Sat	Total		Mon	Tues	Wed	Thurs	Fri	Sat	Total
TT	0	10	10	0	7	0	27		10	0	12	0	0	0	32
RT	0	8	8	0	7	0	23		10	0	10	10	0	0	30
OT	0	2	2	0	0	0	4		0	0	2	0	0	0	2

c) **Overtime Calculations**

Minnesota Statutes Chapter 177.42, subd 4 specifies that the prevailing hours of labor may not be more than eight hours per day or more than 40 hours per week (as stated above in (b)), the City of Duluth does allow for ten hours per day/40 hours per week with City funding *only*. **Example: hours exceeding eight per day are paid at 1.5 times the rate in the contract's wage decision OR the base rate the employee is being paid if it is higher than the required base rate; once 40-hours in any one week are attained, all hours exceeding that 40 are paid at 1.5 times the rate in the project contract's wage decision.** See example (1) and (2) below.

Minnesota Statutes Chapter 177.42, subd 5 defines the hourly basic rate as the hourly wage paid to any employee. (subd 6): The prevailing wage rate means the hourly basic rate of pay plus the contribution for health and welfare benefits, vacation benefits, pension benefits, and any other economic benefit paid to the largest number of workers engaged in the same class of labor within the area...

Minnesota Statutes Chapter 177.43, subd 1 (1) ...employees are permitted to work more hours than the prevailing hours of labor [being] paid for all hours in excess of the prevailing hours at a rate of at least 1-½ times the hourly basic rate of pay. (2) A laborer or mechanic may not be paid a lesser rate of wages than the prevailing wage rate in the same or most similar trade or occupation in the area.

An employer may pay a lower **regular time/straight time** hourly rate and higher fringe benefit rate--to a bona fide plan--than stated in the contract's wage decision providing the total of the two rates is equal to or greater than the total in the wage decision; however, the **OVERTIME rate** must be paid on the higher rate in the contract's wage decision.

(1) Overtime Calculation with Fringe Benefits Paid to Bona Fide Plans

For overtime purposes, an employer paying higher fringe benefits to a bona fide plan and paying a lower hourly rate **MUST** calculate the overtime on the higher hourly rate as stated in the project contract's wage decision. The fringe benefit amount may be reduced to reflect any increase in the total prevailing wage package IF the plan administrator permits such a reduction. This acceptance must be verified in writing by the plan administrator and attached to the appropriate certified payroll report.

(2) Overtime Calculation with Cash Payment of Fringe Benefits

When the fringe benefit is paid directly to an employee, the prevailing base rate and the fringe benefit rate as established in the project contract's wage decision for a specific classification are totaled to arrive at the hourly rate. *Overtime is calculated at 1.5 x the base rate of the wage decision with the fringe benefit amount added to that rate: base rate of the wage decision x 1.5 + fringe benefit rate = overtime rate.*

Contract Work Hours and Safety Standards Act

[Refer to page two of this document.] All projects valued at \$100,000 or greater are subject to this Act. As with Minnesota Statutes Chapter 177.43, the overtime rate is calculated as in items one and two above OR (e) below.

- (d) A contractor shall not reduce a worker's private, regular rate of pay when the wage rate certified by the U. S. Department of Labor or the Minnesota Department of Labor & Industry is less than the worker's normal hourly wage [Minnesota Statute 181.03 subdivision 1(2)].

(e) **Regular Time & Overtime Definitions**

- **State of Minnesota** funded projects with or without federal funding *only allow for five eight-hour days per week at regular time*. Overtime is calculated at a rate not less than time and one-half (1.5) of the prevailing base rate as stated in the wage decision OR the base rate the employee is being paid if it is higher than the required base rate--plus the straight time fringe benefit amount. (see (1) above for example when a lower base rate and higher fringe are paid)
- **City of Duluth** funded projects do permit four ten-hour work days at regular time--see point 4-a, b for stipulations. Overtime is calculated at a rate not less than time and one-half (1.5) of the prevailing base rate as stated in the wage decision--OR the base rate the employee is being paid if it is higher than the required base rate--plus the straight time fringe benefit amount. (see (1) above for example when a lower base rate and higher fringe are paid)
- **Federal** funded only projects allow overtime pay for hours worked in excess of 40 in a workweek at a rate not less than time and one-half (1.5) of the prevailing base rate as stated in the wage decision OR the base rate the employee is being paid if it is higher than the required base rate--plus the straight time fringe benefit amount.
- **HUD** funded projects allow overtime pay for hours worked in excess of 40 in a workweek at a rate not less than time and one-half (1.5) of the prevailing base rate as stated in the wage decision OR the base rate the employee is being paid if it is higher than the required base rate--plus the straight time fringe benefit amount.

** When a combination of funding sources are included in any one project, the most strict requirements will apply.

- (f) The minimum hourly prevailing wages are contained in each project specification. When both federal (general decision rates from the U. S. Department of Labor) and State of Minnesota prevailing wages for state funded construction projects from the Minnesota Department of Labor and Industry are used, the prime contractor and all subcontractors including trucking operations, are required to pay the higher of the two wages for all laborers and mechanics [MnDOT Contract Administration Manual, Section 5-591.320].
- (g) The prime contractor and any lower-tier subcontractor shall review all wage decisions and compensate a worker according to the type of work performed and at the rate that is the greatest.
- (h) State of Minnesota prevailing wages typically list two rates for each classification with two effective dates. Should any City of Duluth contract continue to and past the second effective date, that rate and fringe benefit will be in effect through the remainder of the project.
- (i) **Mn/DOT Statement of Compliance is required on all city of Duluth construction projects (regardless of the project funding source) with each weekly certified payroll report.** web site: <http://dot.state.mn.us/const/labor/forms.html>
- (j) All contracts for city projects shall have applicable schedules of prevailing wage rates set forth in the contract. Schedules of applicable prevailing wage rates shall be posted on all project job sites for public review and shall be protected from the weather.
- (k) Employees on projects shall be paid at least **weekly**. Fringe benefits shall be paid either in cash or to an employee benefit plan that has been approved by the U.S. Department of Labor. ■ **The fringe benefit package is an integral portion of the prevailing wage. Should the prime contractor or any subcontractor (regardless of tier) become delinquent with any fringe benefit plan administrator's requirements for monthly payment, the monthly estimate(s) may be withheld until the plan payments are made current.** (city ordinance 8940 6-18-89 plus amendments)
See MnDOT Specification 1906 on page nine and Section 5 of this document: Contract Compliance.
See Statement of Compliance and Certified Payroll Report requirements in Section 10, HUD 4010 and web sites in Section 14, Forms.
- (l) Any contractor or subcontractor working on a project shall furnish the City with **original** certified payroll reports with **original signatures** relating to the project. Such certified payroll reports shall be **submitted weekly** on U.S. Department of Labor standard forms (WH-347) or their equivalent--using the same format--to the City of Duluth Labor Standards representative. All City of Duluth funded projects must have the base workweek hours indicated on the certified payroll form and/or beside each employee's name (should some employees be working different base workweeks).
- (m) No contractor or subcontractor working on a project shall evade or attempt to evade the provisions of this section through the use of non-recognized training programs. The only employees involved in training programs that shall be allowed to work on projects covered by this section shall be apprentice-trainees as defined by this article.
- (n) Any person violating the provisions of this section shall be guilty of a misdemeanor with each day of violation constituting a separate offense. In addition, if the prevailing wage rate and accompanying fringe benefit rate is not paid to employees working on a project, the City of Duluth may withhold contract payments to the prime contractor until such deficiencies are corrected. Should fringe benefits be paid to authorized Plans, the payments must be made within the demands of those Plans. Delinquencies may result in withholding of project funds to the prime contractor.
- (o) This section shall not apply to contracts for projects where the total cost of the project is less than \$2,000.00; nor to materialmen who do no more than deliver materials to the work site, except that this section shall apply to employees who deliver asphalt, concrete or mineral aggregate such as sand, gravel or stone where such material is incorporated into the project by depositing the material substantially in place, either directly or through spreaders, from the transporting vehicle.

(5) **Helpers**

A helper may perform work *only* if the helper classification is specified and defined in the federal wage decision and/or State of Minnesota wage decision incorporated into the project contract. Without such a helper classification, the contractor must assign a job classification that is the "same or most similar" [Minnesota Statute 177.44, subdivision 1] and compensate the helper for the actual work performed regardless of the helper's skill level.

(6) **Apprentice Ratios**

Journeyworkers must be on site with the apprentices and their hours must match.

FUNDING SOURCE:

City of Duluth and State of Minnesota with or without Federal funding

- Apprentices are not permitted to work alone under any circumstances.
- Working foremen are acceptable as a journeyworker PROVIDING he/she is in the same classification.
 - » Example: carpenter foreman and carpenter apprentice
- Ratios are determined by the trade's labor agreement.
- In the absence of ratio language, the following State of Minnesota apprenticeship ratios will be applied:
(apprentice : journeyworker) 1:1 2:4 3:7 4:10, etc.

- Employees working in excess of the allowable ratio must be paid the full journeyworker compensation.
- Out-of-ratio apprentices will be calculated beginning with the **apprentice at the highest level of training** and, then, to less senior apprentices in their rank order.
- Should two or more out-of-ratio apprentices have the same level of training, whomever was on the work site first will receive journeyworker pay; if the apprentices at the same level of training began work on the project site at the same time, hours worked out-of-ratio for which restitution is due will be divided among those apprentices.

Examples:

Four apprentices working unsupervised are on site. [4:0]
Ratio calls for four apprentices and ten journeyworkers [4:10]

Correction: all apprentices will receive the full journeyworker compensation as apprentices are not permitted to work alone.

Three apprentices and two journeyworkers are on site. [3:2]
Ratio calls for three apprentices and seven journeyworkers [3:7]

Two journeyworkers may accompany only one apprentice; therefore, the two highest level apprentices are paid the full journeyworker compensation.

Even though this particular job has three apprentices—the second journeyworker is a mute point; a third journeyworker would also be a mute point in this example.

Correction: the two highest level apprentices are paid the full journeyworker compensation and the third lower level apprentice is considered in ratio.

H U D (CDBG) and Federal funding only

- Apprentices are not permitted to work alone unless the U. S. Department of Labor-approved agreement allows that practice.
- Working foremen are acceptable as a journeyworker PROVIDING he/she is in the same classification.
 - » Example: electrician foreman and electrician apprentice
- Ratios are determined by the trade's U. S. Department of Labor-approved agreement.
- In the event of the absence of ratio language in the applicable agreement, the Minnesota Department of Labor ratio of one apprentice for the first journeyworker and one apprentice for each three journeyworkers thereafter will be applied, (i.e., 1:1, 2:4, 3:7, 4:10, etc.).
- The **legal apprentices are those who first came to work on the job site**; in the event that all apprentices begin work on the project site at the same time, hours worked out-of-ratio for which restitution is due will be divided among the apprentices.
- Time cards will be required to substantiate the start times.
- Employees working in excess of the allowable ratio—or for which U. S. Department of Labor-apprentice agreement/certificate is not provided—must be paid the full journeyworker compensation.

Examples:

Four apprentices and one journeyworker are on site. [4:1]
Ratio calls for four apprentices and ten journeyworkers. [4:10]

The first apprentice on site is considered in ratio as one journeyworker may only accompany one apprentice [1:1]; this particular job has four apprentices.

Correction: the second through the fourth apprentices coming on site are paid the full journeyworker compensation.

Six apprentices and two journeyworkers are on site [6:2]
Ratio calls for six apprentices and sixteen journeyworkers [6:16]

The first apprentice on site is considered in ratio as two journeyworkers may only accompany one apprentice; this particular job has six apprentices—the second journeyworker is a mute point.

Correction: the second through sixth apprentices coming on site are paid the full journeyworker compensation.

(7) Poster Boards

The prime contractor must construct and display a poster board, which contains all required posters, is legible and is accessible to all workers from the first day of work until the project is 100% complete. Posters must be protected from the weather. Prime contractors are not allowed to place a poster board at an off-site facility location.

(8) Trucking Issues

a) For the purpose of sections seven and eight, the term “owner” includes all persons having an ownership interest in the trucking entity or a partnership interest in the trucking entity and has a legal and rightful title to the vehicle(s) or has an approved lease on the vehicle(s). “Operate” means the owner either physically drives the vehicle or hires another to physically drive the vehicle; yet, maintains the right to direct the day-to-day operations of the vehicle.

b) Trucking Operations Definitions: See MN Rule 5200.1106 web site: <https://www.revisor.mn.gov/rules/?id=5200.1106>

Independent Trucking Operator: an individual or partnership who owns or holds a vehicle under lease and who contracts that vehicle and the owner's services to an entity which provides construction services to a public works project. The individual owns or leases and drives the equipment, is responsible for the maintenance of the equipment, bears all operating costs, determines the details and means of performing the services, and enters into a legally binding agreement that specifies the relationship to be that of an independent contractor and not that of an employee.

Multiple Truck Operations: any legal business entity that owns more than one vehicle and hires the vehicles out for services to brokers or contractors on public works projects. The owners of a trucking firm may either drive the vehicles or hire employees to drive the vehicles. Employee drivers are subject to the appropriate prevailing wage rate. The owner driving a vehicle is obligated to account for the value of his/her services as a driver at the appropriate prevailing wage.

Partnerships: a legal business entity where two or more individuals hold vehicles under lease and contract those vehicles and their services to an entity which provides construction services to a public works project. The partners own or lease the equipment, are responsible for maintenance and all operating costs, drive the equipment, determine the details and means of performing the services, and enter a legally binding agreement that specifies the

relationship to be that of a partner and not that of an employee. All partners are subject to the appropriate prevailing wage per city of Duluth ordinance 8940 as amended.

Corporation: any legal business entity that owns or leases vehicles to provide construction services to public works projects. All individuals are employees of the corporation and subject to the appropriate prevailing wage regardless of title or position.

Broker: an individual or firm who (activities include, but are not limited to):

- contracts to provide trucking services [equipment and driver] in the construction industry to users of such services, such as prime contractors and various subcontractors of the prime;
- contracts to obtain services from other trucking operations and dispatches them to various assignments;
- receives payment from the users (such as prime contractors and various subcontractors) in consideration for the trucking services provided; and
- makes payment to the providers (trucking operations so contracted with) for their services.

(9) **Specific documentation from trucking operations.**

Independent Trucking Operators

The owner/operator of a truck must submit a copy of his/her commercial driver's license (CDL), cab card, and insurance certificate for each truck the owner/operator drives on each construction project *before commencing work on that project*. These documents must be sent to the prime contractor who will then forward the material to Labor Standards, Engineering Division at the City of Duluth.

Multiple Truck Operators

Weekly certified payrolls and payment of corresponding prevailing wages plus the fringe benefit package will be required for each project where trucks are operating. This covers the owner plus all employees performing work on the project.

Partnerships

Weekly certified payrolls and payment of corresponding prevailing wages plus fringe benefit packages will be required for each project where trucks are operating. This covers all partners of the organization who perform work on the project.

Each partner performing work on a project must submit a copy of his/her commercial driver's license (CDL), cab card, and insurance certificate for the truck being operated with that weekly certified payroll. It is not necessary to repeat such supporting documentation until a different truck is used and/or certificates or licenses have expired.

Employees of the partnership are always reported on a weekly certified payroll and paid the appropriate prevailing wage plus fringe benefit package for the work being performed.

Corporations

All persons employed by the corporation are subject to receive payment of the prevailing wage plus the fringe benefit package for the work performed on a project regardless of title or position. Weekly certified payrolls must be submitted for all work performed on the project.

Brokers

Truck ownership and a **bonafide contract** between the broker and another trucking operation, a prime contractor, or a subcontractor must be identified. Paperwork must be submitted with the month end trucking report to the city of Duluth Labor Standards representative - Engineering. Certified payrolls are not required when the above documentation is provided and approved.

(10) **Month End Trucking Report - ONLY REQUIRED WITH STATE OF MINNESOTA FUNDING**

The Minnesota Department of Transportation Month End Trucking Report Form A and Form B plus Minnesota Department of Transportation Month End Trucking Report Statement of Compliance are *only required on state funded projects*.

A guide for completing the forms including definitions and the reports, themselves, may be downloaded from:

www.dot.state.mn.us/const/labor/forms.html

Payment to the prime contractor may be withheld until documentation is received and approved.

(11) **Truck Rental Rates - ONLY REQUIRED WITH STATE OF MINNESOTA FUNDING**

Truck rental rates are listed in the prevailing wage section of the project specifications.

(12) **Minnesota Rules 5200.1105 and 5200.1106**

These rules are incorporated into this supplementary general conditions part II by reference and are found on these web sites:

www.revisor.mn.gov/rules/?id=5200

(13) **Truck Axles** web site: <https://www.revisor.mn.gov/rules/?id=5200.1100>

Per Minnesota Rules 5200.1100 Master Job Classifications, a truck "unit" refers to all axles including the steering axle. A tag axle is also counted as one of the axles. Examples: four rear axles plus one steering axle = five axles total one rear axle plus one steering axle = two axles total

(14) **Non-Compliance and Enforcement**

- a) The prime contractor shall be liable for any unpaid wages to its workers or those of its lower-tier subcontractors, trucking companies/Multiple Truck Owners (MTO's) and/or Independent Truck Owner/Operator (ITOs) [MnDOT Standard Specifications for Construction, Section 1801].
- b) See Section 9, MnDOT Specification 1906 Partial Payments and Section 5, page two of this document.
- c) City of Duluth ordinance 8940 as amended.

(15) **IC-134 form - Withholding Affidavit for Contractors**

The IC-134 form will be required from all Multiple Truck Operators, Partnerships, and Corporations performing trucking services on a project before the retainage or all remaining funds can be released. Web site for completing form online: www.mndor.state.mn.us

The form, itself, is found at: www.taxes.state.mn.us/Forms_and_Instructions/ic134.pdf

(16) **Owners, Supervisors, Foremen listed on certified payrolls.**

All persons working on a City of Duluth project including owners, partners, supervisors, salaried persons, and working foremen who perform laborer and/or mechanic work shall be reported on the weekly certified payroll reports including all data required of any laborer or mechanic. (ordinance 8731, 6/24/85 and 8940 as amended).

(17) **Supporting documentation.**

At his/her discretion, the City of Duluth employee responsible for prevailing wage labor standards may demand proof of payment of the prevailing wage which may include copies of a payroll register, itemized time sheet and matching cancelled check, or any other supporting documents as stipulated. Payment to the prime contractor may be withheld until documentation is received and approved.

(18) **Kickbacks from Public Works employees prohibited.**

No contractor working on a project or other person shall, by force intimidation, or threat of termination of employment, cause any employee working on a project to give up any part of the compensation to which he is entitled under his contract of employment.

Section 9

**Minnesota Department of Transportation Specification 1906 Partial Payments
Process For "Withholding Contract Monies" and "Default and Termination of a Contract" 11/5/04**

Mn/DOT Specification 1906 Partial Payments describes the Commissioner's authority to withhold funds to protect the Department's interests. In addition, Specification 1808 Default and Termination of a Contract describes the Commissioner's authority to take the prosecution of the work out of the hands of the Contractor.

Additionally, on projects funded in whole or part with federal funds and in accordance with the Required Contract Provisions Federal-Aid Construction Contracts Form – 1273, Section IV, Subpart 6, "Withholding", incorporated into federal aid contracts, the Contracting Officer may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance or guarantee of funds until such violations have ceased.

However, the Department must give the Contractor, and its Sureties due notice prior to exercising these authorities. The withholding of contract funds, in accordance with Specification 1906 or the Required Contract Provisions Federal-Aid Construction Contracts Form – 1273, Section IV, Subpart 6, "Withholding", should be implemented as soon as a possible prevailing wage violation is recognized. However, Default and Termination of a Contract, in accordance with Specification 1808, should only be exercised as a "last resort" if the Contractor is not willing to comply.

Definitions

(Mn/DOT Standard Specifications for Construction 2000 Edition, Section 1103)

Commissioner: The Commissioner of the Minnesota Department of Transportation, or the chief executive of the department or agency constituted for administration of Contract work with its jurisdiction.

Contractor: The individual, firm or corporation Contracting for and undertaking prosecution of the prescribed work; the party of the second part to the Contract, acting directly or through a duly authorized representative.

Department: The Department of Transportation or the State of Minnesota, or the political subdivision, governmental body, board, commission, office, department, division, or agency constituted for administration of the Contract work within its jurisdiction.

(Form 1273 - 29 CFR, Part 5.1, Definitions)

Contracting Officer: The individual, a duly appointed successor or authorized representative who is designated and authorized to enter into Contracts on behalf of the Federal Agency and/or the City of Duluth.

Important Considerations

1. Upon completion of the work under a contract, the department should consider issuing the final voucher as soon as possible. Failure to finalize a contract expeditiously could result in subsequent claims that would prevent the department from finalizing the contract. However, before the issuance of the final voucher, the department must be able to ensure that the terms of the contract have been satisfied. Failure on the part of the department to ensure compliance could result in the Mn/DOT state aid division retaining funds from the department in accordance with *Minnesota Rules 8820.3000, subpart 5*.
2. On every contract, the department should withhold the final retainage in accordance with the following guidelines: (1) if the total amount of the contract is \$1,000,000 or more, the department should retain funds not more than \$50,000, (2) if the total amount of the contract is less than \$1,000,000, the department should retain 5% of the total contract, (3) retainage should be withheld until the department can ensure that the contractor has met the terms of the contract or until the finalization of the contract.
3. This guide specifies that the department verbally notify the bonding company early in the process. Generally, as a "rule of thumb", notifying the bonding company is usually the "last resort". However, the justification for the early notification is related to the language found in *Minnesota statute 574.31, subdivision 2*, which summarizes that if an individual or the department does not submit a claim on the payment bond within 120 days after the completion of work under the contract, the claim can be denied.

The following are general guidelines that should be followed prior to placing a Contractor in default:

- Step 1: Upon verbal or written notification that a possible prevailing wage violation exists, the Department should give written notice to the Contractor regarding the nature of the claim, along with the Department's intent to withhold monies until the claim is investigated and determined to be in compliance. Additionally, the Department should inform the Contractor that the bonding company has been verbally notified of the claim. Please be aware, the Department should ensure employee confidentiality at all times.
- Step 2: Upon a preliminary determination surrounding the financial extent of the claim, the Department should consider retaining a "reasonable" portion of one or more partial estimates in accordance with Mn/DOT's 2000 Standard Specifications for Construction, Section 1906; or on federal aid contracts, in accordance with the Required Contract Provisions Federal-Aid Construction Contracts Form – 1273, Section IV, Subpart 6, "Withholding".
- Step 3: If it is determined that the claim is valid, the Department should schedule a meeting with the Contractor and attempt to resolve the matter. If the claim is determined to be invalid, the Department should release any partial estimates that may have been held as a result of the claim. However, the Department should continue to withhold the final retainage in accordance with the above-mentioned: *Important Considerations, 2*.
- Step 4: If resolution cannot be obtained through a meeting, the Department should order the Contractor, in writing, to complete their obligations under the contract. The letter should clearly state the circumstances under which the Department has deemed that the Contractor has not met the terms of the contract. Additionally, the Department should include a reasonable deadline for this obligation to be completed. A copy of this letter should be forwarded to the Surety, District State Aid Engineer (DSAE), Labor Compliance Unit and the Department's Attorney.
- Step 5: In the event that the Contractor does not respond to the Department's written order, the Department should send a similar letter, requesting that the Contractor respond immediately, in writing, regarding the Contractor's intention to comply or not comply with the order. A copy of this letter should be forwarded to the Surety, District State Aid Engineer (DSAE), Labor Compliance Unit and the Department's Attorney.
- Step 6: If the Department still does not get a proper response from the Contractor, the Department should write another letter, addressed to both the Contractor and the Surety, specifying all the facts of the alleged breach, demanding that the Contractor, or its Surety, respond satisfactorily within 10 days or the Department may exercise its authority to Default and Terminate the Contract in accordance within/DOT's 2000 Specifications for Construction, Section

1808. It's important to provide sufficient detail so that the Surety understands the situation. This notification should be sent by certified mail. A copy of this letter should be forwarded to the Surety, District State Aid Engineer (DSAE), Labor Compliance Unit and the Department's Attorney.

Step 7: If the Contractor or Surety is unresponsive after 10 days, the Department should consult with their attorney to consider proceeding with Default and Termination of the Contract.

Step 8: Upon termination of the contract, the Department provides a written order to the Surety, requiring the Surety to bring resolution to the prevailing wage violation.

Step 9: The Department places the Contractor on a Non-Responsible Bidder's List and rejects any future awards.

Section 10

Federal Labor Standards Provisions U.S. Department of Housing and Urban Development Office of Labor Relations

Previous editions are obsolete Page 1 of 5 form HUD-4010 (06/2009) ref. Handbook 1344.1

Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A. 1. (i) Minimum Wages. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible, place where it can be easily seen by the workers.

(ii) (a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part Previous editions are obsolete Page 2 of 5 form HUD-4010 (06/2009) ref. Handbook 1344.1 of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work, all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (i) Payrolls and basic records. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section I(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section I(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i) except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/whd/wh347.pdf> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this subparagraph for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to HUD or its designee. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5 (a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is correct and complete;

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(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph A.3.(ii)(b).

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under subparagraph A.3.(i) available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding

journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by Previous editions are obsolete; Page 4 of 5 form HUD-4010 (06/2009) ref. Handbook 1344.1 the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under 29 CFR Part 5 shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract

6. Subcontracts. The contractor or subcontractor will insert in any subcontracts the clauses contained in subparagraphs 1 through 11 in this paragraph A and such other clauses as HUD or its designee may by appropriate instructions require, and a copy of the applicable prevailing wage decision, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this paragraph.

7. Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

10. (i) Certification of Eligibility. By entering into this contract the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1 01 0, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part: "Whoever, for the purpose of . . . influencing in any way the action of such Administration..... makes, utters or publishes any statement knowing the same to be false..... shall be fined not more than \$5,000 or imprisoned not more than two years, or both."

11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. Contract Work Hours and Safety Standards Act. The provisions of this paragraph B are applicable where the amount of the prime contract exceeds \$100,000. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the clause set forth in sub paragraph (1) of this paragraph.

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(3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety. The provisions of this paragraph C are applicable where the amount of the prime contract exceeds \$100,000.

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act, (Public Law 91-54, 83 Stat 96). 40 USC 3701 et seq.

(3) The contractor shall include the provisions of this paragraph in every subcontract so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontractor as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

Section 11

Equal Opportunity Laws and Regulations

(A) In addition to Contract specifications set forth below, the Contractor shall conduct and administer this Contract in compliance with:

- (1) Title VI of the Civil Rights Act of 1964 (Pub. L. 88-352) and implementing regulations issued at 24 CFR Part 1;
- (2) Title VIII of the Civil Rights Act of 1968 (Pub. L. 90-284), as amended, and implementing regulations;
- (3) Section 109 of the Housing and Community Development Act of 1974, as amended; and the regulations issued pursuant thereto (24 CFR Section 570.601);
- (4) Section 3 of the Housing and Urban Development Act of 1968, as amended, and implementing regulations of 24 CFR Part 135;
- (5) Executive Order 11246, as amended by Executive Order 11375 and 12086 and implementing regulations at 41 CFR Chapter 60;
- (6) Executive Order 11063, as amended by Executive Order 12259 and implementing regulations at 24 CFR Part 107;
- (7) Section 504 of the Rehabilitation Act of 1973 (Pub. L. 93-112), as amended, and implementing regulations when published for effect;
- (8) The Age Discrimination Act of 1975, as amended, (Pub. L. 94-135) and implementing regulations when published for effect;
- (9) The Minnesota Human Rights Act of 1974, as amended (Chapter 363).

Equal Opportunity and Affirmative Action

(A) Contractors and Subcontractors that have a work force in excess of fifty (50) employees and a contract in excess of \$50,000.00 shall prepare and maintain an appropriate affirmative action plan in accordance with the provisions of 41 CFR 60 "Compliance Responsibility for Equal Opportunity".

(B) Non-segregated Facilities. The Contractor shall certify that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The Contractor covenants that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and he will not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. As used in this paragraph the term "segregated facilities" means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, creed, religion, national origin, ancestry, age, marital status, status with respect to public assistance, and/or disability because of habit, local custom, or otherwise.

General Provisions Against Discrimination

(A) In all hiring or employment made possible by or resulting from this Contract, there:

- (1) will not be any discrimination against any employee or applicant for employment because of race, color, creed, religion, national origin, ancestry, age, sex, marital status, status with respect to public assistance, and/or disability.
- (2) affirmative action will be taken to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, creed, religion, national origin, ancestry, age, sex, marital status, status with respect to public assistance, and/or disability. This requirement shall apply to, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; lay-off or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. There shall be posted in conspicuous places available to employees and applicants for employment, notices setting forth the provisions of this clause. All solicitations or advertisements for employees shall state that all qualified applicants will receive consideration for employment without regard to race, color, creed, religion, national origin, ancestry, age, sex, marital status, status with respect to public assistance, and/or disability.

(B) No person in the United States shall, on the grounds of race, color, creed, religion, national origin, age, sex, marital status, status with respect to public assistance, and/or disability, be excluded from participation in, be denied the benefits of, or be subject to discrimination under any program or activity made possible by or resulting from this Contract. The Contractor and each employer will comply with all requirements imposed by or pursuant to the regulations of the Federal Agency effectuating Title VI of the Civil Rights Act of 1966. The Contractor will note this requirement in all solicitations or advertisements for employees. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(C) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice advising the labor union or workers' representative of the Contractor's commitments under these provisions, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(D) The Contractor hereby agrees that he will incorporate into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR Chapter 60, which is paid for in whole or in part with funds obtained pursuant to this Contract, the equal opportunity clause which is a part of these Contract Documents.

(E) The Contractor further agrees that he will be bound by the equal opportunity clause and other provisions of 41 CFR Chapter 60, with respect to his own employment practices when he participates in federally assisted construction work: **Provided:** That of the Contractor so participating is a State or Local Government, the above equal opportunity clause is not applicable to any agency, instrumentality, or subdivision of such government which does not participate in work on or under the Contract. Also, the Contractor will make his files available to inspection by appropriate government agencies and shall furnish those reports as may be required by said agencies.

(F) The Contractor agrees that he will assist and cooperate actively with the Federal Agency and the Secretary of Labor in obtaining the compliance of subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that he will furnish the Federal Agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that he will otherwise assist the Federal Agency in the discharge of its primary responsibility for securing compliance.

(G) The Contractor further agrees that he will refrain from entering into any contract or any contract modification subject to Executive Order 11246 of September 24, 1965, with a subcontractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order. In addition, the Contractor agrees that if he fails or refuses to comply with these undertakings, the City or the Federal Agency may take any or all of the following actions: Terminate or suspend in whole or in part this Contract; refrain from extending any further assistance to the Contractor under the Project with respect to which the failure or refusal occurred until satisfactory assurance of future compliance has been received from such Contractor and refer the case to the Department of Justice for appropriate legal proceedings.

Affirmative Action - "Construction Contracts" over \$10,000

Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity
(Executive Order 11246)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

<u>Timetables</u>	<u>Goals for minority participation (percent)</u>	<u>Goals for female participation (percent)</u>
From April 1, 1980 until revised	3.0	6.9

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3 (a), and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the City and to the Director of the Office of Federal Contract Compliance Programs; U.S. Department of Labor, ESA/OFCPP, 16th Floor, 230 South Dearborn Street, Chicago, Illinois, 60604, within 10 working days of award of any construction subcontract and/or subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the contractor and/or subcontractor; employer identification number; estimated dollar amount of the prime contract; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

4. As used in this Notice, and in the Contract, the "covered area" is all work under a contract currently held with the City of Duluth, Minnesota.

Standard Federal Equal Employment Opportunity
Construction Contract Specifications (Executive Order 11246)

1. As used in these specifications:

- a) "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor; or any person to whom the Director delegates authority;
- b) "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
- c) "Minority" includes:
 - (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
 - (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
 - (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative action to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:
- a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
 - b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.
 - c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.
 - d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.
 - e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notices of these programs to the sources compiled under 7b above.
 - f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
 - g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
 - h. Disseminate the Contractor's EEO policy externally by including it any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.
 - i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitments and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
 - j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.
 - k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
 - l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
 - m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
 - n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
 - o. Document and maintain a record of all solicitations of officers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
 - p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.
8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.
9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be violation of the Executive Order if a specific minority group of women is underutilized).
10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, creed, religion, national origin, sex, ancestry, age, marital status, status with respect to public assistance and/or disability.
11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.
12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.
13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails

to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

Affirmative Action for Handicapped Workers

(applies to contracts in excess of \$2,500)

(A) The Contractor will not discriminate against any employee or applicant for employment because of physical or mental handicap in regard to any position for which the employee or applicant is qualified. The Contractor agrees to take affirmative action to employ, advance in employment and otherwise treat qualified handicapped individuals without discrimination based upon their physical or mental handicap in all employment practices such as the following: Employment, upgrading, demotion or transfer, recruitment, advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.

(B) The Contractor agrees to comply with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.

(C) In the event of the Contractor's noncompliance with the requirements of this clause, actions for noncompliance may be taken in accordance with the rules, regulations and relevant orders of the Secretary of Labor issued pursuant to the Act.

(D) The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices in a form to be prescribed by the Director, provided by or through the contracting officer. Such notices shall state the Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified handicapped employees and applicants for employment, and the rights of applicants and employees.

(E) The Contractor will notify each labor union or representative of workers with which it has a collective bargaining agreement or other contract understanding, that the Contractor is bound by the terms of Section 503 of the Rehabilitation Act of 1973, and is committed to take affirmative action to employ and advance in employment physically and mentally handicapped individuals.

(F) The Contractor will include the provisions of this clause in every subcontract or purchase order of \$2,500 or more unless exempted by rules, regulations, or orders of the Secretary issued pursuant to Section 503 of the Act, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the Director of the Office of Federal Contract Compliance Programs may direct to enforce such provisions, including action for noncompliance.

Affirmative Action for Disabled Veterans and Veterans of the Vietnam Era

(applies to contracts in excess of \$10,000)

(A) The Contractor will not discriminate against any employee or applicant for employment because he or she is a disabled veteran or veteran of the Vietnam era in regard to any position for which the employee or applicant for employment is qualified. The Contractor agrees to take affirmative action to employ, advance in employment and otherwise treat qualified disabled veterans and veterans of the Vietnam era without discrimination based upon their disability or veterans status in all employment practices such as the following: Employment, upgrading, demotion or transfer, recruitment, advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.

(B) The Contractor agrees that all suitable employment openings of the Contractor which exist at the time of the execution of this contract and those which occur during the performance of this contract, including those not generated by this contract and including those occurring at an establishment of the Contractor other than the one wherein the contract is being performed but excluding those of independently operated corporate affiliates, shall be listed at an appropriate local office of the State employment service system wherein the opening occurs. The Contractor further agrees to provide such reports to such local office regarding employment openings and hires as may be required.

State and local government agencies holding Federal contracts of \$10,000 or more shall also list all their suitable openings with the appropriate office of the State employment service, but are not required to provide those reports set forth in paragraphs (D) and (E).

(C) Listing of employment openings with the employment service system pursuant to this clause shall be made at least concurrently with the use of any other recruitment source or effort and shall involve the normal obligations which attach to the placing of a bona fide job order, including the acceptance of referrals of veterans and non-veterans. The listing of employment openings does not require the hiring of any particular job applicant or from any particular group of job applicants, and nothing herein is intended to relieve the Contractor from any requirements in Executive Orders or regulations regarding nondiscrimination in employment.

(D) The reports required by paragraph (B) of this clause shall include, but not be limited to, periodic reports which shall be filed at least quarterly with the appropriate local office or, where the Contractor has more than hiring location in a State, with the central office of that State employment service. Such reports shall indicate for each hiring location (1) the number of individuals hired during the reporting period, (2) the number of non-disabled veterans of the Vietnam era hired, (3) the number of disabled veterans of the Vietnam era hired, and (4) the total number of disabled veterans hired. The reports should include covered veterans hired for on-the-job training under 38 U.S.C. 1787. The Contractor shall maintain at each hiring location copies of the reports submitted until the expiration of one year after final payment under the contract, during which time these reports and related documentation shall be made available, upon request, for examination by any authorized representatives of the contracting officer of the Secretary of Labor. Documentation would include personnel records respecting job openings, recruitment and placement.

(E) Whenever the Contractor becomes contractually bound to the listing provisions of this clause, it shall advise the employment service system in each State where it has establishments of the name and location of each hiring location in the State. As long as the Contractor is contractually bound to these provisions, and has so

advised the State system, there is no need to advise the State system of subsequent contracts. The Contractor may advise the State system when it is no longer bound by this contract clause.

(F) This clause does not apply to the listing of employment openings which occur and are filled outside of the 50 States, the District of Columbia, Puerto Rico, Guam, and the Virgin Islands.

(G) The provisions of paragraphs (B), (C), (D), and (E) of this clause do not apply to openings which the Contractor proposes to fill from within his own organization or to fill pursuant to a customary and traditional employer-union hiring arrangement for that opening.

(H) As used in this clause:

(1) "All suitable employment openings" includes, but is not limited to, openings which occur in the following job categories: Production and non-production; plant and office; laborers and mechanics; supervisory and non-supervisory; technical; and executive, administrative, and professional openings as are compensated on a salary basis of less than \$25,000 per year. This term includes full-time employment, temporary employment of more than 3 days' duration, and part-time employment. It does not include openings which the Contractor proposes to fill from within his own organization or to fill pursuant to a customary and traditional employer-union hiring arrangement nor openings in an educational institution which are restricted to students of that institution. Under the most compelling circumstances an employment opening may not be suitable for listing, including such situations where the needs of the Government cannot reasonably be otherwise supplied, where listing would be contrary to national security, or where the requirement of listing would otherwise not be for the best interest of the Government.

(2) "Appropriate office of the State employment service system" means the local office of the Federal-State national system of public employment offices with assigned responsibility for serving the area where the employment opening is to be filled, including the District of Columbia, Guam, Puerto Rico, and the Virgin Islands.

(3) "Openings which the Contractor proposes to fill from within his own organization" means employment openings for which no consideration will be given to persons outside the Contractor's organization (including any affiliates, subsidiaries, and the parent companies) and includes any openings which the Contractor proposes to fill from regularly established "recall" lists.

(4) "Openings which the Contractor proposes to fill pursuant to a customary and traditional employer-union hiring arrangement" means employment openings which the Contractor proposes to fill from union halls, which is part of the customary and traditional hiring relationship which exists between the Contractor and representatives of his employees.

(I) The Contractor agrees to comply with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.

(J) In the event of the Contractor's noncompliance with the requirements of this clause, actions for noncompliance may be taken in accordance with the rules, regulations and relevant orders of the Secretary of Labor issued pursuant to the Act.

(K) The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices in a form to be prescribed by the Director, provided by or through the contracting officer. Such notices shall state the Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified disabled veterans and veterans of the Vietnam era for employment, and the rights of applicants and employees.

(L) The Contractor will notify each labor union representative of workers with which it has a collective bargaining agreement or other contract understanding, that the Contractor is bound by the terms of the Vietnam Era Veterans Readjustment Assistance Act, and is committed to take affirmative action to employ and advance qualified disabled veterans and veterans of the Vietnam era..

(M) The Contractor will include the provisions of this clause in every subcontract or purchase order of \$10,000 or more unless exempted by rules, regulations, or orders of the Secretary issued pursuant to the Act, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the Director of the Office of Federal Contract Compliance Programs may direct to enforce such provisions, including action for noncompliance.

Section 12

Employment Opportunities - "HUD Section 3"

General

These requirements apply to the City of Duluth contracts receiving assistance under the U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant (CDBG) Program.

Type of Covered Projects

24CFR570.607 (b) of the HUD CDBG Program Regulations state in part "... that employment and other economic opportunities arising in connection with housing rehabilitation, housing construction, or other public construction projects shall to the greatest extent feasible, and consistent with existing Federal, State, and local laws and regulations be given to low- and very low-income persons.

Thresholds

In accordance with the provisions of 24CFR135.3(a) (3) (ii) (A), the requirements of this Section apply to those recipients as defined at 24CFR135.5 when the amount of this contract exceeds \$200,000.

In addition, in accordance with the provisions of 24CFR135.3 (a) (3) (ii) (B), the requirements of this Section apply to any contractor or subcontractor whose contract exceeds \$100,000 as a result of assistance provided under this contract.

Requirements (Section 3 Clause)

(A) The work to be performed under this contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u (section 3). The purpose of Section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted projects covered by section 3, shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

(B) The parties to this contract agree to comply with HUD's regulations in 24 CFR part 135, which implement section 3. As evidenced by their execution of this contract, the parties to this contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 135 regulations.

(C) The contractor agrees to send to each labor organization or representative of workers with which the contractor has a collective bargaining agreement, or other understanding, if any, a notice advising the labor organization or workers' representative of the contractor's commitments under this section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The

notice shall describe the section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

(D) The Contractor agrees to include this section 3 clause in every subcontract subject to compliance with regulations in 24 CFR part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 CFR part 135. The contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 CFR part 135.

(E) The contractor will certify that any vacant employment positions, including training positions, that are filled (1) after the contractor is selected but before the contract is executed, and (2) with persons other than those to whom the regulations of 24 CFR part 135 require employment opportunities to be directed, were not filled to circumvent the contractor's obligation under 24 CFR part 135.

(F) Noncompliance with HUD's regulations in 24 CFR part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD-assisted contracts.

Section 13

Federal Requirements for Minority/Women Business Enterprises Contract Guidance - MPFA

General

Municipalities that receive loan funding must comply with Federal requirements concerning utilization of Minority Business Enterprises (MBE) and Women's Business Enterprises (WBE). These requirements are designed to encourage the prime contractors to utilize MBEs and WBEs whenever procurement opportunities occur.

Regulation

40 C.F.R. Section 35.3145(d) Application of other Federal Authorities, M/WBE Requirements

Executive Orders No. 11625, 12138 and 12432 - Promoting the use of M/WBEs

Section 129 of Public Law 100-590 - Small Business Administration Reauthorization and Amendment Act of 1988

Regulations detailed in the EPA's *Cross-Cutting Federal Authorities - Clean Water Act State Revolving Fund Program and Safe Drinking Water Act State Revolving Fund Program*

Implementation

The "fair share" target percentage participation proposed for this project is 3.5 percent (3.5%) for MBE and 11.5 percent (11.5%) for WBE.

If the Contractor intends to let any subcontractors for a portion of the work, the Contractor shall take affirmative steps to assure that minority and women businesses are utilized when possible as sources of supplies, equipment, construction and services. Affirmative steps shall include the following:

- a) Include qualified minority businesses on solicitation lists.
- b) Assure that minority businesses are solicited whenever they are potential sources.
- c) When economically feasible, divide total requirements into smaller tasks or quantities so as to permit maximum small and minority business participation.
- d) Where the requirement permits, establish delivery schedules, which will encourage participation by minority businesses.
- e) Use the services and assistance of the Office of Minority Business Enterprise of the Department of Commerce.

The low bidder will be required to submit to the City of Duluth documentation of his good faith efforts to meet the targeted goals of utilizing MBEs and WBEs.

Section 14 - Forms

Minnesota Department of Transportation and City of Duluth, Minnesota funded certified payroll forms

- MnDOT Prime Contractor's-Subcontractor's Statement of Compliance form (12/2010)
www.dot.state.mn.us/const/labor/forms.html
- Certified Payroll Forms
<http://www.dol.gov/forms/whd/wh347.pdf>
use front side only

U. S. Department of Housing and Urban Development and federal government funded certified payroll forms

- Statement of Compliance Form & Certified Payroll Forms
<http://www.dol.gov/forms/whd/wh347.pdf>
(use reverse side for Statement of Compliance form)
- MnDOT Prime Contractor's-Subcontractor's Statement of Compliance form (12/2010)
www.dot.state.mn.us/const/labor/forms.html

Minnesota Department of Transportation Trucking Requirements

- Month End Trucking Report Form A and Form B
- Month End Trucking Report Statement of Compliance
- Definitions, instructions, forms:
www.dot.state.mn.us/const/labor/forms.html

PROJECT LABOR AGREEMENT

NO STRIKE, NO LOCKOUT

PUBLIC SECTOR

CITY OF DULUTH

&

Vendor

Project name

Project No.

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AGREEMENT

This Project Labor Agreement (hereinafter, the “Agreement”), effective as of the date of attestation by the City Clerk, by and between the various contractors engaged in the construction of facilities to be known as the (Project). The parties to this Agreement are the Building and Construction Trades Council, on behalf of its affiliated Local Unions (hereinafter “Union” or “Unions”), the City of Duluth (hereinafter “Owner”) and Contractor (hereinafter “Construction Manager/General Manager,” “Contractor,” and “Contractors”).

It is understood by the parties to this Agreement that it is the policy of the Owner that the construction work covered by this Agreement shall be contracted to Contractors who agree to be bound by the terms of this Agreement. Therefore, the Union agrees that other Contractors may execute the Agreement for the purpose of covering that work. The Construction Manager/General Contractor shall monitor compliance with this Agreement by all Contractors who through their execution of this Agreement, together with their subcontractors, have become bound hereto.

The term “Contractor” shall include all Contractors and subcontractors of whatever tier engaged in on-site construction work within the scope of this Agreement.

The Union and all signatory Contractors agree to abide by the terms and conditions contained in this Agreement with respect to the administration of the Agreement by the Owner and the performance of the construction by the Contractor of the Project. This Agreement represents the complete understanding of the parties, and it is further understood that no Contractor party is required to sign any other agreement as a condition of performing work within the scope of this Agreement. No practice, understanding or agreement between a Contractor and a Union party which is not explicitly set forth in this Agreement shall be binding on any other party unless endorsed in writing by the Project Contractor.

ARTICLE I - PURPOSE

The (Project), an undertaking of the Owner, is a public project which will employ numbers of skilled and unskilled workers. Construction of the Project will entail utilization of the construction industry in an area having multiple labor contracts and employer associations. Consequently, conflicts within labor-management relations could cause delay or disruption of the efficient completion of the .project unless maximum cooperation of all segments of the construction industry is obtained. This Agreement is to establish as the minimum standards on the Project the hours and working conditions as those prevailing for the largest number of workers engaged in the same classes of work within the area.

It is in the public interest that the Project progress and be completed in an expeditious and efficient manner, free of disruption or delay of any kind. Therefore, it is essential to secure optimum productivity and to eliminate any delays in the work. In recognition of the special needs of this Project and to maintain a spirit of harmony, labor-management peace and stability during the term of this Project Labor Agreement, the parties agree to establish effective and binding methods for the settlement of all misunderstandings, disputes or grievances which may arise. Therefore, the Unions agree not to engage in any strike, slowdown or interruption of work and the Contractor agrees not to engage in any lockout.

ARTICLE II - SCOPE OF THE AGREEMENT

Section 1. This Agreement, hereinafter designated as the “Project Labor Agreement” or “Agreement,” shall apply and is limited to all construction work included in all Bid Categories for the (Project), under the direction of the signatory Contractors and performed by those Contractor(s) of whatever tier which have contracts awarded for such work on and after the effective date of this Agreement with regard to the Project.

Such Project is generally described as the construction of: **Project**

Section 2. It is agreed that all direct subcontractors of a Contractor, of whatever tier, who have been awarded contracts for work covered by this Agreement on or after the effective date of this Agreement shall be required to accept and be bound by the terms and conditions of the Project Labor Agreement.

Section 3. The provisions of this Project Labor Agreement shall apply to all craft employees represented by any Union listed in Schedule A hereto attached and shall not apply to other field personnel or managerial or supervisory employees as defined by the National Labor Relations Act.

Section 4. All employees covered by this Agreement shall be classified in accordance with work performed and paid the base hourly wage rates for those classifications as specified in the attached Schedule A.

Section 5. The Contractors agree to pay contributions to the established employee benefit funds in the amounts designated in the appropriate Schedule A.

Contractors that are not signatory to a collective bargaining agreement beyond the scope of this Agreement ("PLA contractor") may select to participate in the legally established industry health reimbursement arrangement ("HRA") plan, in lieu of contributing to the respective bona fide benefit funds as designated in Schedule A. The amount of the contribution is based on the difference between the contribution amount of the bona fide Schedule A benefit funds and the cost of the PLA contractor's bona fide non-discretionary plans. Contributions must be made on behalf of named employees. Participating contractors will submit to the Trustees of the HRA trust and plan a copy of their plan, summary plan description, and the premium structure for workers covered under the PLA contractor's bona fide, non-discretionary plans. The value of the PLA contractor's benefit plans are subject to confirmation by the Trustees of the HRA trust and plan. This may include an independent audit according to a policy as established by the Trustees. Contractors are required to submit certified payroll reports to the Trustees or authorized administrator in order to confirm compliance with the terms of the HRA trust and plan.

The Contractors adopt and agree to be bound by the written terms of the legally-established Trust Agreements (or in lieu thereof, the aforementioned HRA plan and trust including any policies) specifying the detailed basis on which payments are to be made into, and benefits paid out of, such Trust Funds. The Contractors authorize the parties to such Trust Agreements to appoint trustees and successor trustees to administer the Trust funds and hereby ratify and accept the Trustees so appointed as if made by the Contractors.

Section 6. In the event of any conflict between any provisions of this Agreement and in the Local Area Agreements, the terms of this Agreement will be applied. In other words, where a subject covered by the provisions of this Project Labor Agreement is also covered by the Local Area Agreement the provisions of this Project Labor Agreement shall prevail. Where a subject is covered by the Local Area Agreement and not covered by this Project Labor Agreement, the Local Area Agreement provisions shall prevail.

Section 7. This Agreement shall only be binding on the signatory parties hereto and shall not apply to the parents, affiliates, subsidiaries, or other ventures of any such party.

Section 8. This Agreement shall be limited to work historically recognized as construction work. Nothing contained herein shall be construed to prohibit, restrict, or interfere with the performance of any other operation, work or function which may occur in or around the Project site or be associated with the development of the Project, or with the ongoing operations of the Owner.

Section 9. It is understood that the liability of any Contractor and the liability of the separate Unions under this Agreement shall be several and not joint. The Union agrees that this Agreement does not have the effect of creating any joint employment status between or among Owner and any Contractor.

Section 10. All workers delivering fill, sand, gravel, crushed rock, transit/concrete mix, asphalt or other similar materials and all workers removing any materials from the construction site as required by the specifications are subject to the provisions of the Minnesota state

prevailing wage law and are entitled to the appropriate area standard wage. For purposes of this contract, such materials are for specified future use and per Minnesota state prevailing wage law delivery and pickup of the above-listed materials constitutes incorporation.

ARTICLE III - UNION RECOGNITION AND REPRESENTATION

Section 1. The Contractor recognizes the Union as the sole and exclusive bargaining representative of all craft employees working on facilities within the scope of this Agreement.

Section 2. Authorized representatives of the Union shall have access to the Project, provided they do not interfere with the work of employees and further provided that such representatives fully comply with the posted visitor and security and safety rules of the Project.

ARTICLE IV - LABOR HARMONY CLAUSE

The contractor shall furnish labor that can work in harmony with all other elements of labor employed on that (Project) and shall submit a labor harmony plan to demonstrate how this will be done. "Harmony" shall include the provision of labor that will not, either directly or indirectly, cause or give rise to any work disruptions, slow downs, picketing, stoppages, or any violence or harm to any person or property while performing any work, or activities incidental thereto at the (project). The labor harmony plan should include the company's labor management policies, collective bargaining agreements if any and their expiration dates, past labor relations history, a listing of activities anticipated under this contract that may potentially cause friction with on-site workers, and procedures the company will undertake to eliminate this friction.

The contractor agrees that it shall require every lower-tier subcontractor to provide labor that will work in harmony with all other elements of labor employed in the work, and will include the provisions contained in the paragraph above, in every lower-tier subcontract let for work under this contract.

The requirement to provide labor that can work in harmony with all other elements of labor employed in the work throughout the contract performance is a material element of this contract. Failure by the contractor or any of its lower tier subcontractors to comply with this requirement shall be deemed a material breach of the contract which will subject the contractor to all rights and remedies the city of Duluth may have, including without limitation the right to terminate the contract.

ARTICLE V - WORK STOPPAGES AND LOCKOUTS

Section 1. There shall be no strike, picketing, work stoppages, slowdowns or other disruptive, activity for any reason by the Union or employees against any Contractor covered under this Agreement, and there shall be no lockout by the Contractor. Failure of any Union or employee to cross any picket line established by any union, signatory or non-signatory, or any other organization, at or in proximity to the Project site is a violation of this Article.

Section 2. Any party alleging a breach of Section 1, of Article IV shall have the right to petition a court for temporary and permanent injunctive relief. The moving party need not show the existence of irreparable harm, and shall be required to post bond only to secure payment of court costs and attorney fees as may be awarded by the court.

ARTICLE VI - DISPUTES AND GRIEVANCES

Section 1. This Agreement is intended to provide close cooperation between management and labor. The Construction Manager/General Contractor and the Building and Construction Trades Council shall each assign a representative to this Project for the purpose of assisting the Local Unions, together with the Contractor, to complete the construction of the Project economically, efficiently, continuously and without interruption, delays or work stoppages.

Each Contractor shall hold a pre-job conference with the Union and Construction Manager/General Contractor to clear up any project question and work assignments in which there is thought to be a difference in opinion. Every effort will be made to hold such conference well in advance of actual work performance.

Section 2. The Contractor, Union, and employees collectively and individually, realize the importance to all parties to maintain continuous and uninterrupted performance of the work of the Project, and agree to resolve disputes over grievances in accordance with the arbitration provisions set forth in the Local Area Agreements in effect with the Unions listed in Schedule A attached hereto.

ARTICLE VII - JURISDICTIONAL DISPUTES

Section 1. There will be no strikes, work stoppages, slowdowns, or other disruptive activity arising out of any jurisdictional dispute. Pending the resolution of the dispute, the work shall continue uninterrupted as assigned by the Contractor.

Section 2. Building construction work shall be assigned by the Contractor in accordance with the procedural rules of the Plan for the Settlement of Jurisdictional Disputes in the Construction Industry (hereinafter the "Plan"). Any jurisdictional dispute over the Contractor's assignment of work shall be settled in accordance with the provisions of the Plan.

Section 3. Where a jurisdictional dispute involves the International Brotherhood of Teamsters, it shall be referred for resolution to that International Union and the disputing International Union. The resolution of the dispute shall be reduced to writing, signed by the authorized representative of the International Unions and the Contractor. The assignments made by the Contractor shall be followed until such time as the dispute is resolved in accordance with this Section.

ARTICLE VIII - NO DISCRIMINATION

Section 1. The Contractor and Union agree that they will not discriminate against any employee or applicant for employment because of his or her membership or nonmembership in a Union or based upon race, color, religion, sex, national origin or age in any manner prohibited by law or regulation.

Section 2. Any complaints regarding application of the provisions of Section 1 should be brought to the immediate attention of the involved Contractor for consideration and resolution.

Section 3. The use of the masculine or feminine gender in this Agreement shall be construed as including both genders.

ARTICLE IX - SAVINGS AND SEPARABILITY

It is not the intention of the parties to violate any laws governing the subject matter of this Agreement. The parties hereto agree that in the event any provisions of the Agreement are finally held determined to be illegal or void as being in contravention of any applicable law, the remainder of the Agreement shall remain in full force and effect unless the part or parts so found to be void are wholly inseparable from the remaining portions of this Agreement. Further, the contractor and Union agree that if and when any and all provisions of this Agreement are finally held or determined to be illegal or void by Court of competent jurisdiction, the parties will promptly enter into negotiations concerning the substance affected by such decision for the purpose of achieving conformity with the requirements of an applicable law and the intent of the parties hereto.

ARTICLE X DURATION OF THE AGREEMENT

The Project Labor Agreement shall be effective as of the date of attestation by the City Clerk, and shall continue in effect for the duration of the Project construction work described in Article II hereof. Construction of any phase, portion, section or segment of the project shall be deemed complete when such phase, portion, section or segment has been turned over to the Owner and has received the final acceptance from the Owner's representative.

Since there are provisions herein for no strikes or lockouts in the event any changes are negotiated and implemented under a Local Area Agreement during the term of this Agreement, the Contractor agrees that, except as specified herein, such changes shall be recognized and shall apply retroactively to the termination date in the particular Local Agreement involved. Each Contractor which has a Local Agreement with a Union at the time that its contract at the project

commences shall continue it in effect with each said Union so long as the Contractor remains on the project. In the event any such Local Area Agreement expires, the Contractor shall abide by all of the terms of the expired Local Agreement until agreement is reached on a new Local Agreement, with any changes being subject to the provisions of this Agreement.

The Union agrees that there will be no strikes, work stoppages, sympathy actions, picketing, slowdowns or other disruptive activity affecting the Project by any Union involved in the negotiation of a Local Area Agreement nor shall there be any lockout on this Project affecting the Union during the course of such negotiations.

IN WITNESS WHEREOF the parties have entered into this Agreement to be effective as of the day and year above written.

DULUTH BUILDING AND
CONSTRUCTION TRADES COUNCIL

VENDOR

By: _____

By: _____

Its _____
(Printed Name/Title)

Its _____
(Printed Name/Title)

Date: _____

Date: _____

CITY OF DULUTH

By: _____
Mayor

Attest:

City Clerk

Date: _____

City Auditor

Date: _____

Assistant City Attorney

Date: _____

SCHEDULE “A”

- A1 Asbestos Workers Local 49
- A-2 Boilermakers Local 647
- A-3 BAC Local 1 Chapter 3 Duluth & Iron Range
- A-4 Carpenters Local 361
- A-5 Cements Masons/Plasterers Local 633
- A-6 Elevator Constructors Local 9
- A-7 IBEW Local 242
- A-8 Iron Workers Local 512
- A-9 Laborers Local 1091
- A-10 Millwrights & Machinery Erectors Local 1348
- A-11 Operating Engineers Local 49
- A-12 Painters & Allied Trades Local 106
- A-13 Plumbers & Fitters Local 11
- A-14 Roofers Local 96
- A-15 Sheet Metal Workers Local 10
- A-16 Sprinkler Fitters Local 669
- A-17 Teamsters Local 346

Building Trades Affiliates Contract Expirations

Heat & Frost Insulators Local 49	May 31, 2017
Boilermakers Local 647	December 31, 2016
Bricklayers Local 1	April 30, 2016
Carpenters Local 361	May 30, 2017
Cement Masons Local 633	April 30, 2017
Elevator Constructors Local 9	July 8, 2017
Glaziers Local 106	April 30, 2017
IBEW Local 242	May 31, 2019
Iron Workers Local 512	April 30, 2016
Laborers Local 1091	April 30, 2017
Operator Engineers Local 49 (Bldrs)	April 30, 2016
(Hwy Heavy)	April 30, 2017
Painters Local 106	April 30, 2017
Plumbers & Steamfitters Local 11	April 30, 2017
Roofers Local 96	June 30, 2016
Sheet Metal Local 10	April 30, 2016
Sprinkler Fitters Local 669	March 31, 2016
Teamsters Local 346	April 30, 2017

Updated 9/4/2015

DULUTH BUILDING AND CONSTRUCTION TRADES COUNCIL

2002 LONDON ROAD

LABOR CENTER

DULUTH, MINN. 55812



Officers: Craig Olson <i>President</i> Darrell Godbout <i>Vice President</i> Dan Olson <i>Secretary</i> Jeff Daveau <i>Treasurer</i>	ASBESTOS WORKERS LOCAL 49 Dave Cartwright 2002 London Road #210 Duluth, MN 55812 (218) 724-3223 / Fax# 724-1870 dave@insulatorslocal49.org	BOILERMAKERS LOCAL 647 Bill Polchow 1007 NW 4 th Street, Ste C Grand Rapids, MN 55744 (218) 326-2522 / Fax# SAME bpolchow647@outlook.com	BAC LOCAL #1 CHAPTER 3 DULUTH & IRON RANGE Stan (Ogie) Paczynski 2002 London Road #100 Duluth, MN 55812 (218) 724-8374 / Fax# 724-8341 spaczynski@bac1mn-nd.org
Boilermakers #647 Bricklayers #1	CARPENTERS LOCAL 361 Steve Risacher & Chris Hill 5238 Miller Trunk Hwy Hermantown, MN 55811 (218) 724-3297 / Fax# 724-8536 sisacher@ncsrcc.org chill@ncsrcc.org	CEMENT MASONS LOCAL 633 Michael Syversrud 2002 London Road #112 Duluth, MN 55812 (218) 724-2323 / Fax# 724-2472 mikes@local633.org	ELEVATOR CONSTRUCTORS LOCAL 9 Dave Aaserud 433 Little Canada Rd E Little Canada, MN 55117 (651) 287-0817 / Fax# 287-0820 d.aaserud@local9.com
Carpenters #361	IBEW LOCAL 242 Don Smith 2002 London Road #111 Duluth, MN 55812 (218) 728-6895 / Fax# 728-1965 dsmithlc1242@unions-america.com	IRON WORKERS LOCAL 512 Darrell Godbout, <i>Vice President</i> 3752 Midway Road Hermantown, MN 55810 (218) 724-5073 / Fax# 724-1525 darrell@iron512.com	LABORERS LOCAL 1091 Dan Olson, <i>Secretary</i> 2002 London Road #119 Duluth, MN 55812 (218) 728-5151 / Fax# 728-2431 laborers@local1091.com
Cement Masons #633	MILLRIGHTS & MACHINERY ERECTORS LOCAL 1348 Wayne Nordin 307 N 1 st Street Virginia, MN 55792 (218) 741-6314 / Fax# 741-6017 wnordin@ncsrcc.org	OPERATING ENGINEERS LOCAL 49 Brent Pykkonen 2002 London Road #116 Duluth, MN 55812 (218) 724-3840 / Fax# 728-1441 pyke49@yahoo.com	PAINTERS LOCAL 106 Craig Olson, <i>President</i> 2002 London Road #106 Duluth, MN 55812 (218) 724-6466 / Fax# 724-7359 president@duluthbuildingtrades.com
Elevator #9	PLUMBERS & FITTERS LOCAL 11 Jeff Daveau, <i>Treasurer</i> 4402 Airpark Boulevard Duluth, MN 55811 (218) 727-2199 / Fax# 727-2298 jeff@ualocal11.com	ROOFERS LOCAL 96 Vance Anderson 1145 Villa Vista Circle Cromwell MN 55726 (218) 644-1096 / Fax# SAME valocal96@yahoo.com	SHEET METAL WORKERS LOCAL 10 Doug Christy 6279 Industrial Road Saginaw, MN 55779 (218) 724-6873 / Fax# SAME dchristy@smw10.org
IBEW #242	SPRINKLER FITTERS LOCAL 669 James Westby PO Box 398 Mabel, MN 55954 (507) 493-5671 / Fax# 493-5481 westby@mabeltel.coop	TEAMSTERS LOCAL 346 Rod Alstead 2802 West 1 st Street Duluth, MN 55806 (218) 628-1034 / Fax# 628-0246 team1346@qwest.net	
Insulators #49			
Ironworkers #512			
Laborers #1091			
Millrights #1348			
Operators #49			
Painters #106			
Pipelitters #11			
Roofers #96			
Sheetmetal #10			
Sprinklerfitters #669			
Teamsters #346			

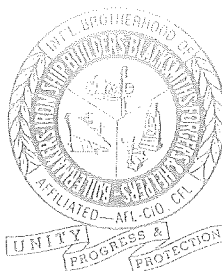
International Brotherhood of

BOILERMAKERS · IRON SHIP BUILDERS

9459 N.W. Highway 10, Suite 105

Ramsey, MN 55303-7280

S-43



Local Lodge No. 647

BLACKSMITHS · FORGERS & HELPERS

Luke A. Voigt

Business Manager/Secretary Treasurer

763-712-9930 . Fax: 763-712-9935

December 1, 2015

TO WHOM IT MAY CONCERN:

The following wage package changes listed below become effective 01/01/2016 thru 12/31/2016 for Boilermakers Local Lodge #647. Per the Great Lakes Articles of Agreement for the year of 2016, there is a \$1.40 increase to be allocated by the membership. The \$1.40 has been allocated as follows: \$1.00 will go to a wage increase, \$.40 will go to an Annuity increase. Per Article 24.4, the 647 Development and Training Fund (D&T) will increase \$.05 for a total contribution of \$.51.

CHANGES AS OF:	January 1, 2016	Effective:	01/01/2016
Increase General Foreman	\$ 1.00	General Foreman Wage	\$ 39.65
Increase Foreman	1.00	Foreman Wage	37.65
Increase Journeyman	1.00	Journeyman Wage	35.15
Increase Annuity	.40	Pension Trust	14.14
Increase 647 D&T	.05	Annuity Trust	4.40
Increase Vacation Fund Deduction	.95	Health & Welfare Fund	7.07
Increase Subsistence	5.00	Retiree Welfare Plan	.50
		Apprenticeship Fund	.40
		MOST	.34
		647 D&T	.51
		Deductions (after tax)	
		Vacation Trust	2.00
		647 Political Action Fund	.05

All other benefits and deductions remain the same for the Great Lakes Articles of Agreement as listed further in this letter.

Subsistence will be paid under the terms and conditions of the Great Lakes Articles of Agreement. For the provisions of the agreement on subsistence, Addendum A of the agreement states effective 01/01/2016 thru 12/31/2016 the daily rate of Subsistence is \$65.00 per day if a Boilermaker's permanent address is 50 miles from the jobsite.

Boilermaker-Blacksmith National Pension Trust (\$14.14), National Annuity (\$4.40), National Health & Welfare Fund (\$7.07), Boilermakers Great Lakes Region Retiree Welfare Plan (\$.50), Boilermakers 647 D&T Fund (\$.51), Boilermakers 647 Political Action Fund (\$.05 deducted after taxes), to be paid on hours PAID, not hours worked.

Vacation Trust (\$2.00 deducted after taxes), Apprenticeship Fund (\$.40) and MOST (\$.34) are to be paid on hours WORKED.

647 Political Action Fund and 647 D&T Fund monies will be submitted to Local 647 on separate forms and will require separate checks for each fund.

Boilermakers receive time and one-half over the established workday of eight hours and all time worked on Saturdays. All time worked on Sundays and holidays are double time.

Effective November 1, 2011, Field Dues increased to 4.25% of the gross pay, which is remitted to Local 647.

An Emergency Work Addendum has been added to the Great Lakes Articles of Agreement which provides for time and one half rate of pay for unscheduled emergency outages. If you would like a copy of this addendum please contact Local 647.

This is the third and final year of the agreement.

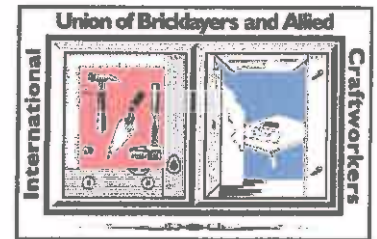
If you have any questions please call me at 763-712-9930.

Very truly yours,

A handwritten signature in dark ink, appearing to read "Luke Voigt", followed by a horizontal line extending to the right.

Luke A. Voigt
Business Manager/Secretary Treasurer
Boilermakers Local Lodge #647

LAV/vm
opeiu #12



Bricklayers and Allied Craftworkers

Local Union 1 Minnesota / North Dakota

312 Central Avenue, Suite 328
Minneapolis, Minnesota 55414

"Building For the Future"

TELEPHONE: 612/379-2966

FAX: 612/379-8754

MICHAEL J COOK
President/Secretary-Treasurer

To: All Associated General Contractors
Minnesota Masonry Contractors
Independent Contractors
Chapter #3
Duluth Area

Scope of the Agreement

This agreement shall cover all of the part of St. Louis County, south of a line between townships 54 and 55 (two miles north of Cotton), also the eastern half of Aitkin County on a line with the northeast boundary line of Mille Lacs County, also Carlton, Lake, Cook, Pine and Kanabec.

January 28, 2015

BRICKLAYERS AND ALLIED CRAFTWORKERS LOCAL UNION 1 MINNESOTA / NORTH DAKOTA DULUTH AREA – BRICKLAYERS, BLOCKLAYERS AND P.C.C.'S

This is to advise you that the new working agreement calls for a \$1.00 increase per hour on May 1, 2015. Please inform your bookkeeping department of the following rates.

The total wage rate effective May 1, 2015 for members of the Bricklayers and Allied Craftworkers will be as follows:

WAGES	HEALTH \$BANK – RPP	HRA	IU & PPA PENSION	LOCAL PENSION	DUL ANN	DUL VAC	DUES	IMI	APPR	FCF	TOTAL
29.64	(5.65 + 1.10)	.88	(1.50 + .44)	6.70	3.85	2.00	1.23	.54	.30	.02	53.85

Base Rate: \$29.64
Vacation, Dues Check Off: \$3.23
Taxable Amount: \$32.87

FOREMAN RATE - The Foreman rate shall be an additional \$3.00 above the scale.

REFRACTORY - The Refractory Base Wage rate shall be \$31.14 with above fringe benefits.

VACATION PAY - Vacation Pay shall be pyramided in all overtime pay. Time and one-half = \$3.00
Double-time = \$4.00

Sincerely,

Michael J Cook

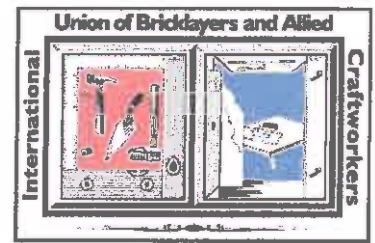
APPRENTICE WAGES

BASE WAGE TAXABLE

1st 1000 hours 50% - \$14.82	\$18.05*
2nd 1000 hours 55% - \$16.30	\$19.53*
3rd 1000 hours 65% - \$19.27	\$22.50*
4th 1000 hours 75% - \$22.23	\$25.46*
5th 1000 hours 85% - \$25.19	\$28.42*
6th 1000 hours 95% - \$28.16	\$31.39*

* Taxable wage - Includes Vacation and Dues

Michael J. Cook
President / Secretary - Treasurer
Bricklayers and Allied Craftworkers
Local Union 1 Minnesota / North Dakota
8 – 2015



Bricklayers and Allied Craftworkers

Local Union 1 Minnesota / North Dakota

312 Central Avenue, Suite 328
Minneapolis, Minnesota 55414

"Building For the Future"

TELEPHONE: 612/379-2966

FAX: 612/379-8754

MICHAEL J. COOK
President/Secretary-Treasurer

To: All Associated General Contractors
Minnesota Tile Contractors
Independent Contractors
Chapter #3
Duluth Area

Scope of the Agreement

This agreement shall cover the counties of St. Louis, Koochiching, Itasca, Aitkin, Carlton, Lake, and Cook. The agreement shall also cover all of the part of Pine County north of County Road 30 and include the city of Sandstone.

March 5, 2015

BRICKLAYERS AND ALLIED CRAFTWORKERS **LOCAL UNION 1 MINNESOTA / NORTH DAKOTA**

DULUTH AREA - TILE LAYERS

This is to advise you that the new working agreement calls for a \$1.06 increase per hour on May 1, 2015. Please inform your bookkeeping department of the following rates.

The total wage rate effective May 1, 2015 for members of the Bricklayers and Allied Craftworkers will be as follows:

WAGES	HEALTH \$BANK - RPP	HRA	IU & PPA PENSION	LOCAL PENSION	LOCAL ANNUITY	VAC.	DUES	IMI	APPR	FCF	TOTAL
23.02	(5.65 + 1.10)	.71	(1.50 + .44)	6.70	4.68	.50	1.07	.46	.20	.02	46.05

Base Rate: \$23.02
Vacation, Dues Check Off: \$1.57
Taxable Amount: \$24.59

Foreman shall receive an additional \$1.00 above the scale.

Sincerely,

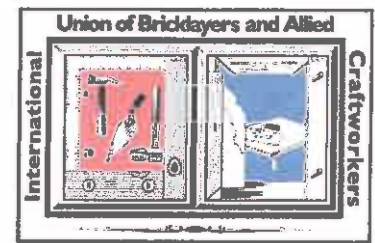
Michael J. Cook

Michael J. Cook
President / Secretary - Treasurer
Bricklayers and Allied Craftworkers
Local Union 1 Minnesota / North Dakota

APPRENTICESHIP WAGES

BASE WAGE	TAXABLE
1st 2000 hours 91% - \$20.95	\$22.52 *
2nd 2000 hours 94% - \$21.64	\$23.21 *
3rd 2000 hours 97% - \$22.33	\$23.90 *

* Taxable wage = Includes Dues



Bricklayers and Allied Craftworkers

Local Union 1 Minnesota / North Dakota

312 Central Avenue, Suite 328
Minneapolis, Minnesota 55414

"Building For the Future"

TELEPHONE: 612/379-2966

FAX: 612/379-8754

MICHAEL J. COOK
President/Secretary-Treasurer

To: All Associated General Contractors
Minnesota Tile Contractors
Independent Contractors
Chapter #3
Duluth Area

Scope of the Agreement

This agreement shall cover the counties of St. Louis, Koochiching, Itasca, Aitkin, Carlton, Lake, and Cook. The agreement shall also cover all of the part of Pine County north of County Road 30 and include the city of Sandstone.

March 5, 2015

BRICKLAYERS AND ALLIED CRAFTWORKERS LOCAL UNION 1 MINNESOTA / NORTH DAKOTA DULUTH AREA - TILE FINISHERS

This is to advise you that the new working agreement calls for a \$.80 increase per hour on May 1, 2015. Please inform your bookkeeping department of the following rates.

The total wage rate effective May 1, 2015 for members of the Bricklayers and Allied Craftworkers will be as follows:

WAGES	HEALTH \$BANK - RPP	HRA	IU & PPA PENSION	LOCAL PENSION	LOCAL ANNUITY	VAC.	DUES	IMI	APPR	FCF	TOTAL
16.24	(5.65 + 1.10)	.50	(1.50 + .44)	6.70	.50	.50	.85	.35	.20	.02	34.55

Base Rate: \$16.24
Vacation, Dues Check Off: \$1.35
Taxable Amount: \$17.59

Sincerely,

Michael J. Cook

Michael J. Cook
President / Secretary - Treasurer
Bricklayers and Allied Craftworkers
Local Union 1 Minnesota / North Dakota

APPRENTICESHIP WAGES

BASE WAGE	TAXABLE
1st 1000 hours 60% - \$9.74	\$11.09*
2nd 1000 hours 70% - \$11.37	\$12.72 *
3rd 1000 hours 80% - \$12.99	\$14.34 *
4th 1000 hours 90% - \$14.62	\$15.97 *

* Taxable wage = Includes Dues



Northern Minnesota

Local 361

Commercial & Residential Carpenter Wage Rates

Effective May 1, 2015

CARPENTERS										
Effective May 1, 2015										
Classification	Percent (%)	Gross Wages	Deductions		Fringe Benefits					Total Package
			Savings	Dues	Health	DB Pension	DC Pension	Apprentice/ Education	Fair Contracting	
Commercial Foreman (+2.00 Above JP)	100%	\$31.55	-\$1.30	-\$1.26	\$6.33	\$6.15	\$3.00	\$0.60	\$0.02	\$47.65
Commercial Journeyman	100%	\$29.55	-\$1.30	-\$1.18	\$6.33	\$6.15	\$3.00	\$0.60	\$0.02	\$45.65
Residential Foreman (+2.00 Above JP)	100%	\$27.12	-\$1.30	-\$1.08	\$6.33	\$6.15	\$3.00	\$0.60	\$0.02	\$43.22
Residential Journeyman	100%	\$25.12	-\$1.30	-\$1.00	\$6.33	\$6.15	\$3.00	\$0.60	\$0.02	\$41.22
Apprentice										
	6125-7000	97%	\$28.66	-\$1.30	-\$1.15	\$6.33	\$6.15	\$3.00	\$0.60	\$44.76
	5250-6125	93%	\$27.48	-\$1.30	-\$1.10	\$6.33	\$6.15	\$3.00	\$0.60	\$43.58
	4375-5250	88%	\$26.00	-\$1.30	-\$1.04	\$6.33	\$6.15	\$3.00	\$0.60	\$42.10
	3500-4375	83%	\$24.53	-\$1.30	-\$0.98	\$6.33	\$6.15	\$3.00	\$0.60	\$40.63
	2625-3500	78%	\$23.05	-\$1.30	-\$0.92	\$6.33	\$6.15	\$3.00	\$0.60	\$39.15
	1750-2625	73%	\$21.57	-\$1.30	-\$0.86	\$6.33	\$6.15	\$3.00	\$0.60	\$37.67
	875-1750	68%	\$20.09	-\$1.30	-\$0.80	\$6.33	\$6.15	\$3.00	\$0.60	\$36.19
	0-875	63%	\$18.62	-\$1.30	-\$0.74	\$6.33	\$6.15	\$3.00	\$0.60	\$34.72
Consisting of Carlton, Cook, Pine, and portions of Lake and St. Louis Counties in Minnesota and Douglas and Western Bayfield Counties in Wisconsin.										

Consisting of Carlton, Cook, Pine, and portions of Lake and St. Louis Counties in Minnesota and Douglas and Western Bayfield Counties in Wisconsin.

Residential work is defined as single family/duplex or smaller. All other work is considered commercial and should be paid accordingly.



Minnesota Highway Heavy

All Districts *

Piledriver Wage Rates

Effective May 1, 2015

Classification	Percent (%)	Gross Wages	Deductions		Fringe Benefits					Total Package
			Savings	Dues	Health	DB Pension	DC Pension	Apprentice/ Education	Fair Contracting	
Foreman	100%	\$37.85	-\$1.15	-\$1.51	\$6.33	\$9.45	\$1.40	\$0.60	\$0.02	\$55.65
Piledriver Journeyperson	100%	\$35.85	-\$1.15	-\$1.43	\$6.33	\$9.45	\$1.40	\$0.60	\$0.02	\$53.65
Apprentice	42-48 Months	\$34.06	-\$1.15	-\$1.36	\$6.33	\$9.45	\$1.40	\$0.60	\$0.02	\$51.86
	36-42 Months	\$32.27	-\$1.15	-\$1.29	\$6.33	\$9.45	\$1.40	\$0.60	\$0.02	\$50.07
	30-36 Months	\$30.47	-\$1.15	-\$1.22	\$6.33	\$9.45	\$1.40	\$0.60	\$0.02	\$48.27
	24-30 Months	\$28.68	-\$1.15	-\$1.15	\$6.33	\$9.45	\$1.40	\$0.60	\$0.02	\$46.48
	18-24 Months	\$27.96	-\$1.15	-\$1.12	\$6.33	\$9.45	\$1.40	\$0.60	\$0.02	\$45.76
	12-18 Months	\$26.89	-\$1.15	-\$1.08	\$6.33	\$9.45	\$1.40	\$0.60	\$0.02	\$44.69
	6-12 Months	\$25.81	-\$1.15	-\$1.03	\$6.33	\$9.45	\$1.40	\$0.60	\$0.02	\$43.61
0-6 Months	70%	\$25.10	-\$1.15	-\$1.00	\$6.33	\$9.45	\$1.40	\$0.60	\$0.02	\$42.90

*NOTE: Gross wages for Piledriver Apprentices working in all districts are calculated using the respective percentages of a District 1 Piledriver Journeyperson. Fringe Benefit allocations are also the same as a District 1 Piledriver Journeyperson.

The following rates are per hour above Journeyperson Piledriver scale.

Foreman: \$2.00 Certified Welder: \$1.00 Welder: \$0.50 Diver: \$6.50 Tender: \$3.00 Creosote: \$0.75 Tunnel Work: \$0.30
The diving crew shall have a Designated Person In Charge (DPIC) in accordance with OSHA regulations. The contractor must always assign a crew that complies with OSHA regulations and may increase the crew to meet productivity and safety requirements.

Diver's Expenses: \$100.00 per day for use of personal equipment and \$50.00 per day for use of air compressor.

May 1, 2016 Increase: \$1.61 to be allocated



Minnesota Highway Heavy

District 2

Highway Heavy Carpenter Wage Rates

Effective May 1, 2015

Classification	Percent (%)	Gross Wages	Deductions		Fringe Benefits					Total Package
			Savings	Dues	Health	DB Pension	DC Pension	Apprentice/ Education	Fair Contracting	
Foreman	100%	\$36.11	-\$1.40	-\$1.44	\$6.33	\$7.35	\$2.80	\$0.60	\$0.02	\$53.21
Journey person	100%	\$34.11	-\$1.40	-\$1.36	\$6.33	\$7.35	\$2.80	\$0.60	\$0.02	\$51.21
Apprentice	6125-7000	97%	\$33.09	-\$1.40	-\$1.32	\$6.33	\$7.35	\$2.60	\$0.60	\$49.99
	5250-6125	93%	\$31.72	-\$1.40	-\$1.27	\$6.33	\$7.35	\$2.60	\$0.60	\$48.62
	4375-5250	88%	\$30.02	-\$1.40	-\$1.20	\$6.33	\$7.35	\$2.60	\$0.60	\$46.92
	3500-4375	83%	\$28.31	-\$1.40	-\$1.13	\$6.33	\$7.35	\$2.60	\$0.60	\$45.21
	2625-3500	78%	\$26.61	-\$1.40	-\$1.06	\$6.33	\$7.35	\$2.60	\$0.60	\$43.51
	1750-2625	73%	\$24.90	-\$1.40	-\$1.00	\$6.33	\$7.35	\$2.60	\$0.60	\$41.80
	875-1750	68%	\$23.19	-\$1.40	-\$0.93	\$6.33	\$7.35	\$2.60	\$0.60	\$40.09
	0-875	63%	\$21.49	-\$1.40	-\$0.86	\$6.33	\$7.35	\$2.60	\$0.60	\$38.39
Consisting of Aitkin, Carlton, Cook, Itasca, Koochiching, Lake, Pine and St. Louis Counties in Minnesota and in Wisconsin, Douglas and Western Bayfield Counties.										

IMPORTANT NOTE TO CONTRACTORS: Wage Percentages for APPRENTICES ONLY match rates in the jurisdiction in which they are indentured. Please check with local training centers to find correct jurisdictional indenture rates.

May 1, 2016 Increase: \$1.54 to be allocated



CEMENT MASONS, PLASTERERS AND SHOPHANDS Local No. 633

of Minnesota, North Dakota, and NW Wisconsin · AFL-CIO

312 Central Avenue · Room 376 · Minneapolis, Minnesota 55414

Phone (612)379-1558 · Fax (612)379-1559

GREG MASSEY
Financial Secretary
Business Manager

DAVE SCHUTTA
President

JOSEPH DeRASMI
Business Agent

BRIAN GULLICKSON
Business Agent

GREG JOHNSON
Business Agent

JEROME JOHNSON
Business Agent

MICHAEL KRAHN
Business Agent

DARRELL LENDE
Business Agent

MICHAEL SYVERSRUD
Business Agent

THOMAS REGER
Apprentice Coordinator

**TO: ALL NORTHERN MINNESOTA & NORTHWESTERN WISCONSIN
PLASTERING CONTRACTORS**

ATTN: PAYROLL DEPT, 2015 WAGE RATES

This Agreement shall govern work done in the areas defined as follows:
All of the following counties: Aitkin, Carlton, Cook, Itasca, Lake, St. Louis,
and that part of Pine County north of T.24N, as well as the following
counties in Wisconsin: Ashland, Bayfield, Douglas, Iron, Sawyer,
Washburn, Burnett, and Price.

EFFECTIVE MAY 1, 2015

BASIC WAGE*	HEALTH & HRA WELFARE		PENSION	SAVINGS*	TRAINING	TOTAL
31.24	7.23	2.00	7.94	(3.60)	.46	48.87

*The Basic Wage before the deduction of savings is the straight time wage used in determining overtime. (EXAMPLE: 1.5 X \$31.24 = \$46.86 TAXED, THEN MINUS \$3.60 FOR SAVINGS EACH HOUR) After all taxes are deducted from the Basic Wage rate, \$3.60 per hour for each hour worked shall be deducted and applied to the Minnesota Cement Masons Savings Plan.

Foreman: \$1.50 above basic wage

APPRENTICE RATES:

UP TO 1000HRS	70%	21.87
1001-2000 HRS	75%	23.43
2001-3000 HRS	80%	24.99
3001-4000 HRS	85%	26.55
4001-5000 HRS	90%	28.12
5001-6000 HRS	95%	29.68

TO: ALL IRON RANGE AREA CONTRACTORS





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THOMAS REGER
Apprentice Coordinator

TO: ALL DULUTH AREA CONTRACTORS

ATTN: PAYROLL DEPT

RE: 2015 WAGE RATES - HIGHWAY/HEAVY DIVISION

This Agreement shall govern work done in the areas defined as follows:

All of the following counties: Aitkin, Carlton, Cook, Lake and that part of Pine County north of T.24N, and that part of St. Louis County south of T.55N, as well as the following counties in Wisconsin: Ashland, Douglas, Bayfield, Burnett, Iron, Washburn, Sawyer and Price.

EFFECTIVE MAY 1, 2015

BASIC WAGE*	HEALTH & WELFARE	HRA	PENSION	SAVINGS	TRAINING	TOTAL
33.70	7.23	1.75	7.94	(5.42)	.46	51.08

*The Basic Wage before the deduction of savings is the straight time wage used in determining overtime. (EXAMPLE: 1.5 X \$33.70 = \$50.55, TAXED, THEN MINUS \$5.42 FOR SAVINGS EACH HOUR) After all taxes are deducted from the Basic Wages, \$5.42 per hour for each hour worked shall be deducted and applied to the Minnesota Cement Masons Savings Plan.

Foreman: \$1.50 above basic wage

APPRENTICE RATES:

UP TO 1000HRS	70%	23.59
1001-2000 HRS	75%	25.28
2001-3000 HRS	80%	26.96
3001-4000 HRS	85%	28.65
4001-5000 HRS	90%	30.33
5001-6000 HRS	95%	32.02



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Business Agent

MICHAEL SYVERSRUD
Business Agent

THOMAS REGER
Apprentice Coordinator

TO: ALL DULUTH AREA CONTRACTORS

ATTN: PAYROLL DEPT

RE: 2015 WAGE RATES - BUILDERS DIVISION

This Agreement shall govern work done in the areas defined as follows: All of the following counties: Aitkin, Carlton, Cook, Lake and that part of Pine County north of the northern boundaries of Dell Grove, Sandstone and Danforth townships, and that part of St. Louis County south of Co Rd 967 which is two miles north of Cotton on Hwy #53, as well as the following counties in Wisconsin: Douglas, Bayfield, Washburn, Sawyer and Price.

EFFECTIVE MAY 1, 2015

BASIC WAGE*	HEALTH & WELFARE	HRA	PENSION	SAVINGS	TRAINING	TOTAL
30.61	7.23	1.25	7.94	(5.02)	.46	47.49

*The Basic Wage before the deduction of savings is the straight time wage used in determining overtime. (EXAMPLE: 1.5 X \$30.61 = \$45.92 TAXED, THEN MINUS \$5.02 FOR SAVINGS EACH HOUR)
After all taxes are deducted from the Basic Wage rate, \$5.02 per hour for each hour worked shall be deducted and applied to the Minnesota Cement Masons Savings Plan.

Foreman: \$2.00 above basic wage

APPRENTICE RATES:

UP TO 1000HRS	70%	21.43
1001-2000 HRS	75%	22.96
2001-3000 HRS	80%	24.49
3001-4000 HRS	85%	26.02
4001-5000 HRS	90%	27.55
5001-6000 HRS	95%	29.08



INTERNATIONAL UNION OF ELEVATOR CONSTRUCTORS

LOCAL UNION NO. 9
433 Little Canada Road E.
Little Canada, MN 55117

AFFILIATED WITH THE AFL-CIO
Phone: (651) 287-0817
Fax: (651) 287-0820

Wage & Fringe Benefits: January 1, 2015

To: All Employers doing Business within the Jurisdiction of IUEC Local 9

Subject: Wage rates effective January 1, 2015 – IUEC Local 9

Minnesota, North Dakota and Western Wisconsin

In accordance with the provisions of Article V of the current labor agreement (2012-2017) between all signatory employers and the International Union of Elevator Constructors, the following rates shall be effective on January 1, 2015:

Mechanic In Charge.....	(112.5%)	\$50.55
Mechanic.....	(100.0%)	\$44.93
4 th Year Apprentice.....	(80.0%)	\$35.94
3 rd Year Apprentice.....	(70.0%)	\$31.45
2 nd Year Apprentice.....	(65.0%)	\$29.20
1 st Year Apprentice.....	(55.0%)	\$24.71
Probationary Apprentice.....	(50.0%)	\$22.47
Helper.....	(70.0%)	\$31.45

The company will make fringe benefit contributions per hour worked in accordance with the following schedule:

Health Benefit Plan.....	\$13.575
Pension.....	\$ 8.46
Annuity.....	\$ 5.75
Education.....	\$ 0.60
Elevator Ind. Work Preservation Fund.....	\$ 0.30
TOTAL.....	\$28.685

Vacation: 6% Hourly pay under 5 years

8% Hourly pay over 5 years

Local 106 Glaziers Wage Rates Effective May 4, 2015

Journey person Wage Rates:

	<u>Base</u>	<u>Health & Welfare</u>	<u>Pension</u>	<u>Annuity</u>	<u>Industry & Appr</u>	<u>STAR</u>	<u>DC82/FCF</u>	<u>Total</u>	<u>Vac *</u>	<u>Check-off Dues**</u>	
Glaziers	\$29.67	\$6.85	\$5.67	\$3.65	\$0.56	\$ 0.10	\$0.01	\$46.51	\$2.30	\$1.83	
Auto Glass	\$23.74	\$6.85	\$5.67	\$3.65	\$0.56	\$ 0.10	\$0.01	\$40.58	\$2.30	\$1.62	

Apprentices Indentured BEFORE May 1, 2014:

<u>Hours</u>	<u>%</u>	<u>Base</u>	<u>Health & Welfare</u>	<u>Pension</u>	<u>Annuity</u>	<u>Industry & Appr</u>	<u>STAR</u>	<u>DC82/FCF</u>	<u>Total</u>	<u>Vac *</u>	<u>Check-off Dues**</u>	
0-1000	50	\$14.84	\$6.85	\$5.67	\$3.65	\$0.56	\$ 0.10	\$0.01	\$31.68	\$1.15	\$1.31	
1001-2000	55	\$16.32	\$6.85	\$5.67	\$3.65	\$0.56	\$ 0.10	\$0.01	\$33.16	\$1.27	\$1.36	
2001-3000	60	\$17.81	\$6.85	\$5.67	\$3.65	\$0.56	\$ 0.10	\$0.01	\$34.65	\$1.38	\$1.42	
3001-4000	70	\$20.77	\$6.85	\$5.67	\$3.65	\$0.56	\$ 0.10	\$0.01	\$37.61	\$1.61	\$1.52	
4001-5000	80	\$23.74	\$6.85	\$5.67	\$3.65	\$0.56	\$ 0.10	\$0.01	\$40.58	\$1.84	\$1.62	
5001-6000	90	\$26.71	\$6.85	\$5.67	\$3.65	\$0.56	\$ 0.10	\$0.01	\$43.55	\$2.07	\$1.73	

Apprentices Indentured on or AFTER May 1, 2014:

<u>Hours</u>	<u>%</u>	<u>Base</u>	<u>Health & Welfare</u>	<u>Pension</u>	<u>Annuity</u>	<u>Industry & Appr</u>	<u>STAR</u>	<u>DC82/FCF</u>	<u>Total</u>	<u>Vac *</u>	<u>Check-off Dues**</u>	
0-1000	50	\$14.84	\$6.85	\$5.67	\$1.83	\$0.56	\$ 0.10	\$0.01	\$29.86	\$1.15	\$1.25	
1001-2000	55	\$16.32	\$6.85	\$5.67	\$2.01	\$0.56	\$ 0.10	\$0.01	\$31.52	\$1.27	\$1.31	
2001-3000	60	\$17.81	\$6.85	\$5.67	\$2.19	\$0.56	\$ 0.10	\$0.01	\$33.19	\$1.38	\$1.37	
3001-4000	70	\$20.77	\$6.85	\$5.67	\$2.56	\$0.56	\$ 0.10	\$0.01	\$36.52	\$1.61	\$1.48	
4001-5000	80	\$23.74	\$6.85	\$5.67	\$2.92	\$0.56	\$ 0.10	\$0.01	\$39.85	\$1.84	\$1.60	
5001-6000	90	\$26.71	\$6.85	\$5.67	\$3.29	\$0.56	\$ 0.10	\$0.01	\$43.19	\$2.07	\$1.72	

*The Vacation Contribution is included in the taxable wage listed above, then deducted and remitted along with your Health & Welfare Contribution.

LOCAL UNION #242

Effective Dates	05/31/15	05/29/16	06/04/17	06/03/18				
JW Rate	\$33.90	\$35.01	\$35.92	\$36.80				
Foreman	12.5%	12.5%	13.0%	13.0%				
General Foreman	22.5%	22.5%	23.0%	23.0%				
NEBF	3.00%	\$ 1.02	3.00%	\$ 1.05	3.00%	\$ 1.08	3.00%	\$ 1.10
Vacation	11.00%	\$ 3.73	11.00%	\$ 3.85	11.00%	\$ 3.95	11.00%	\$ 4.05
H & W	27.64%	\$ 9.37	26.76%	\$ 9.37	26.75%	\$ 9.61	26.77%	\$ 9.85
Local Pension	13.55%	\$ 4.59	13.55%	\$ 4.74	13.55%	\$ 4.87	13.55%	\$ 4.99
Annuity	16.00%	\$ 5.42	16.00%	\$ 5.60	16.00%	\$ 5.75	16.00%	\$ 5.89
**Total Package	\$58.05	\$59.65	\$61.20	\$62.70				
LLMCC Employee .02	\$58.03	\$59.63	\$61.18	\$62.68				
Total Package %	71.19%	70.31%	70.30%	70.32%				

****These total packages do not include Apprenticeship (1%), NECA Service Charges (1.25%), Admin. Maint. Fund (.006%/hr.), NLMCC (.01 cent/hr.), or LLMCC (.04 cents/hr.).**

Apprenticeship	1% / .34	1% / .35	1% / .36	1% / .37
Service Charge	1.25% / .42	1.25% / .44	1.25% / .45	1.25% / .46
NLMCC	0.01	0.01	0.01	0.01
Local LMCC	0.04	0.04	0.04	0.04
Admin Maint Fund	0.20	0.21	0.22	0.22
	1.01	1.05	1.08	1.10

401k deduction - \$1.00, \$3.00 & \$5.00 per hour (at employees discretion)

Subsistence for all jobs outside of 35 mile radius of Lake Ave & Superior Street in Duluth - \$15.00
Subsistence for all jobs outside of 70 mile radius of Lake Ave & Superior Street in Duluth - \$50.00

DULUTH APPRENTICE WAGE RATE INFORMATION

6th	6,500 - 8,000	85%	Full Benefits - 5th year
5th	5,000 - 6,500	75%	Full Benefits - 4th year
4th	3,500 - 5,000	65%	Full Benefits - 3rd year
3rd	2,000 - 3,500	55%	Full Benefits - 2nd year
2nd	1,000 - 2,000	50%	H & W / NEBF - 1st year



INTERNATIONAL ASSOCIATION OF

Heat & Frost Insulators & Allied Workers

Local 49

2002 London Road
Duluth, MN 55812

Tel: 218-724-3223
Fax: 218-724-1870
Cell: 218-590-0374

May 28, 2015

To whom it may concern,

The allocation of the wage increase effective June 1st 2015 is as follows:

Base Wage	\$27.82	\$21.18	\$18.64	\$16.14	\$13.59
Savings	\$8.00	\$6.00	\$4.76	\$3.50	\$2.26
Union Dues	\$3.49	\$2.79	\$2.44	\$2.09	\$1.75
Health & Welfare	\$6.85	\$6.85	\$6.85	\$6.85	\$6.85
Pension	\$9.00	\$7.20	\$5.76	\$4.30	\$2.86
Local Training	\$0.30	\$0.30	\$0.30	\$0.30	\$0.30
Nat'l Training	\$0.05	\$0.05	\$0.05	\$0.05	\$0.05
Industry Fund	\$0.15	\$0.15	\$0.15	\$0.15	\$0.15
LMCT	\$0.05	\$0.05	\$0.05	\$0.05	\$0.05
Total	\$55.71	\$44.57	\$39.00	\$33.43	\$27.86

Total Taxable \$39.31 \$29.97 \$25.84 \$21.73 \$17.60

Please feel free to call the Local office with questions or concerns.

Sincerely,

David Cartwright
Business Manager

Affiliated with
the AFL-CIO,
Building and
Construction
Trades
Department,
Metal Trades
Department
and Canadian
Labour Congress

Twin Cities Ironworkers Apprenticeship & Training

Local 512 · A.G.C.

835 Pierce Butler Route · St. Paul, Minnesota 55104
JATC Office Phone: 651-489-3829 · JATC Office Fax: 651-489-1440

Larry Gilbertson *Director of Training*

email: larry@iw512jac.com



Attention: Payroll Department

Enclosed is the following wage information regarding Ironworkers Local No. 512 apprentices:

- Applicable wage and percentage rates for apprentices effective May 1, 2015
- List of apprentices graduating to journeyperson status effective May 1, 2015.
- List of apprentices with the applicable pay and percentage rates for Regions A, B and C. Please use this updated list because there may be first year apprentices that have received credit for past work experience and education since the last mailing.
- Apprentice Performance Report – please have the foreman/superintendent complete one for each apprentice and email or fax back to the Training Center. This will enable us to ensure that the apprentices are receiving the necessary training for the job.

Please adjust your payroll records accordingly.

In addition, we would like to email the wage information to your company instead of via mail. Please email Lori at lori@iw512jac.com the email address you would like to use to receive information on apprentices' wages. Thank you.

If you have any questions, please contact me.

Sincerely,

Larry Gilbertson
Director of Training

APPRENTICE WAGE SCALE

The wage scale listed below is effective 5/1/15 to 10/31/15.

Regions A, B & C wages are as follows:

<u>PERIOD</u>	<u>%</u>	<u>REGION A RATE EFFECTIVE 5/1/15</u>	<u>REGION B RATE EFFECTIVE 5/1/15</u>	<u>REGION C RATE EFFECTIVE 5/1/15</u>
1st - 6 months	70	\$24.85	\$21.73	\$20.86
2nd - 6 months	75	\$26.63	\$23.28	\$22.35
3rd - 6 months	80	\$28.40	\$24.83	\$23.84
4th - 6 months	85	\$30.17	\$26.38	\$25.33
5th - 6 months	90	\$31.95	\$27.94	\$26.82
6th - 6 months	95	\$33.72	\$29.49	\$28.31

Apprentices receive all fringe benefits listed below:

	<u>DEFINED BENEFIT PENSION</u>	<u>DEFINED CONTRIBUTION PENSION</u>	<u>HEALTH & WELFARE</u>	<u>APPRENTICE/ TRAINING FUND</u>	<u>IMPACT</u>	<u>FAIR CONTRACTING FOUNDATION</u>	<u>TOTAL PACKAGE</u>
Region A	\$9.75	\$5.00	\$7.90	\$0.80	\$0.27	\$0.02	\$23.74
Region B	\$9.75	\$5.00	\$7.90	\$0.80	\$0.27	\$0.02	\$23.74
Region C	\$9.75	\$5.00	\$7.90	\$0.80	\$0.27	\$0.02	\$23.74

Region A Journeyman rate is \$35.50 effective 5/1/15

Region B Journeyman rate is \$31.04 effective 5/1/15

Region C Journeyman rate is \$29.80 effective 5/1/15

May 1, 2015

The following seventy (70) graduating apprentices from Regions A, B and C will be upgraded to journeyperson status effective May 1, 2015.

REGION A

- | | | |
|------------------------|---------------------------------|----------------------|
| 1. Arnal, Mike | 20. Hite, Jr., Todd | 38. Sanders, Garrett |
| 2. Bertilson, Jesse | 21. Jochim, Michael | 39. Seidel, Buster |
| 3. Blair, Nate | 22. Johnson, Ivan | 40. Sigala, Alex |
| 4. Bourgal II, Tom | 23. Justen, Tyler | 41. Sozio, Chris |
| 5. Breitenbucher, Dan | 24. Linder, Glen | 42. Steffens, Alex |
| 6. Buchanan, Robert | 25. Mangum, Matt | 43. Stellick, Kyle |
| 7. Burke, Sam | 26. Maull, Damell | 44. Tripp, Jeremiah |
| 8. Conrad, Nick | 27. Mickle Van Sickle,
Shawn | 45. Vieths, Stephen |
| 9. Cook, Brian | 28. Miskavige, Jacob | 46. Warner, Joe |
| 10. Cooke, Cody | 29. Miskavige, Jr., Tim | 47. West, Dakota |
| 11. Dalager, Dale | 30. Monson, Neil | |
| 12. DeMarre, Nick | 31. Novotny, Dustin | |
| 13. Dinsmore, William | 32. Pearson, Matt | |
| 14. Downs, Megan | 33. Pederson, Jordan | |
| 15. Duscher, Brian | 34. Peters, Ben | |
| 16. Filipczak, Michael | 35. Rodeck, Ryan | |
| 17. Haack, Nate | 36. Roden, Derek | |
| 18. Hackett, BillieRae | 37. Sanders, Andrew | |
| 19. Hellquist, Jon | | |

REGION B

- | | | |
|--------------------|---------------------|---------------------|
| 1. Anderson, Isaac | 8. Koivisto, Shay | 15. Prentice, Grant |
| 2. Asuma, Michael | 9. Landwehr, Matt | 16. Spindler, Cole |
| 3. Bragee, Matt | 10. Larson, Tyler | 17. Switzer, Tom |
| 4. Buskala, Ashlee | 11. Lyons II, James | 18. Trader, Erik |
| 5. Fischer, Andrew | 12. Olson, Dain | 19. Vollmer, Jake |
| 6. Godbout, Jamie | 13. Pearson, Ken | |
| 7. Johnson, Marcus | 14. Povhe, Ben | |

REGION C

- | | |
|--------------------|------------------|
| 1. Early, Sean | 3. Roden, Tyler |
| 2. Morris, Russell | 4. Gross, Kurtis |

REGION A APPRENTICES
ST. PAUL, MN

95%=\$33.72

1. Billings, George
2. O'Reilly, Adam
3. Sobtzak, James

90%=\$31.95

1. Cook, Cory
2. Dulas, BJ (William)
3. Fidler, Melinda
4. Gill, Raivadus
5. Holtzbauer, Justin
6. Horsley, Kristofer
7. Jacobs, Mitchell
8. Johnson, Brian
9. Johnson, Jesse
10. Kuchta, Karl
11. Lanphear, Joseph
12. Latkiewicz, Michael
13. Lemieux, Andy
14. Lentsch, Rory
15. Mahowald, Matthew
16. Merritt, Anthony
17. Moebakken, Edward
18. Monn, Thomas
19. Mooney, Michael
20. Nelson, Nicholas
21. Neubauer, Daniel
22. New, Michael
23. Norby, Alex
24. Nordlund, Andrea
25. Peters, Mike
26. Phillips, Jeremy
27. Pieper, Brian
28. Ricks, Lane
29. Rodriguez-Garcia, Edwin
30. Ryan, John
31. Schneider, Heidi
32. Smith, Juan
33. Stover, Lorina
34. Sutton, Casey
35. Tricola, Paul
36. Waldner, Matthew
37. Wild, Eric

REGION A APPRENTICES
ST. PAUL, MN

85%=\$30.17

1. Andersen, Adam
2. Andraschko, Ryan
3. Billings, Jeremiah
4. Blue, Sireena
5. Burns, Joe
6. Carvajal, Adrian
7. Cavazos, Fernando
8. Clowe, Kasey
9. D'Ambra, Joseph
10. Darst, Ashley
11. Davis, Dominic
12. Drake, Alexander
13. Folk, Doug
14. Green, Lance
15. Haviken, Tim
16. Hedican, Patrick
17. Jackson, Jason
18. Johnson, Keith
19. Kackman, Aaron
20. Kampa, Daniel
21. Kath, Brandon
22. Klimstra, Travis
23. Kray, Tim
24. Martin, Christopher
25. Massie, Alonzo
26. McPartland, Ryan
27. Meyer, Maxwell
28. Moore, Jr., Toussaint
29. Neubauer, Adam
30. Palacios, Cecilio
31. Peterson, Joseph
32. Petron, Seith
33. Reichert, Jedidiah
34. Reinardy, Randy
35. Rosales, Miguel
36. Shoutz, Brandon
37. Smith, Juan
38. Stoehr, Joe
39. Strong, Brandon
40. Tator, Michael
41. Teigland, Reid
42. Twidt, Kelly
43. Walker, Victor
44. Wallack, Daniel
45. Warner, Jeffrey
46. Yang, Jerry
47. Ziebol, Kellan
48. Ziegler, Robert

REGION A APPRENTICES
ST. PAUL, MN

80%=\$28.40

1. Berg, Kyle
2. Berglund, Christopher
3. Birdsall, Shawn
4. Blakesley, Jared
5. Brown, Nashaw
6. Buck, Colin
7. Carpenter, Daniel
8. Casey, Sean
9. Christiansen, Chad
10. Christofferson, Cory
11. Danaher, Joshua
12. Fitzpatrick, James
13. Frank, Eric
14. Gapen, Dan
15. Goerger, Adam
16. Graddy, Devon
17. Hamm, Allan
18. Hanninen, Cody
19. Hilde, Ryan
20. Hillmyer, Tim
21. Hostutler, Blake
22. Hylton, Matthew
23. Johnson, Brandon
24. Johnson, Joseph
25. Kleinsasser, Wyatt
26. Kolstad, Cody
27. Korum, Anthony
28. Kotzer, Ryan
29. Kuck, Jesse
30. Lewis-Alvarez, David
31. Lindell, Luke
32. Lopez, Roger
33. Lubansky, Luke
34. Lusignan, Torey
35. Lyseth, Andrew
36. McCabe, Jon
37. Megega, Valeriy
38. Messerschmidt, Ryan
39. Milbrandt, Michael
40. Minor, Derek
41. Neumann, Jesse
42. Nierman, Sam
43. Novak, Nathaniel
44. O'Brien, Jacob
45. Pearl, Mollie
46. Peterson, Matthew
47. Pogones, Jesse
48. Reinardy, Jared
49. Rodriguez, Cris
50. Rosenbush, Nathan
51. Ruzynski, Rusty
52. Sapp, Matthew
53. Schwantes, James
54. Scott, Sylvester
55. Smith, Ivan
56. Swain, Keegan
57. Tuffino, Charles
58. Turner, Brenda
59. Walther, Jennifer
60. Wheeler, Kyle
61. Wissler, Michael
62. Workman, Christopher
63. Yang, Kim
64. Zachman, Jayson
65. Zinos, Alexander

REGION A APPRENTICES
ST. PAUL, MN

75%=\$26.63

- | | |
|----------------------------|---------------------------|
| 1. Barnes, Bert | 29. Potter, Lawrence |
| 2. Coyer, Travis | 30. Roquemore II, Freeman |
| 3. DeBace, Mark | 31. Sell, Chad |
| 4. Deschene, Adam | 32. Sherry, Todd |
| 5. Garletz, Joe | 33. Shrader, Tyler |
| 6. Gossman, Payten | 34. Shrode, Andria |
| 7. Goodsky, Jordan | 35. Smith, Richard |
| 8. Hansen, Wyatt | 36. Swenson, Brody |
| 9. Heroff, Jr., Keith | 37. Thole, Mark |
| 10. Howell, Aaron | 38. Tweten, Trent |
| 11. Huebscher, Jeffery | 39. Ugro, Michael |
| 12. Johnson, Andrew | 40. Wolff, Caleb |
| 13. Johnson, Justin | 41. Yingling, Ross |
| 14. Kinches, Tara | |
| 15. Kopaygorodskiy, Eduard | |
| 16. Leseman, Zachary | |
| 17. Mahowald, Nicholas | |
| 18. Mahowald, Stuart | |
| 19. Martin, Marandus | |
| 20. Meeks, Zachery | |
| 21. Metobo, Polycarp | |
| 22. Moncada, Genry | |
| 23. Montgomery, Justen | |
| 24. O'Malley, Jonathan | |
| 25. Palmer, Brandon | |
| 26. Petty, Dennis | |
| 27. Pitoscia, Matthew | |
| 28. Pliego-Quintero, Juan | |

REGION A APPRENTICES
ST. PAUL, MN

70%=\$24.85

1. Abston, Trent
2. Albertson, Levi
3. Asquith, Sarah
4. Baker, Jacob
5. Bauman, Grace
6. Bettis, Kenneth
7. Bondeson, Brandon
8. Booth, Matthew
9. Cembrinski, Ryan
10. Cobb, Josef
11. Davies, Max
12. Demanou, Jean
13. Din, Makara
14. Donaghue, Russell
15. Dougherty, Jason
16. Duerst, Jack
17. Ellis, Mitchell
18. Ellison, Patrick
19. Epperson, Aron
20. Farnsworth, Philip
21. Finch, Walter
22. Freeman, Winston
23. Guild, Michael
24. Hamilton, Demetrius
25. Hendrickson, Wesley
26. Jackson, Debra
27. Jensen, Kody
28. Johnson, Andrew
29. Johnson, Caleb
30. Johnson, Jake
31. Junker, Jordan
32. Kaufer, Corey
33. Koch, Matthew
34. Koller, Brandon
35. Kujawa, Jed
36. Larson, Troy
37. Laulunen, Ebbelisa
38. LeMay, Michael
39. Linders, Jordan
40. Lochen, Shani
41. Marten, Derek
42. Martinez Perez, William
43. McCloskey, Jonathan
44. Meyer, Edward
45. Mitchell, Robert
46. Munion, Patrick
47. Nervi, Matthew
48. Neumann, Martin
49. Neumann, Paul
50. Neuschwander, Jake
51. Nguyen, Caophi
52. Nordman, Alan
53. Palmer, Nicholas
54. Patton-Alvarez, Alonzo
55. Paxton, Jason
56. Peace, Brian
57. Pearson, Dante
58. Porter, Joseph
59. Potts, Garett
60. Rathbun, Trevor
61. Rivera, John
62. Robeck, Kyle
63. Rogerson, Demontez
64. Ruschmeier, Ryan
65. Rust, Jack
66. Saas, Brandon
67. Sames, Luke
68. Sanders, Andrew
69. Scherber, Travis
70. Schickling, Eric
71. Scott, Matthew
72. Sebion, Riley
73. Seifert, Travis
74. Smith, Fabian
75. Smoczyk, Paul
76. Stamper, Travis
77. Teigland, Robert
78. Thompson, Dylan
79. Toney, Patrick
80. Trevino, Jesus
81. Tschida, Jacob
82. Turcotte, Nathane

REGION A APPRENTICES
ST. PAUL, MN

70%=\$24.85

- 83. Turner, Michael
- 84. Vandever, Sheila
- 85. Weinke, Maxwell
- 86. Welch, Travis
- 87. Whitman, Mark
- 88. Wigand, Jason
- 89. Weiland, Dustin
- 90. Wright, Eliot
- 91. Wright, Ryan
- 92. Zahler, Benjamin

REGION B APPRENTICES
HERMANTOWN, MN

95%=\$29.49

1. Anderson, Dean
2. Betts, Casey
3. Bishop, Scott
4. Buffalo, Kurt
5. Edblom, Adam
6. Harju, Jordan
7. Higgins, Michael
8. Johnson, Dakota
9. Lahti, Stuart
10. Nikunen, Evan
11. Nylund, Timothy
12. Olson, Erik
13. Rahja, Dustin
14. Salo, Trevor
15. Schaefer, Josh
16. Seppanen, Peter
17. Smith, Tony
18. Stokes, Micah
19. Templer, Colton
20. VanGuilder, Shawn
21. Worth, Jeff

90%=\$27.94

1. Arnold, Tyler
2. Badavinac, Bron
3. Buse, Kelly
4. Carswell, Jeff
5. Christianson, Jorm
6. Harris, Josh
7. Hatfield, Chad
8. Hicks, Derek
9. Jensen, Nicholas
10. Kolb, Taylor
11. Kraemer, Derek
12. Mendoza, Joseph
13. Morse, Travis
14. Nichols, Jeremy
15. Sebesta, Jared
16. Torgerson, Jared
17. Wekseth, Cody

85%=\$26.38

1. Engen, Katie
2. Kowitz, Benjamin

REGION B APPRENTICES
HERMANTOWN, MN

80%=\$24.83

1. Almer, Garrett
2. Bean, Kyle
3. Bonstell, Justin
4. Conaway, Patrick
5. Cooper, Jonathan
6. Davin, Nathan
7. Fallos, Jake
8. Fogelberg, David
9. Forrest, Thomas
10. Gibson II, Thomas
11. Gustafson, Tyler
12. Hink, William
13. Holecek, Adam
14. Jaksa, Hector
15. Johnson, Greg
16. Johnson, Jerod
17. Jokinen, Chaise
18. Kolb, Jonathan
19. Lovdahl, Zachary
20. MacDougall, Chad
21. McConnell, Jonathan
22. Palmisano, Anthony
23. Pitzen, Clay

24. Prasnicky, Cody

25. Rinta, Dustin
26. Shamp, Barry
27. Turkula, Joshua
28. Tveiten, Curtis

75%=\$23.28

1. Olson, Jeff
2. Pederson, Brandon

REGION B APPRENTICES
HERMANTOWN, MN

70%=\$21.73

- | | | | |
|-------------------------------|----------------------------|--------------------------|------------------------|
| 1. Allen, Aaron | 26. Fenhouse, Joshua | 52. LePage, Robert | 77. Poissant, Matthew |
| 2. Almer, Wade | 27. Feth, Josiah | 53. Lincoln, Joseph | 78. Povhe, Bradley |
| 3. Anderson, Anthony | 28. Fisher, Kyle | 54. Lind, Bradley | 79. Quade, Daniel |
| 4. Anderson, Cody | 29. Forsman, Kenny | 55. Lind, Brian | 80. Ressler, John |
| 5. Anderson, Jacob | 30. Frey, Jason | 56. Littlehawk, Jeremiah | 81. Rivord, Tylor |
| 6. Anderson, Jason | 31. Gaare, Philip | 57. Luck, Kyle | 82. Roske, Shawn |
| 7. Anderson, Zachary | 32. Gavol, Ezekiel | 58. Mackenhausen, Hunter | 83. Saari, Travis |
| 8. Ayers, Justin | 33. Gunderson, Bruce | 59. Manee, Patric | 84. Salo, Spencer |
| 9. Barnes, Nicholas | 34. Harrison, Jr., Gregory | 60. Manning, Kent | 85. Sanoski, Matthew |
| 10. Bates, Garrett | 35. Hart, Lukas | 61. Martin, Gregory | 86. Shumate, Jeremy |
| 11. Benepe Bischoff, Jonathan | 36. Huffman, Joshua | 62. McGregor, Matthew | 87. Singewald, Brandon |
| | 37. Humphrey, Justice | 63. McQuade, Robert | 88. Skaggs, Nicholas |
| | 38. Isham, William | 64. Mehtala, Scott | 89. Slocum, Kanyon |
| 12. Berg, Andy | 39. Jackman, Tyler | 65. Meyer, Justin | 90. Smerz, Mitchell |
| 13. Bober, Tanner | 40. Jackson, Jacob | 66. Miller, Dinero | 91. Sojka, Steve |
| 14. Bock, Nicholas | 41. Johnson, Tristan | 67. Olson, Trent | 92. Spolar, Cory |
| 15. Bryant, Jared | 42. Johnson, Zachary | 68. Orloff, Bryce | 93. Stofa, David |
| 16. Burnside, Jaye | 43. Johnston, Christopher | 69. Parson, Kurt | 94. Suonvieri, Evan |
| 17. Carlson, Daniel | 44. Kuhlman, Walker | 70. Perry, Dustin | 95. Tassoni, Anthony |
| 18. Cordero, George | 45. Laine, Peter | 71. Perry, Jeremy | 96. Terry, William |
| 19. Cortes, Rodrigo | 46. Lamoreaux, James | 72. Petersen, Tanner | 97. Trunt, Luke |
| 20. Couture, Joseph | 47. Lamoreaux, William | 73. Peterson, Joseph | 98. Turkula, Justin |
| 21. Emery, Kendall | 48. Lamphier, Scott | 74. Petrey, Tyler | 99. Tyson, Cody |
| 22. Erickson, Michael | 49. Larsen, Taylor | 75. Pletschett, Taylor | |
| 23. Evanson, Beau | 50. leBrasseur, Corey | 76. Podgorsek, Matthew | |
| 24. Eyer, Mickey | 51. Lefebvre, Ben | | |
| 25. Fabini, Laura | | | |

REGION B APPRENTICES
HERMANTOWN, MN

70%=\$21.73

100. Ulliyott, Jr., Scot

101. Villeneuve,
Braden

102. Wagner, Zach

103. Walker, Tyrone

104. Wehmanen,
Nicholas

105. White, Darrell

106. Wichterman,
Daniel

107. Wilhelm, Jeremy

108. Winger, Richard

109. Zakula, Aaron

110. Zakula, Jeffrey

111. Zoltak IV, Elmer

REGION C APPRENTICES
MANDAN, ND

95%=\$28.31

1. Ackerman, John
2. Fender, William
3. Hayes, Joey
4. Kalstabakken, Marvel
5. Medina, Jose
6. Salgado, Henry

90%=\$26.82

1. Augustin, Jakob
2. Bachiochi, Jake
3. Hatten, Michael
4. Loken, Christopher
5. Medina, Jose
6. Salgado, Henry
7. Singelton, Matt
8. Snyder, Matt
9. Voegele, Brandon
10. Warren, Jeremy
11. Zinke, Lane

80%=\$23.84

1. Alanis, Rueben
2. Bachler, Ryan
3. Branstietter, Ben
4. Gappert, Dillan
5. Green, Dustin
6. Gustin, Damen
7. Komrosky, Edwin
8. Lux, Dylan
9. Matheson, Michael
10. Miltich, Jacob
11. Owens, Phil
12. Pfeiffer, David
13. Poitra, Jacob
14. Poitra, Jr., Duane
15. Rawley, Jonah
16. Winiecki, Derek
17. Zinke, Logan

REGION C APPRENTICES
MANDAN, ND

70%=\$20.86

1. Airhart, Joseph
2. Bjerkness, Brandon
3. Estable-Mora, Juan
4. Grounds, Jon
5. Herbst, Jeff
6. Linstad, Cody
7. Lobato, Julian
8. Mittlesteadt, Matthew
9. Olson, Lee
10. Pavicek, Zach
11. Peltier, Wyatt
12. Pike, Zach
13. Pritchard, Jeremiah
14. Runge, Ryan
15. Runge, Ryan
16. Schweigert, Eric

APPRENTICE WORK PERFORMANCE REPORT

CONFIDENTIAL

Apprentice: _____

Region A

Region B

Region C

Training Period 1st year, 2nd year or 3rd year

Employer: _____

(Circle applicable training period if known)

Scoring – 0 = poor.....10 = best

ATTENDANCE & TARDINESS

RATING: 0 1 2 3 4 5 6 7 8 9 10

COMMENTS: _____

ON THE JOB PERFORMANCE (Reliability)

RATING: 0 1 2 3 4 5 6 7 8 9 10

COMMENTS: _____

ATTITUDE (Positive Attitude, Shows Leadership Ability)

RATING: 0 1 2 3 4 5 6 7 8 9 10

COMMENTS: _____

INITIATIVE & PRODUCTIVITY (Ambition & Effort)

RATING: 0 1 2 3 4 5 6 7 8 9 10

COMMENTS: _____

COMPREHENSION & ABILITY (Shows interest in learning job)

RATING: 0 1 2 3 4 5 6 7 8 9 10

COMMENTS: _____

COOPERATION & CONDUCT (Ability to work with others)

RATING: 0 1 2 3 4 5 6 7 8 9 10

COMMENTS: _____

SAFETY & AWARENESS

RATING: 0 1 2 3 4 5 6 7 8 9 10

COMMENTS: _____

QUALITY OF WORK & ACCURACY

RATING: 0 1 2 3 4 5 6 7 8 9 10

COMMENTS: _____

TOOLS: FEW SOME MANY

CONDITION: POOR OK EXCELLENT

COMMENTS: _____

REVIEWED BY Forman/Supervisor _____ DATE: _____

PLEASE MAIL OR FAX THIS REPORT TO THE FOLLOWING:

Twin Cities Ironworkers Apprenticeship & Training Program

835 Butler Route – St. Paul, MN. 55104

JATC Office & Training Center Phone: 651-489-3829 – Fax: 651-489-1440

Pete Teigland, Training Coordinator – Region A

Brian Nelson – Training Coordinator – Region B

BUILDING WAGE RATES

Duluth/Cloquet Local #1091

Effective May 1, 2015:

Class	(Taxable) Wages	(Taxable) Vacation	H & W	Pension	Trng/Appr	LECET	SAFE		Total
1	\$ 23.54	\$ 2.10	\$ 7.55	\$ 6.40	\$ 0.22	\$ 0.08	\$ 0.15	.....	\$ 40.04
2	\$ 23.64	\$ 2.10	\$ 7.55	\$ 6.40	\$ 0.22	\$ 0.08	\$ 0.15	.....	\$ 40.14
3	\$ 23.94	\$ 2.10	\$ 7.55	\$ 6.40	\$ 0.22	\$ 0.08	\$ 0.15	.....	\$ 40.44
4	\$ 24.24	\$ 2.10	\$ 7.55	\$ 6.40	\$ 0.22	\$ 0.08	\$ 0.15	.....	\$ 40.74
5	\$ 21.19	\$ 2.10	\$ 7.55	\$ 6.40	\$ 0.22	\$ 0.08	\$ 0.15	.....	\$ 37.69

Example: Apprentice at 80% of Class 1 ONLY

Class 1	\$ 18.83	\$ 2.10	\$ 7.55	\$ 6.40	\$ 0.22	\$ 0.08	\$ 0.15	\$ 35.33
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Foreman/Leadman \$1.50 above highest classification employed in.

Effective May 1, 2016 - \$1.25 increase per hour

*** Vacation is a taxable wage and shall be paid for all hours worked and at 1 1/2 or 2 times the hourly rate when overtime is worked.

"All" Fringes are to be sent to :

Minnesota Laborers' Fringe Benefits Fund
P. O. Box 124
Minneapolis, MN 55440-0124
(651) 256-1800

HIGHWAY HEAVY WAGE RATES

District 2A - Duluth Local #1091

Effective May 1, 2015:

Class	(Taxable) Wages	(Taxable) Vacation	H & W	Pension	Trng/Appr	LECET	FCF		Total
1	\$ 28.11	\$ 2.30	\$ 7.55	\$ 6.50	\$ 0.22	\$ 0.08	\$ 0.02	.....	\$ 44.78
2	\$ 28.31	\$ 2.30	\$ 7.55	\$ 6.50	\$ 0.22	\$ 0.08	\$ 0.02	.....	\$ 44.98
3	\$ 28.46	\$ 2.30	\$ 7.55	\$ 6.50	\$ 0.22	\$ 0.08	\$ 0.02	.....	\$ 45.13
4	\$ 28.56	\$ 2.30	\$ 7.55	\$ 6.50	\$ 0.22	\$ 0.08	\$ 0.02	.....	\$ 45.23
5	\$ 28.81	\$ 2.30	\$ 7.55	\$ 6.50	\$ 0.22	\$ 0.08	\$ 0.02	.....	\$ 45.48
6	\$ 30.61	\$ 2.30	\$ 7.55	\$ 6.50	\$ 0.22	\$ 0.08	\$ 0.02	.....	\$ 47.28
7	\$ 24.56	\$ 2.30	\$ 7.55	\$ 6.25	\$ 0.22	\$ 0.08	\$ 0.02	.....	\$ 40.98

Increase May 1, 2016: \$1.57 Allocation of increase TBD

Example: Apprentice at 80% of Class 1 ONLY

Class 1	\$ 22.49	\$ 2.30	\$ 7.55	\$ 6.50	\$ 0.22	\$ 0.08	\$ 0.02	\$ 39.16
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Pipelayer, Laser Beam (sewer, water, gas) Classification 6 rate.
Foreman/Leadman \$1.50 above highest classification employed in.
General Foreman \$2.25 above Foreman scale (appointed at employers discretion).

*** Vacation is a taxable fringe and part of the gross wage, it shall be paid for all hours worked and at 1 1/2 or 2 times the hourly rate when overtime is worked

"All" Fringes are to be sent to :

Minnesota Laborers' Fringe Benefits Fund
P. O. Box 124
Minneapolis, MN 55440-0124
(651) 256-1800



LOCAL 1348 MILLWRIGHT AGREEMENT

NORTHERN MINNESOTA

MILLWRIGHTS & MACHINE ERECTOR WAGE RATES

Effective May 3, 2015

Classification

Classification		Deductions		Fringe Benefits					Total Package		
		Savings	Dues	Health	DB Pension	DC Pension	Apprentice/ Education	Industry Fund			
Effective May 3, 2015	General Foreman	Percent (%)	Gross Wages								
		F + \$1.75	\$36.57	-\$3.50	\$1.46	\$6.33	\$5.90	\$1.90	\$0.60	\$0.05	\$51.35
		JP + \$2.25	\$34.82	-\$3.50	\$1.39	\$6.33	\$5.90	\$1.90	\$0.60	\$0.05	\$49.60
	Foreman	100%	\$32.57	-\$3.50	\$1.30	\$6.33	\$5.90	\$1.90	\$0.60	\$0.05	\$47.35
		Journey person	95%	\$30.94	-\$3.50	\$1.24	\$6.33	\$5.90	\$1.90	\$0.60	\$0.05	$45.72
	90%		\$29.31	-\$3.50	\$1.17	\$6.33	\$5.90	\$1.90	\$0.60	\$0.05	\$44.09
	85%		\$27.68	-\$3.50	\$1.11	\$6.33	\$5.90	\$1.90	\$0.60	\$0.05	\$42.46
	80%		\$26.06	-\$3.50	\$1.04	\$6.33	\$5.90	\$1.90	\$0.60	\$0.05	\$40.84
	75%		\$24.43	-\$3.50	\$0.98	\$6.33	\$5.90	\$1.90	\$0.60	\$0.05	\$39.21
	70%	\$22.80	-\$3.50	\$0.91	\$6.33	\$5.90	\$1.90	\$0.60	\$0.05	\$37.58	
65%	\$21.17	-\$3.50	\$0.85	\$6.33	\$5.90	\$1.90	\$0.60	\$0.05	\$35.95		

Covering the following Counties in the State of Minnesota, Aitkin, Becker, Beltrami, Carlton, Cass, Clearwater, Cook, Lake, Crow Wing, Hubbard, Itasca, Kittson, Koochiching, Lake of the Woods, Manomen, Marshall, Norman, Otter Tail, Pennington, Red Lake, Roseau, St. Louis, Wadena, Wilkin and that part of Clay County outside of a 5 mile radius of Moorhead and that part of Polk County outside of a 5 mile radius of East Grand Forks. In Wisconsin the County of Douglas and that portion of Bayfield County west of Highway 63, and west of a line drawn between Drummond and Herbster and the Lake Superior shore, including the cities of Drummond and Herbster.

May 1, 2016 Increase: \$1.75 Allocation TBD

May 7, 2017 Increase: \$1.85 Allocation TBD

**INTERNATIONAL UNION OF OPERATING ENGINEERS, LOCAL No. 49
FOR THE:**

HIGHWAY AND HEAVY WAGES EFFECTIVE MAY 1, 2015

EASTERN METROPOLITAN ZONE-(ZONE 1) -See Wage District Map-

Group	Wages	1 ½% of Gross Wages Excluding Fringes	H/W	HRA	Pension	Appren.	Totals	FCF \$.02	“Voluntary” NOT Incl. in total Pkg IPF \$.04
1	\$34.78	**	\$8.70	\$1.00	\$7.70	\$.50	\$52.68	\$.02	\$.04
2	33.78	**	8.70	1.00	7.70	.50	51.68	.02	.04
3	33.23	**	8.70	1.00	7.70	.50	51.13	.02	.04
4	32.93	**	8.70	1.00	7.70	.50	50.83	.02	.04
5	29.89	**	8.70	1.00	7.70	.50	47.79	.02	.04
6	28.68	**	8.70	1.00	7.70	.50	46.58	.02	.04

REMAINDER OF EASTERN ZONE-(ZONE 2) -See Wage District Map-

Group	Wages	1 ½% of Gross Wages Excluding Fringes	H/W	HRA	Pension	Appren.	Totals	FCF \$.02	“Voluntary” NOT Incl. in total Pkg IPF \$.04
1	\$32.12	**	\$8.70	\$1.00	\$7.70	\$.50	\$50.02	\$.02	\$.04
2	31.12	**	8.70	1.00	7.70	.50	49.02	.02	.04
3	30.67	**	8.70	1.00	7.70	.50	48.57	.02	.04
4	30.37	**	8.70	1.00	7.70	.50	48.27	.02	.04
5	27.80	**	8.70	1.00	7.70	.50	45.70	.02	.04
6	26.93	**	8.70	1.00	7.70	.50	44.83	.02	.04

WESTERN ZONE-(ZONE 3) -See Wage District Map-

Group	Wages	1 ½% of Gross Wages Excluding Fringes	H/W	HRA	Pension	Appren.	Totals	FCF \$.02	“Voluntary” NOT Incl. in total Pkg IPF \$.04
1	\$26.85	**	\$8.70	\$1.00	\$7.70	\$.50	\$44.75	\$.02	\$.04
2	25.85	**	8.70	1.00	7.70	.50	43.75	.02	.04
3	24.92	**	8.70	1.00	7.70	.50	42.82	.02	.04
4	24.61	**	8.70	1.00	7.70	.50	42.51	.02	.04
5	22.90	**	8.70	1.00	7.70	.50	40.80	.02	.04
6	22.30	**	8.70	1.00	7.70	.50	40.20	.02	.04

INTERNATIONAL UNION OF OPERATING ENGINEERS, LOCAL NO. 49
RATES FOR THE:

BUILDERS AGREEMENT – MINNESOTA

WAGES EFFECTIVE MAY 1, 2015 - ZONE 1

Group	Wages	1 ½% of Gross Wages Excluding Fringes	H&W	HRA	Pension	Appren- ticeship Training	Total	FCF \$.02***	“Voluntary” NOT Included In Total Pkg C.A.F. \$.04**
1	\$37.74	*	\$8.70	\$.25	\$7.70	\$.50	\$54.89	\$.02	\$.04
2	\$37.40	*	\$8.70	\$.25	\$7.70	\$.50	\$54.55	\$.02	\$.04
3	\$35.99	*	\$8.70	\$.25	\$7.70	\$.50	\$53.14	\$.02	\$.04
4	\$35.65	*	\$8.70	\$.25	\$7.70	\$.50	\$52.80	\$.02	\$.04
5	\$35.48	*	\$8.70	\$.25	\$7.70	\$.50	\$52.63	\$.02	\$.04
6	\$33.97	*	\$8.70	\$.25	\$7.70	\$.50	\$51.12	\$.02	\$.04
7	\$32.85	*	\$8.70	\$.25	\$7.70	\$.50	\$50.00	\$.02	\$.04
8	\$30.84	*	\$8.70	\$.25	\$7.70	\$.50	\$47.99	\$.02	\$.04

WAGES EFFECTIVE MAY 1, 2015 - ZONE 2

Group	Wages	1 ½% of Gross Wages Excluding Fringes	H&W	HRA	Pension	Appren- ticeship Training	Total	FCF \$.02***	“Voluntary” NOT Included In Total Pkg C.A.F. \$.04**
1	\$35.85	*	\$8.70	\$.25	\$7.70	\$.50	\$53.00	\$.02	\$.04
2	\$35.53	*	\$8.70	\$.25	\$7.70	\$.50	\$52.68	\$.02	\$.04
3	\$34.20	*	\$8.70	\$.25	\$7.70	\$.50	\$51.35	\$.02	\$.04
4	\$33.88	*	\$8.70	\$.25	\$7.70	\$.50	\$51.03	\$.02	\$.04
5	\$33.72	*	\$8.70	\$.25	\$7.70	\$.50	\$50.87	\$.02	\$.04
6	\$32.30	*	\$8.70	\$.25	\$7.70	\$.50	\$49.45	\$.02	\$.04
7	\$31.24	*	\$8.70	\$.25	\$7.70	\$.50	\$48.39	\$.02	\$.04
8	\$29.35	*	\$8.70	\$.25	\$7.70	\$.50	\$46.50	\$.02	\$.04

Local 106 Painters & Drywall Wage Rates Effective May 4, 2015

Journeyman Wage Rates:

	<u>Base</u>	<u>Health & Welfare</u>	<u>Pension</u>	<u>Annuity</u>	<u>FTI/UM</u>	<u>FTI/NT'L</u>	<u>FCF</u>	<u>LMCI</u>	<u>MPWEA</u>	<u>STAR</u>	<u>DC82/FCF</u>	<u>Total</u>	<u>Vac *</u>	<u>Check-off Dues**</u>
Res., Comm. & Indus. Repaint														
Class I	\$27.86	\$6.85	\$5.15	\$3.50	\$0.37	\$0.10	\$0.01	\$0.10	\$0.03	\$ 0.10	\$0.01	\$44.08	\$2.70	\$1.74
Class II	\$28.46	\$6.85	\$5.15	\$3.50	\$0.37	\$0.10	\$0.01	\$0.10	\$0.03	\$ 0.10	\$0.01	\$44.68	\$2.70	\$1.76

	<u>Base</u>	<u>Health & Welfare</u>	<u>Pension</u>	<u>Annuity</u>	<u>FTI/UM</u>	<u>FTI/NT'L</u>	<u>FCF</u>	<u>LMCI</u>	<u>MPWEA</u>	<u>STAR</u>	<u>DC82/FCF</u>	<u>Total</u>	<u>Vac *</u>	<u>Check-off Dues**</u>
New Comm. & New Indus.														
Class I	\$29.36	\$6.85	\$5.15	\$3.50	\$0.37	\$0.10	\$0.01	\$0.10	\$0.03	\$ 0.10	\$0.01	\$45.58	\$2.70	\$1.80
Class II	\$29.96	\$6.85	\$5.15	\$3.50	\$0.37	\$0.10	\$0.01	\$0.10	\$0.03	\$ 0.10	\$0.01	\$46.18	\$2.70	\$1.82

Foremen in charge of five (5) or more journeymen shall be paid \$1.00 per hour over the journeyman rate.

Fair Contracting Foundation: \$0.01 paid by employer, \$0.01 paid by employee from Total Package.

Painter Apprentice

<u>Hours</u>	<u>%</u>	<u>Base</u>	<u>Health & Welfare</u>	<u>Pension</u>	<u>Annuity</u>	<u>FTI/UM</u>	<u>FTI/NT'L</u>	<u>FCF</u>	<u>LMCI</u>	<u>MPWEA</u>	<u>STAR</u>	<u>DC82/FCF</u>	<u>Total</u>	<u>Vac *</u>	<u>Check-off Dues**</u>
0-1000	50	\$14.68	\$6.85	\$5.15	\$3.50	\$0.37	\$0.10	\$0.01	\$0.10	\$0.03	\$ 0.10	\$0.01	\$30.90	\$2.70	\$1.28
1001-2000	55	\$16.15	\$6.85	\$5.15	\$3.50	\$0.37	\$0.10	\$0.01	\$0.10	\$0.03	\$ 0.10	\$0.01	\$32.37	\$2.70	\$1.33
2001-3000	60	\$17.62	\$6.85	\$5.15	\$3.50	\$0.37	\$0.10	\$0.01	\$0.10	\$0.03	\$ 0.10	\$0.01	\$33.84	\$2.70	\$1.38
3001-4000	70	\$20.55	\$6.85	\$5.15	\$3.50	\$0.37	\$0.10	\$0.01	\$0.10	\$0.03	\$ 0.10	\$0.01	\$36.77	\$2.70	\$1.49
4001-5000	80	\$23.49	\$6.85	\$5.15	\$3.50	\$0.37	\$0.10	\$0.01	\$0.10	\$0.03	\$ 0.10	\$0.01	\$39.71	\$2.70	\$1.59
5001-6000	90	\$26.42	\$6.85	\$5.15	\$3.50	\$0.37	\$0.10	\$0.01	\$0.10	\$0.03	\$ 0.10	\$0.01	\$42.64	\$2.70	\$1.69

Drywall Taper Appr

<u>Hours</u>	<u>%</u>	<u>Base</u>	<u>Health & Welfare</u>	<u>Pension</u>	<u>Annuity</u>	<u>FTI/UM</u>	<u>FTI/NT'L</u>	<u>FCF</u>	<u>LMCI</u>	<u>MPWEA</u>	<u>STAR</u>	<u>DC82/FCF</u>	<u>Total</u>	<u>Vac *</u>	<u>Check-off Dues**</u>
0-500	50	\$14.98	\$6.85	\$5.15	\$3.50	\$0.37	\$0.10	\$0.01	\$0.10	\$0.03	\$ 0.10	\$0.01	\$31.20	\$2.70	\$1.29
501-1000	60	\$17.98	\$6.85	\$5.15	\$3.50	\$0.37	\$0.10	\$0.01	\$0.10	\$0.03	\$ 0.10	\$0.01	\$34.20	\$2.70	\$1.40
1001-1500	70	\$20.97	\$6.85	\$5.15	\$3.50	\$0.37	\$0.10	\$0.01	\$0.10	\$0.03	\$ 0.10	\$0.01	\$37.19	\$2.70	\$1.50
1501-2000	75	\$22.47	\$6.85	\$5.15	\$3.50	\$0.37	\$0.10	\$0.01	\$0.10	\$0.03	\$ 0.10	\$0.01	\$38.69	\$2.70	\$1.55
2001-2500	80	\$23.97	\$6.85	\$5.15	\$3.50	\$0.37	\$0.10	\$0.01	\$0.10	\$0.03	\$ 0.10	\$0.01	\$40.19	\$2.70	\$1.61
2501-3000	85	\$25.47	\$6.85	\$5.15	\$3.50	\$0.37	\$0.10	\$0.01	\$0.10	\$0.03	\$ 0.10	\$0.01	\$41.69	\$2.70	\$1.66
3001-3500	90	\$26.96	\$6.85	\$5.15	\$3.50	\$0.37	\$0.10	\$0.01	\$0.10	\$0.03	\$ 0.10	\$0.01	\$43.18	\$2.70	\$1.71
3501-4000	95	\$28.46	\$6.85	\$5.15	\$3.50	\$0.37	\$0.10	\$0.01	\$0.10	\$0.03	\$ 0.10	\$0.01	\$44.68	\$2.70	\$1.76

*This Vacation Contribution is included in the taxable wage listed above, then deducted and remitted along with your Health & Welfare contribution.

PLUMBERS & STEAMFITTERS LOCAL #11
4402 AIRPARK BLVD.
DULUTH, MN 55811

JEFFREY DAVEAU SR.
BUSINESS MANAGER

218-727-2199 PHONE
218-727-2298 FAX

WAGE & BENEFIT REVISION EFFECTIVE MAY 4, 2015

BUILDING TRADES JOURNEYMAN

Base Pay	<u>\$34.79</u>
Savings Fund	2.00
Dues Check off	.96
Building Fund	.20
Organizing Fund	.15
UA-PEC	.05
Local PAC	.01
Death Assessment	.01
Total Taxable	<u>\$38.17</u>

Fringes	
Health & welfare	<u>6.85</u>
H R Fund	<u>.15</u>
Local Pension	<u>6.00</u>
National Pension	.78
Money Purchase	3.50
Training Fund	.50
International Training Fund	.10
Industry Fund	.35
H.V.A.C	.25
Total Fringes	<u>\$18.48</u>

<u>Total package</u>	<u>\$56.65</u>
-----------------------------	-----------------------

Foreman \$2.50 over Base Pay
General Foreman \$3.50 over Base Pay

WAGES AS OF 5-4-2015	JOURNEYMAN	95%	90%	85%	80%	75%	70%
TAXABLE		↓	↓	↓	↓	↓	↓
BASE PAY	\$ 34.79	\$ 33.05	\$ 31.31	\$ 29.57	\$ 27.83	\$ 26.09	\$ 24.35
SAVINGS FUND	\$ 2.00	\$ 1.90	\$ 1.80	\$ 1.70	\$ 1.60	\$ 1.50	\$ 1.40
UNION DUES & ASSESSMENTS	\$ 1.38	\$ 1.38	\$ 1.38	\$ 1.38	\$ 1.38	\$ 1.38	\$ 1.38
TOTAL TAXABLE	\$ 38.17	\$ 36.33	\$ 34.49	\$ 32.65	\$ 30.81	\$ 28.97	\$ 27.13
FRINGES							
TRAINING FUND	\$ 0.50	\$ 0.50	\$ 0.50	\$ 0.50	\$ 0.50	\$ 0.50	\$ 0.50
H R FUND	\$ 0.15	\$ 0.15	\$ 0.15	\$ 0.15	\$ 0.15	\$ 0.15	\$ 0.15
HVAC	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25
UA TRAINING FUND	\$ 0.10	\$ 0.10	\$ 0.10	\$ 0.10	\$ 0.10	\$ 0.10	\$ 0.10
HEALTH & WELFARE	\$ 6.85	\$ 6.85	\$ 6.85	\$ 6.85	\$ 6.85	\$ 6.85	\$ 6.85
UA PENSION	\$ 0.78	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
LOCAL PENSION	\$ 6.00	\$ 6.00	\$ 6.00	\$ 6.00	\$ 6.00	\$ 6.00	\$ 6.00
MONEY PURCHASE	\$ 3.50	\$ 3.33	\$ 3.15	\$ 2.98	\$ 2.80	\$ 2.63	\$ 2.45
INDUSTRY DEVELOPMENT	\$ 0.35	\$ 0.35	\$ 0.35	\$ 0.35	\$ 0.35	\$ 0.35	\$ 0.35
TOTAL FRINGES	\$ 18.48	\$ 17.53	\$ 17.35	\$ 17.18	\$ 17.00	\$ 16.83	\$ 16.65
TOTAL PACKAGE	\$ 56.65	\$ 53.86	\$ 51.84	\$ 49.83	\$ 47.81	\$ 45.80	\$ 43.78
WAGES AS OF 5-4-2015	65%	60%	55%	50%	45%	40%	
TAXABLE	↓	↓	↓	↓	↓	↓	
BASE PAY	\$ 22.61	\$ 20.87	\$ 19.13	\$ 17.40	\$ 15.66	\$ 13.92	
SAVINGS FUND	\$ 1.30	\$ 1.20	\$ 1.10	\$ 1.00	\$ 0.90	\$ 0.80	
UNION DUES AND ASSESSMENTS	\$ 1.38	\$ 1.38	\$ 1.38	\$ 1.38	\$ 1.38	\$ 1.38	
TOTAL TAXABLE	\$ 25.29	\$ 23.45	\$ 21.61	\$ 19.78	\$ 17.94	\$ 16.10	
FRINGES							
TRAINING FUND	\$ 0.50	\$ 0.50	\$ 0.50	\$ 0.50	\$ 0.50	\$ 0.50	
HR FUND	\$ 0.15	\$ 0.15	\$ 0.15	\$ 0.15	\$ 0.15	\$ 0.15	
HVAC	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25	\$ 0.25	
UA TRAINING FUND	\$ 0.10	\$ 0.10	\$ 0.10	\$ 0.10	\$ 0.10	\$ 0.10	
HEALTH & WELFARE	\$ 6.85	\$ 6.85	\$ 6.85	\$ 6.85	\$ 6.85	\$ 6.85	
UA PENSION	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
LOCAL PENSION	\$ 6.00	\$ 6.00	\$ 6.00	\$ 6.00	\$ 6.00	\$ 6.00	
MONEY PURCHASE	\$ 2.28	\$ -	\$ -	\$ -	\$ -	\$ -	
INDUSTRY DEVELOPMENT	\$ 0.35	\$ 0.35	\$ 0.35	\$ 0.35	\$ 0.35	\$ 0.35	
TOTAL FRINGES	\$ 16.48	\$ 14.20	\$ 14.20	\$ 14.20	\$ 14.20	\$ 14.20	
TOTAL PACKAGE	\$ 41.77	\$ 37.65	\$ 35.81	\$ 33.98	\$ 32.14	\$ 30.30	

WAGE BREAKDOWN FOR LOCAL UNION # 11 APPRENTICES - BEGINNING MAY 4, 2015

Wages/Benefits Roofers Local Union 96 - Duluth Area

Effective July 1, 2014

Through June 30, 2015

Classification	Basic Hourly Wage	Vac. After Taxes	Assess. After Taxes	Taxable Wage Rate	National Pension Rate	Educ Fund Rate	Annuity Fund Rate	Health/ Welfare Rate	H&W HRA Rate	Appr. Training Rate	Roofing Industry Rate	Total Cost to Employer
Journeyman	28.65	2.50	0.50	31.65	3.40	0.03	3.09	7.10	0.50	0.25	0.30	46.32
Foreman	30.40	2.50	0.50	33.40	3.65	0.03	3.09	7.10	0.50	0.25	0.30	48.32

Apprentice Percentages Based on Hours Worked for Advancement:

45%	A 0-250	14.04		0.20	14.24	0.25	0.03				0.25	0.30	15.07
45%	B 251-1500	13.74		0.50	14.24	0.25	0.03		5.50		0.25	0.30	20.57
50%	1501-2500	15.33		0.50	15.83	0.25	0.03	0.25	6.50		0.25	0.30	23.41

Freeze Unless 144 Hours (Phase 1) of Related Training is Completed

60%	2501-3000	18.49		0.50	18.99	0.50	0.03	0.50	7.10	0.50	0.25	0.30	28.17
70%	3001-3500	21.66		0.50	22.16	0.50	0.03	0.50	7.10	0.50	0.25	0.30	31.34
75%	3501-4000	23.24		0.50	23.74	0.50	0.03	0.50	7.10	0.50	0.25	0.30	32.92
80%	4001-4500	22.32	2.50	0.50	25.32	0.75	0.03	0.75	7.10	0.50	0.25	0.30	35.00

Freeze Unless 288 Hours (Phase 2) of Related Training is Completed

85%	4501-5000	23.90	2.50	0.50	26.90	0.75	0.03	0.75	7.10	0.50	0.25	0.30	36.58
90%	5001-5500	25.49	2.50	0.50	28.49	1.00	0.03	0.75	7.10	0.50	0.25	0.30	38.42
95%	5501-6000	27.07	2.50	0.50	30.07	1.00	0.03	0.75	7.10	0.50	0.25	0.30	40.00

Advancement to Journeyman if All Related Training (Phase 3) is Completed and **6000** Hours Worked

Due: July 1, 2015: \$0.80

Expiration date: June 30, 2016

**DULUTH
COMMERCIAL & INDUSTRIAL
SHEET METAL WAGE RATES**

EFFECTIVE MAY 4, 2015 - April 30, 2016

SOUTHERN ST. LOUIS, AITKIN, CARLTON, LAKE, COOK, AND DOUGLAS COUNTIES

			TAXABLE	Health	NATL	SUPP.	LOCAL 10	FCF &	SMOHI	LOCAL	I.F.	TOTAL
			BASE*	SASMI	Fund	PENSION	PENSION	LOCAL	NEMI	T.F.	& DRUG	PACKAGE
									TESTING			
Journeyman			\$31.56	\$1.61	\$9.02	\$10.45	\$2.15	\$0.45	\$0.64	\$0.17	\$0.23	\$56.28
Foreman			33.56	1.61	9.02	10.45	2.15	0.45	0.64	0.17	0.23	58.28
General Foreman			35.56	1.61	9.02	10.45	2.15	0.45	0.64	0.17	0.23	60.28
Apprentice	HOURS											
	0-1000	55	17.36	1.01	9.02	5.75	1.18	0.25	0.64	0.17	0.23	35.61
	1001-2000	59	18.62	1.06	9.02	6.17	1.27	0.27	0.64	0.17	0.23	37.45
	2001-3000	63	19.88	1.11	9.02	6.58	1.35	0.28	0.64	0.17	0.23	39.26
	3001-4000	68	21.46	1.18	9.02	7.11	1.46	0.31	0.64	0.17	0.23	41.58
	4001-5000	72	22.72	1.23	9.02	7.52	1.55	0.32	0.64	0.17	0.23	43.40
	5001-6000	76	23.99	1.29	9.02	7.94	1.63	0.34	0.64	0.17	0.23	45.25
	6001-7000	80	25.25	1.34	9.02	8.36	1.72	0.36	0.64	0.17	0.23	47.09
	7001-8000	84	26.51	1.40	9.02	8.78	1.81	0.38	0.64	0.17	0.23	48.94
Classified worker												
	0-500	45	14.20	0.00	0.00	0.00	0.00	0.00	0.64	0.00	0.00	14.84
Plan B Single	501-on	45	14.20	0.00	2.69	2.45	0.00	0.00	0.64	0.00	0.00	19.98
Plan B Family	501-on	45	10.35	0.00	6.54	2.45	0.00	0.00	0.64	0.00	0.00	19.98

*The Taxable Base Pay rate includes \$2.58 Vacation and Organizing deduction for journeymen and \$1.58 for apprentices. The Vacation Fund deduction is \$2.00 per hour for journeymen (\$1.00 per hour for apprentices) and \$.58 per hour for Organizing for both Journeymen and apprentices. For classified workers, the Vacation Fund deduction is \$.55 per hour and there is a \$.23 deduction for Organizing for a total deduction of \$.78.

SASMI NOTE: The SASMI rate for Foreman and General Foreman are the same as the rate for Journeymen and there is no longer a different SASMI rate for overtime hours on any classification. All SASMI hours are paid at the straight time rate.

The current IRS mileage rate is \$.575

April 17, 2015

Contract expires May 1, 2016



Shawn Broadrick
Business Manager

Brian W. Dunn
Financial Secretary-Treasurer

James E. Tucker
President-Organizer

Minnesota Breakdown of Wage and Benefit Package

<u>Wage Rate</u>	<u>4/1/13</u>	<u>7/1/13</u>	<u>4/1/14</u>	<u>4/1/15</u>
	\$31.88	\$32.52	\$33.17	\$33.83

Foreman's Rate: \$2.75 above journeyman scale
 General Foreman: \$5.00 above journeyman scale (22+ men on job)
 Local Union 669 has a 5% dues check-off; 2 1/2% for Apprentices Class 1-4

Extended Benefit Fund: \$.25 per hour for all hours worked payable to Local Union 669

Industry Advancement-State of Minnesota

Class 5 and higher \$.25 per hour for all hours worked payable to Local Union 669

Benefit Package

Health & Welfare 4/1/13	\$8.42 per hour for all hours worked
Health & Welfare 1/1/14	\$8.52 per hour for all hours worked
Health & Welfare 1/1/15	<To be determined>
Health & Welfare 1/1/16	<To be determined>
Pension 4/1/13	\$5.50 per hour for all hours worked
Pension 1/1/14	\$5.75 per hour for all hours worked
Pension 1/1/15	\$5.90 per hour for all hours worked
Pension 1/1/16	\$6.05 per hour for all hours worked
Education 4/1/13	\$.35 per hour for all hours worked
International Training Fund 4/1/13	\$.10 per hour for all hours worked
Industry Promotion 4/1/13	\$.25 per hour for all hours worked
Supplemental Pension 4/1/13	\$2.50 per hour for all hours worked

<u>Travel Expenses</u>	<u>4/1/13</u>	<u>4/1/14</u>	<u>4/1/15</u>
0-60 miles	No expenses	No expenses	No expenses
60-80 miles	\$15.00	\$16.50	\$17.50
80-100 miles	\$25.00	\$26.50	\$27.50
100+ miles	\$75.00	\$80.00	\$80.00

If you should have any additional questions, please feel free to contact Business Agent James Westby at (507) 493-5671 or this office.

Created June 2013

Road Sprinkler Fitters Local Union No. 669

7050 Oakland Mills Road • Suite 200 • Columbia, Maryland 21046
 (410) 381-4300 • fax: (301) 621-8045 • www.sprinklerfitters669.org

SPECIAL PROVISIONS

Minnesota Slip Pedestrian Bridge Rehabilitation


City Project # 1554

**City of Duluth, Minnesota
411 West 1st Street
Duluth, MN 55802**

SPECIAL PROVISIONS
City Job Number: 1554
MINNESOTA SLIP PEDESTRIAN BRIDGE REHABILITATION
October 26, 2016

CERTIFICATION

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.



Signature

Joseph D. Litman
Typed or Printed Name

October 26, 2016
Date

21833
License No.

SPECIAL PROVISIONS
City Job Number: 1554
MINNESOTA SLIP PEDESTRIAN BRIDGE REHABILITATION
October 26, 2016

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Attachments:

Original Bridge Construction Plans (40 pgs.)

SPECIAL PROVISIONS
City Job Number: 1554
MINNESOTA SLIP PEDESTRIAN BRIDGE REHABILITATION
October 26, 2016

The following forms and regulations/rules/statutes and interpretations, which are incorporated by reference in this contract, are available on the World Wide Web at the sites listed below. The City of Duluth will use its best efforts to ensure that the most recent, applicable forms and regulations/rules/statutes and interpretations are included on the web sites provided; however, if you are the successful bidder, prior to signing the contract, you are responsible for comparing the versions of the forms and regulations/rules/statutes and interpretations attached to the contract which you are signing with the versions on the web to ensure conformity. Hard copies of all forms are available at the Engineering Division.

THE VERSIONS OF THE FORMS AND REGULATIONS/RULES/STATUTES and INTERPRETATION ATTACHED TO THE CONTRACT WILL BE CONTROLLING.

FORM	FUND	WEB SITE
Affidavit of Non-Collusion (required by awarded contractor only)	All	http://www.duluthmn.gov/engineering/standard-construction-specifications/construction-documents/
Affirmative Action Policy Statement/Certificate - EEO (required by awarded contractor only)	All	http://www.duluthmn.gov/engineering/standard-construction-specifications/construction-documents/
Bidder's Label for submitting project bids	All	http://www.duluthmn.gov/engineering/standard-construction-specifications/construction-documents/
Certified Payroll Form WH347	All	www.dol.gov/whd/forms/WH347.pdf
Contractor's Haul Route	All	http://www.duluthmn.gov/engineering/standard-construction-specifications/construction-documents/
Debarment/Suspension Notice (most current version)	All	www.dot.state.mn.us/pre-letting/prov/order/suspension.pdf
IC-134 form	All	http://www.revenue.state.mn.us/Forms_and_Instructions/ic134.pdf
IC-134 on-line submittal	All	https://www.mndor.state.mn.us/tp/contractoraffidavit/
MN Rules 5200.1105	All	https://www.revisor.mn.gov/rules/?id=5200.1105
MN Rules 5200. 1106	All	https://www.revisor.mn.gov/rules/?id=5200.1106
MN Statutes 177.41 to 177.44	All	www.revisor.mn.gov/statutes/?id=177
Notice to Bidders - Prompt Payment to Subs – CITY (MS 471.425)	All	http://www.duluthmn.gov/engineering/standard-construction-specifications/construction-documents/
One-Call Instructions	All	http://www.duluthmn.gov/engineering/standard-construction-specifications/construction-documents/
Request to Sublet TP-21834	All	http://www.dot.state.mn.us/const/labor/forms.html
Request to Sublet Summary	All	http://www.dot.state.mn.us/const/labor/forms.html
Responsible Contractor Certification (MS 16C.285)	All	http://www.duluthmn.gov/engineering/standard-construction-specifications/construction-documents/
Statement of Compliance Form (8-2013)	All	www.dot.state.mn.us/const/labor/forms.html
Supplemental General Conditions Part II 4/15/11	All	http://www.duluthmn.gov/engineering/standard-construction-specifications/construction-documents/

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SP-1 NOTICE TO ALL BIDDERS

The 2016 Edition of the City of Duluth Public Works & Utilities Department/Engineering Division "Construction Standards" book and any addendums or supplements is incorporated by reference and is deemed to be a part hereof as if fully incorporated and set forth herein. The 'Construction Standards' is available on the City website at: <http://www.duluthmn.gov/engineering/standard-construction-specifications/>.

SP-2 SCOPE OF WORK

Project consists of the rehabilitation of the Minnesota Slip Pedestrian Bridge including but not limited to replacement/ conversion of the mechanical operating system to a pinion driven system, replacement and significant upgrading of the bridge electrical operating system, structural steel replacement and repair and repainting work. Contractor shall be responsible for all labor, design, materials and incidentals necessary to complete the work except that the following items will be furnished to the project site by the City of Duluth:

- The two Enclosed Speed Reducers are being purchased directly by the City of Duluth and will be delivered directly to the jobsite. The Contractor shall take possession of the Enclosed Speed Reducers from the delivery truck (including all required unloading) at the time of their delivery. Delivery is anticipated by May 4th, 2017. Full information concerning the Enclosed Speed Reducers will be available to the Contractor whom the Project is awarded to as it is made available to the City and its Engineer by the supplier/ manufacturer.

SP-3 CONTACT INFORMATION

Questions regarding this project should be directed to: Joe Litman, LHB at 218-279-2455, joe.litman@lhbcorp.com.

SP-4 CONTRACTOR QUALIFICATIONS

Because the proper functioning of the Minnesota Slip Bridge is a key component of viability of the Canal Park Businesses, Duluth Convention/ Entertainment District and Minnesota Slip Marine Traffic:

1. Performance of the work in strict compliance with the project Specifications and Special Provisions is critical.
2. Completion of the Project on or before the specified completion dates is of the essence.

Therefore, due to the complexity and urgent need for the work of this project to be completed properly in conformance with the specifications and on or before the completion dates required in these Special Provisions, Contractor and at least one of Contractor's lead site personnel must have prior demonstrated Moveable Bridge

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experience to be considered for award of the contract for this work. Prior experience must include work which directly involved components of the mechanical lift system of a steel moveable bridge.

To ensure qualification criteria are met bidders are advised to Contact Joe Litman, LHB at 218-279-2455 to review qualifications in advance of bid submittal. The City reserves the right to request from any Bidder, detailed documentation as to Bidders ability to perform the work in full conformance with the Specifications and Special Provisions including completion on or prior to the specified Completion Dates and to require bidders proof of ability to meet these prescribed requirements following bid submission and reserves the right to reject any Bidder whom in the City's sole opinion is unable to meet these requirements.

SP-5 REVIEW OF SITE/ BRIDGE

Contractors shall be responsible for review of site/bridge prior to bidding to be informed of existing conditions. Failure to be informed of existing readily viewable site/ structure conditions will not be justifiable cause for increased compensation or extension of Contract Time. If operation of the bridge or access into the bridge operator's booth is desired at time of review Contractor shall contact Joe Litman at 218-279-2455 to arrange for such. No prior arrangements are required to visually review the bridge.

SP-6 RESPONSIBLE CONTRACTOR VERIFICATION AND CERTIFICATION OF COMPLIANCE

A reminder to potential bidders that the Responsible Contractor Verification and Certification of Compliance is required by Minnesota Statute to be submitted with your Bid Proposal. Refer to sections S-14 and 1801 of the City's "Construction Standards" and the bid documents.

SP-7 PROTECTION OF MARINE TRAFFIC AND OF THE WATERWAY

During the progress of work, should any materials, machinery, or equipment be lost, dumped, thrown overboard, or sunk, so as to obstruct, interfere with, or hazard navigation, immediate notice shall be given to the U.S. Coast Guard and the obstruction shall be properly marked to protect navigation. Notice to the U.S. Coast Guard shall give a description and location of any such object and the action taken, or being taken, to protect navigation and of action to remove the obstruction.

If, in the opinion of the Engineer, the Contractor has not removed all obstructions in the channel resulting from his operations (through negligence, or accident), the Contractor will be required to have an inspection of the waterway bottom performed and to remove remaining obstructions, at no extra cost to the City. After the completion of the work, the Contractor shall certify in writing to the Engineer that all his equipment is accounted for, and that all unused construction materials have been legally disposed of.

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Spillage of oil and hazardous substances is specifically prohibited by Section 311 of the Federal Water Pollution Control Act of 1971, as amended. Measures to be taken include: (1) proper maintenance of construction equipment, (2) arrangement of fuel/ hazardous substances handling areas so as to ensure that any spills are contained before reaching navigable waterways or their adjoining shorelines, (3) instruction to personnel not to dispose of oil/ hazardous substances into drains or the navigable waterways directly or into their adjoining shorelines. In the case of a spill, the U.S. Coast Guard is to be notified immediately. A supply of an absorbent material shall be retained so that it may be rapidly deployed to soak up any possible spillage, pending U.S. Coast Guard arrival on scene. The use of chemical dispersing agents and emulsifiers is not authorized without prior, specific federal approval.

The Contractor is forewarned that, should any of his personnel throw construction materials into the waterway, he will be subject to prosecution under Federal and State laws.

SP-7.1 Basis of Payment

No separate payment will be made for the work of this item.

All costs incurred by compliance with the above requirements will be considered to be incidental expense for which no direct compensation will be made.

SP-8 PLATFORMS, NETTING, SCREENS AND PROTECTION OF EXISTING STRUCTURES

SP-8.1 General

A. Requirements

The Contractor, Subcontractors, Sub-subcontractors, Vendors and the like shall be required to familiarize themselves with the requirements set forth herein.

B. Platforms, Netting and Screens

The Contractor shall furnish and securely set protective platforms, netting and screens (herein referred to as the protective device) required to protect workers, adjoining properties, the waterway and the public. The protective device shall meet OSHA standards and shall be of good, fire resistant, sound material.

The protective device shall be of adequate size, section, design, and construction with ample physical properties for proper functioning. The protective device shall be substantially braced and tied, as necessary, to ensure absolute safety for those required to use such a protective device, as well as those within its vicinity. The protective device shall be adequately enclosed to contain all materials that result from the Contractor's operations which may inadvertently enter the water.

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The Engineer shall have the right to reject or condemn any protective device that is unsafe, improper, or inadequate, in the opinion of the Engineer. Whether or not the Engineer exercises this right, the Contractor shall not be relieved of sole responsibility for the safe, proper, and lawful construction, maintenance and use of such protective device, or for the adequacy of said protective device.

C. Protection of Existing Structures

The Contractor shall exercise every precaution to see that no harm is done to any existing structures as a result of construction operations. Should any damage result from or through any of the Contractor's operations, such damage shall be replaced or repaired immediately in a manner satisfactory to the Engineer at the Contractor's expense.

SP-8.2 Method of Measurement

No separate measurement will be made for the work in this Section.

SP-8.3 Basis of Payment

No separate payment will be made for the work of this item.

All costs incurred by compliance with the above requirements will be considered to be incidental expense for which no direct compensation will be made.

SP-9 BRIDGE OPERATION

Except for during the Fall/ Winter 2017 Field Painting Work Period the Contractor shall assume sole responsibility for Bridge Operation for construction purposes at the time of mobilization to the site and initiation of work on the bridge. The Chief City Bridge Operator will be available to inform the Contractor of the bridge operational procedures. At the time of Contractors mobilization, the Bridge will not be available to the public or marine traffic for openings/ operation and shall remain so until the date as established in SP-14 (1806) Determination and Extension of Contract Time.

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During the Fall/ Winter 2017 Field Painting Work Period the Bridge will be closed to pedestrian and marine traffic as established in SP-14 (1806) Determination and Extension of Contract Time and the Contractor will not be permitted to operate the Bridge. If the Contractor requires the Bridge to operate to facilitate the painting work all bridge operations during this period shall be coordinated with and performed by the City Bridge Operator. During this period the Contractor shall designate a Bridge Operation Representative who is responsible to ensure the Bridge is clear for operation. Ensuring the Bridge is clear and safe for operation when requesting Bridge operation shall remain the sole responsibility of the Contractor and their Bridge Operation Representative including full responsibility for repair of any damage which may occur to the Bridge or its Operating System due to failure to ensure operational clearance/ readiness regardless that operational control is by the City Bridge Operator.

SP-10 BRIDGE PLANS

A copy of the original bridge construction plans has been included with the Project Bid Documents however, the City neither warrants nor represents that existing structures conform exactly to the details shown in those Plans. Amongst other items it is known the counterweight loads are greater than that indicated in the original documents. To increase counterweight loads during original bridge start-up an estimated 14,000 pounds of steel balls were added to each counterweight box.

SP-11 (1404) MAINTENANCE OF TRAFFIC CONTROL AND (2563) TRAFFIC CONTROL

The following is added to the provisions of MnDOT 1404 and 2563:

The Minnesota Slip Bridge shall be closed to pedestrian traffic and operational lifts for marine traffic shall not be required from the time of Contractors mobilization until the dates as established in SP-14 (1806) Determination and Extension of Contract Time.

The Contractor is responsible for furnishing and installation of signage notifying pedestrians of bridge closure and shall be responsible to provide fencing and other protective barriers as necessary to maintain the public from the work area and to protect the public. Rigid fencing barrier shall be in place to prohibit the public from using the bridge for crossing at all times when active work is occurring or when the bridge is unsafe to the public. A minimum of two bridge/ walkway closure signs (3 ft wide by 2' height minimum) and constructed of compliant reflective material on rigid backing shall be placed at each walkway leading to the bridge during closure periods.

The Contractor shall submit traffic control plans/ details not identified above or as necessary to complete the work in accordance with the Contractor's means and methods. The preparation of such plans and furnishing of all devices or temporary barrier necessary to implement such traffic control shall be considered to be included for payment under the lump sum traffic control item.

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No separate measurement or payment shall be made for any of the various elements comprising traffic control on the project but all such work shall be considered included for payment under the lump sum price bid for Item "Traffic Control".

SP-12 (1504) COORDINATION OF CONTRACT DOCUMENTS

The first paragraph of MN/DOT 1504 is deleted and replaced with the following:

A requirement appearing in one of the Contract documents is as binding as though the requirement appears in all. If discrepancies exist between the Contract documents, the following order of precedence applies:

- (1) Addenda,
- (2) Special Provisions,
- (3) Project-Specific Plan Sheets,
- (4) City of Duluth Standard Construction Details,
- (5) City of Duluth Standard Construction Specifications,
- (6) MN/DOT Supplemental Specifications,
- (7) MN/DOT Standard Plan Sheets and Standard Plates,
- (8) MN/DOT Standard Specifications.

SP-13 (1505) COOPERATION BY CONTRACTORS

No other known contractors or utility owners are performing work within the Construction limits.

SP-14 (1806) DETERMINATION AND EXTENSION OF CONTRACT TIME

The Contract Time will be determined in accordance with the provisions of Mn/DOT 1806 and the following:

SP-14.1

The Contract shall be considered a fixed calendar date completion project with Work Periods and Intermediate and Final Fixed Calendar Day Completion Dates as follows:

Work Periods

1. **Bridge Rehabilitation Work Period-** This Work Period shall include all construction activities required by the Contract with the exception of the field painting activities as defined on Plan Sheet 37 and its related provisions.

Construction activities for this Work Period shall begin on January 16, 2017 or within 7 days after the date of notice of Contract approval, whichever is later. The Bridge will be closed to operation for marine traffic in advance of this date and shall be closed (by Contractor) to pedestrian traffic at the point after work on site begins which affects or creates a safety hazard to pedestrians. The City will be responsible

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for general clearing of snow from the bridge deck until the time of Contractor's mobilization to the site and Contractor's closure of the Bridge to pedestrians at which time Contractor is responsible for clearing of snow with cost for this work to be incidental to other items.

The Bridge shall be raised by Contractor (fully raised position, both span leafs) by May 5, 2017 (**Intermediate Fixed Calendar Completion Date 1- May 5, 2017**) to allow for marine traffic into and out of Minnesota Slip (it is expected that this raising will require external equipment to be provided by the Contractor as part of the work as the bridge will not be operational by this time). At Contractor's option the Bridge may be lowered between the hours of 7 pm and 5 am to facilitate construction activities but must be raised outside of these hours beginning May 5, 2017.

All work as required for the complete bridge rehabilitation as defined in the Plans, Specifications and Special Provisions including all testing and adjustment work as necessary to make the bridge fully operational and turn the Bridge over to the City Bridge Operator with the exception of the field painting activities as defined on Plan Sheet 37 shall be completed by May 24, 2017. (**Intermediate Fixed Calendar Completion Date 2- May 24, 2017**)

2. **Fall/ Winter 2017 Field Painting Work Period-** This Work Period shall include the field painting work as defined on Plan Sheet 37 and its related provisions. This work period is intentionally delayed until the fall closure of Minnesota Slip to marine traffic in order to allow time for the bridge rehabilitation activities to be completed during the Bridge Rehabilitation Work Period.

Construction activities for the Fall/ Winter 2017 Field Painting Work period will be permitted to begin on October 23, 2017 or thereafter. All work required to complete the field painting as defined on Plan Sheet 37 and its related provisions including removal of all equipment and enclosures and returning the bridge to full operational service except for minor touch up painting work (generally select regions of area less than 5 sq. ft. each) which may be required following removal of work area enclosures shall be completed by January 17, 2018 (**Intermediate Fixed Calendar Completion Date 3- January 17, 2018**).

Minor touch up painting work as required following removal of work area enclosures will be permitted to be delayed until Spring of 2018 however it will be required that this work be performed in a manner which does not impede 24 hour on demand bridge operation (span leaf raising and lowering within 3 minutes of notification by Bridge Operator) for marine traffic. For completion of this work the Contractor will be permitted to close the bridge to pedestrian traffic for up to two days however Contractor will be responsible for closure signage and any required barriers to protect the public during the closure. All minor touch up painting work as required

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following removal of work area enclosures shall be completed by May 26, 2018.
(Final Fixed Calendar Completion Date- May 26, 2018).

SP-14.2

The third exemption listed under the second paragraph of the provisions of MN/DOT 1806.3 is modified to the extent that the phrase "(3) During the inclusive period from November 15 through April 15, except as specified in 1806.1..." is deleted.

SP-14.3

When all, or a portion, of the Contract Time is specified as a calendar completion date, the time is presumed to have been determined by considering the Proposal quantities, normal weather for the locality and season of the year, and the necessity of having the work completed by the specified date. The time may be extended by the Engineer only if the delay is considered "Excusable" in accordance with MN/DOT 1806.2 Types of Delays, however 1806.2.A (2) "Delays due to weather..... and completion Date Contracts."" shall be deleted and no additional Contract Time allowance for weather will be made.

SP-15 (1807) FAILURE TO COMPLETE WORK ON TIME

The provisions of MN/DOT 1807 shall apply in full to each Intermediate Fixed Calendar Completion Date and to the Final Fixed Calendar Completion Date. The Contract Amounts and Liquidated Damage Charge Amounts Per Calendar Day in Table 1807-1 shall be deleted and replaced with the following:

Failure to meet Intermediate Fixed Calendar Completion Date 1	\$3000 per calendar day
Failure to meet Intermediate Fixed Calendar Completion Date 2	\$3000 per calendar day
Failure to meet Intermediate Fixed Calendar Completion Date 3	\$2000 per calendar day
Failure to meet Final Fixed Calendar Completion Date	\$2000 per calendar day

Liquidated Damages shall be applied separately and concurrently for failure to meet any of the Intermediate Fixed Calendar Completion Dates or the Final Fixed Calendar Completion Date.

SP-16 METHODS FOR PAINT REMOVAL AND WASTE DISPOSAL OF NON-LEAD PAINT

The provisions of 1717, "Air, Land, and Water Pollution," are supplemented as follows:

SP-16.1 Handling and Disposal of Waste Materials

Contain waste materials on site and provide for their transportation and disposal in accordance with Minnesota Pollution Control Agency (MPCA) regulation under Minnesota Rules 7045 and MnDOT criteria. Waste materials, which include but are not limited to, blasting residue (spent abrasives or paint chips), waste paint solvents, cleaning

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solutions, and unusable paint must be managed as hazardous waste except as described below for blasting residue. Waste disposable Personnel Protection Equipment (PPE) from blasting operations must be treated as a hazardous waste unless the Contractor provides proof that the waste is nonhazardous.

Owner responsibility for recording the Contractor's testing, waste transport and disposal processes are described in MnDOT's manual for "MnDOT Steel Structure Paint Removal Program for Contractors" available on the web at

<http://www.dot.state.mn.us/environment/regulatedmaterials/paintremoval.html>.

SP-16.2 Storage of Materials

At all times during cleaning and painting operations, provide locked storage of cleaning and painting materials to prevent access by unauthorized persons.

SP-16.3 Loss of Paint Materials into Public Waters

In the event of accidental loss of paint, cleaning materials or debris into public waters, take immediate action to recover the lost materials and report the incident immediately by telephone to the State Duty Officer (1-800-422-0798) followed by a written report addressed to MPCA, Water Quality Division, Compliance and Enforcement Section, 520 Lafayette Road, St. Paul, Minnesota 55155.

SP-16.4 Methods for Paint Removal

As removal of the paint system is required, follow special procedures to ensure that the material, when removed from the bridge, does not contaminate the surrounding air, water and land.

Any method of paint removal which meets the requirements for surface preparation and complies with Contract requirements can be used by the Contractor. Since the removal method is selected by the Contractor, all costs of compliance with these specifications are incidental except as may be provided under payment provisions in the proposal. Owner responsibility for recording the Contractor's testing, waste transport and disposal processes are described in MnDOT's manual for "Contractor Paint Removal Operations Process" available on the Web at

<http://www.dot.state.mn.us/environment/regulatedmaterials/paintremoval.html>.

Contact the MnDOT Office of Environmental Stewardship if there are additional questions.

If paint is removed by use of dry abrasive blasting, the following materials are acceptable:

1. Mineral aggregate abrasive.

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2. Steel grit or steel shot abrasives.

If recyclable steel grit or shot is used as an abrasive blasting material, provide a recovery system that is self-contained for abrasive blasting and recovery. It must be a recovery system which does not allow fugitive emissions from the recovery operation. The recovery equipment must be such that the amount of contaminants in the clean recycle abrasive is less than one percent by weight.

3. Other abrasive mixtures approved by the Engineer.

The residue resulting from the use of abrasives will not be removed off site until the Toxicity Characteristic Leaching Procedure (TCLP) for Resource Conservation Recovery Act (RCRA) metals renders it non-hazardous.

SP-16.5 Containment

Method will meet or exceed the MN Class IV containment.

Prior to the start of surface preparation operations, submit to the Engineer detailed plans of the proposed containment and blasting residue collection system. The submittal must also identify the method proposed for paint removal, the composition of the blast medium, and the details of the means of attachment of the containment system and painting platform to the bridge. In the event that the system is in contact with the bridge railing or previously painted structural steel, the submittal must indicate the method of protecting those surfaces from any visible marring. No system which will produce stresses exceeding the allowable stresses on bridge members is allowed. Furnish calculations showing loads and stresses if requested by the Engineer. Review of the Contractor's submittal does not relieve the Contractor of responsibility for repairing damage to the bridge and for providing containment which prevents contamination of air, water and land.

In the event any marring or structural damage is observed, immediately modify the method of suspension and bridge protection system to the Engineer's satisfaction and at the Contractor's expense. Additionally, any damage must be corrected as directed by the Engineer at no cost to the State/ City.

Provide containment that will completely enclose the work area on the bridge. If dry abrasive blasting is used to remove paints, provide exhaust ventilation with a dust collector for the enclosures. Exhaust ventilation must be sufficient to maintain negative air pressure (inside air pressure must be slightly less than outside ambient air pressure) within the enclosures.

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Construct enclosures to minimize the escape of blasting residue during adverse weather conditions. Provide tarpaulins composed of canvas, heavy-gauge nylon, or heavy-gauge nylon-reinforced vinyl. The tarpaulins must be free of holes and tears, be suitable for holding blasting residue and be 100% impermeable to blasting residue as rated by the manufacturer.

SP-16.6 Dust Emissions

The Contractor's operations and containment must be modified if any significant dust emissions are observed by the Engineer during removal of paints. Suspend abrasive blasting operations if dust emissions are observed and during times when adverse weather conditions prevent the enclosures from effectively containing the blasting residue.

SP-16.7 Waste Management, Testing and Disposal of Blasting Residue

A. Storage

Provide containers intended to hold wastes which meet the requirements of the waste contractor.

If spent abrasive is stored temporarily, it must be stored in closed drums or roll-offs. The materials from the bridge are to remain in storage until the results of testing, as described above, have been reviewed by the Engineer and the Contractor is notified by the Engineer that s/he can proceed with disposal of the materials representing the test. Materials must be covered at all times during storage. Use methods for handling of materials during loading, unloading and transport that minimize dust emissions.

B. Disposal of Blasting Residue

Blasting residue resulting from the use of mineral aggregate abrasives must be treated as hazardous waste until the residue has been tested and determined not to be hazardous waste. The Engineer will randomly sample the blasting residue once (1) and will deliver samples from the bridge to a laboratory selected by the Contractor. The Contractor shall engage the services of a qualified independent laboratory to have the samples analyzed for the Resource Conservation Recovery Act (RCRA) metals by the Toxicity Characteristic Leaching Procedure (TCLP). Manage these residues according to test results. Furnish copies of all test results to the Engineer.

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SP-16.8 Disposal of Waste Materials (hazardous or non-hazardous)

A. Information Requirements on Hazardous Wastes

Subject to penalty under 1807, "Failure to Complete the Work on Time," no later than 30 calendar days after any hazardous waste is transported off site, the Contractor will provide the following information to the Engineer:

1. Type of waste shipped;
2. Quantity of waste shipped;
3. Date of waste shipment;
4. Name and address of transporter;
5. Name and location of disposal site;
6. Final signed copies of the hazardous waste manifest and Land Disposal Restriction (LDR) form for all hazardous waste.

B. Handling and Disposal of Non-hazardous Residue

The Contractor shall notify the Project Engineer of each waste disposal site. Subject to penalty under MnDOT 1807, "Failure to Complete the Work on Time," within 30 calendar days of transportation of waste off site, the Contractor shall furnish to the Engineer records of disposal including, but not limited to, waste manifests which have been signed by the receiving approved landfill, scale tickets, invoices and any laboratory analysis.

Unless otherwise required in these Special Provisions or by the Office of Environmental Stewardship, disposal of non-hazardous residue in a MnDOT approved landfill is acceptable.

As the surface preparation work progresses, the Contractor may dispose of non-hazardous blasting residue, and other residue that may prove to be non-hazardous, in all MPCA permitted lined Sanitary/Industrial landfills in Minnesota.

Disposal of waste material, such as paint pails, rags, clothing, waste oil, spent cleaning solvents, brushes, etc., with the blasting residue is prohibited.

Hauling and placement of blast-residue in accordance with appropriate specifications for designated usage will be the responsibility of the Contractor. The material must be covered with tarps if hauled in an open truck to prevent loss of blast residue.

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SP-16.9 Method of measurement

Containment, collection and disposal of waste material and blasting residue will be measured by a single lump sum.

TCLP tests will be measured by each test performed.

SP-16.10 Basis of Payment

- A. Payment for Item No. 2476.601 "WASTE COLLECTION AND DISPOSAL", will be made at the Contract price per lump sum and shall be compensation in full for all costs of containing, collecting, transporting and disposing of the abrasive blasting residue, as described above, including all work incidental thereto.
- B. Payment for Item No. 2013.602 "TCLP TEST", will be made at the Contract price per each and shall be compensation in full for all costs of collecting, transporting and testing the blast residue samples as described above.
- C. Except for payment for "WASTE COLLECTION AND DISPOSAL", compliance with all of the requirements of 1717 and those described herein shall be considered an incidental expense for which no direct compensation will be made.

SP-17 GENERAL MACHINERY

SP-17.1 Description

A. Scope of Work

This section applies to Item No. 2402.601 "Center Bearing Assembly", Item No. 2402.601 "Tie-Rod Assembly", and Item No. 2433.601 "Operating Machinery", referred to throughout this specification as Bridge Machinery. The general requirements apply to all bridge machinery, and are given here to avoid repetition. Also, the requirements of this section apply to the installation of electric motors, brakes, instrument drives, and limit switches to be mounted with the machinery, but supplied under separate items.

B. Basis of Machinery Design

The design of new machinery conforms to the applicable requirements of the American Association of State Highway and Transportation Officials, 2008 Standard Specifications for Movable Highway Bridges (hereinafter referred to as the AASHTO Standard), unless otherwise noted on the plans or stated herein.

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C. Submittals

Submit manufacturer's data and/or shop drawing data for all manufactured and purchased items of bridge machinery in accordance with the MNDOT item number 2471.3, in addition, meet the following requirements:

Include for each manufactured item: the manufacturer's descriptive literature, drawings, diagrams, performance and characteristic curves, and catalog cuts; the manufacturer's name, trade name, catalog model or number, nameplate data, size, certified layout dimensions, capacity, specification reference, and applicable Federal and Military Specification references; and all other information necessary to establish Contract compliance.

D. Shop Drawings

Show all parts completely detailed and dimensioned on the shop drawings. State the grade and amount of finish machining, with all tolerances and allowances, and identify each part requiring a specific fit. Finished surfaces are defined by the ANSI/ASME B46.1, Surface Texture, and fits are defined by the ANSI/ASME B4.1, Preferred Limits and Fits for Cylindrical Parts, unless otherwise noted on the plans or stated herein. The ANSI B4.1 applies to fits for non-cylindrical parts.

1. Show proprietary items in outline form on the drawings. Indicate the method and sequence to be employed during assembly of bridge machinery and installation of necessary utilities support and service facilities. Show all external dimensions and clearances necessary for installation and operation of each item, or furnish complete assembly diagrams showing each part contained within an assembly and the manufacturer's part number assigned to each part. Provide a diagram sufficient to enable complete disassembly and reassembly of the item covered. In the event that any part is modified in any manner from the way it is described or delivered by its original manufacturer, deliver a drawing that details each modification and assign a unique part number to preclude the supply of replacement parts not modified in similar fashion. Provide assembly drawings of each item in addition to identifying and describing each internal part to contain: dimensions of all principal elements within the item; certified external dimensions affecting interfaces or installations; gross weight capacity and normal operating ratings; method and recommended type of lubrication, including location and type of fittings and provisions for adding, draining, and checking the level of each lubricant employed; inspection openings, seals, and vents; and details of all fasteners used to mount the equipment to its foundation.
2. Make a complete shop bill of materials for all machinery parts.

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3. State the material and material specifications for each part. Give the designated numbers of specifications where American Society for Testing and Materials Specifications or any other standard specifications are used. Use abbreviations on the drawings to designate standard specifications for materials and workmanship as listed in Subsection SP-17.2 Quality Assurance, of this Special Provision.
4. These abbreviations are used on the plans and within these Special Provisions.
5. Furnish complete assembly and erection drawings. Include identifying marks and essential dimensions for locating each part or assembled unit with respect to the bridge structure or foundation. Use of mirror image or opposite hand erection drawings is prohibited.
6. Give a suitable title to each shop drawing to describe the parts detailed thereon and state by whom the internal quality control shop inspection will be performed.
7. Standard Compliance: Submit proof of conformance for applicable organizations such as, American Society for Mechanical Engineers (ASME), Underwriters Laboratories (UL), American Gas Association (AGA), and American Refrigeration Institute (ARI), for all equipment or materials. The label or listing of the specified organization will be acceptable evidence. In lieu of the label or listing, submit a certificate from an independent testing organization, adequately equipped and competent to perform such services, and approved by the Engineer. The certificate shall state that the item has been tested in accordance with the specified organization's test methods, and that the item conforms to the specified organization's standard or code.
8. Certified Test Reports: As used herein, certified test reports refer to reports of tests conducted on previously manufactured materials or equipment identical to that proposed for use.
9. Factory Tests: Factory tests refer to tests required to be performed on the actual materials or equipment proposed for use. Submit the results of all tests in accordance with the provisions of this Contract for laboratory test results.

E. Operating and Maintenance Manuals

1. General Requirements for Manuals. Furnish manuals containing descriptive material, catalog cuts with non-pertinent data blocked out, reduced shop drawings, and all information necessary for successful operation and maintenance of the bridge machinery systems. Any revisions required after the start-up period should be addressed by errata or addenda to the manuals.

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2. Clearly print all submittals, data, drawings, diagrams, etc. so that all printed matter is accurate, distinct, and clearly legible. Illustrations are to be clear and printed matter, including dimensions and lettering on drawings, are to be legible. If reduced drawings are incorporated within the manuals, darken the original lines and letters as necessary to retain legibility of the drawings after reduction. Fold larger drawings to page size and insert in manuals.
3. Produce all printed matter, data, drawings, diagrams, etc., by methods that shall offer permanence and durability. Use paper that is water resistant. No materials are to be used that will adversely affect this permanence and durability.

F. Contents of Manuals

Inscribe the following identification on the manual cover: the words "Operating and Maintenance Manual," the name and location of the bridge, the contract number, the date, and the names of the Consultant and Contractor.

1. Include the names, addresses, and telephone numbers of each subcontractor installing the equipment and systems, as well as the local representatives for each item of equipment and system to be installed.
2. Provide a table of contents and assemble to conform to the table of contents with the tab sheets placed before instructions covering the subject.
3. Include the following in the manual as a minimum: a system layout showing all machinery components and equipment with data to explain detailed operation and control of each component; a control sequence describing the operation; a detailed description of the function of each principal component of the system; the procedure for operation; installation instructions; maintenance and overhaul instructions; lubrication schedule to include type, grade, temperature range, and frequency; safety precautions, diagrams, and illustrations; test procedures; performance data; and parts lists. The parts lists for equipment shall indicate the sources of supply, recommended spare parts, and the service organization that is reasonably convenient to the bridge site.
4. Include manufacturer's standard publications provided that particular literature covers information and data specific to the equipment actually furnished.
5. Include information for trouble-shooting the bridge machinery. List behavioral warning signs, possible problems, and potential solutions; incorporate each into the manual for each principal piece of equipment.
6. Include detailed steps for cursory and in-depth inspections that should be performed annually and biennially, respectively.

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7. Complete the manuals in all respects for all equipment, controls, accessories, and associated appurtenances provided.

G. Materials for Manuals

Bind the operating and maintenance manuals in heavy-duty, nickel-plated three hole binders with three trigger positions: lock, unlock and open. Use binders that have metal hinges. Use a locking mechanism that allows sheets to lie flat (i.e. channel lock). Use covers made of stiff, heavy-duty plastic or other approved material. Binder type shall be either elliptical ring, round ring, screw post, or post with channel lock, as directed by the Engineer.

1. Bind the printed material into each book between rigid covers. Use instruction books containing drawings that measure 8.5 x 11 inches to minimize excessive folding and to allow for ease of use. Neatly title the books with a descriptive title, the name of the project, the location, the year of installation, the name of the manufacturer, the engineering firm, and the Contractor. Provide legible copies of drawings in black on white background. Submit the arrangements of the books, the method of binding, and the material to be included to the Engineer for approval.
2. Use 8.5 x 11 inch, 20 lb, copy paper, acid-free punched paper that is a quality suitable for archival use. The punched holes, each with a minimum diameter of 5/16 inch, are to be reinforced with plastic or cloth to the standard three (3) hole spacing.
3. For foldout diagrams and illustrations, reinforce all holes (5/16 inch minimum diameter) with plastic or cloth to standard three (3) hole spacing.

H. Sequence of Submittals for Manuals

Submit two (2) copies of sample formats and outlines of contents in draft form sixty (60) days prior to the earliest: of final inspection, acceptance tests, or return of the span operation to the City. Show proposed methods of binding, methods of printing, and reproduction.

1. Submit two (2) copies of complete manual in final form thirty (30) days prior to final inspection and acceptance testing to be used as a working document for the Engineer to record any field changes that are required to be reflected in the manual.
2. Submit three (3) hard copies and three (3) electronic copies, in .pdf format, of approved manual ten (10) days after final inspection and acceptance tests. One (1) of the three (3) hard copies and one (1) of the three (3) electronic copies shall become the property of the Consultant; the remaining copies shall become the property of the City.

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I. Posted Operating Instructions

Provide operating instructions (approved by the Engineer) for each system and each principal piece of equipment for the use of operation and maintenance personnel. Include diagrams showing the complete layout of the entire system framed under acrylic plastic or in approved laminated plastic and posted where directed by the Engineer. Post printed operating instructions for each principal piece of equipment including proper adjustment, operation, lubrication, safety precautions, procedures in the event of equipment failure, and any other necessary items of instruction as recommended by the manufacturer of the unit. Attach to or post adjacent to the piece of equipment. Use weather-resistant materials when producing operating instructions, or suitably enclose the instructions for protection from the weather. Do not mount operating instructions in direct sunlight. Secure operating instructions to prevent easy removal or peeling.

SP-17.2 Quality Assurance

A. Standard Products

Provide materials and equipment that are essentially the standard catalogued products of manufacturers regularly engaged in production of such materials or equipment and are manufacturer's latest standard design that complies with the specification requirements. Provide materials and equipment that are essentially duplicate items that have been in satisfactory commercial or industrial use at least two (2) years prior to bid opening. Where two units of the same class of equipment are required, provide products of a single manufacturer; however, the component parts of the system need not be the products of the same manufacturer. Provide the manufacturer's name and address and the model and serial number on a nameplate, securely affixed in a conspicuous place for each major component. The nameplate of the distributing agent will not be acceptable.

B. Manufacturer's Recommendations

Where installation procedures or any part thereof are required to be in accordance with the recommendations of the manufacturer of the material being installed, printed copies of these recommendations are to be furnished to the Engineer prior to installation. Installation of the item will not be allowed to proceed until the recommendations are received. Failure to furnish these recommendations can be cause for rejection of the material. Provide as part of the work all special machining and installation required by the component manufacturer.

C. Codes and Standards

All work under machinery pay items must comply with all applicable requirements of the latest edition of codes and standards issued by, but not limited to, the following organizations and publications, whose abbreviations used in this Special Provision are as shown:

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American Association of State Highway and Transportation Officials - AASHTO
American Bearing Manufacturers Association - ABMA
American Gear Manufacturers Association - AGMA
American Iron and Steel Institute - AISI
American National Standards Institute - ANSI
American Society for Testing and Materials - ASTM
American Welding Society - AWS
National Lubricating Grease Institute - NLGI
Society of Automotive Engineers - SAE
Minnesota DOT Standard Specification for Structures

Meet the work requirements of all other codes and standards as specified elsewhere in these Special Provisions. Where codes and standards are mentioned for any pay item, it is intended to call particular attention to them; it is not intended that any other codes and standards be omitted if not mentioned.

D. Qualifications, Personnel, and Facilities

For the fabrication, installation, aligning, cleaning, lubricating, testing, and all other work required by bridge machinery pay items, use adequate numbers of skilled, trained, and experienced mechanics, millwrights, and service personnel who are thoroughly familiar with the requirements and methods specified for the proper execution of work.

For the installation, aligning, and fastening of bridge machinery, use adequate numbers of skilled, trained, and experienced millwrights with at least two (2) prior movable bridge jobs as past experience.

Equip mechanics, millwrights, and service personnel with all necessary instruments to assure that related components have been provided within acceptable tolerances, and to make all necessary adjustments for attaining the specified ratings.

E. Rules, Regulations, and Ordinances

Assure that work complies with all applicable federal, state, and local rules, regulations, and ordinances.

F. Measurements and Verification

Dimensions indicated on the plans are nominal and are intended for guidance only. All variations from the nominal dimensions on the plans shall be noted on the shop drawings.

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G. Substitutions

The terms "approved equal," "of equal quality," and "or equal" which appear on the plans and in these Special Provisions, are intended to allow the Contractor to substitute other manufacturers and model numbers of products of equal quality and rating for those specified.

Prior to the Contractor's ordering of any substitute product, obtain in writing the Engineer's approval of the equivalence of the substitute product. The acceptance of the substitute product is at the sole discretion of the Engineer who will establish the basis for equivalence, and will review the quality of the materials and products described in detail on the submitted shop drawings and product data.

The Engineer will "Approve" or "Revise and Resubmit" substitute material. Upon return of a shop drawing showing rejection, resubmit the shop drawing showing the specified product. Rejection will not in any way result in any increase in the contract price.

Approval by the Engineer of any substitute product submitted by the Contractor does not relieve the Contractor of responsibility for the proper operation, performance, or functioning of that product.

A manufacturer's name and catalog part number specifying a particular product, whether in this Special Provision or on the plans, is so specified to establish quality, configuration, and arrangement of parts. An equivalent product made by another manufacturer may be substituted for the specified product subject to the approval of the Engineer; however, the Contractor will make all necessary changes required by the substitution in related machinery and structural, architectural, and electrical parts, at no increase in the contract price.

If any departures from the plans or these Special Provisions are deemed necessary by the Contractor, submit details of such departures and the reasons therefore, as soon as practicable for approval. Make no such departures without approval by the Engineer.

SP-17.3 Material

A. Forgings

Before any work is started, the manufacturer shall communicate with the Engineer to arrange for inspections and tests. The Engineer shall be notified not less than two (2) weeks prior to the start of work so that a representative of the Engineer may be present.

All carbon and alloy steel forgings shall meet the requirements of AASHTO Specification M102 (ASTM A668) unless otherwise indicated or approved by the Engineer.

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All forgings shall be reduced to size from a single bloom or ingot until homogeneity is secured. The blooms or ingots, from which shafts or pins are to be made, shall have a cross-sectional area at least three times that required after finishing. No forging shall be done at less than a red heat.

B. Bronze Castings

All bronze castings shall meet the requirements of AASHTO Specification M107 (ASTM B22) and be Copper Alloy UNS No. C91100 unless otherwise indicated or approved by the Engineer.

C. Shafting and Pins

Fabricate all shafts in conformance to tolerances in ASTM A29 unless otherwise indicated. Turned, ground, and polished shafting straightness tolerances are to be up to 0.002 inch per foot (0.16 mm per meter) for shafts up to and including 1-1/2 inches (38 mm) in diameter, and up to 0.003 inch per foot (0.25 mm per meter) for shafts over 1-1/2 inches (38 mm) in diameter.

Accurately finish all shafts and pins round, smooth, and straight and when turned to different diameters, round fillets at the shoulders. Bore lengthwise through the center (to a diameter approximately 1/5 the smallest body diameter) for each shaft or pin having a uniform diameter of more than 8 inches (203 mm) and each shaft or pin having several diameters, of which the smallest is more than 8 inches (203 mm).

As required lengths are reached, fabricate each end of all shafts with a 60 degree lathe center, with a clearance hole at the exact center of the shaft. Prepare the ends of the shafts that have a hole bored lengthwise through the center for the attachment of a centering device equivalent to the lathe center. All such devices are furnished as part of the work. All such devices are to fit within the shaft ends such that the bore and lathe center are concentric to within 0.002 inch.

Where it is required on the plans that stepped shafts have fillets blended in smoothly to adjacent surfaces without tool marks or scratches, machine the surfaces to an ANSI maximum roughness of 63 micro inches (1.6 micro meters), unless otherwise required herein or on the plans to have a finer finish.

Fabricate all cold-finished shafting that is the type and grade of the steel shown on the plans, test for its mechanical properties, and submit a test certificate to the Engineer. Fabricate each cold-finished shaft free from camber. Test each to ensure rotation and that each runs without vibration, noise, or chatter at all speeds up to and including the maximum rated speed.

Use turned, ground, and polished commercial shafting of the grade specified where shown on the plans.

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D. Fasteners

All bolts, either for connecting machinery parts to each other or to supporting members are categorized as one of the following types:

Finished body, high-strength bolts
Turned bolts, cap screws, and studs
High-strength turned bolts, cap screws, and studs

All high-strength bolts shown on the plans shall be finished body, high-strength bolts unless otherwise noted.

Finished body high-strength bolts are to meet the requirements of ASTM A449. High-strength bolts shall have finished bodies and regular hexagonal heads. Holes for high-strength bolts are to be individually reamed for a clearance of not more than 0.010 inch (0.25 mm) larger than the actual diameter of individual bolts for that hole.

Turned bolts, cap screws, and studs are to be provided with turned shanks, cut threads, and finished washer-faced hexagonal heads. For the finished shank of all turned bolts, cap screws and studs, use 1/16 inch (1.6mm) larger in diameter than the diameter of the thread. Determine the head and nut dimensions based on the thread diameter. For the shanks of all turned fasteners, use a Class LC6 fit in the finished holes in accordance with ANSI B4.1. The material for the turned fasteners shall meet the requirements of ASTM A307, Grade A.

High-strength turned bolts, cap screws, and studs are to meet the requirements above, except that the material shall meet the requirements of ASTM A449.

Dimensions of all bolt heads, nuts, and hexagonal head cap screws are to conform to ANSI/ASME B18.2.1, Square and Hex Bolts and Screws, and ANSI/ASME B18.2.2, Square and Hex Nuts.

Provide heavy series heads and nuts for turned bolts, turned cap screws, and turned studs.

Dimensions of socket-head cap screws, socket flat-head cap screw, and socket-set screws are to conform to ANSI B18.3, Socket Cap, Shoulder, and Set Screws. Unless otherwise called for on the plans or specified herein, make the screws of heat-treated alloy steel, cadmium-plated, and furnish with a self-locking nylon pellet embedded in the threaded section. Set screws are to be of the headless, safety type with threads of the coarse thread series and having cup points. Do not use set screws to transmit torsion nor as the fastening or stop for any equipment that contributes to the stability or operation of the bridge.

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Fabricate all threads for bolts, nuts, and cap screws to conform to the course thread series having a Class 2 tolerance for bolts and nuts or Class 2A tolerance for bolts and Class 2B tolerance for nuts in accordance with the ANSI/ASME B1.1, Unified Inch Screw Threads.

Spot face all bolt holes through unfinished surfaces for the head and nut, square with the axis of the hole.

Unless otherwise called for, sub-drill all bolt holes in the machinery parts for connecting these parts to the supporting steel work at least 1/32 inch (0.8 mm) smaller in diameter than the bolt diameter and ream assembled for the proper fit at assembly or at erection with the steel work after the parts are correctly assembled and aligned.

Furnish positive locks of an approved type for all nuts, except those on ASTM A449 bolts. Provide tempered steel and conform to the SAE regular dimensions for lock washers, where applicable. Use materials that meet the SAE tests for temper and toughness.

Furnish a hardened plain washer at each end of high-strength bolts meeting the requirements of ASTM F436.

Provide cotters conforming to the SAE standard dimensions and made of half-round stainless steel wire, ASTM A276, Type 316.

Anchor bolts connecting machinery parts to masonry shall be ASTM F1554, Grade 55 material and hot-dipped galvanized per ASTM A153 unless otherwise shown on the plans. Anchor bolts for new construction shall be cast in place and not drilled. When anchor bolts connect a mechanical component directly to the concrete, there must be a filler material in the annular area between the bolt and the hole in the machinery component. The filler material shall be non-shrink grout, babbitt metal or zinc.

Use only fasteners manufactured in the United States with the property class and source identification appearing on the top of head.

E. Keys and Keyways

Furnish keys and keyways conforming to the dimensions and tolerances for square and rectangular keys of the ANSI B17.1, Keys and Keyseats, meeting the requirements of Class 2 fits, unless otherwise specified. Furnish keys with chamfers on the outside corners and keyways with fillet radii on the inside corners as suggested by the ANSI Standard.

Effectively hold all keys in place, preferably by setting them into closed-end keyways milled into the shaft. Round the ends of all such keys to a half circle equal to the width of

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the key. If two keys are used in a hub, locate the keys 120 degrees apart and in line with wheel arms where practicable.

Furnish keys that are machined from alloy steel forgings, ASTM A668, Class K unless otherwise specified herein or on the plans. Orient the key lengths parallel to the metal flow during the hot working operation.

F. Sleeve Bearings and Bushings

Fit all split bearings mated to the other half as shown on the plans. Accurately machine the surface between the cap and base. Secure all caps to the bases with high-strength turned bolts and double nuts. Provide all caps and bases with double-flanged bronze bushings securely held against changing position under load by hexagonal-head, steel cap screws, unless otherwise shown on the plans. Fit all bushings to the inside bore and end faces of the base and cap, with an ANSI Class LC1 clearance and location fit, and fit the shaft journals, with an ANSI Class RC6 running fit. Provide all caps with a tapped hole for lifting eyebolt.

Finish bore bushings for split bearings with the caps in place and with 1/4 inch (6 mm) thick rolled bronze or brass liners. Provide liners with laminated construction where at least 1/8 inch (3 mm) of the liner thickness is capable of adjustment in increments of 0.003 of an inch (0.076 of a millimeter). Cut the edges of the liners toward the shaft journal to fit the shaft shoulder fillets where they occur and are cut square and flush with the bushing flange if there is no change in shaft diameter. Except for a short distance from each end, cut back the inside edges of the liners to form a grease groove along the shaft. Drill all bolt holes through the liners.

Provide spiral grease grooves for each half bushing of split bearings. Connect the groove at the ends of the liner grooves and intersect at the center of each half bushing, unless otherwise shown on the plans. Precision machine-cut and smooth all grease grooves. Round the corners of all grooves to a radius of not more than half the width of the groove.

G. Shaft Journals

Accurately turn all journal bearing areas on shafts and pins. Grind and polish the journal surface and adjoining shoulder fillets to an ANSI maximum roughness of 8 micro inches (0.2 micro meters), leaving no trace of tool marks or scratches. Burnishing of the shaft journal area and adjoining shoulder fillets will be acceptable in lieu of grinding and polishing, provided the burnishing is done with a Stellite roller or equal, finished to a mirror surface. Finish journal diameters to the limits of an ANSI Class RC6 running fit.

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H. Open Gearing

Spur gears shall have 20-degree stub, involute cut teeth in accordance with the proportions of the ANSI/AGMA 2001.02, Tooth Proportions for Coarse-Pitch Involute Spur Gears, unless otherwise specified herein or shown on the plans.

The teeth of all gears shall be cut from solid rims or blanks. The sides and peripheries of all gears and pinions shall be finished, and the pitch circle shall be scribed on both sides not less than 0.02 inch (0.5 mm) deep with a U-pointed tool. The working surfaces of all gear teeth shall be true to the proper outline, accurately spaced on the true pitch circle, exceptionally smooth, and free from planing or milling-cutter ridges. Cutter burrs shall be removed from all edges of the teeth, and the top edges of all teeth shall be rounded to a 1/32 inch (0.8 mm) radius.

Except as otherwise provided herein or on the plans, all gears shall be cut and mounted to meet the requirements for accuracy of ANSI/AGMA Standard 2000-A88, Gear Classification and Inspection Handbook. The AGMA quality number shall be stated on the applicable shop drawings. Open gearing shall conform to AGMA Quality No. 7 or higher.

I. Enclosed Speed Reducers

To be provided by the City, purchased under a separate contract.

J. Hubs and Bores

Finish the hubs of all gears, wheels, and couplings on both faces; polish the area where the hub face performs the function of a collar to prevent shaft movement. Bore the hubs concentric with the rims of gears and wheels or with the outside of the couplings. Furnish all hubs to have an ANSI Class FN2 medium shrink fit on the shafts, unless otherwise specified.

K. Shims

Where shown on the plans, all machinery shims required for leveling and alignment of equipment shall be stainless steel, neatly trimmed to the dimensions of the assembled parts and drill for all bolts that pass through the shims. Shims shall be Stainless Steel ASTM A240 Type 316 and furnished with certification and test reports. To prevent distortion of the shims, do not punch the bolt holes at the machine shop. Instead, pre-drill the shim holes 1/16 inch larger in diameter than the permanent fasteners shank. For shims greater than 1/2 inch (12.7 mm), include one solid plate of thickness equal to 1/2 inch (12.7 mm) less than total shim thickness.

Provide fully dimensioned shims as shown and detailed on the shop drawings. Shims with open side or U-shaped holes for bolts will not be permitted. Shims will have a

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minimum of two holes for bolts. To prevent distortion of shims, bolt holes shall not be punched at machine shop.

In general, provide sufficient thickness to secure 1/64 inch (0.4 mm) variations of the shim allowance plus one shim equal to the full allowance. Comprise the 1/2 inch (12.7 mm) nominal shim pack of the following thickness variations: one 1/2 inch (12.7 mm), one 1/4 inch (6.4 mm), one 1/8 inch (3.2 mm), one 1/16 inch (1.6 mm), one 1/32 inch (0.8 mm), and two 1/64 inch (0.4 mm).

L. Welding

Perform welding required for machinery in accordance with the requirements of the AASHTO/AWS D1.5, Bridge Welding Code. Stress relieving will be required prior to machining.

Develop and define on the shop drawings, welding joint sizes and details required by the plans. For required multi-pass welds, submit welding procedures with shop drawings.

Distortion during fabrication must be kept to a minimum by the use of welding fixtures and proper welding procedures.

For all welds used to fabricate machinery, completely test by ultrasonic inspection per AWS D1.5 for compression welds unless otherwise noted. Perform all machining after welding and stress relieving.

M. Machinery Guards

Provide machinery guards for all moving parts readily accessible to personnel, including, but not restricted to the following:

- High speed couplings
- Floating shaft assemblies
- Brakes
- Instrument drives and limit switches

Construct machinery guards to comply with the applicable requirements of ANSI B15.1, Safety Standard for Mechanical Power Transmission Apparatus.

Unless otherwise indicated or specified, construct all machinery guards with stainless steel with minimum thickness of No. 12 Gauge (2.6 mm). Furnish guards that require no disassembly of any machinery component.

Provide machinery guards with removable hinged or bolted covers for access to lubrication fittings enclosed by the guard. Provide phenolic nameplates on these covers with lubrication instructions.

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Machinery guards shall be lightly blasted, as appropriate, to create a uniform appearance after fabrication. Machinery guards shall be provided with plastic cautionary statement safety signs, adequately secured with stainless steel hardware.

N. Flexible Couplings

Provide couplings of the type as shown on the plans, which includes grid type, gear type, and others as needed.

In general, furnish couplings that are finish-bored and have keyways cut by the coupling manufacturer to dimensions and tolerances established on the shop drawings then ship to the manufacturers of the various components for shop installation on the shafts.

Provide grid-type, self-aligning, fully flexible, torsionally flexible couplings to connect electric motors to machinery components. Provide grid-type couplings with steel hubs, alloy steel grids, and steel or aluminum covers. Furnish all couplings with shrouded bolts.

Provide gear-type, self-aligning, full-flexible couplings or semi-flexible couplings with floating shafts to connect all machinery components, except where other types of couplings are called for on the plans. Furnish all couplings with shrouded bolts. Make the gear-type couplings of forged steel having curved face teeth, and providing for at least a plus and minus 3/4 degree angular misalignment per gear mesh.

Provide special couplings as shown on the plans.

Provide couplings that are standard products of an established manufacturer.

O. Lubrication

1. Lubrication Fittings: Use NPS 1/4 giant button head fittings, unless otherwise indicated on the plans. Where required, provide stainless steel seamless pipe to connect fittings to housings, allowing grease to discharge directly through the housing, shims, bushing, and into the grease grooves for distribution. Locate all grease fittings for convenient greasing, and if necessary, connect the points requiring lubrication from convenient lubrication stations by NPS 1/4 stainless steel seamless pipe – schedule 80 with stainless steel threaded pipe fittings – 3000 psi. Meet ASTM A312 and ASTM A182 for all stainless steel pipe and fittings, respectively. Keep all pipe extensions as short as practical; securely support the pipe extensions at fittings and at intermediate points, and locate so that they are protected from injury. Install only lubricating equipment that is in perfect condition.

Do not use more than two (2) sizes of fittings. Use the large size wherever possible; use the smaller size for motor bearings and other small devices. Use pressure fittings

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rated at a minimum of 3,000 psi (21 mPa). Furnish fittings that contain a steel check valve that will receive grease and close against back pressure.

Immediately after the completion of fabrication, plug all fitting locations until components are installed and regular lubrication is started. At that time, replace the plugs with proper grease fittings. During installation, lubricate all rotating and sliding parts of the machinery and fill all gear reducers, bearing housings, and flexible couplings with lubricants indicated on approved lubrication charts.

2. Lubrication Charts: Furnish an electronic copy of lubrication charts showing the location of all lubricating fittings and other points of the mechanical and electrical equipment which require lubrication of any kind; show the kind of lubricant to be used at each point; and document the frequency of lubrication.

For each machinery component, furnish an electronic copy of all related maintenance and lubrication literature.

P. Spare Parts

Provide a complete list of each and every shaft and coupling seal used at the job, including current part number and manufacturer of each seal furnished plus sufficient generic description and dimensions to order seals in the future when current models/manufacturers may no longer be identifiable.

In addition to the spare parts described under other items, provide the following spare parts:

- One grid of each grid-type coupling.
- One complete set of gaskets for every flexible coupling.
- Five lubrication fittings of each different type and size used.

SP-17.4 Construction

A. Shop Fabrication

To permit inspection, give two week notice to the Engineer before the beginning of work at foundries, forge, and machine shops. Notify the Engineer of the location(s) where the order(s) have been placed prior to casting, forging, or machining any materials.

Furnish all facilities for the inspection of material and workmanship in the foundries, forge, and machine shops. Allow free access to necessary parts of the premises to the Inspector designated by the Engineer. Work done while the Inspector has been refused access or presented in a manner that prevents adequate inspection will automatically be rejected.

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The Inspector shall have the authority to reject materials or workmanship, which do not fulfill the requirements of these Special Provisions.

Inspection at the foundries, forge, and machine shops is intended as a means of facilitating the work and avoiding errors. It is expressly understood that inspection will not relieve the Contractor from any responsibility in regard to imperfect material or workmanship and the necessity for replacing defective materials or workmanship, which are delivered to the job site.

Furnish the Engineer with a copy of all orders covering work performed by subcontractors or suppliers.

Unless otherwise provided, furnish without additional cost to the City test specimens as required, and all labor, testing machines, tools, and equipment necessary to prepare the specimens and to make the physical tests and chemical analyses required by material specifications. Furnish a copy of all test reports and chemical analyses to the Engineer.

The acceptance of any material or finished parts by the Engineer are to be a bar to their subsequent rejection if found defective. Rejected material and workmanship shall be replaced or made acceptable by the Contractor at no additional cost to the City.

B. Shop Inspection and Testing

Assemble machinery components to verify their correct fit prior to shipment. Measurements required for each assembly shall be as shown on the plans and/or described in the individual pay items.

C. Defective Material and Workmanship

All machinery rejected during inspection and testing, that is not made acceptable, is to be removed from the work site and replaced at Contractor's expense.

Delays resulting from the rejection of material, equipment or work is not to be the basis of any claim.

Correct, at Contractor's expense, all defects found during the guarantee period resulting from faulty material, components, workmanship, or installation. In the event that the Contractor does not make the corrections in a timely manner, the City reserves the right to make necessary corrections with its own forces and charge the resulting costs to the Contractor.

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D. Delivery and Storage

1. Protection for Shipment. Clean machinery parts of dirt, chips, grit, and all other injurious materials and coat all unpainted surfaces with a corrosion-inhibiting preservative prior to shipping.

Finished metal surfaces and unpainted metal surfaces that would be damaged by corrosion are to be coated as soon as practicable after finishing with a rust-inhibiting preservative. With the exception of unfinished metal surfaces inside of gear reducers, remove this coating prior to operation and from all surfaces prior to painting after erection.

Any interface between stainless steel or aluminum and structural steel is to receive an Engineer-approved coat of zinc-rich primer prior to assembly.

Completely protect machinery parts from weather, dirt, and all other injurious conditions during manufacture, shipment, and storage.

Protect shaft journals that are shipped disassembled from their bearings during shipment and before erection by a packing of oil-soaked rags secured in place by burlap and covered with heavy metal thimbles or heavy timber lagging securely attached. Take every precaution to ensure that the bearing surfaces are not damaged and that all parts arrive at their destination in satisfactory condition.

Mount assembled units on skids or otherwise crate for protection during handling and shipment.

2. Package and Deliver Spare Parts. Protect spare parts for shipment and prolonged storage by coating, wrapping, and boxing.

Durably tag or mark all spare parts with clear identification showing the designation used on the approved shop drawing.

Clearly mark on the outside of the boxes for spare parts showing their contents. Deliver spare parts to a location designated by the City.

3. Guarantee and Warranties. Manufacturers' warranties or guarantees on equipment, materials, or products purchased for use on the Contract are to be consistent with those provided as customary trade practice, obtained by the Contractor, and upon acceptance of the Contract. The Contractor will assign to the City all manufacturers' warranties or guarantees on all such equipment, material, or products furnished for or installed as part of the Contract.

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The Contractor will warrant the satisfactory in-service operation of the mechanical equipment, material, products, and related components. This warranty extends for a period of one year following the date of final acceptance of the Project.

E. Erection

Submit calculations for each stage of construction, and drawings and procedures detailing the intended scheme for installing all machinery. Machinery installation is done in a coordinated manner to ensure all the machinery components fit the adjacent material furnished under other items.

1. Alignment and Bolting. Start the order of assembly and alignment of bridge machinery at the final driven components and work back to the prime mover. To achieve proper alignment of mating components prior to final reaming and fastening, limit the finality of some staged machinery installations.

Match-mark all parts of the machinery for proper assembly and correct orientation. Before final drilling or reaming, adjust all parts to exact alignment by means of shims. If required, provide tapered shims at Contractor's expense. Include installation, alignment, and shimming of the electric motors and devices such as limit switches and encoders, with the machinery for such erection. After final alignment and bolting, all parts are to operate smoothly.

Do not operate the span via the bridge machinery until all components are installed, in final alignment, and bolted as approved by the Engineer.

In general, after final alignment of machinery, drill bolt holes into the structural steel from the solid for connecting machinery. For erection and alignment of machinery, use sufficient erection holes, sub-drilled 1/4 inch (6.35 mm) undersize for undersized temporary bolts. As the machinery is aligned in its final position, drill full-size holes for the remaining bolts, or sub-drill and ream; install the full size bolts; and remove the temporary bolts. Ream full-size the undersized holes (used for temporary bolts) and install full-size bolts.

Drill and ream assembled bolt holes in structural steel and machinery components (with shims in place) to assure accurate alignment of the hole and accurate clearance over the entire length of the bolt within the specified limit. Check the clearance with 0.011 inch (0.28 mm) wire. The hole is considered too large if the wire can be inserted in the hole together with the bolt. Connect machinery components to structural elements or to other machinery components comprised of different thickness using high-strength bolts. Wherever possible, install the bolts such that the head is adjacent to the connected element with the least thickness.

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Hand held reamers are not considered accurate enough; use a reaming jig to keep the bolt hole cylindrical. Use a jig made of structural steel, fixed to the drill, and secured to the work preventing the reamer shaft from deviating. Check holes with a bolt hole micrometer to assure uniform diameter.

Torque finished body high-strength bolts meeting the requirements of ASTM A449 to the same tension required for ASTM A325 bolts.

Indicate torque values for other classes of bolts on the erection drawings proportioned to their strength.

2. Coatings. Coat threads for turned bolts with anti-seize compound before assembly with nuts to prevent corrosion or galling, and to facilitate future removal, if necessary.
3. Edges and Corners. Round or chamfer all edges and corners of machinery parts, sheet metal work, bed plates, and fabricated supports that are exposed in the finished work. Remove all burrs or other surface defects that could be injurious to workers erecting or maintaining the bridge machinery.
4. Personnel and Facilities. Use competent millwrights that are skilled in the type of work involved to erect and adjust the machinery. Provide them with all necessary measuring and leveling instruments, as required.

F. Painting

Clean and paint any and all unfinished surfaces of machinery, as specified in Standard Specifications Section 2478.601 "Organic Zinc Rich Paint System". Along with the shop drawings, submit an outline of painting materials and methods for review.

1. Shop Painting. During final preparation, blast clean all external surfaces of unfinished machinery prior to painting. Blast cleaning must comply with the requirements of SSPC-SP6, Commercial Blast Cleaning, with the following exceptions:

- Flexible couplings
- Reducers
- Sleeve bearings with bushings in place
- Electric motors
- Brakes
- Limit switches
- Other equipment with shaft seals
- The equipment excepted by the Engineer

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Clean the excepted machinery or equipment with solvent and hand tools to meet the requirements of SSPC-SP2, Hand Tool Cleaning as depicted in SSPC VIS 1.

After proper surface preparation, give one shop coat of primer by hand brushing to all unfinished machinery surfaces except for the interior of gear housings, flexible couplings, and pillow blocks. The modified aluminum epoxy mastic primer, Carbomastic 15 or approved equal, must be compatible with the paints selected for subsequent coats. Protect the interiors of gear housings with special oil-resistant crankcase paint, or an approved equal.

For non-mating surfaces that receive a shop coat of primer but become inaccessible once the erection process begins, these surfaces shall also receive a shop applied intermediate and finish coat to complement the below field painting requirements.

2. Field Painting. After erection is complete, thoroughly clean all exposed surfaces of the machinery (except machine finished surfaces in sliding contact), with an approved high-flash solvent and apply intermediate coat by hand brushing. The epoxy polyamide, Carboguard 888 or approved equal, must be compatible with the finish coat. Provide an intermediate coat that provides excellent corrosion resistance and an extended recoat window.

After field testing is complete, but prior to final acceptance of machinery, re-clean all exposed surfaces of the machinery (except machine finished surfaces in sliding contact), with an approved high-flash solvent and apply a finish coat by hand brushing. The aliphatic acrylic polyurethane, Carbothane 133 LH or approved equal, must be compatible with previous coats.

Finish color of machinery shall best match the existing movable bridge structure.

Take special care to avoid painting machinery surfaces, which are in normal rubbing contact. Mask, for protection from paint, all nameplates, legend plates, and escutcheons mounted on machinery. Lubrication fittings shall be kept clog-free.

G. Contractor's Inspection

After erection is complete, make a thorough inspection to insure that all gear teeth and mating surfaces are clean and free of obstruction, that all parts are properly aligned and adjusted as closely as practicable without actual operation; that all bolts are properly tightened; and that the span is properly balanced.

Inspect tightened fasteners in accordance with Standard Specifications Section 2402.521 Structural Steel. Verify that field painting has been performed as specified herein. Perform touch-up painting to correct all painting defects found during this inspection.

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Verify that all enclosed speed reducers are filled to the proper level, and all rotating and sliding parts are supplied with lubricants as recommended by the manufacturers of the units. Typical products for the various locations are as follows:

- Sleeve Bearings and Pillow Blocks:
NGLI #2 Grease
- Open Gearing:
Submit transparent open gear grease samples for selection by the City maintenance personnel for approval.
- Enclosed Speed Reducers:
Refer to *AGMA Standard 9005.D94*
“Lubrication of Industrial Enclosed Gear Drives”
- Gear Couplings:
NLGI #0 Grease
- Grid Couplings:
NLGI #2 Grease

Prior to machinery testing, the Engineer will accompany the Contractor during his final inspection. On the basis of the results of this inspection, the Engineer determines whether the bridge is ready for field testing.

H. Field Testing

When the mechanical components and electrical equipment are ready for final testing, inform the Engineer not less than fifteen (15) calendar days prior to the scheduling of tests. During all tests, keep available a complete crew of mechanics in order to provide operation of the span and to make all adjustments and corrections, which is required to complete the tests.

Prepare a field testing procedure and submit to the Engineer for review and approval. Coordinate the testing procedure with tests required for the electrical equipment, and include measurements of power and current drawn by the motors when operating under load as required hereinafter.

The testing procedure shall include but not be limited to the verification of proper installation, alignment, fastening, operation, and/or final adjustment of the following:

- Center Bearing Assemblies
- Tie Rod Assemblies
- Operating Machinery

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- Machinery Instrument Drives and Limit Switches

When the machinery is ready for field testing, the operating machinery shall be initially driven under reduced speed. During reduced speed operations, the main electrical system shall be used to cycle the bascule leaves through at least four (4) complete operations.

Upon successful completion of reduced speed operations, the operating machinery shall then be driven under normal speed. During normal speed operations, the main electrical system shall be used to cycle the bascule leaves through at least ten (10) complete operations. Ample time between operations shall be allotted to allow for inspection, documentation and/or minor adjustments. Anticipate that for each operation, the motor selection switch will be used to alternate between span motors.

During the test runs, inspect each machinery assembly in its entirety to determine whether everything is in proper working order and fully meets the requirements of these Special Provisions, plans, and manufacturers' recommended tolerances. Perform all test runs in the presence of the machinery manufacturer's representative, the electrical control equipment manufacturer's representative, and the Engineer. The temperature rise of all electrical components shall not exceed design ratings. If any test shows that the components are defective, inadequate, or functioning improperly, make all corrections and adjustments, or provide the replacements required before final acceptance, at Contractor's expense.

I. Training

Provide one 8-hour day of instruction to the City's Operation and Maintenance personnel. The instruction shall include but not be limited to the following with respect to all bridge machinery components:

- Function, Purpose
- Normal Operation
- Maintenance
- Adjustment
- Trouble Shooting
- Repair and Replacement

During training, use the completed operating and maintenance manuals, in final form, for the purpose of familiarizing the City personnel with its contents and usefulness. Provide an opportunity for City personnel to offer final review comments on the content of the manuals both during and after the training period.

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SP-17.5 Method of Measurement

The requirements described in this Special Provision will be incidental to the contract or measured for payment under various other pay items.

SP-17.6 Basis of Payment

The requirements described in this Special Provision will not be paid for as a separate unit of work. All work described above will be included and paid for under various other pay items.

SP-18 (2402) CENTER BEARING ASSEMBLY

SP-18.1 DESCRIPTION

Under this item, remove and properly dispose of the existing center latch supports and furnish, install, adjust, paint, test, and place in operation new center bearing assemblies. This includes all components, supports and fasteners detailed in order to transfer compression load at the center of the existing span arch. Alignment shall be based on thermal requirements outlined in order to allow for rotation at the center bearing assembly.

Details and arrangements of the Center Bearing Assemblies are shown on the plans or specified herein.

The work is in accordance with the requirements specified in Special Provision Section SP-17 General Machinery.

Coordinate the Center Bearing Assembly installation with all other bridge machinery items, electrical work, and structural work, as well as navigational and pedestrian traffic closures and restrictions. In addition, and as part of this work, design, fabricate and install a temporary tie between the toe of the bascule leaves in order to maintain the seated position of the bridge while the operating machinery work is performed. This shall be installed at the end of the Center Bearing Assembly work, and prior to the Tie-Rod Assembly work, and shall remain installed until the field testing stage of work.

SP-18.2 MATERIALS

Fabricate the Center Bearing Assembly components using materials shown on the plans and in accordance with the requirements specified in Special Provision Section SP-17 General Machinery.

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SP-18.3 CONSTRUCTION

A. Shop Inspection and Testing

Assemble the Center Bearing Assembly components to assure proper fit, and verify tolerances specified on the plans. Match-mark and document assemblies requiring disassembly so that the machinery can be reassembled at the bridge site.

B. Field Testing

When the mechanical machinery and electrical equipment are ready for final testing, submit to the Engineer a testing procedure and schedule in accordance with the requirements specified in Special Provision Section SP-17 General Machinery. During each test run, verify that the Center Bearing Assembly is in proper working order and fully meets the requirements of the plans and Special Provisions. If any test shows that the Center Bearing Assembly components are defective, inadequate, or functioning improperly, make all corrections and adjustments, or provide the replacements required before final acceptance, at Contractor's expense.

SP-18.4 METHOD OF MEASUREMENT

The work described will be measured by the lump sum, complete and in place.

SP-18.5 BASIS OF PAYMENT

The work will be paid for at the contract lump sum price, in accordance with the following:

The Contractor submits to the Engineer a detailed breakdown of costs under this item. The Engineer evaluates this breakdown, and has the authority to revise the breakdown as, in his/her judgment, may be required to make the various components of work conform to their true values.

The Contractor agrees that the detailed breakdown shall not become effective until it has been approved by the Engineer.

Payment for Center Bearing Assembly is progressive compensation, made in accordance with standard payment practice and in the following manner:

A. Upon completion and acceptance by the City of shop fabrication, shop inspection, shop testing, delivery, and storage of materials, the Contractor will be paid 40% of the bid price for the item.

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B. Upon completion and acceptance by the City of the Center Bearing Assembly installation, alignment, bolting, and protection of materials, the Contractor will be paid 30% of the bid price for the item.

C. Upon completion and final acceptance by the City of the Center Bearing Assembly inspection and field testing, the Contractor will be paid 20% of the bid price for the item.

D. Upon completion of training and receipt and acceptance of approved operating and maintenance manuals, the Contractor will be paid the remaining 10% of the bid price for the item.

Payment will be made under:

Pay Item

2402.601 Center Bearing Assembly

Pay Unit

Lump Sum

SP-19 (2402) TIE ROD ASSEMBLY

SP-19.1 DESCRIPTION

Under this item, remove and properly dispose of the existing tie-rods and furnish, install, adjust, paint, test, and place in operation new Tie Rod Assemblies. This will include all machinery parts used to make up the Tie Rod Assembly as well as efforts to measure existing tie-rod lengths, providing access for the inspection of existing tie-rod end connection/support points and measuring existing tie-rod tensions in the span seated position to calculate the counterbalance weight. The counterbalance weight shall serve as the basis for developing a plan for maintaining balance during the operating machinery installation work.

Details and arrangements of new Tie Rod Assembly are shown on the plans or specified herein.

The work is in accordance with the requirements specified in Special Provision Section SP-17 General Machinery.

Coordinate the Tie Rod Assembly installation with all other bridge machinery items, electrical work, and structural work, as well as navigational and pedestrian traffic closures and restrictions.

SP-19.2 MATERIALS

Fabricate the Tie Rod Assembly components using materials shown on the plans and in accordance with the requirements specified in Special Provision Section SP-17 General Machinery.

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SP-19.3 CONSTRUCTION

A. Shop Inspection and Testing

Assemble the Tie Rod Assembly components to assure proper fit, and verify tolerances specified on the plans. Shop assembly will include adjusting tie-rods to match field verified length of existing tie-rods and tightening the nuts to the proper torque level. Match-mark and document assemblies requiring disassembly so that the machinery can be reassembled at the bridge site.

B. Field Alignment & Testing

Alignment - Measure the pin to pin length at each location, and match existing dimensions for installation. Adjustments are made by loosening the jam nuts, and adjusting the threaded connection.

Measuring the counterbalance weight – When the counterweight arm is supported by temporary means to remove the existing tie-rod, the tension shall be measured, and weight calculated as a moment about the counterweight hinge point. Contractor calculations shall be submitted to the Engineer, and be the basis for the work plan for the operating machinery installation work.

Final Testing - When the mechanical machinery and electrical equipment are ready for final testing, submit to the Engineer a testing procedure and schedule in accordance with the requirements specified in Special Provision Section SP-17 General Machinery. During each test run, verify that the Tie Rod Assembly is in proper working order and fully meets the requirements of the plans and Special Provisions. If any test shows that the Tie Rod Assembly components are defective, inadequate, or functioning improperly, make all corrections and adjustments, or provide the replacements required before final acceptance, at Contractor's expense.

SP-19.4 METHOD OF MEASUREMENT

The work described will be measured by the lump sum, complete and in place.

SP-19.5 BASIS OF PAYMENT

The work will be paid for at the contract lump sum price, in accordance with the following:

The Contractor submits to the Engineer a detailed breakdown of costs under this item. The Engineer evaluates this breakdown, and has the authority to revise the breakdown as, in his/her judgment, may be required to make the various components of work conform to their true values.

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The Contractor agrees that the detailed breakdown shall not become effective until it has been approved by the Engineer.

Payment for Tie Rod Assembly is progressive compensation, made in accordance with standard payment practice and in the following manner:

A. Upon completion and acceptance by the City of shop fabrication, shop inspection, shop testing, delivery, and storage of materials, the Contractor will be paid 40% of the bid price for the item.

B. Upon completion and acceptance by the City of the Tie Rod Assembly installation, alignment, bolting, and protection of materials, the Contractor will be paid 30% of the bid price for the item.

C. Upon completion and final acceptance by the City of the Tie Rod Assembly inspection and field testing, the Contractor will be paid 20% of the bid price for the item.

D. Upon completion of training and receipt and acceptance of approved operating and maintenance manuals, the Contractor will be paid the remaining 10% of the bid price for the item.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
2402.601 Tie Rod Assembly	Lump Sum

SP-20 (2433) OPERATING MACHINERY

SP-20.1 DESCRIPTION

Under this item, remove and properly dispose of the existing cable driven operating machinery and furnish, install, adjust, paint, test, and place in operation new pivoting rack operating machinery. This will include all machinery parts from the motor couplings through the rack beam hinge pin support assembly.

Details and arrangements of the Operating Machinery are shown on the plans or specified herein.

The work includes installing and aligning the span motors and brakes, as well as control instrumentation that is to be supplied under Special Provision Section SP-26 (2545) Bridge Electrical System. The work is in accordance with the requirements specified in Special Provision Section SP-17 General Machinery.

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Coordinate the Operating Machinery installation with all other bridge machinery items, electrical work, and structural work, as well as navigational and pedestrian traffic closures and restrictions.

Provide a span balance table based on the counterweight measurements and calculations performed under Special Provision SP-19 (2402) Tie Rod Assembly to ensure that the temporary lock at the center of the span has capacity to hold the span seated during all operating machinery work.

SP-20.2 MATERIALS

Fabricate the Operating Machinery components using materials shown on the plans and in accordance with the requirements specified in Special Provision Section SP-17 General Machinery.

A. Forgings

1. Forgings for the Operating Machinery shall be provided by a single forge shop. The bloom or ingot from which the rack segments and pinion shafts are to be made, shall have a cross-sectional area at least four times that required after finishing.
2. Alloy steel forgings for rack segments shall meet the requirements of ASTM A290, Grade 4, Class I. Alloy steel forgings for pinion shafts shall meet the requirements of ASTM A291, Grade 7, Class H.
3. Rack segments and pinion shafts shall be ultrasonically tested in accordance with ASTM A388 after normalizing, heat treatment and rough machining. Immersion testing is the preferred method. The maximum permissible indication shall be flat-bottomed hole ¼-inch. Indications greater than ¼-inch may be cause for rejection. Test results, whether positive or negative, shall be submitted to the Engineer.
4. All surfaces of forgings shall be machine finished.

B. Enclosed Speed Reducers (to be provided by the City of Duluth, purchased under a separate contract)

1. Reducers for the Operating Machinery are standard models with special extended input shafts and lubrication provisions. Extended input shafts shall allow for proper inclusion of motor brakes and motor couplings as shown on the plans. Lubrication provisions shall allow the reducers to operate and lay dormant through 81 degrees of travel (i.e. approximately 2 degrees to 83 degrees off horizontal) with the high speed end rotating above the low speed end of the unit.
2. Reducers for the Operating Machinery shall be from one manufacturer, with sizes, ratios, ratings, and construction details as shown on the plans. Ratings shall be based

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on a service factor of 1.0 unless otherwise indicated on the plans.

3. Reducers for the Operating Machinery are as manufactured by one of the following companies or approved equal:

- a) Falk Corporation, Milwaukee, WI
- b) Nuttall Gear, Niagara Falls, NY
- c) Cleveland Gear Company, Cleveland OH

C. Couplings

1. Couplings for the Operating Machinery are standard models, with sizes, ratings and construction details as shown on the plans.
2. Couplings for Operating Machinery are as manufactured by one of the following companies or approved equal:

- a) Falk Corporation, Milwaukee, WI
- b) Lovejoy Inc., Downers Grove, IL
- c) Kop-Flex, Inc., Baltimore, MD

D. Lubrication

1. The Contractor shall lubricate all machinery upon installation and until final acceptance. In addition, the Contractor shall provide the following quantities of additional lubricants for the Operating Machinery, which shall be delivered to a location designated by the City:

- | | |
|----------------------------|------------------|
| a) Open Gear Grease | 35 lbs. |
| b) Bearing Grease | 35 lbs. |
| c) Grid Coupling Lubricant | (6) 14 oz. units |

E. Spare Parts

1. The Contractor shall provide the following spare parts for the Operating Machinery, which shall be delivered to a location designated by the City:
 - a) One rack segment in accordance with the plans
 - b) One pinion shaft in accordance with the plans

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SP-20.3 CONSTRUCTION

A. Shop Inspection and Testing

1. Assemble all Operating Machinery components to assure proper fit, and verify tolerances specified on the plans. Match-mark and document assemblies requiring disassembly so that the machinery can be reassembled at the bridge site.

B. Field Testing

1. When the mechanical machinery and electrical equipment are ready for final testing, submit to the Engineer a testing procedure and schedule in accordance with the requirements specified in Special Provision Section SP-17 General Machinery. During each test run, verify that the Operating Machinery is in proper working order and fully meets the requirements of the plans and Special Provisions. If any test shows that the Operating Machinery components are defective, inadequate, or functioning improperly, make all corrections and adjustments, or provide the replacements required before final acceptance, at Contractor's expense.

SP-20.4 METHOD OF MEASUREMENT

The work described will be measured by the lump sum, complete and in place.

SP-20.5 BASIS OF PAYMENT

The work will be paid for at the contract lump sum price, in accordance with the following:

The Contractor submits to the Engineer a detailed breakdown of costs under this item. The Engineer evaluates this breakdown, and has the authority to revise the breakdown as, in his/her judgment, may be required to make the various components of work conform to their true values.

The Contractor agrees that the detailed breakdown shall not become effective until it has been approved by the Engineer.

Payment for Operating Machinery is progressive compensation, made in accordance with standard payment practice and in the following manner:

A. Upon completion and acceptance by the City of shop fabrication, shop inspection, shop testing, delivery, and storage of materials, the Contractor will be paid 40% of the bid price for the item.

B. Upon completion and acceptance by the City of the Operating Machinery installation,

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alignment, bolting, and protection of materials, the Contractor will be paid 30% of the bid price for the item.

C. Upon completion and final acceptance by the City of the Operating Machinery inspection and field testing, the Contractor will be paid 20% of the bid price for the item.

D. Upon completion of training and receipt and acceptance of approved operating and maintenance manuals, the Contractor will be paid the remaining 10% of the bid price for the item.

Payment will be made under:

Pay Item

2433.601 Operating Machinery

Pay Unit

Lump Sum

SP-21 (2433) MISC. STRUCTURAL REPAIRS

This work is to include structural strengthening and repair work to select steel members of the bridge. This work is currently being developed and detailed and details will be made available to the Contractor after the time of Award. The Contractor will be requested to perform this work in accordance with MnDOT 1402.5 Extra Work and work shall be performed in accordance with MnDOT 2433 and 2402. The agreed upon costs for this extra work will be paid for from the pre-set allowance amount for item "Misc. Structural Repairs". In the absence of an agreed upon amount the work will be performed on a force account basis. This work is required to be performed prior to the installation of new machinery.

Total amount to be paid from the allowance for Item Misc. Structural Repairs will be based on the combined costs of any individual repair/ strengthening work items authorized and is not anticipated to exceed the pre-set allowance amount.

SP-22 CONTRACTOR FIELD OFFICE

A field office for use by Contractor and Contractor's personnel will be provisionally provided. The field office would consist of a locker room and bathroom which is adjacent to the project site within the Duluth Entertainment Convention Center facility. This facility will be provisionally made available to the Contractor and their personnel provided it is maintained in the same condition as at the time of initial use/ possession. It will be provisionally available from the time of Contractors mobilization to the site through the Fixed Calendar Day Completion Date 2 of May 24, 2017. The locker room and bathroom will not be available for use after May 24, 2017 or for the Fall/ Winter 2017 Field Painting Work Period.

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SP-23 (2478) ORGANIC ZINC-RICH PAINT SYSTEM

SP-23.1 Contractor Qualifications and Documentation

Delete 2478.3.A, "Contractor Qualifications and Documentation," and substitute the following:

At least 30 calendar days prior to starting any painting work submit a Quality Control Plan (QCP) meeting the requirements of 2478, "Organic Zinc-Rich Paint System," AASHTO/NSBA S8.1-*Guide Specification for Application of Coating Systems with Zinc-Rich Primers to Steel Bridges*, including a method to provide the minimum requirements and frequencies in the QCP as shown in Table 2478-1, and a custom proposal of how SSPC-PA 2 will be documented to the Engineer for acceptance in writing.

Include complete details for methods and enclosures which will be utilized for control of humidity and temperature requirements for paint application including maintenance of same through curing period.

Perform the preparation and application of field applied coatings with staff meeting the requirements of The Society of Protective Coatings Certified Application Specialist (SSPS CAS) Level 2. One CAS Level 2 is required on sight overseeing the work in each work area up to a crew of 10 workers. Multiple work areas will require an additional CAS for each area.

At least 30 calendar days before starting work, submit to the Quality Assurance Inspector (QAI) or the Engineer documentation showing that the paint manufacturer's technical representative trained the painters, applicators, and Quality Control (QC) personnel to apply the coating system on the project. Make training materials available to the Engineer upon request.

The finished color is to be a shade of blue with semi-gloss finish to be selected in the field. Contractor shall provide paint color samples and anticipate applying up to 5 selected colors to small portions of the structure (less than 10 sq. ft. overall projected surface area each) to allow for final color selection by the Engineer and City representatives.

SP-23.2 Protection of Non-Painted Surfaces

Delete the sixth paragraph of 2478.3.B, "General," and substitute the following:

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The structure is aesthetically sensitive because of high visibility to the public (both in closed and open bridge positions). Protect non-painted surfaces that are adjacent to the painted surfaces from overspray. Overspray is not permitted. The Engineer will visually inspect the non-painted surfaces. If the Engineer determines that there is overspray or primer/ paint seepage on the non-painted surfaces, then the Engineer will deem the materials as non-conforming in accordance with 1503, "Conformity with Contract Documents," and 1512, "Unacceptable and Unauthorized Work". The Engineer will direct the contractor to immediately correct the oversprayed surface and submit a written non-conformance report, containing data required by the Engineer to ensure compliance with the contract. Perform additional work as required by the Engineer at no additional cost to the City.

SP-23.3 Method of Measurement

Delete 2478.4 "METHOD OF MEASUREMENT" and replace with the following:

2478.4 METHOD OF MEASUREMENT

No separate measurement will be made of any of the various items or of the surface area which is surface prepared and painted. All work (labor, materials and incidentals) shall be measured under a single Lump Sum.

SP-23.4 Basis of Payment

Delete 2478.5 "BASIS OF PAYMENT" and replace with the following:

2478.5 BASIS OF PAYMENT

Payment will be made under Item 2478.506 Organic Zinc-Rich Paint System (Old) at the Contract price per lump sum and shall include the cost of surface preparation, providing, and applying coating system to all existing structural steel including all incidentals as defined in the Plans, Specifications and these Special Provisions.

SP-24 REMOVAL OF SOLUBLE SALTS

SP-24.1 Description of Work

Remove soluble salts and test for soluble salt contamination prior to painting as detailed in this provision. Test surfaces for soluble salt contamination (e.g. chlorides and nitrates) using a prescribed procedure outlined in part A.

A. Procedure for Testing for Soluble Salt Contamination

1. Perform the tests for soluble salt contamination after the steel surfaces have been blasted to SSPC - SP 10/NACE No. 2 "Near-White Blast Cleaning".

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2. Perform tests of the prepared surfaces at intervals defined, and in the presence of the Engineer.
 - a) When requested by the Engineer, provide evidence that personnel who perform tests for soluble salts have been trained by the manufacturer's technical representative in the use of soluble salt test kits. They must also be able to interpret the results.
 - b) Defined intervals consist of testing all surfaces 6 feet above deck level and below at a rate of one test for each 500 ft², or any part thereof. Testing must be concentrated in areas where there was coating failure, corrosion, pitting, and/or loss of section. All areas to be tested must be approved by the Engineer.
3. Test methods and equipment used in the procedure must be selected at the Contractor's discretion. All equipment and materials chosen must be reviewed and approved by the Engineer.
4. Evaluate approval of test methods and equipment on the following basis.

The method used should:

 - be a completely self-contained test kit with all materials, supplies, tools and instructions to take tests and identify results. The contractor may purchase the following test kits or an approved equal:
CHLOR-RID - "Chlor*Test"
 - use identifiable, consistent, factory pre-measured test extract solution.
 - be dated, or otherwise marked to provide evidence of a 1 year/12-month verifiable shelf-life of the measurement components.
 - provide for any steel surfaces, regardless of orientation.
 - provide for testing on smooth, pitted, and rough surfaces.
 - provide for taking measurements of the chloride ion in micrograms per square centimeter without using conversion charts or tables.
 - be environmentally friendly and not contain any form of mercury.
 - provide all new forms for extraction and titration for each test.
 - provide an encapsulated environment while extracting chlorides.
 - provide a factory sealed titration device for each test.
 - use the extract sampling container as the titration container.
 - allow the test results to be presented in readings in ppm and ug/cm². A ratio of 1:1 would provide a direct correlation (eg: 7ppm = 7ug/cm²)
5. Readings greater than 7 parts per million (ppm) and/or micrograms per centimeter squared (ug/cm²) of chlorides, and 7 parts per million (ppm) and/or micrograms per centimeter squared (ug/cm²) of nitrates, per test area, require that the contaminated surfaces represented by the test be cleaned. Repeat the cleaning and retesting as necessary until satisfactory test results are obtained. All tests are to be properly labeled and delivered to the Engineer.

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B. Procedure for Cleaning the Contaminated Surface

Surfaces, which have unacceptable levels of soluble salts may be cleaned by the use of sand blasting, high-pressure water washing with a soluble salt remover product (if acceptable by the Office of Environmental Stewardship), or another method acceptable to the Engineer.

SP-24.2 Basis of Payment

Payment for removal of soluble salts and testing shall be considered an incidental expense to Item No. 2478.506 Organic Zinc Rich Paint System (Old) for which no direct compensation will be made.

SP-25 MITIGATION OF PACK RUST

SP-25.1 Description of Work

Provide all labor, equipment, and materials to remove pack rust corrosion, prime, apply a compatible penetrating sealant with corrosion inhibitors as listed on the Department's "Approved/Qualified Product List for Bridge Products, Bridge Structural Steel Coating, Three Coat Systems - Organic" (www.dot.state.mn.us/products), apply intermediate and finish coats, and caulk per 2478.3.F.5, "Finish Coats,". The Engineer will visually inspect and identify the areas of pack rust.

SP-25.2 Construction Requirements

- (1) Remove pack rust as practical from identified crevices using manually operated or power operated descaling tools;
- (2) Remove rust scale from plane surfaces (hold point);
- (3) Notify Engineer when pack rust mitigation is considered completed and ask for approval by the Engineer to proceed to step 4, additional removal may be necessary after review;
- (4) Clean/prepare the surface per 2478.3.D, "Surface Preparation" (hold point);
- (5) Apply the zinc-rich primer stripe coat and full coat per 2478.3.E, "Application of Paint", and 2478.3.F, "Paint Coats";
- (6) Allow primer to cure to a point when the compatible penetrating sealant can be applied per the manufacturer (hold point);
- (7) Engineer will identify areas to receive the penetrating sealant;
- (8) Use an appropriate brush to flood apply an approved compatible penetrating sealant per the manufacturer's directions so the product flows and wicks into the crevice, more than one application may be required per the Engineer;
- (9) Remove/wipe excess product from the surface after flood application (hold point);

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- (10) Apply the intermediate coat per 2478.3.E, "Application of Paint", and 2478.3.F, "Paint Coats" (hold point);
- (11) Apply the finish coat per 2478.3.E, "Application of Paint", and 2478.3.F, "Paint Coats" (hold point);
- (12) Apply an approved caulk to all faying surfaces previously identified by the Engineer preventing moisture intrusion per 2478.3.F.5, "Finish Coats."

Provide the manufacturer's literature for the approved penetrating sealer and caulk in advance of the work being done.

SP-25.3 Basis of Payment

Payment for materials and labor required to mitigate pack rust and apply penetrating sealer shall be considered an incidental expense to Item No. 2478.506, "Organic Zinc-Rich Paint System (Old) for which no direct compensation will be made.

SP-26 (2545) BRIDGE ELECTRICAL SYSTEM

SP-26.1 Description

A. General

This special provision describes removing existing electrical system components and furnishing, installing, and placing in satisfactory operating condition new components for the electrical systems. The bridge electrical systems are for the permanent operation of the movable bridge and auxiliaries as indicated on the plans, called for in these Special Provisions, and as required for complete functioning systems.

The major pieces of equipment or systems covered include, but are not limited to, the span drive motors and brakes, limit switches, programmable logic controller (PLC), motor control equipment, modifications to vector motor drives, and modifications to raceway and conductor systems. In addition to furnishing and installing the new bridge electrical systems, the work also includes partial demolition of the existing electrical systems.

B. Conformance

Electrical equipment and its installation shall conform to the requirements of the latest revision of the American Association of State Highway Transportation Officials (AASHTO), except as may be otherwise provided herein. In addition, it shall conform to the requirements of the current National Electrical Code (NEC), National Electrical Manufacturer's Association (NEMA), Underwriters Laboratory (UL), Institute of Electrical and Electronics Engineers (IEEE) and to any applicable local rules and ordinances. Obtain any required permits and approvals of all departments or agencies having jurisdiction.

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SP-26.2 Materials

A. Working Drawings and Samples

Provide shop drawings and operation and maintenance manuals as specified herein.

Prepare and submit for review working drawings in accordance with the approved project schedule. Provide the following working drawings in accordance with the provisions of the Contract:

- Certified dimension prints of all motors, span brakes, brake wheels, limit switches, and other electrical apparatus external to the control panels.
- Complete schematic wiring diagrams, including all power, control, and lighting connections. Identify electrical devices and each wire between devices by an individual designation of letters, numbers, or a combination of both; and use such designations wherever the devices or wires appear on other drawings. Include a complete set of catalog cuts for materials furnished for review at time of schematic submittal.
- Layout drawings and internal connection diagrams of the control panels.
- A schedule of electrical apparatus which lists each electrical device by its designation as shown on the schematic wiring diagram and states for each device its rating, number of poles or contacts, function, catalog number, and location.
- Complete interconnection diagrams for all electrical apparatus and equipment used in the operation of the span and its auxiliaries. The diagrams shall be of the point-to-point type and shall show the external connections of all devices and equipment. The control system vendors shop drawings shall include complete drawings of terminal block layouts to allow the contractor to properly develop interconnect drawings. Computer-generated interconnection lists will not be acceptable in lieu of a true interconnection diagram.
- A complete schematic conduit and cable diagram or diagrams showing the interconnection of all devices and equipment, including ducts and junction boxes, and showing all multi conductor cables. Show the size of each conduit, and the wire number of each conductor in multi conductor cables on the diagrams. Suitably number or letter each conduit and multi conductor cable, and show percent wire fill. As built the final installed length.
- A complete set of layout and installation drawings for the new electrical work showing the location and installation, including support and mounting details, of all electrical apparatus and equipment and how it fits into the existing installation. Make these drawings to scale and show the exact location of all new conduits, cables, wiring ducts, boxes, motors, brakes, limit switches,

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disconnect switches, and other electrical equipment and the method of supporting them on the structure.

- A complete list of all spare parts furnished as part of the Contract.
- Material listing and specifications for programmable controller, including input/output units, programming terminal, and equipment for interfacing.
- The programmable controller program listings in ladder-rung formats. Describe circuit functions; identify all contacts and outputs by word description and by number designation. Number ladder rungs sequentially for reference. Fully document and comment the ladder diagram, and identify and list internal ladder logic relay contacts usage in other rungs. Reference inputs and outputs to locations of signals on interconnection diagram. Include a full cross-reference report.
- Any other drawings, which may, in the opinion of the engineer, be necessary to show the electrical work.

Where specific manufacturers catalog numbers and/or class/type/form are noted on the contract document, these items need not be submitted for review, so long as these exact devices are utilized. For contactors, starters, pilot devices, circuit breakers, disconnect switches and control relays, any NEMA rated device that meets the required ratings from Square D, Allen-Bradley, Cutler-Hammer, or General Electric may be utilized without submitting for review, save that the engineer reserves the right to reject as unsuitable, during the shop inspection or in the field, devices or equipment that in his sole opinion do not meet the requirements of the contract documents. Any rejected equipment or device shall be replaced with engineer approved equipment or device at no additional cost to the City or impact with the construction schedule. In addition, using the pre-approved equipment and material does not relieve the contractor of the requirements to properly integrate this equipment into a complete, fully operational system.

On certified dimension prints of the apparatus, state in the certification the name of the job, the application of the apparatus, device designation, number required, right-hand or left-hand assembly, electrical rating, number of poles or contacts, material, finish, and any other pertinent data to show that the apparatus meets the specified requirements.

Upon completion of the work, correct all electrical shop or working drawings to show the work as constructed. Submit in computerized file form in Adobe Acrobat (pdf) Format all electrical schematics, ladder diagrams, internal ladder logic diagrams, systems documentation, dimension drawings of equipment, and devices submitted by the electrical systems vendor.

Submit for inspection and test, if directed by the engineer, samples of any apparatus or device, which is proposed for use as a part of the electrical installation.

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B. Instruction Books and Drawing Books

Furnish to the engineer seven bound copies and a CD, one of which remains with the design consultant engineer, of an instruction manual with the title "Operation and Maintenance Manual, Volume 1, Operation of Electrical Equipment," containing the following:

- Table of Contents.
- Detailed, technical operating instructions, which cover span operation, manual operation, span operation with PLC disabled, etc.
- Detailed description of all control equipment including instructions to achieve optimum settings of all limit switches, detectors, etc.
- Description of control, which shall describe in full the functions of all protective devices, limit switches, contactors, relays, PLC and associated equipment and all other electrical equipment used, both in the power service and in the control system, in connection with each step in the operating sequence. Use wire and apparatus numbers appearing on the wiring diagrams in this description for identifying the various devices and circuits.

To augment the description of control and operations, include reference drawings showing locations of equipment. Include a layout of control apparatus in control house and the machinery platforms. Cross-reference all descriptions with reference drawings.

Furnish to the engineer seven bound copies and a CD, one of which remains with the design consulting engineer, of a book with the title "Operation and Maintenance Manual, Volume 2, Maintenance of Electrical Equipment," containing the following:

- Table of Contents.
- Maintenance instructions for the new electrical equipment, including warnings and precautions to be observed during maintenance actions. All preventive maintenance procedures are to be outlined and a chart listing all maintenance procedures in chronological order shall be provided.
- Set of descriptive leaflets, bulletins, maintenance instructions, and drawings covering all approved items of equipment furnished and installed under the item "Bridge Electrical System."
- A troubleshooting flow chart for troubleshooting the bridge electrical system shall be provided to facilitate the diagnosing and correcting of malfunctions.
- Instructions for diagnosing malfunctions of the programmable control system and for detecting failures in the external controls connected thereto.
- Reduced size prints of working drawings, including all schematic wiring diagrams, control console and control panel layouts and connection diagrams.
- PLC schematic wiring, relay logic, PLC input/output hardwire diagram, PLC logic and PLC ladder diagrams.
- Control console and control panel layouts and wiring diagrams.
- Composite schedule of electrical apparatus.

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- Complete spare parts list.
- Test data, equipment, criteria, and performance curves for all span drive motors.
- Conduit layout and installation drawings.
- Names, addresses and telephone numbers of vendors and suppliers.
- PLC software program.

Assemble the material for the operation and maintenance manuals to form a booklet for each volume with heavy plastic covers. Assemble each booklet in a three-ring binder, approximately 9 inch by 12 inch with 3-inch "D" rings, with a vinyl cover to allow insertable Title Sheets. Neatly entitle each booklet with a descriptive title, the name of the bridge, the department, the location, year of installation, Contractor, and Designer. Include easily legible copies of drawings in black on a white background. Submit the arrangements of the booklets, the method of binding, material to be included, and the text to the engineer for approval. Complete the final bound volumes of the instruction books and make them available at the bridge site for use during the field-testing period hereinafter specified for the electrical work.

Number and list by section in the Table of Contents all literature and descriptive materials included in any manual.

Separate each section/subsection with tabbed divider sheets. Suitably title each tab.

Use 20 pound, 3-hole pre-punched loose leaf paper and reinforced with plastic or cloth tape.

C. Equipment and Material Provisions

Provide all new equipment and materials. Provide equipment, materials, and workmanship that is first-class in every particular and that is manufactured and erected to the satisfaction of the engineer. Provide a warrantee for the in-service working of the electrical installations for one year following project acceptance. If the Contractor has any objection to any feature of the electrical equipment as designed and laid out, he must state his objection at once in writing to the engineer, otherwise his objection will be ignored if offered as an excuse for malfunctioning of the equipment or for defective or broken apparatus.

Provide each piece of electrical equipment and apparatus with a corrosion-resisting metal nameplate on which is stamped the name of the manufacturer and the rating or capacity of the equipment or apparatus.

Use corrosion-resisting material, such as aluminum, bronze, or stainless steel, for all metal parts of the installation, except parts that are specified to be structural steel. Use cast-iron, malleable iron, or steel with a hot-dip galvanized finish where specified herein.

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Provide structural steel incidental to the electrical work conforming to the requirements given under Structural Steel – General Requirements.

Provide vibration proof mounting hardware, wire and cable terminals.

Submit for approval, as soon as possible, details of any departures from the Plans or the Specifications that are deemed necessary and reasons therefore on. No such departures shall be made nor work started without approval of the engineer.

D. Bridge Control System Vendor

Use a single, qualified control system vendor for the manufacture and/or furnishing and assembly of all apparatus and equipment comprising the bridge control systems, including, but not limited to, drives, motors, brakes, limit switches, motor controls, control cabinets, special control panels, programmable controllers, interfacing equipment, laptop hardware for local troubleshooting, and other apparatus required to provide a complete functioning system. The vendor shall assemble the control panels and console at an Underwriters Laboratory approved Facility in accordance with UL 508.

The control system vendor is required to have experience in providing electrical control systems for movable bridges of various types, including bascule, vertical-lift, swing bridges, and control systems, including AC vector motor drives and programmable controllers. Identify a minimum of five movable bridges for which the system vendor has provided complete systems, including solid-state drive motor control and programmable controller logic within the past 10 years.

The following applies to the control system vendor:

- Assume complete system responsibility for the integrated functioning of all components to provide a satisfactory assembled system operating in accordance with specified requirements.
- Assume responsibility for the detailed schematics and fabrication of the total control systems to ensure compatibility of equipment and suitability for the intended system functioning.
- Assume responsibility for developing the program for the Programmable Logic Controller (PLC) based on the performance specification for operation of the bridge.
- Assume responsibility for developing and integrating PanelView operator display and diagnostic screens.
- Provide supervisory assistance in the installation of equipment to ensure maximum reliability and ease of maintenance.
- During testing of the electrical systems, it may be found that deviations from the performance specifications are required for optimum bridge operation. Include all hardware and software required for these modifications in the control system vendor scope of work at no additional cost to the City.

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- Provide a field service staff having the capability of providing services for field coordination of construction and final adjustments to the drive system. Upon final acceptance of the bridge, provide on-call warranty service for a period of 1 year. Field staff shall be capable of responding to an emergency within 24 hours.

Provide written certification of compliance with specified requirements for the control system vendor. Include this certification in the bid documents. The certification shall be subject to approval by the engineer.

E. Factory Inspection and Testing

The control cabinets and other apparatus fabricated or assembled by the control system vendor shall be subjected to shop inspection to demonstrate compliance with all specified requirements. The inspection is intended as a means of facilitating the work and avoiding errors, and it is expressly understood that it will not relieve the Contractor of responsibility for imperfect material or workmanship.

Assemble and temporarily interconnect for operational testing at the plant of the control system vendor the power and control cabinets and drives with programmable controllers with all required interfacing equipment. Limit switches shall be simulated with temporary switches, and reduced horsepower motors shall be connected to temporary drives. The testing is intended to demonstrate proper programmed operation of all bridge drives and auxiliary equipment in accordance with specified requirements for system functioning, including the programmable controllers, vector drives, and all control relays and motor starters.

Perform all tests required herein in the presence of the engineer or his authorized representative. Do not ship any equipment from the factory until it has been released for shipment by the engineer. Provide notification sufficiently in advance of the date of the tests so that arrangements can be made for the engineer to be present at the tests.

During the witnessed inspection, the engineer will check nameplate legends, conductor identifications, instrument scales, escutcheon plate engraving, and all other details of construction for conformity with specified requirements.

F. Span Drive Motors

The drive motors shall be vector duty motors. They shall be built in strict accordance with NEMA publication MG-1 and designed for use with an Insulated Gate Bipolar Transistor AC closed loop vector control. They shall be 3 phase 60 Hz, with moisture resistance insulation, 50-degree C temperature rise, and capable of reversing. Motor frame shall be constructed of cast iron.

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The span drive motors shall be 15 hp, 900 rpm, 480 VAC, 60 Hz, 1.25 service factor with a full load amp rating of 24 amperes with a 286T frame.

The motors shall be totally enclosed non-ventilated construction, with re-greaseable ball bearings, moisture resistant insulation and internal space heater sized by manufacturer. The motors shall have special extended shafts to complement the new motor brakes and new motor grid coupling components as indicated on the plans and in these Special Provisions. The motor shafts shall be Cadmium plated. A drain hole shall be provided at the bottom of the motor.

All windings shall be copper. The motor shall be capable of having a minimum breakdown torque of 300%. Motor must have a speed range of 1000:1 and be capable of having full torque at zero speed. Motor design shall be low inertia and slip design. An N/O temperature sensor shall be installed in the windings.

The conduit boxes shall be liberally sized and located to avoid interference with the machinery. The conduit boxes shall be sized in accordance with the requirements of the NEMA MG 1-1987 PART 11. The conduit boxes shall be provided with suitable terminal blocks for the motor power connections.

Provide motors designed and manufactured in the United States of America. All motors must be manufactured to the following standards:

- IEEE Marine Standards No. 45.
- American Bureau of Shipping (A.B.S.).
- U.S. Coast Guard Inspection Service.

Modifications needed to meet the requirements of these specifications are as follows:

- Cadmium plate shaft and hardware (FED-QQ-P-416).
- Double Sealed ball bearings.
- Seal all joints and eye bolt holes.
- Sealed leads in terminal box
- Shaft seals
- Removable drain plugs
- Final coat of epoxy paint
- Corrosion resistant coating - rotor and stator laminations.
- Stainless steel and/or Mylar nameplate.
- Class H insulation. Includes protection against fungus growth per MIL-V173B.

The motor frames shall be finished with a corrosion-resistant paint or coating. Exposed unpainted metal surfaces shall be of a corrosion-resistant material.

Motors must be designed to operate at carrier frequencies up to 20 kHz.

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All motors must be dynamically balanced.

Subject each motor to a complete test consisting of a full-load heat run and the determination of efficiency and power factor at 50, 75, 100, and 150 percent of full load. In addition to the complete testing, test the motor to determine the power input in kilowatt versus the output torque in foot-pounds for intervals from no-load to full-load torque (0, 25, 50, 75, and 100 percent).

Prepare a complete set of speed-torque-current curves for the motors and submit to the engineer for approval. The existing span motor drives need not be used for the tests. Provide curves corresponding to full speed and low speed. The curves shall cover the interval from 150 percent braking torque to breakdown driving torque, referred to full-load motor torque.

Subject all motors to an insulation resistance test per NEMA standard MG-1, Section Nos. 12.02 and 12.03 or IEEE 4. Include insulation resistance values and test voltage on the test reports.

Report tests on the standard forms for induction motors of the National Electrical Manufacturers Association. Have all test reports and curve sheets certified by the manufacturer, and submit seven copies of each. Do not ship motors from the plant of the manufacturer until the test reports have been approved by the engineer.

After entire motor, brake and control system installation, perform speed/current/power vs position tests to demonstrate that the motors functions properly and provides the specified operating characteristics as called out in the testing section of this specification. The data shall be recorded on a PC based data acquisition system, streamed to disk at a rate not less than 10 Hz and shall include acceleration, deceleration, full speed, reduced speed and creep speed.

Provide motors manufactured by Marathon, Reuland, Baldor or as approved by the engineer.

G. Span Brakes

Furnish and install four eight-inch electrohydraulic thruster type motor brakes as shown on the plans. The new motor shall act upon new brake wheels press fit onto the shafts of the new gearboxes, respectively as called out on the drawings. Furnish all brake wheels and brakes by a single brake manufacturer. Install and align the new brakes and new brake wheels in accordance with Bridge Machinery Work.

Provide spring-set, thruster-released, shoe-type, open brakes with corrosion-resisting fittings. Brake shall have the drum size and torque requirements as listed on the Plans,

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with permanent torque setting limited as required. Provide type MBT/E brakes by Mondel Engineering, Mississauga, Ontario, Canada, or engineer approved equal.

Equip each brake with a hand release, which will not change the torque setting or require removable levers or wrenches. Locate the hand release mechanism on the side of the brake away from the main reducer. (Right hand and left hand units are required.) Provide each hand release with a lever type limit switch for interlocking purposes as described under "Interlocking." It shall not be possible to set the hand release of the brakes without tripping these switches. Switches shall be Cutler-Hammer Series E50, NEMA 6P+ with epoxy potted cord sets or approved equal.

In addition to the hand release limit switch, mount two lever type limit switches on each brake. One shall indicate that the brake is fully set, the other that the brake is fully released. Assure that the brake released limit switch (which shall have two normally open contacts) trips when the brake is electrically released or hand released. The brake set limit switch shall have one normally open and one normally closed contact and shall trip when the brake is fully set. Switches shall be Cutler-Hammer Series E50, NEMA 6P+ with epoxy potted cord sets or approved equal.

Each thruster actuator shall be provided with a time delay valve adjustable between 0 and 5 seconds for setting the brake. Only an internal time delay valve constructed of stainless steel is acceptable. Adjustment must be infinitely adjustable between the minimum and maximum settings. These adjustments must be allowable with the brake in full service. Set the down-stroke time delays of the thrusters in such a manner that the brakes will not be applied simultaneously should electric power fail while the span is in motion. Adjust the intervals between the setting of the brakes to obtain smooth stopping of the span in the shortest possible time.

Provide the oil used in the thruster operating chambers of the brakes to be of a grade as recommended by the manufacturer and approved by the engineer. It shall have a free operating temperature range between -40° F and 150° F.

Provide 480-volt, 3-phase, 60 Hz, totally enclosed, squirrel cage motors controlled by magnetic contactors with manual-reset thermal overload relays to actuate the thrusters. The rated stalled thrust of each thruster shall be not less than 135 percent of the thrust actually required to release the brake with the torque adjusted to the continuous rated value. Each brake thruster shall be provided with a 120 VAC single phase anti-condensation space heater.

All exposed ferrous material shall be treated with a nitro-carburizing process. This process shall improve wear resistance, lower the coefficient of friction and greatly reduce the tendency to weld or seize with a metallic counterpart. It shall also vastly improve corrosion resistance properties. The nitriding process shall produce a thick E-Nitrite layer

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of at least 12μm. Painting and other finishes are not an acceptable replacement for Nitriting.

Equip each brake with a NEMA 3R enclosure, which encloses the entire brake assembly, including the brake thruster unit, and the brake wheel, and should not prevent brake hand release operation.

H. Programmable Logic Controller System (PLC)

1. General

Bridge control logic functions shall be performed by a Programmable Automation Controller system, which shall provide for operation of the bridge and its auxiliaries in accordance with the system functioning specified herein and the control logic shown on the Plans. It shall be programmed to provide for dynamic span drive motor drive skew correction, keeping the span skew within less than six inches.

The Programmable Automation Controller shall be an Allen Bradley (AB) CompactLogix brand PLC, no other manufacturer will be acceptable.

The PLC system will utilize an Allen Bradley 1769-L33ER CPU.

Modules are defined herein as devices that plug into a chassis and are keyed to allow installation in only one direction. The design must prohibit upside down insertion of the modules as well as safeguard against the insertion of a module into the wrong slot or chassis via an electronic method for identifying a module. Electronic keying performs an electronic check to insure that the physical module is consistent with what was configured. The Programmable Automation Controller shall have downward compatibility whereby all new module designs can be interchanged with all similar modules in an effort to reduce obsolescence. The Programmable Automation Controller shall have the ability to be updated electronically to interface with new modules.

All hardware of the Programmable Automation Controller shall operate at an ambient temperature of 32° F to 140° F, with an ambient temperature rating for storage of - 40° F to 185° F. The Programmable Automation Controller hardware shall function continuously in the relative humidity range of 5% to 95% with no condensation. The Programmable Automation Controller system shall be described and tested to operate in a high electrical noise environment.

The Programmable Automation Controller shall have the capability of addressing over 100,000 discrete points or 4000 analog points. It shall also have the ability to communicate with up to 500 connections that contain I/O. Each input and output module shall be self-contained and housed within a chassis. These chassis, with their respective modules, shall contain up to 512 (16 modules x 32 pts/module, using a 17

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slot chassis) unique points. The Programmable Automation Controller shall include as an optional feature the capability of addressing remote input and output modules on ControlNet, DeviceNet, EtherNet/IP, "RIO", HART and Foundation Field Bus.

The Programmable Automation Controller shall use multiple independent, asynchronous scans. These concurrent scans shall be designated for processing of input and output information, program logic, and background processing of other controller functions. Input and output devices located in the same backplane (local I/O) as the CPU will produce at the rate of the configured RPI (Requested Packet Interval), and for discrete input modules enabled for Change of State (COS), at the time any point changes state.

The Programmable Automation Controller shall have the ability to communicate with multiple remote I/O racks or devices configured with multiple I/O modules. Networks that allow remote I/O include "Remote I/O", ControlNet, EtherNet/IP, DeviceNet, HART, and Foundation Field Bus. It shall be possible to communicate with remote I/O racks or other PACs via fiber optic cable by inserting fiber optic converters into the links. The fiber link must support distances up to 82,000 cable feet. Redundant fiber optic cabling shall be an option.

2. Controller Hardware

The CPU shall be a self-contained unit, and will provide control program execution and support remote or local programming. This device will also supply I/O scanning and inter-controller and peripheral communication functions. The operating system firmware shall be contained in non-volatile memory. An option shall be possible to store both the user program and system firmware in a removable non-volatile memory for backup/restore purposes. The operating system firmware can be updated via a separate software update tool to allow for easy field updates. The controllers shall allow the operating system to be updated using a suitably configured removable non-volatile memory card. The controller shall contain a minimum of 4 Mbytes of user memory.

In a single chassis system all system and signal power to the controller and support modules shall be distributed on a single backplane. No interconnecting wiring between these modules via plug-terminated jumpers shall be acceptable.

The CPU within the system shall perform internal diagnostic checking and give visual indication to the user by illuminating a "green" (OK) indicator when no fault is detected and a "red" (OK) indicator (Blinking or Solid) when a fault is detected or by way of a display screen scrolling an error code and message. The front panel on the Controller shall include color LED indicators or 4-digit display showing the following status information:

- Program or Run mode of the controller

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- The fault status of the controller.
- I/O status
- RS-232 or Secure Digital (SD) activity
- Battery or Energy storage module (ESM) status
- Force LED

The front panel of the Controller shall include a mounted keyswitch. The key shall select the following Controller modes: RUN – No control logic edits possible, program always executing; PROGRAM – Programming allowed, program execution disabled; and REMOTE – Programming terminal can make edits and change controller mode, including test mode, whereby the logic executes and inputs are monitored, but edits are not permanently active unless assembled. The front panel of the Controller shall include a holder and a connector for a lithium battery or an energy storage module to provide power backup for user programs and data when the main power supply is not available. The front panel of the Controller shall include a 9-pin D-shell serial RS232 port or USB port, to support upload and download, online edits, firmware upgrades, and bridging to other modules in the same chassis.

All system modules, local and remote chassis shall be designed to provide for free airflow convection cooling. No internal fans or other means of cooling, except heat sinks, shall be permitted. All system modules including the controller may be removed from the chassis or inserted in to the chassis while power is being supplied to the chassis without faulting the controller or damaging the modules. This is known as Removal and Insertion Under Power (RIUP). Alternately a software configurable option shall exist to fault the controller if required.

3. Power Supplies

The Programmable Automation Controller shall operate in compliance with an electrical service of 85 to 265 VAC (120 to 220 VAC nominal), single phase, in the frequency range from 47 to 63 Hz, or 18-32 VDC (24 VDC nominal).

A single main power supply shall have the capability of supplying power to the CPU and local input/output modules. Other power supplies shall provide power to remotely located racks. The power supply shall automatically shut down the Programmable Automation Controller system whenever its output power is detected as exceeding 125% of its rated power. The power supply shall monitor the incoming line voltage for proper levels. When the power supply is wired to utilize AC input, the system shall function properly within the range of 85 to 265 VAC. When the power supply is wired to utilize DC input, the system shall function properly within the range of 18 to 32 VDC. The power supply shall provide surge protection, isolation, and outage carry-over of up to 6 cycles of the AC line (120-240 VAC, 50/60 Hz) or 40 ms @ 24 VDC. Design features of the Programmable Automation Controller power supply shall include a diagnostic indicator mounted in a position to be easily viewed by the

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user. This indicator shall provide the operator with the status of the DC power applied to the backplane. In addition, a means of disabling power to the CPU shall be possible from a power disconnect switch mounted in a position easily accessible by the operator. At the time of power-up, the power supply shall inhibit operation of the controller and I/O modules until the DC voltages of the backplane are within specifications. In addition to the electronic protection described above the power supply shall offer a failsafe fuse that is not accessible by the user.

4. Program Creation and Storage

Memory state shall be selectable to allow for the most economical match to the intended application. It shall be possible to upgrade to a controller with a larger memory size simply by saving the program, upgrading the controller and downloading the program to the new system without having to make any program changes. Memory shall be backed up by either battery or energy storage module and are capable of retaining all stored program data through a power cycle. A low battery condition must be detectable in ladder logic, but shall not automatically generate a major fault. A low energy condition will generate a minor fault and will be detectable in ladder logic.

The controller will write all variable data to internal nonvolatile memory storage (Flash) during the power down cycle. The controller shall provide the capability to use commercially available, removable nonvolatile memory storage. The card shall be available from the supplier as an industrial rated device suitable for use in the same environment as the controller.

The controller will have the ability to store the user program, controller firmware and firmware for all other modules residing in the same chassis to the removable nonvolatile memory card. Additionally, when memory is restored a user selectable option to be restored in Run mode or Program mode shall be provided. The controller shall have the capability to insure, that if required modules in the chassis are flashed using the firmware files stored on the removable nonvolatile memory card, to restore to the correct revision level for the project. The removable nonvolatile memory card shall support a Windows file system allowing multiple files to be stored on the card. The user can manually trigger the controller to save or load from the card and also configure the controller to load from the card on power up. The operator should be able to backup volatile memory, including data and program logic onto a personal computer storage device.

All user memory in the controller not used for program storage shall be allocable from main memory for the purpose of data storage. The Programmable Automation Controller system shall be capable of storing 4 data types:

- Predefined
- User-defined

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- Module-defined
- Add-on defined

Pre-defined data types include the following: alarm, axis, bool, cam, cam-profile, control, coordinate system, counter, etc. User-defined data is limited to structures. Each structure contains one or more data definitions called members. Module-defined (object) includes a structure for each I/O module and system or module specific information (hidden from user). Add-on defined data type includes the Local and Parameter tags of the add-on instruction. It does not include the logic. Any data can be displayed in ASCII, Binary, Octal, Hexadecimal, or Decimal radices. Function-specific data types such as PID, Axis, Axis Group or Message shall have dedicated displays available annotating the meaning of specific control bits and words within them and allowing for selective control where appropriate.

If instructions or entire rungs are intentionally deleted from an existing logic program, the remaining program shall be automatically repositioned to fill this void. Whenever contacts or entire rungs are intentionally inserted into an existing program, the original program shall automatically be repositioned to accommodate the enlarged program. All rung comments shall maintain their original links.

The number of times a normally open (N.O.) and/or normally closed (N.C.) contact of an internal output can be programmed shall be limited only by the memory state to store these instructions. The number of times a timer or counter can be programmed shall be limited only by the memory state to store these instructions. Controller programs shall have immediate access to the sub elements of control structures by address and sub element mnemonic, such as timer accumulator value, timer done bit, or PID Process Variable value.

5. Communication Interfaces

The Programmable Automation Controller shall have communication interface modules for Ethernet/IP.

The Ethernet/IP interface shall support the following:

- Standard TCP/IP communications
- Standard Ethernet media (10base2, 10base5, 10baseT, 100baseT, fiber)
- CSMA/CD access method
- Subnet masking
- Standard repeaters, bridges, routers, host computers, peer PLCs.
- RJ-45
- Bootp client
- Manual configuration using RSLogix5000, RSLinx, or BootP/DHCP Servers.

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- Programmable controller messaging to peer controllers and workstations
- I/O Control
- Device Level Ring (DLR)
- CIP Motion (Motion over Ethernet/ IP)

6. Programming

The programming format shall be IEC 1131-3 compliant Ladder Diagram (LD), Function Block Diagram (FBD), Sequential Function Chart (SFC), and Structured Text (ST) languages. The controller shall organize user applications as Tasks, which can be specified as continuous, periodic, or event based.

Periodic tasks shall run via an interrupt at a user-defined interval in one microsecond increments from 1 millisecond to 2000 seconds. The interrupt mechanism of periodic and event tasks shall adhere to the IEC 1131-3 definition of pre-emptive multitasking. The controller shall be able to accommodate a maximum of 32 individual tasks of which one can be continuous. The periodic and event tasks shall have an associated, user assignable priority from one to fifteen (one being the highest priority), which specifies that task's relative execution priority in the multitasking hierarchy. The event task can be triggered by hardware events (an input point) or software events (event instruction). Each task shall have a user settable watchdog timeout which is unique to that task. Each task can include a maximum of 100 programs, which can be prioritized for execution within the task. Each program can include routines programmed in LD, FBD, SFC, or ST languages. One of the routines can be specified as the main routine and one can be specified as an optional fault routine. All routines shall be capable of being edited when on-line. The number of routines which can be contained in a program is limited only by memory.

Variables within the controller shall be referenced as unique, default or user defined tags. Tag naming convention shall adhere to specifications in IEC 1131-2. Tags may be created off-line, on-line and at the same time the routine logic is entered. The system shall have the capability to store user tags names in the controller. Tags shall be available to all tasks in the controller (Controller Scoped) or limited in scope to the routines within a single program (Program Scoped) as defined by the user. Any tag shall have the ability to be aliased by another tag, which is defined and has meaning to the user. The ability to program control logic via tags of the Programmable Automation Controller shall exist.

It shall be possible to program ladder diagram rungs with the following restrictions:

- Series instruction count limited only by user memory
- Branch extensions limited only by user memory
- Branch nesting to six levels

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The capability shall exist to interleave input and output instruction types on the same contiguous rung in the ladder diagram rungs. The capability shall exist to change a contact from normally open to normally closed, add instructions, change referenced tags, etc. It shall not be necessary to delete and reprogram the entire ladder diagram rung. It shall be possible to insert ladder diagram rungs anywhere in the program, even between existing rungs, insofar as there is sufficient memory to accommodate these additions. A single program command or instruction shall suffice to delete an individual ladder diagram rung from memory. It shall not be necessary to delete the rung contact by contact. A clock/calendar feature shall be included within the CPU. Access to the time and date shall be from the programming terminal or user program.

Latch functions shall be internal and programmable. The system shall have the capability to address software timers and software counters in any combination and quantity up to the limit of available memory. All management of these instructions into memory shall be handled by the CPU. Instructions shall permit programming timers in the "ON" or "OFF" delay modes. Timer programming shall also include the capability to interrupt timing without resetting the timers. Counters shall be programmable using up-increment and down-increment. Timer instructions shall have a time base of 1.0 ms. The timing range of each timer shall be from 0 to 2,147,483,648 increments. It shall be possible to program and display separately the timer's preset and accumulated values.

The Programmable Automation Controller shall use a signed double integer format ranging from -2,147,483,648 to +2,147,483,648 for data storage of the counter preset and accumulated values. The Programmable Automation Controller shall store data in the following formats:

- Boolean values (0 or 1).
- Short Integer Numbers ranging from -128 to +127.
- Integer Numbers ranging from -32,768 to +32,767.
- Double Integer Numbers ranging from -2,147,483,648 to +2,147,483,647.
- Floating Point Numbers consisting of eight significant digits. For numbers larger than eight digits, the CPU shall convert the number into exponential form with a range of plus/minus 1.1754944 E -38 to plus/minus 3.402823 E +38.
- Long Integer Numbers consisting of 64 bits.

The capability shall exist to organize data in the form of User Defined Data Structures. All aforementioned data types, as well as others, can be used in such structures along with embedded arrays and other User Defined Structures.

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The Programmable Automation Controller shall have support for integer and floating point signed math functions consisting of addition, subtraction, multiplication, division, square root, negation, modulus, and absolute value. Trigonometric instructions supported must include Sine, Cosine, Tangent, Inverse Sine, Inverse Cosine, and Inverse Tangent. These instructions must fully support floating-point math. Additional floating point instructions supported must include Log 10, Natural Log, and Exponential. It shall be possible to complete complex, combined calculations in a single instruction, such as flow totalizing or equations of the format $((A+((B-C)*D))/E)$.

File function instructions supported shall also include Sort, Average and Standard Deviation. Value arrays shall be limited in size only by the amount of available memory. Arrays shall be configurable with one, two or three dimensions. The CPU shall support indexed addressing of array elements. Array element manipulation instructions such "array copy" (COP), "array copy with data integrity" (CSP) and "array fill" (FLL), "array to array" (MOV), "element to array" (FAL), "array to element" (FAL), and "first in-first out" (FIFO) shall be supported by the system. The four function and math instructions and instructions for performing "logical OR", "logical AND", "exclusive OR", and comparison instructions such as "less than", "greater than", and "equal to" shall be included within the system. All instructions shall execute on either single words or array elements.

For any module specifically associated with the Programmable Automation Controller, it shall be possible to configure operation and query the current status of all channels through controller scoped tags without any programming.

The system shall contain instructions, which will construct word shift registers (SQI, SQO, and SQL). Additional instructions shall be provided to construct synchronous bit shift registers (BSR and BSL).

The Programmable Automation Controller shall have a jump instruction which will allow the programmer to jump over portions of the user program to a portion marked by a matching label instruction.

The Programmable Automation Controller shall have an embedded motion planner capable of doing coarse motion planning for up to 100 axes. This planner must be the highest priority task of the controller.

The Programmable Automation Controller shall have a ladder diagram instruction interface to the motion planner which allows the user to request that the motion planner create and execute a specific motion profile. The profile can be changed dynamically through the ladder diagram program.

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The Programmable Automation Controller shall have the ability to provide a master system clock and the 1588 PTP v2 CIP Sync object to allow time synchronization and transport and routing of a system clock to the control system and motion axes in a local chassis or on an Ethernet/IP network.

It shall be a function of the CPU to automatically manage all data types. For example, if a word stored in an Integer tag is transferred into a Floating Point tag, the CPU shall convert the integer value into floating point prior to executing the transfer.

In applications requiring repeatable logic it shall be possible to place such logic in a subroutine section. Instructions which call the subroutine and return to the main program shall be included within the system. It shall be possible to program several subroutines and define each subroutine by a unique program file designator. The controller will support nesting of subroutines up to available stack at the moment of the call. It shall be possible to pass selected values (parameters) to a subroutine before its execution. The number of these parameters is limited only by available memory. This allows the subroutine to perform mathematical or logical operations on the data and return the results to the main program upon completion. These subroutines will be accessed by jump-to-subroutine instructions.

The system shall have the capability to enter rung comments above ladder diagram rungs. These comments may be entered at the same time the ladder logic is entered. The program shall be fully commented.

The capability shall exist for adding, removing, or modifying logic during program execution in routines of LD, FBD, SFC, and ST languages. When changes to logic are made or new logic is added it shall be possible to test the edits of such logic before removal of the prior logic occurs. It shall be possible to manually set (force) either on or off all hardwired discrete input or output points from the programming panel. It shall also be possible to manually set (force) an analog input or output to a user specified value. Removal of these forced I/O points shall be achieved either individually or totally through selected keystrokes. The programming terminal shall be able to display forced I/O points.

A means to program a fault recovery routine shall exist. When a major system fault (Controller Fault) occurs in the system, the controller fault recovery routine shall be executed and then the system shall determine if the fault has been eliminated. If the fault is eliminated, program execution resumes. If the fault still exists, the system will shut down. The capability shall exist for each program to have its own fault routine for program fault recovery. Each having the same features as the controller based fault routine. An instruction shall be available to give the control program diagnostic information, state control, and sequencing of a process simultaneously, while allowing the capability of user-friendly state programming techniques.

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An instruction shall be supported to incorporate closed loop control systems. The "proportional", "integral", and "derivative" elements shall be accessible to the user in order to tune a closed loop system. This instruction must fully support floating-point math.

The system shall support both bit and word level diagnostic instructions.

To facilitate conditional event detection programming, output instructions shall include "one shot" instructions, which may be triggered on either low-to-high (rising) or high-to-low (falling) rung conditions. To facilitate debugging, an "always false" instruction shall exist which may be utilized to temporarily inhibit the execution of control logic.

The controller shall support Master Control Reset (Relay) type functionality to selectively disable sections of logic.

The controller shall include direct support of FOR-NEXT loop constructions.

Controller files will have the ability to be exported and edited in L5k, (text) format or XML format.

I. HMI

The Human Machine Interface (HMI) shall be a 12.1-in. diagonal colour graphics panel PC display terminal with a touch screen user interface. It shall have a display resolution of 1280 x 800 WXGA, 18-bit color graphics, and an aspect ratio 16:10. It shall have a typical brightness of 300 cd/m² (Nits). It shall have a backlight provided by a white light-emitting diode with a life of 50,000 h min at 40 °C (104 °F) to half-brightness.

The touch screen shall be an analog resistive touch screen with an actuation rating of 1 million presses and an operating force of 100 grams.

It shall have a real time clock with battery backup with an accuracy: +/-2 minutes per month. Battery life shall be 4 years min at 25 °C (77 °F).

It shall be provided with 512 MB RAM and 512 MB storage system memory and 80 MB, nonvolatile user memory storage for applications.

The operating system shall be Windows CE with Extended Features and MS Office Viewers (includes FTP, VNC client server, ActiveX controls, PDF reader, third-party device support).

It shall be provided with Two 10/100Base-T, Auto MDI/MDI-X Ethernet ports that support Device Level Ring (DLR), linear, or star network topologies.

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It shall operate on an Input voltage of 100...240V AC, and shall have a power consumption of 105VA.

The HMI shall have at minimum a normal display screen showing animated span movement including brake and motor status, an active alarm screen and an alarm history screen. Screens shall be provided for drive diagnostics. The HMI programming shall be developed during the shop drawing review process with the vendor and the owner's representatives, and shall be finalized in the field during system start up.

The HMI shall be an Allen Bradley PanelView Plus 1250 or Engineer approved equal.

J. Noise Filter

Furnish and install one active tracking noise filter on the input of the PLC rack. The noise filter shall be a series connected high frequency noise filter with transient protection. It shall offer hard wired connection to all critical loads and be rated for an industrial environment and equipment. It shall reduce mode transient to +/- 2 volts, have a surge capacity of 45,000 amps, provide transient protection in all modes (line to neutral, line to ground, and neutral to ground), have an LED power indication, and be UL approved. The 120 VAC MCOV shall be rated 150 VRMS. The line frequency response time shall be less than 0.5 nano-seconds. The operating temperature shall be -40° F to 115° F at full load. The unit shall be capable of protecting against a peak surge current of 15,000 amps in all modes. The noise filter shall be the Islatrol® IC+/LRIC+ Series manufactured by Emerson Electric or Engineer approved equal.

K. Laptop Computer

A laptop computer shall be provided to allow the PLC and vector drive programs to be modified as required in the future. The laptop computer shall be a Dell Latitude E5430 or Engineer approved equal. It shall have the following features at a minimum:

- 3rd gen Intel® Core™ i7-3520M Processor (2.9 GHz, 4M cache, Upgradable to Intel® vPro™ technology)
- Windows 7 Professional, No Media, 64-bit, English
- 14.0" HD (1366x768) Anti Glare LED-backlit
- 4 GB2 DDR3 SDRAM at 1600 MHz
- 500 GB 7200 RPM Hard Drive
- 8X DVD
- Express Card
- 1 Year Basic Hardware Service with 1 Year NBD Limited Onsite Service After Remote Diagnosis Nylon Carrying Case
- 1Yr Ltd Hardware Warranty

The unit shall be an intelligent terminal, functioning both as a programming and a data terminal. It shall permit PLC programming, including loading, editing, and monitoring

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ladder diagram programs in memory by entering through the keyboard and monitoring on the display. Program instructions shall be in the form of standard symbols similar to those used for electromagnetic control equipment.

The laptop shall have the latest editions of Microsoft Word and Excel preinstalled, along with software packages required for programming, viewing, and interfacing and any other software tools required for the PLC, HMI and vector drives. Include all CD-ROM's, manuals and other materials. Provide all licenses and original CD-ROM or Disk copies with the computer for all software installed.

The control system vendor will configure the laptop so that it can communicate remotely with the PLC via a City provided internet connection. Any additional hardware needed for remote communications shall be provided. The control system vendor shall demonstrate to and provide assistance for the City maintenance personnel in remotely accessing the PLC. In addition to remotely monitoring the PLC program, drive parameters shall also be able to be remotely monitored.

L. Limit Switches

1. Brake Lever Type Limit Switches

Each limit switch shall be a heavy-duty, lever-operated, submersible, two-circuit, snap-action limit switch in a watertight, NEMA 6P, epoxy-sealed enclosure with epoxy sealed SOOW cord set. The switches shall be Cutler-Hammer E-50 6P+ or approved equal.

2. Span Position Proximity Type Limit Switches

Lever-less mechanical limit switches (6 end sensing, 2 side sensing) shall be provided for span position indication and interlocking. They shall be enclosed in a stainless steel housing rated NEMA 4X and 6P. They shall be provided with single pole, double throw contacts rated for 10 amperes. The contacts shall be silver cadmium oxide, gold flashed, and shall have a temperature rating of -40 to 221 degrees F. They shall have a repeatability of 0.002", and a response time of 8ms. They shall be provided with six-foot epoxy potted cordsets. They shall have a nominal sensing distance of ¼". The lever-less limit switches shall be Model 81 and Model 21 GO switches as manufactured by Topworx or engineer approved equal.

3. Span Locking Pin Proximity Switches

Inductive type normally closed barrel style proximity switches to provide indication that the span locking pins are engaged or disengaged. They shall be unshielded sensors with an 8 mm sensing distance. They shall be 24 VDC two wire sensors with normally closed contacts. They shall be provided with nickel plated brass enclosures and suitable weatherproof cordsets. They shall be approved equal to Allen Bradley 872C-D8CE18-A2.

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4. Inclinometers

The inclinometers shall be liquid capacitive gravity based sensors with integrated sensor and excitation electronics housed in a die cast aluminum housing. The thermal drift of the primary sensor shall be further compensated by an electronic equalization of the temperature. They shall have internal integrated highly stable voltage regulators making it possible to supply the inclinometer from any unregulated supply or battery as low as + 8 V and up to +30 V DC. The power shall be obtained from the measurement current loop, enabling operation with a two wire connection. The measuring principle shall assure a linear angle output with 4...20 mAs calibrated to equal the measuring range of the sensor.

The inclinometers shall be suited for industrial use where high accuracy and long-term stability are required in a noisy environment and where high temperature changes occur and non-stable supply voltages are present such as bridges, mining, construction equipment and process machinery.

- Temperature compensated
- 4...20 mA output
- Non-regulated +8...+30 V power supply
- Integrated sensor electronics with 4...20 mA excitation
- Linear output characteristics
- 2 wire connection – sensor power obtained from the current loop
- High measurement accuracy
- Very low relative linearity errors
- High long-term stability
- EMC protected
- Vibration and shock insensitive due to non-mechanical internal parts
- Hermetically sealed housing to IP67
- Sensor galvanically isolated from housing
- Sensor zero mechanically adjusted with mounting ring
- Current loop limitation
- Hysteresis free measuring signal
- Die-cast Aluminum housing with sea water resistant finish
- Environmental Protection up to IP67
- Housing designed for extra stable sensor platform
- Measuring Range: $\pm 80^\circ$
- Resolution: $< 0.01^\circ$
- Sensitivity: $0.1\text{mA}/^\circ$
- Max. Non-Linearity: $< 1 \cdot 10^{-3} \text{ FS}$
- Transverse Sensitivity: $< 1\%$ at 45° tilt
- Response Time: $< 0.3 \text{ s}$
- Temperature Drift of Sensitivity: $< -0.01\% / ^\circ\text{C}$
- Temperature Drift of Zero: $< \pm 10^{-3} ^\circ/\text{C}$
- Zero Offset: 12 mA

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- Power Supply: 8...30 VDC non-regulated (either polarity)
- Current Consumption: Approx. 10 mA
- Sensor Housing: 30% Glass Filled PBT Plastic
- Operating Temperature: -40° F to +185° F
- Storage Temperature: -49° F to +194° F

The inclinometers shall be Reiker NG4i in SB1i enclosure or equal as approved by the engineer.

M. Control Apparatus and Miscellaneous Equipment

1. General

Control apparatus shall conform to the applicable requirements of NEMA Publication No. ICS, latest revision, Industrial Control and Systems, rated as shown on the Plans or as required herein.

2. Circuit Breakers

All branch circuits from the power buses shall be protected by molded-case circuit breakers mounted on the control panels. All breakers shall have quick-make and quick-break contacts, and the mechanism shall be trip-free and trip indicating. All circuit breakers and motor circuit protectors shall be provided with at least two form C auxiliary contacts for PLC input and status indication. Frame sizes shall not be less than 100 amperes. The breakers shall be equipped with thermal-magnetic trips or adjustable, instantaneous, magnetic trip units, with trip rating as shown on the Plans or as required. Molded-case circuit breakers shall meet the requirements of the latest revision of NEMA Publication No. AB1. The service entrance circuit breakers are to be 600 volt rated, frame size as indicated on the plans and shall be provided with electronic trip unit with independently adjustable short time pick-up and time delay, set to trip as per the plans. Interrupting capacity shall be no less than 100,000 AIC. Circuit breakers shall be Westinghouse Series C, Type LD with LS trip unit, Type TA or engineer approved equal manufactured by General Electric or Square D Company.

3. Motor Starters and Magnetic Contactors

The continuous current rating of contactors and starters shall be adequate for the connected loads, and no starters shall be smaller than NEMA Size 0 unless otherwise noted. All starters shall be full voltage types, 600 VAC, 60 Hz, rated with 120 VAC operating coils. All contact poles shall be provided with arc chutes, and contactors rated 150 amperes and above shall be equipped with magnetic blowouts. Three-element manual reset overload relays shall be provided to protect gate, lock and brake motors and wiring against overheating due to excessive current. Heater elements are to be selected based on motor full-load running current. Each overload relay shall be provided with a set of auxiliary form C contacts for PLC interfacing and indication. Reversing contactors shall be electrically and magnetically interlocked.

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4. Control Relays

Control relays shall be multi contact magnetic relays with contacts rated at 10 amperes, 600 volts, on a continuous basis. Relays known to meet the specified requirements are the Square D class 8501 type X or approved equal.

Interposing relays for the 24 VDC locking pin proximity switches shall be NEMA B300 24 VDC coil "ice cube" style relays. They shall be provided with suitable bases.

5. Phase Failure and Reversal Relay

This relay shall prevent energizing operating the span in the event of reversed phase sequence, loss of one phase, or low voltage. The phase failure and reversal relay shall be the Square D Class 8430 Type MPD or approved equal.

6. Selector Switches and Pushbuttons

Pushbuttons and control switches shall be heavy-duty, oil-tight, contact blocks operated by glove handle selector knobs, key switches and push-button operators as indicated on the Plans. Contacts shall be fine silver, capable of interrupting 6 amperes at 120 volts AC, and of continuously carrying 10 amperes. Switches and pushbuttons shall be Square D class 9001, type K, NEMA 4 or approved equal.

7. Indicating Lights

Indicating lights shall be heavy-duty, oil-tight pilot lights with one or two fields as required as per the plans. They shall be provided with LED lamps the color of the lamp lens and shall be rated at 120 VAC. Where group testing cannot be accomplished through the PLC the lights shall be provided with a push to test feature. All lenses shall be glass, with color and marking as shown on the Plans.

8. Terminal Blocks

Terminal blocks for conductors of Size No. 8 AWG and smaller shall be DIN rail mounted stud and nut type feed through terminal blocks. The body shall be constructed of reinforced polyamide (PA) with a flammability rating of V0 as per UL 94. Each block shall be 13 mm wide. They shall be rated for 57 amperes at 800 volts, with a surge capacity of 8 kV. They shall be provided with a 5 mm stud suitable for use with a locking fork terminal. They shall be DIN rail mounted using suitable hardware, end barriers and logically divided with spacers as required. Corrosion resistant marking strips shall be provided for conductor identification. At least ten-percent spare terminals shall be provided. The terminal blocks shall be approved equal to Phoenix Contact RBO 5.

9. Terminal Connectors

Terminal connectors shall be seamless, heavy duty compression locking fork terminals manufactured from pure electrolytic copper tubing. Terminals shall be tin

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plated and provided with a double-thick tongue and insulation grip. Connections to PLC terminals, pilot devices, etc., where a fork terminal is impractical shall be provided with crimp ferrules. No connections shall be made with bare conductors. Terminals and compression tools must be approved by the Engineer.

10. Nameplates

Nameplates shall be provided for all aforementioned devices and shall be made of laminated phenolic plastic with white front and back and black core and shall be not less than 0.09-inch thick. The lettering shall be etched through the front layer to show black engraved letters on a white background. Lettering shall be not less than 0.24-inch high, unless otherwise detailed on the Plans. Nameplates shall be securely fastened to the equipment with stainless steel screws.

N. Bridge Control Cabinets

Control panels enclosed in freestanding cabinets shall be furnished and installed in the operator house and machinery spaces where shown on the Plans. All circuit breakers, UPS, PLC racks, switches, contactors, relays, regulating equipment, and other apparatus for control of the span and its auxiliaries shall be mounted on these enclosed panels. The arrangement and line-up of the individual control cabinets shall be as shown on the Plans.

All equipment in each control cabinet shall be mounted on sheet-steel bases, and each device shall be front-connected, front-wired, and removable from the front. The equipment in all cabinets shall be arranged for ease of access and for safety and convenience of operation. Special care shall be taken to obtain a systematic and neat arrangement of the equipment. Each device shall be suitably named and plainly marked by a laminated nameplate mounted near the device on the panel. Each nameplate shall show an approved descriptive title for the apparatus, together with the device designation appearing on the schematic wiring diagrams.

Each indoor control cabinet shall be a NEMA Type 12 enclosure constructed of No. 12 gauge sheet-steel and shall be reinforced with steel angles or channels to provide a rigid, freestanding structure. Exterior control cabinets shall be NEMA 4X or NEMA 12 stainless steel. The control cabinets shall be provided with hinged doors on the front of each panel section. Door panels shall be gasketed and shall be provided with three-point, vault-type latches. Drive and control panels shall be provided with fan and filter ventilation. All hardware shall be corrosion resistant. Thermostatically controlled strip heaters shall be provided in each cabinet to prevent build-up of excess moisture. Each panel shall be provided with suitable interior light fixtures and a duplex receptacle.

Each control panel enclosure shall be as shown on the plans. If the final cabinet dimensions, as established by the manufacturer, should necessitate rearrangement or modification of the equipment in order to fit in the available space, such rearrangement

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or modifications shall be made and at no extra cost. The final arrangement of all equipment in the operator house shall be subject to the approval of the engineer.

The indoor control panel enclosures and all metal reinforcing shall be painted inside with two coats and outside with three coats, consisting of one coat of primer followed by one coat of gray enamel on the inside surfaces and two coats of gray enamel outside. The finish coat shall be ANSI 61 light gray enamel.

All contactors, relays, and other devices shall be of required current carrying and interrupting capacity. All apparatus shall be of substantial construction and shall conform to the requirements of NEMA Standards Publications ICS 1 and 2, 2000, for industrial control devices.

All wire shall be flame-retardant, ethylene-propylene insulated, switchboard wire, Type SIS. Conductors shall be stranded copper not smaller than No. 14 American Wire Gauge.

For each assembled control panel, all outgoing wire, No. 8 AWG or smaller, shall be connected to terminal blocks installed at the sides of the cabinet. The control panels shall also provide sufficient extra terminals to allow connection of all wires coming from limit switches and other devices that go on to the bridge control console and other locations as required, even though these wires do not connect to apparatus on the control panels. Spare terminals totaling at least 10 percent of those actually used shall be provided. Each terminal shall be identified per wire number shown on the Contractor's schematic wiring diagrams.

All panel wiring shall be arranged systematically so that circuits can be readily traced. The wiring shall be installed in a network of troughs consisting of horizontal and vertical sections securely bolted to the panels. The troughs shall be fabricated from heavy duty Noryl plastic shaped into a channel cross-section. After installation of the wiring, an insulated, flanged cover shall be snapped over the open side of each trough section.

O. Raceways

Except for multi conductor, jacketed cables, all wiring shall be installed in conduit or stainless steel wireway as shown in the Plans. Existing conduits shall be reused where possible.

Within the electrical rooms the contractor shall have the option of using cable trays and tray cable. This installation shall be detailed by the contractor and submitted for review by the Engineer.

All conduits shall be standard weight, threaded, rigid steel conduit conforming to the requirements of ANSI Standard C80.1. All conduits shall be hot-dip galvanized, inside and out, to meet the requirements of the above standard for protective coating. Conduit

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couplings and fittings shall be made of malleable iron or steel, hot-dip galvanized. Electro-Metallic Tubing (EMT) may be used in the control house where approved by the Engineer.

All conduits to be installed in outdoor locations shall be plastic coated as hereinafter specified. Conduit fittings, including couplings, unions, elbows, expansion and deflection fittings, and other items, shall also be plastic coated. Conduits and fittings, which are to be plastic coated, shall be provided with a factory-applied polyvinyl chloride (PVC) coating in the following manner. The exterior of the galvanized rigid steel conduit or fitting shall be coated with an epoxy acrylic, heat-polymerizing adhesive not to exceed 0.004 inch. A 40 mil PVC plastic coating shall be bonded to the outside metal surface the full length of the pipe, except for the threads. The plastic coating shall have an 85+Shore A Durometer rating and conform to NEMA RNI-1998 (Type A), ASTM D746, and Federal Specifications LP406b, Method 2051, Amendment 1 or 25 September, 1952. A two-part red urethane, chemically cured coat shall be applied to the interior of all conduit and fittings. This internal coating shall be at the nominal 2-mil thickness and shall be sufficiently flexible to permit field bending without cracking or flaking. The Plasti-bond, PVC coated, hot-dip galvanized steel conduit shall be UL labeled and listed.

All hollow conduit and fittings, which serve as part of the raceway, shall be coated with the same exterior PVC coating and red interior urethane coating. The plastic exterior coating and the red interior urethane coating shall be factory applied by the same manufacturer who produces the PVC coated hot-dip galvanized conduit. PVC coated conduit shall be installed in accordance with the manufacturer's installation manual.

Unions to connect sections of conduit that cannot be joined to each other or to boxes in the regular manner shall be of malleable iron or steel, hot-dip galvanized, PVC coated.

Conduits shall not be less than $\frac{3}{4}$ inch in diameter unless otherwise noted on the plans. The interior surfaces shall have a smooth finish and be free of burrs or projections, which might cause injury to the cables. All conduits shall be free from blisters, cracks, or injurious defects and shall be reamed at each end after being threaded. Sections shall be connected to each other with screw couplings made up so that the ends of both conduits will butt squarely against each other inside of the coupling. Conduits shall be installed to be continuous and watertight between boxes and equipment. Conduits shall be protected at all times from the entrance of water or other foreign matter by being well-plugged overnight or when the work is temporarily suspended.

Conduit bends and offsets shall be made by cold bending using approved methods and equipment. The use of a pipe tee or vise for bending conduit will not be permitted. Conduit, which has been crushed or in any way deformed, shall be discarded. All bends shall be long sweep, free from kinks, and of such easy curvatures as to permit the drawing of conductors without injury. Conduit runs shall be made with as few couplings

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as standard lengths will permit, and the total angle of all bends between any two boxes or cabinets shall not exceed 90 degrees, unless otherwise approved by the engineer. The radius of curvature of pipe bends shall not be less than eight times the inside diameter of said conduit. Long running threads will not be permitted. Pull boxes shall be used whenever necessary to facilitate the installation of the wire.

Except for installation indoors or where specifically permitted by the engineer, condulets or conduit bodies shall not be used for pulling conductors or for making turns in conduit runs or for branching conductors. Condulets or conduit bodies, where permitted, shall consist of malleable iron castings with gasketed covers of the same material and fastened with brass cover screws. The bodies shall be hot-dip galvanized, and PVC coated when used with PVC coated conduit.

Where conduits pass through the floors or walls of the houses, they shall be provided with PVC pipe sleeves for free passage of the conduits. After the conduits are installed, the openings shall be caulked with an elastic compound and escutcheon plates provided on the interior walls, ceilings, and floors.

Conduits and wireway shall be securely clamped and supported at intervals not exceeding five feet in length.

Conduit and wireway runs exposed on the steel structure shall be securely clamped to the steelwork. The conduit clamps, in general, shall consist of U-bolts attached to structural steel supports bolted to the members. The wireway clamps, in general, shall consist of manufacturer recommended stainless steel bracket hangers attached to structural steel supports bolted to the members. The wireway cover shall be on the top or on the side of the wireway and be clear of opening obstructions. The minimum thickness of the structural supports shall be 3/8 inch. Supports shall be arranged so that conduits and wireway rest on top of the support and conduit U-bolts rest on top of the conduits. The use of J-bolts to fasten structural supports or to clamp conduits will not be permitted.

All U-bolts and bracket hangers shall be provided with medium-series lock washers and hexagonal nuts. The bolts, nuts, and washers shall be of stainless steel conforming to the requirements of the Standard Specification for Stainless and Heat-Resisting Steel Bars and Shapes, ASTM Designation A276, Type 316.

Where conduits and wireways are to be mounted exposed on non-steel surfaces, they shall be securely clamped to the surface using bent plate pipe supports with back spacers held by not less than two bolts. The stock size for the bent steel plate supports shall be ¼-inch thick by 2 inches wide. Back plates shall be of 3/8-inch thick steel. Supports and spacers shall be hot-dip galvanized. Bolts shall be not less than ½-inch diameter and shall be of stainless steel conforming to the requirements specified for U-bolts.

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At any point where a conduit crosses an expansion joint longitudinally or where movement between adjacent sections of conduit can be expected, conduit expansion fittings shall be installed. The fittings shall be bronze expansion fittings and shall be provided with flexible bonding jumpers to maintain the electrical continuity across the joints. The fittings shall permit a total conduit movement of 8 inches and shall be engineer approved equal to the O.Z./Gedney Type EX, Spring City Type EF, or the Crouse-Hinds Type XJ.

At any point where a conduit crosses a joint laterally or where an offsetting type movement between adjacent sections of conduit can be expected, expansion and deflection fittings shall be installed. The fittings shall permit a movement of $\frac{3}{4}$ inch from the normal in any direction. The fittings shall be the O.Z./Gedney Type DX, Spring City Type EDF, Adalet Type STX, or Engineer approved equal.

Flexible conduits for the connections between the rigid conduit system, all motors, and limit switches shall be made with sections of PVC coated, flexible, metallic, liquid tight conduit. Each section shall not exceed 18 inches without prior approval of the Engineer.

All conduit embedded in concrete, insofar as possible, shall be completely encased by concrete of not less than 3 inches, measured in any direction, and shall be securely held in place during pouring and construction operations. A group of conduits terminating together shall be held in place by a template.

All conduit, wireway, and fittings shall be carefully examined before being installed, and all pieces having defects shall be set aside and removed from the site. All conduit bends shall be made with standard size conduit elbows. Conduit shall be assembled hand tight and then using strap wrenches tightened two more turns. Wrench marks or chuck marks shall be touched up with the appropriate touch-up compound. All cuttings and threading shall be performed as recommended by the conduit manufacturer. All conduit, enclosures, and fittings shall be mechanically joined together to form a continuous electrical conductor to provide effective electrical continuity.

Ends of abandoned conduits, spare conduits/wireway, and empty conduits/wireway and stubs shall be capped during and after construction, and care shall be taken to ensure that no moisture or other matter is in or enters the conduits.

All conduits shall be pitched not less than 1 inch in ten feet (except by special permission). Where conduits cannot be drained to pull boxes, a drain "T" with drain fitting shall be installed at the low point and drained to a dry well of broken stone. Drain fittings shall be of stainless steel and shall be capable of passing 1 oz of water per minute.

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The ends of all conduits projecting into boxes and equipment enclosures shall be provided with bronze insulated grounding bushings. The insulated portion shall be of molded phenolic compound, and each fitting shall have a screw type combination lug for bonding. Insulated bushings shall be the O.Z./Gedney Type RBLG, Spring City Type GB, or engineer approved equal manufactured by Appleton. All bushings in any box or enclosure shall be bonded together with No. 8 AWG bare copper wire. Where conduit hubs are provided use locking nuts with grounding terminals.

All conduits and wireway shall be carefully cleaned both before and after installation. Upon completion of the conduit and box installation, clear each conduit by snaking with a steel band, to which shall be attached an approved tube cleaner equipped with a mandrel of a diameter not less than 85% of the nominal inside diameter of the conduit and with a wire brush of the same diameter as the conduit, and shall then draw in the cables.

Both ends of each conduit or wireway run shall be provided with a brass tag having the same number stamped thereon in accordance with the conduit diagrams, and these tags shall be securely fastened to the conduit ends with No. 20 AWG brass wire.

Separate conduits or wireways shall be furnished and installed to carry the circuit wiring to all span driving motors.

All conduits projecting into boxes and equipment enclosures shall be provided with water tight, weather proof, insulated throat conduit hubs. The conduit hubs shall be approved equal to Meyers Watertight Rigid Conduit Hubs except for PVC coated conduit which shall be provided with PVC hubs of the same manufacture as the conduits.

P. Boxes

All surface mounted pull, junction, and terminal boxes shall be of type 316 stainless steel, and shall be provided with full length hinged, gasketed covers held with stainless steel fast operating clamps to provide NEMA 4X watertight construction. They shall be engineer approved equal to the Hoffman bulletin A4S or equivalent by Weiggman or Hammond.

Interior and exterior boxes shall be provided with external mounting lugs and shall be fastened in position with stainless steel through bolts. Conduit entries shall be means of galvanized malleable iron hubs. PVC coated conduit shall use PVC coated hubs. No box shall be drilled for more conduits or cables than actually enter it. Exterior boxes shall be provided with drain fittings of the same type as specified for conduit drains.

All boxes shall be sized in accordance with the requirements of the National Electrical Code and the dimensions as shown on the Plans.

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Terminal boxes shall be of sufficient size to provide ample room for the terminal blocks and interior wiring and for the installation of conduit terminations and multi conductor cable fittings. Interior mounting backpanels with tapped holes shall be provided for mounting the terminal blocks.

Q. Hardware and Supports

Supports for conduits, wireways, cables, boxes, cabinets, disconnect switches, small limit switches, and other separately mounted items of electrical equipment shall be fabricated from stainless steel not less than 1/4" thick. All supporting members shall be included under the electrical work.

Structural steel brackets, boxes, and other equipment mounted on concrete surfaces shall be provided with a full neoprene gasket not less than 1/8 inch thick between the equipment and the surface of the concrete.

Expansion anchors for fastening equipment or brackets to concrete surfaces shall be wedge type anchor bolts, which shall be locked in place by an expansion wedge as the nut is tightened. All parts of the expansion anchors shall be of Type 316 stainless steel. Holes for the anchors shall be drilled to the size and depth recommended by the manufacturer using carbide tipped masonry drills.

Mounting bolts, nuts, washers, and other detail parts used for fastening boxes, disconnect switches, small limit switches, conduit clamps, cable supports, brackets, and other electrical equipment shall be of stainless steel conforming to the requirements of ASTM Designation A276, Type 316. Bolt heads and nuts shall be hexagonal and shall be provided with medium-series lock washers. Bolts smaller than 1/2 inch in diameter shall not be used, except as may be necessary to fit the mounting holes in small limit switches, boxes, and similar standard devices.

Usage of beam clamps for supporting conduits, boxes, or other equipment shall not be acceptable without prior approval of the engineer.

Preformed metal framing channels, such as Kindorf, Unistrut, Superstrut, etc., are only acceptable for mounting or supporting electrical equipment, conduits, or boxes where specifically approved by the engineer. All components shall be type 316 stainless steel and shall be detailed by the contractor.

R. Wiring and Cables

1. General

Except where otherwise noted, wiring in conduits shall be single-conductor.

All wires and their insulation and covering shall be of a nationally recognized brand, acceptable to the engineer, and shall have marks always used on the particular brand for identifying it.

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All wiring and cables shall conform to the requirements of NEMA Publication No. WC70-2000. Before wire and cable orders are placed with any manufacturer, submit for approval typical published test data for the type of insulation proposed, showing that it meets the requirements of NEMA Publication No. WC70. All materials used to fabricate insulated wiring and cables shall be certified to be from stock not more than one year old.

All conductors shall be of stranded copper large enough to carry safely the maximum currents required without injurious heating or serious voltage drop. Conductors shall not be smaller than No. 14 AWG, except as approved for control panel and console wiring. All conductors shall be soft-annealed copper wire conforming to the requirements of NEMA Publication No. WC70. All conductors shall have Class B concentric stranding, except for conductors in flexible cables.

The insulation shall be a chemically cross-linked, polyethylene compound conforming to the requirements of Part 3.7 of NEMA Publication No. WC70. The thickness of insulation shall be that required for 600 volts rated circuit voltage listed under Column A of Table 3-1. Insulation type shall be Type XHHW-2.

Equipment ground conductors shall be bare, stranded, coated copper conforming to the requirements of NEMA Publication No. WC70, Part 2.

Single conductor wiring, including the insulating material, shall be tested to demonstrate that it meets specified requirements. The testing shall be done as stipulated in NEMA Publication No. WC70, Part 6. Wiring and cables shall not be shipped from the plant of the manufacturer until certified test reports on the cable properties have been approved by the engineer.

The conductor sizes and number of wires shown on the Plans are the minimum permissible. The contractor shall provide wiring and cables of sufficient size and number as may be required for the installation in accordance with the wiring diagrams on his approved working drawings. In each conduit and multi conductor cable containing ten or more conductors, at least one spare wire shall be provided for every ten conductors actually used.

Wiring shall not be installed in any conduit before all joints are made up tightly and the conduits rigidly secured in place. The drawing of cables into conduits shall be done without injury to the wires or their insulation or covering. No lubricant of any kind shall be used for the pulling of wires, unless specifically authorized by the engineer. Sufficient slack shall be left in all cables to permit proper connections in boxes, cabinets, and enclosures.

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Both ends of every single length of conductor shall be permanently and clearly tagged in accordance with the same numbers or designations appearing on the approved wiring diagrams. Wire tags for marking the conductors shall be heavy duty, heat shrink, waterproof, permanently marked, and resistant to ultraviolet light deterioration. Numbers and letters shall be black or blue on a white background. Submit the proposed wire marking system and a sample of the wire markers to be installed to the engineer for approval. Each conductor, except for control and instrument conductors, shall be color coded with colored insulation. Color coding for 120/208 volt conductors shall be black for phase A or 1, red for phase B or 2, blue for phase C or 3, white for neutral, and green for equipment ground. Color coding for three phase 480 volt conductors shall be brown for phase A or 1, purple for phase B or 2, yellow for phase C or 3, gray for neutral, and green for equipment ground. Each conductor shall be marked at panelboard gutters, pull boxes, outlet and junction boxes and each load connection and shall include each branch circuit or feeder and control wire.

Conductors inside terminal boxes, the control console, and control panels shall be neatly formed into cables and laced with approved cable ties, with the individual conductors leaving the cable at their respective terminal points. These conductors shall be looped to allow not less than 3" of free conductor when disconnected. The formed cables shall be held securely away from the terminals and from contact with the enclosure by means of approved insulating supports.

All outgoing wires, No. 8 AWG or smaller, in the control console and control panels and in terminal boxes shall be connected to stud and nut style terminal blocks. Terminals shall be suitable for use with solderless, locking fork, wire connectors. Connectors which extend beyond the ends of terminal block barriers, shall be furnished with an insulating sleeve covering the metal part of the connector. Taping of extended terminals will not be permitted.

Each terminal of all terminal blocks shall be permanently marked to show the same number or designation as appears on the wire connected thereto.

Splicing of wires will not be permitted, except for wiring to service lighting fixtures and receptacles. Wherever it becomes necessary to joint or branch conductors, terminal blocks shall be used, and wires shall be clearly tagged.

Multi conductor cables supported on the steelwork shall be secured thereto by bent plate cable clamps spaced not more than 3 ft on centers. The cable clamps shall be fabricated from stainless steel plates bent to suit the cables' outside diameters. In general, the clamps shall be fastened to structural brackets bolted to the steelwork.

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Where multi conductor cables enter the control console or any cabinets or boxes, they shall be provided with watertight cable terminators. Each cable terminator shall provide a watertight seal by compressing a tapered neoprene-sealing ring around the outer jacket of the cable. Cable terminator parts shall be made of bronze and shall be approved equal to the Series SF-327OB Watertight Cable Entrance Seals as made by O.Z./Gedney.

Take insulation resistance readings on all circuits installed, with electronic equipment disconnected, and furnish to the engineer a complete record of the results obtained. These circuits shall include connected motors when tested. Conductors rated 600 volts, or more, shall be 1 Mohm, or more. Defective circuits shall be replaced at the Contractor's expense.

Flexible cable for specified connections shall be rubber-insulated, multiple-conductor portable cords conforming to the requirements of NEMA Pub. No. WC3, Part 7.7 or NEMA Pub. No. WC8, Part 7.4 for hard service. Each cable shall be provided with a heavy-duty neoprene jacket conforming to the requirements NEMA Pub. No. WC3, Part 7.7.5.1 or NEMA Pub. No. WC8, Part 7.4.5.1. Flexible cables shall conform to the National Electrical Code, Article 400 for hard service. Flexible cables shall be provided with strain relief fittings and basket weave cable grips at each end. Strain relief fittings shall be malleable iron, liquid tight strain relief fittings. The cable grips shall be stainless steel, heavy long, closed wire mesh, single weave with a double eye support. All mounting hardware shall be stainless steel.

2. Ethernet Cable

Ethernet cables for PLC communications shall be four pair 24 AWG stranded copper PVC jacket Cat 5e shielded cable. Except as otherwise stated herein, the industrial Ethernet cables furnished in accordance with the specification shall comply with the latest applicable codes and standards of the American National Standards Institute (ANSI), the Telecommunications Industry Association (TIA), the International Standardization Organization (ISO), the International Electro technical Commission (IEC), the Institute of Electrical and Electronic Engineers (IEEE), the National Electrical Manufacturers Association (NEMA), the American Society for Testing and Materials (ASTM), and Underwriters Laboratory (UL).

As a minimum, the latest edition of the following individual standards shall apply:

- a) ANSI/TIA/EIA-568-B
- b) ISO/IEC 11801
- c) UL444, UL1666, UL1581
- d) ASTM B-3, B-8, B-33, B-470
- e) IEEE 802.3
- f) NFPA 70 NEC
- g) CSA C22.1-06 CEC

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Submit manufacturer's product data for cables. Cable data shall include both physical and electrical characteristics, as well as all applicable ratings.

The cables shall be rated for use in outdoor communications circuits and riser applications in a 125 degree F rated ambient. The cables shall pass a -40 degree Celsius cold bend test per UL 1581. The cables must be UL third party verified to ANSI/TIA/EIA-568-B.2 Category 5e Patch requirements. The cables shall be RoHS and CE compliant.

The conductors shall be stranded, tinned copper per ASTM B-33 and ASTM B470 Type III construction. The conductors shall be #24 AWG (20 sq. mm) stranded (7x#32). The insulation shall be polyolefin, free of defects and splices.

The cable shall contain four pairs. The insulated conductors shall be bonded together down the entire length of the pair. The pairs shall be marked with a permanent, extruded stripe identification of tip and ring insulated conductors. Each pair shall have a unique twist length to minimize pair to pair coupling. Shielding shall be an aluminized foil with the foil facing inward, where required.

All cables shall have a continuous jacket of Polyvinyl Chloride (PVC). Jacket thickness shall be .030" (75 mm) nominal thickness. The jackets shall be ultraviolet (UV) radiation and sunlight resistant per UL 1581. The jackets shall be oil resistant per UL 1581 Class 43.

The cables shall be permanently marked with the following information at 2 foot (61 cm) intervals:

- a) Manufacturer's name and or trademark
- b) The electrical performance rating (i.e. Cat 5e)
- c) The number of pairs and size (AWG).
- d) UL NEC and CEC listings.
- e) Sequential footage marking.
- f) RoHS compliance.

Lot testing shall be performed per UL 444 requirements for continuity, shorts and dielectric withstand. Lot testing shall be performed in accordance with ANSI/TIA-EIA-568-B.2 for the following:

- a) Insertion Loss (Attenuation)
- b) Conductor Direct Current Resistance
- c) Conductor Direct Current Resistance Unbalance
- d) Capacitance Unbalance
- e) Delay
- f) Delay Skew
- g) Near End Crosstalk (NEXT)

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- h) Power Sum Near End Crosstalk (PSNEXT)
- i) Equal Level Far End Crosstalk (ELFEXT)
- j) Power Sum Equal Level Far End Crosstalk (PSELFEXT)
- k) Input Impedance
- l) Return Loss

Lot test results shall be recorded and archived for a period no less than one year.

3. Twisted Shielded Pair Cable

Inclinometer cables shall be 600 volt rated, instrumentation type twisted shielded pair tray cables. They shall have no. 16 AWG soft annealed tinned copper conductors with XLPE insulation, a nylon rip cord and a PVC outer jacket. These cables shall be rated for wet or dry locations. The cable jackets shall be resistant to sunlight, moisture and vapor penetration, suitable for use in raceways, outdoor applications and direct burial applications.

Each pair shall be individually 100% shielded, and the overall assembly shall also be 100% shielded. The cables shall meet the following standards.

- UL Subject 1277 TC
- UL 1685 (UL 1581) Vertical Tray Flame Test comparable to IEEE 383-1974 (70,000 BTU/hr.) Flame Test
- NEC Type TC Listed, which is approved for cable tray use in Class 1, Division 2 areas, per NEC Articles 340, 318 and 501 and for Class 1 circuits as permitted in Article 725
- IEEE 1202/IEEE 383-2003/FT4 (70,000 BTU) Flame Test

S. Spare Parts

Supply spare parts in accordance with AASHTO requirements and Contract Plans. The spare parts supplied for each bridge shall include, but not be limited to, the following:

- Six fuses of each kind and size installed.
- 1 limit switch or proximity switch of each type specified.
- A set of contacts and contact fingers for each unit or fractional unit of five or less of each kind or size installed, including contactors and starters. For units that do not incorporate replaceable contacts, furnish a complete unit with coil.
- One coil for every five or less of each size relay, contactor, and motor starter installed.
- One complete relay timer, time delay relay, contactor, and starter for each unit or fractional unit of five or less of each kind and size installed.
- Two heaters for overload relays of each size installed.
- For the motor brakes:
One spare thrustor of each size complete with heater and motor.
One limit switches for hand-release mechanism.

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- One limit switches - brake released.
- One limit switches - brake set.
- One liter of thruster oil.
- For the PLC system:
 - One spare processor
 - One each of every type PLC input card and PLC output card.
 - One PLC power supply module.
 - One control switch contact unit of each type installed.
 - One 24 VDC power supply

Arrange the spare parts in cartons of substantial construction, with typed and clearly varnished labels to indicate their contents, and store them where directed by the engineer. Provide large spare parts with moisture-proof wrapping. Provide a directory of permanent type, describing the parts. In the directory state the name of each part, the manufacturer's number thereof, and the rating of the device for which the part is a spare. Mark the spare parts to correspond with their respective item numbers as indicated on the elementary wiring diagram.

SP-26.3 Construction

A. Electrical Service

The existing electrical service, shall remain to be reused.

B. Painting

1. General

The requirements for painting structural steel also apply to painting electrical equipment, unless otherwise specified.

2. Shop Painting

Electrical equipment such as conduits, boxes, supports, and other devices which have a galvanized finish or are of stainless steel and equipment such as motors, brakes, control console, and control panel frames and enclosures which normally are given a factory finish need not be shop painted. Give all other electrical equipment one shop coat.

3. Field Painting

Electrical equipment, which is normally given a factory painted finish suitable to the engineer, need not be field painted. Give all other electrical equipment, such as conduits, boxes, device enclosures, supporting clips and brackets, and other devices, two field coats of paint as specified under the requirements for painting structural steel. Before applying the two field coats, clean galvanized surfaces free of all grease, oil, dirt, and foreign material and etch with copper sulfate solution, after which the solution shall be applied. In lieu of etching and a coat of shop paint, the Contractor

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may use galvanizing primer as a first coat for galvanized surfaces. Apply a final field coat on electrical equipment in the operator house the color and type of paint to match the house interior.

C. PLC Programming and Sequence of Operation

The following is a general sequence of operation based on the mechanical requirements and as the bridge is currently operated. During the shop drawing submittal process the operating sequence shall be further refined with input from the Engineer and the City.

Raise Span:

Step 1: Turn bridge control power on. PLC enables desk controls. Confirm that all locking pins have been removed. The red "Lockpins Engaged" pilot light will be on until all pins are fully removed.

Step 2: Close the east and west pedestrian gates. The switches have to be held in the "close" position, if released the gates will stop operating. When the gates are completely closed the white "Closed" pilot lights will illuminate. If either gate "Closed" light does not illuminate, and visually it is determined that the gates are in fact closed, the HMI "bypass" tab can be selected, the password entered, and the gates closed bypass can be enabled. This will send an alarm to the HMI alarm history.

Step 3: Once the gates are both closed, the locking pins are removed, and the span drives are not faulted, the spans can be opened as indicated by the blue span control "ready" being illuminated.

Step 4: Select which span operating motor is to be used for the operation. The corresponding "ready" light will illuminate. Turn the span selector switch to "raise". Both drives will begin raising the span in creep speed. Once both drives are outputting torque, all four brakes will release and the drives will ramp to approximately 25% speed, to be field determined. If either of the drives fails to output torque, the operation shall be stopped and an alarm sent to the HMI. If any of the brakes fails to release after a ten second delay, to be field determined, the operation shall be stopped and an alarm sent to the HMI.

Step 5: The spans shall raise in reduced speed, matching position, until the spans are at approximately ten degrees, to be field determined. The drives will then smoothly ramp up to 100% speed. At the nearly open position, approximately 70 degrees, to be field determined, less than the angular opening of the existing nearly open proximity switches, the drives shall ramp down to 10% speed and creep to the full open position. The control system will determine span angular velocity based on the rate of change of the inclinometers. When the nearly open proximity switch is made, if the angular velocity has not reduced to below normal speed the operation shall be

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stopped and an alarm sent to the HMI. At full open, as determined by both the inclinometers and the fully open proximity switches the spans will stop, the brakes will set, and the navigation lights will extinguish the red lights and illuminate the green lights. Return the span control switch to the stop position. At any point in the operation returning the selector switch to the “stop” position will cause the drives to ramp down to zero, and the brakes to set before zero speed is reached.

Close Span:

Step 1: Select which span operating motor is to be used for the operation. The corresponding “ready” light will illuminate. Turn the span selector switch to “lower”. Both drives will begin lowering the span in creep speed. Once both drives are outputting torque, all four brakes will release and the drives will ramp to approximately 25% speed, to be field determined. If either of the drives fails to output torque, the operation shall be stopped and an alarm sent to the HMI. If any of the brakes fails to release after a ten second delay, to be field determined, the operation shall be stopped and an alarm sent to the HMI. As soon as either leaf is no longer fully open the green navigation lights will extinguish and the red lights shall illuminate.

Step 2: The spans shall lower in reduced speed until the spans are at approximately seventy degrees, to be field determined. The drives will then smoothly ramp up to 100% speed. At the nearly closed position, approximately 10 degrees, to be field determined, more than the angular opening of the existing nearly closed proximity switches, the drives shall ramp down to 10% speed and creep to the full closed position. The control system will determine span angular velocity based on the rate of change of the inclinometers. When the nearly closed proximity switch is made, if the angular velocity has not reduced to below normal speed the operation shall be stopped and an alarm sent to the HMI.

Step 3: Once the spans are below approximately five degrees, to be field determined, the PLC shall control the drives such that the angular position of the spans is precisely the same at five degrees and lower. The PLC will monitor the drive output torque. When output torque drops to zero, indicating the two leaves have mated with each other, and the mated proximity switches are both made, the brakes shall set and the drives shut off. If one or another of the mated proximity switches does not make, the inclinometers indicate the span is at approximately zero degrees and the drives are either not outputting torque or providing lowering torque, the operation shall stop and an alarm shall be sent to the HMI. Return the span control switch to the stop position. At any point in the operation return the selector switch to the “stop” position will cause the drives to ramp down to zero, and the brakes to set before zero speed is reached.

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Step 4: Open the pedestrian gates by turning the switches to “open”. If the “Mated” icon on the HMI is not illuminated, indicating one of the mated proximity switches did not close, the HMI “bypass” tab can be selected, the password entered, and the mated bypass can be enabled. This will send an alarm to the HMI alarm history.

Step 5: Turn the control power switch to the off position.

The vendor shall submit a complete list of proposed fault messages for review and comment and additional messages shall be added as required. These messages shall be recorded in order with the time and date of the fault. Bypasses must be enabled each time they need to be used, no bypass will be able to be left in the on position.

D. Manufacturer's Field Start-Up Service

Included with the furnishing of the major items of electrical equipment by the manufacturer is the furnishing of all necessary field supervisory start-up time by the manufacturer's Service Engineering Department to facilitate proper adjustment of the drive equipment so as to achieve satisfactory functioning of the drives.

The manufacturer's field service engineering personnel are required to be experienced in the adjustment and functioning of the particular control equipment furnished by the manufacturer. The personnel are required to be capable of locating and correcting faults or defects and of obtaining from the manufacturer, without delay, new parts or replacements for apparatus that, in the opinion of the Engineer, does not perform satisfactorily.

E. Field Testing

1. General

Furnish all labor, materials, plant, and equipment, maintenance and protection of traffic and perform all work necessary, such as adjustments or corrective measures, to properly test all systems included in the initial and final acceptance field testing for the bridge. Final acceptance testing shall not commence until the Operations and Maintenance manuals have been submitted and approved.

All test results, parameters, data specified herein to be recorded shall be presented in legible, tabular format, listing associated parameters and conditions. For example, motor current shall reference speed (rpm), span height (feet-inches), raise or lower mode, drive control selector speed, etc. The results of the bridge electrical systems tests shall be presented in a matrix form on an Inspection Report Data Sheet. The proposed format of these sheets shall be submitted to the Engineer for acceptance prior to the actual testing. Any parameter value, which falls beyond the recommended range, would require the readjustment or replacement of the defective device.

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The table of the test results shall have references to the specific sections of the testing procedure. The precision of the results will depend on the accuracy of recording equipment, the observer and weather conditions. For each stage of testing of the bridge control equipment, the name of the person who will perform the test, instruments used with calibration data if required, the exact date, time and weather conditions shall be recorded.

Some devices such as the transfer switch, lamps, console indicator lights, brake function indicator lights, console controlled lighting, horn, etc. can be easily tested without performing any bridge opening operation.

The bridge main parameters shall also be observed and visually compared to the control desk indicating meters. Any discrepancy between results should be recorded. A discrepancy between critical measurements like span position and speed shall be resolved prior to continuing the tests.

The testing shall be accomplished sequentially, following the bridge operation instructions for normal operation and emergency operation, as established in the new approved Operating and Maintenance (O&M) Manuals. A copy of the final, approved, O&M manuals will be on site during the testing. The major bridge systems shall be monitored while each bridge operates. All monitored parameters shall be kept for future reference, and a printout copy shall be attached to the O&M Manuals for reference. Another printout copy shall be provided to the Engineer.

The testing of the bridge electrical equipment would necessitate the use of the following recording and testing devices:

- A computerized 16-bit, data acquisition system providing simultaneous sampling every 0.1 second of span position, motor input power, current, voltage, and motor RPM. Data shall stream to disk at a rate of 10 Hz. The data shall be transferred to graphing software.
- Portable tachometer
- Portable ohmmeter
- Amp-probe
- Recording ammeter
- Recording voltmeter
- Infrared scanner
- Measuring tape
- Stop watch (Timer)
- All other necessary instrumentation and tools to monitor, adjust and/or replace items during the bridge testing procedure.

All meters shall be calibrated per NIST guidelines within 6 months of the testing.

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Arrange for and provide all the necessary field tests and provide a testing procedure subject to the approval of the Engineer, to demonstrate that the entire electrical system is in proper working order and in accordance with the plans and specifications. The tests shall include, but not be limited to operational testing of traffic signals, warning gates, movable span, navigation lights and signals and manual transfer switch.

Should the tests show that any piece of equipment or cable or wiring connection, in the judgment of the Engineer, is defective or functions improperly, such adjustments and/or replacements shall be made by the Contractor as to make the installation satisfactory to the engineer and at no extra cost.

It may be found that minor deviations from the performance specification are required for optimum bridge operation. All hardware required for these modifications shall be included in the control system vendor scope of work at no additional cost to the City.

During the field testing period, arrange to have at the site representatives of the manufacturer of all major pieces of equipment or systems. The representatives shall be capable of supervising all adjustments to the equipment; of locating faults or defects and correcting them if possible; and of obtaining from the manufacturers, without delay, new parts or replacements for apparatus which, in the opinion of the engineer, does not perform satisfactorily.

2. Initial Field Testing

The initial field tests are intended to confirm that each major sub-component meets factory acceptance test criteria in its field installed condition and that each subsystem is operating properly as part of the completed system. Confirmation of correct operation of sub-components will be demonstrated through successful operation of the particular component. However, the Contractor is still responsible for the factory acceptance tests as required per contract specifications. Examples of subsystems are the span drive systems, control and power wiring, limit switches, starters, span lock system, etc.

The initial field testing is intended for the contractor to make the necessary adjustments and/or modifications such that the normal and emergency control and power systems are operational, trouble free, operating with all interlocks properly functioning, and in compliance with the requirements of the contract plans and specifications.

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3. Final Acceptance Field Testing

a) General

The bridge acceptance testing is intended to show and/or demonstrate that the normal and emergency control and power systems are operational, trouble free, operating with all interlocks properly functioning, and in compliance with the requirements of the contract plans and specifications.

The final acceptance tests are not intended to substitute each sub-component acceptance factory and field tests. Confirmation of correct operation of sub-components shall be demonstrated through successful operation of the total control system. However, the Contractor is still responsible for the factory and initial field tests as required per contract specifications. For example, it is not the intent to manually operate and test each limit switch during Final Acceptance Field Testing. This will have been accomplished by the contractor during Initial Field Testing. The contractor shall be able to prove that the results of the sub-component tests are in conformance with the contract plans and specifications. The recommended values of various device parameters can be found in the appropriate manufacturer's catalog cuts and instruction manuals. Correct operation of the sub-components, and control circuit wiring connections will be verified through the successful completion of the entire bridge control and power systems tests.

The Final Acceptance Field Testing procedure will evaluate performance and confirm correct and proper operation of all major subsystems and devices including the control desk meters and HMI, control switches and pushbuttons, brakes, the span drives and motors, bypass switches, etc. The Final Acceptance Field Testing procedure shall demonstrate that the bridges can only be operated according to the "Sequence of Operation" as defined in the approved O&M Manuals. Visual inspections and physical measurements of some equipment are required for the purpose of recording valid parameter values. Bridge run printouts shall be provided for each test, and kept for the record together with all other recorded data.

The City must be in possession of the approved operating and maintenance (O&M) manuals at least thirty days before Final Acceptance Field Testing may begin. Start approval submissions of the O&M manuals as soon as possible, as several revisions may be required.

There shall be thirty consecutive days of nominal bridge operation using the new permanent systems, with a minimum of five successful openings per day, before scheduling of the Final Acceptance Field Testing.

Results and observations shall be carefully recorded throughout the various tests.

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Prior to performance of these tests, all temporary PLC forces, bypasses, jumpers, switches, etc., installed during any previous testing must be removed. The control circuits shall be in the state presented in the originally As-Built control wiring diagrams (restored to normal).

All tests and verifications shall be for equipment at both the near and far sides. In addition to all devices listed below, all associated devices should also be tested.

b) PLC System

The bridge primary control system is provided by the PLC system, span drives and power distribution system. Prior to any other test, visually verify the wiring connection integrity of the major components including:

- All limit switches
- Control cabinets contactors
- Pedestrian Gates
- Control desk indicating lights
- Control Desk HMI screens

c) Control Desk

The control desk devices (HMI, switches, pilot lights,) will be used throughout the tests, and all irregularities observed shall be noted during and after the tests from the notes and printouts.

d) Pedestrian Gate Control

Testing of the gates shall demonstrate the proper normal operation upon activation of the desk selector switches. Demonstrate proper manual operation.

Perform individual and group lower/raise commands and sequencing checks. Verify that the gates can only be lowered/raised in the proper sequence.

Verify the gate interlocks are functioning properly by showing the following:

1. Gates cannot be lowered unless the control power switch is on.
2. Gates cannot be raised unless the spans are properly mated

e) Span Brakes Control

The normal automatic set and released operation of the brakes shall be visually recorded during the span raise and lower operations. Each brake shall be hand released, one at a time, and the hand-released indication on the control desk verified.

With the span in non-permissive operation mode (drives not energized), the brake set and release switches can be activated manually and their set/released indication monitored on the control desk.

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f) Span Normal Operation

Several bridge openings will be required to demonstrate that all the operational parameters are acceptable and all interlocks and bypasses are functioning properly. Subsequent runs will be required to simulate failures and to test interlocking and bypass functions. The normal sequence of operation as described in the "Sequence of Operation" section of the approved O&M Manuals shall be followed up to the indicated operational step of the equipment to be tested. All tests shall be performed for all span motors on all leafs.

Follow the full "Sequence of Operation". During the span "Raise" and "Lower" operation, the following parameters shall be monitored and manually recorded:

- Span position [height in feet]
- Motor power [kilowatt]
- 3-phase current [amperes]
- 3-phase voltage [volts]
- Motor speed [rpm]
- Span skew
- Manually record maximum height during the "Raise" [degrees]
- Manually record "Raise" and "Lower" times [seconds]

These parameters shall also be recorded at the fully closed, nearly closed, nearly open and fully open position as indicated at the control desk by PLC HMI.

Verify that the span operated normally within the permissible position limits.

Verify that the recorded position, the control desk indicated position and the limit switches indicated position are equal or within the set design tolerances.

Verify the span operation interlocks are functioning properly by showing the following:

1. Verify that the span cannot be operated if more than one brake has been manually released.
2. Verify that the span cannot be operated if the gates are not lowered.

Verify that when the "Brake Hand Release Bypass" switch is enabled, interlock 1 listed above is overridden, and when the "Pedestrian Gates Closed Bypass" switch is enabled interlock 2 listed above is overridden.

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g) Emergency Span Stops

Under normal opening procedures, push the “Emergency Stop” red mushroom head button. Verify that all motor and brake contactors drop out and the span brakes set properly.

F. Bridge Operator

Once the Contractor begins field operations he shall be responsible for operating and maintaining the bridge as required by the United States Coast Guard USCG.

This includes bridge openings for navigation and resolving operational emergencies (i.e. marine collision, vehicular collision, etc.), as well as all operations required for construction scheduling and systems testing. The Contractor shall be responsible for maintaining the bridge so it can be safely operated in a reliable and timely fashion. The Contractor shall keep a log of all marine traffic openings according to State and Coast Guard standards and regulations. The type and name of each vessel shall be recorded, along with the date and time of opening. This log shall become the property of the State, when the state operators gain control of bridge operations.

This responsibility shall continue until final acceptance of the bridge by the City. The Contractor shall also provide persons to supervise the operation of the bridges and to train personnel for a period of 10 consecutive working days after the construction of the permanent control system has been completed, fine-tuned, field tested, and utilized for span operations. Instructors include, but are not limited to, representatives from manufacturers of the major equipment and a control engineer.

Provide operators who are skilled persons competent to operate the bridge and who are completely familiar with the operating equipment of the bridge and its auxiliaries. The operators are required to be able to make any adjustments required to the electrical and mechanical equipment.

During the 10-day period specified above, the operator(s) is required to be in attendance at the bridge for the normal working period of 8 hours per day, in addition to those required to operate the bridge as mandated by the USCG

Included in the 10-day training and instruction period, provide on-site training of electricians, maintenance workers, and other personnel as indicated by the Engineer on subjects such as troubleshooting, repair of electronic motor controls, drive circuit logic, maintenance and adjustment of all electrical equipment, software, PLC hardware, and other items required for full bridge operation and maintenance. Devote three 8-hour sessions to hardware and maintenance related topics. In addition, devote three 8-hour sessions to software requirements. Offer instruction pertaining to hardware and maintenance on two separate occasions to allow bridge personnel to coordinate the course with their normal activities. Devote one 8-hour session to training on the fire,

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security, and communications systems and equipment. Furnish all necessary instruction sheets, student training aids, books, paper, and booklets to supplement training. Submit to the Engineer, a minimum of two weeks prior to training session, an outline of topics to be covered and training material for review. It is the Contractor's responsibility to coordinate with the City the location where training sessions will be held. Supplying of visual aid equipment and other miscellaneous items required for training shall be the responsibility of the Contractor.

Make the instruction booklet that was specified above, "Operation and Maintenance Manual, Volume 1, Operation of Electrical Equipment", available for use during the training period.

Training of the designated bridge operational personnel shall commence three weeks prior to the official bridge opening date. This will allow training of personnel without interruption of normal traffic flow.

SP-26.4 Measurement

The Engineer will measure Bridge Electrical System, acceptably completed, as a single complete unit of work.

SP-26.5 Payment

The Engineer will pay for the measured quantities at the contract unit price under the following bid item:

Pay Item	Pay Unit
2545.601 Bridge Electrical System	Lump Sum

Payment is full compensation for all labor, materials, operation and maintenance manuals, training and equipment necessary for completely installed, ready for operation, movable bridge electrical systems; and for all incidental items necessary to complete the work as shown on the plans and included in the proposal and contract.

It is the intent and purpose of these Special Provisions to cover and include all apparatus and appliances to properly install, wire, connect, equip, test, adjust, and put into approved working order the respective portions of the electrical work herein specified. Furnish any incidental apparatus, appliance, material, or labor not herein specifically mentioned or included, but that the Engineer deems necessary to comply with the requirements of the related documents and referenced standards or codes, just as if specifically mentioned in these specifications and without extra cost.

Submit to the Engineer a detailed breakdown of the Contractor's costs under these items within 30 days of award of the contract. This breakdown will be evaluated by the

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Engineer and utilized as the basis for monthly progress payments for work satisfactorily completed. A minimum of ten-percent (10%) of the bid price for this item will be retained by the City until final acceptance of the bridge electrical system, the Contractor and Control System vendor have completed all items on their punch-lists, and all aspects of bridge operation, operator and maintenance personnel testing, training, and control are complete. Five-percent (5%) of the bid price for this item will be retained until final approval of the operation and maintenance manuals is granted by the Engineer.

- END -

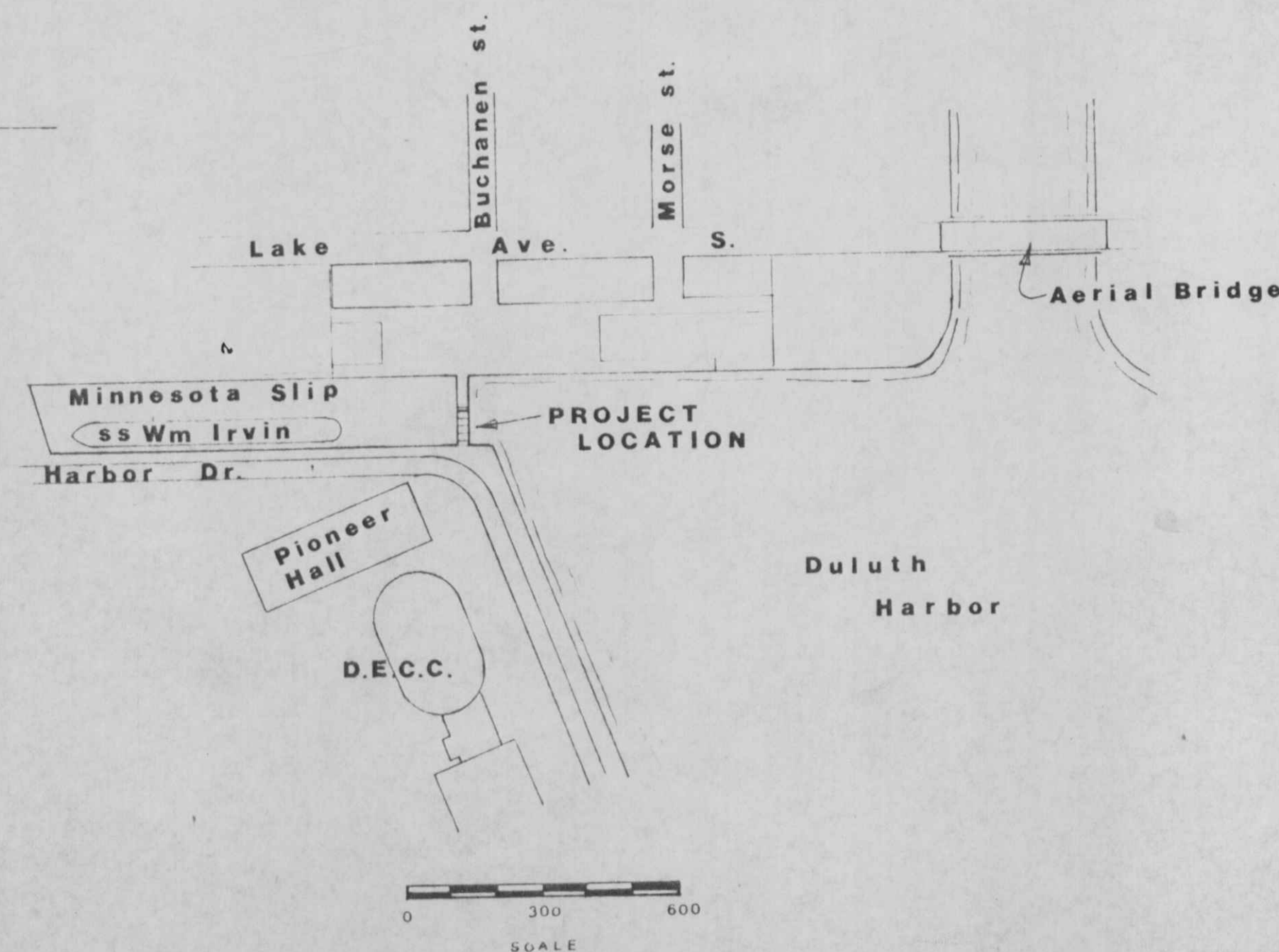
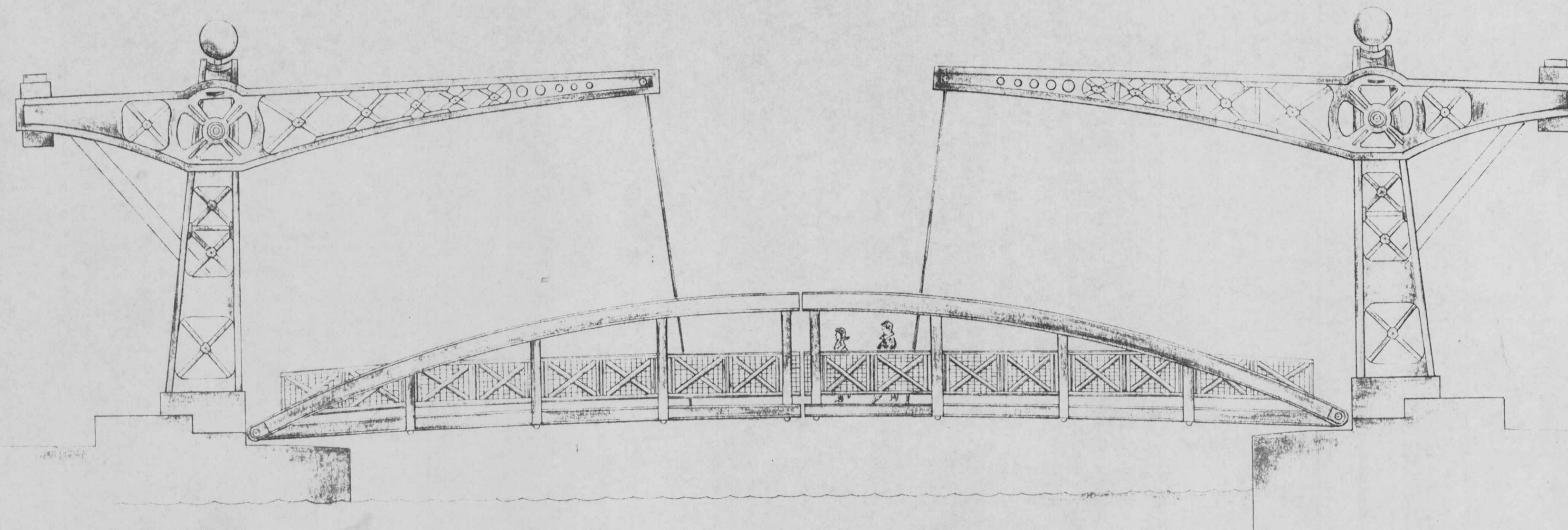
CITY OF DULUTH

DEPARTMENT OF PUBLIC WORKS ENGINEERING DIVISION

CONSTRUCTION PLANS

FOR:

MINNESOTA SLIP PEDESTRIAN BRIDGE



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THIS PLAN CONTAINS 40 SHEETS

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

PROJECT ENGINEER Paul S. Jorgensen DATE 2-11-91 REG. NO. 14016
 DESIGN SQUAD _____ DATE _____

CITY APPROVAL

APPROVED _____ CHIEF ENGINEER SANITARY SEWERS DATE _____ REG. NO. _____
 APPROVED _____ DATE _____ REG. NO. _____
 APPROVED _____ CHIEF ENGINEER WATER & GAS DATE _____ REG. NO. _____
 APPROVED John A. ... CITY ENGINEER DATE 2-11-91 REG. NO. 11551
 APPROVED _____ TRAFFIC ENGINEER DATE _____ REG. NO. _____

City of Duluth Proj. No. 85991E91

Krech & Ojard
 Consulting Engineers, P.A.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Paul S. Jorgensen
 REG. NO. 14016 DATE FEB 11, 1991

MINNESOTA SLIP
 PEDESTRIAN BRIDGE
 DULUTH, MINNESOTA

SHEET: 1
 OF: 1

NOTE:
PROPOSED STAGING AREA.
CONTACT RON ANDERSON
GRANDMA'S CORPORATE OFFICE
FOR PERMISSION (218-727-2250)

NOTE: EXISTING BREAK WALL CAN BE
USED FOR CONSTRUCTION EQUIPMENT
IF PROPERLY PROTECTED AND
EQUIPMENT HAS BEEN APPROVED
BY THE ENGINEER

CONTRACTOR'S
STAGING AREA

HARBOR

FACE OF DOCK

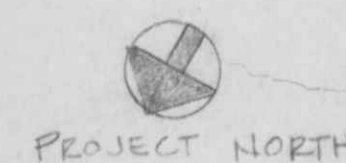
EXIST. BLDG.
Excursion Co. Office

DRIVE

HARBOR

SITE PLAN

1"=10'-0"



MINNESOTA SLIP

REFER TO SHEET 3-A

REFER TO SHEET 3-B

FACE OF EXIST DOCK

NEW SIDE WALK

NEW HAND RAIL MATCH EXISTING

EXIST SIDE WALK

EXIST GRASS AREA

EXIST. STREET & SIDE WALK

EXIST. HAND RAIL MODIFIED

EXIST BOLLARD (STAN)

NEW H.R.

EXIST BLDG TO BE MOVED BY OTHERS

EXIST FLAG POLE

NEW ROADWAY

BRIDGE

PAULOPH WOOD DECK

REMOVE EXIST CONC. CAP FOR NEW FOUNDATION

MODIFY EXISTING HANDRAIL. REFER TO SHEET 3-B

EXIST BOLLARD TO BE REMOVED

NEW CONTROL HOUSE

EXIST. CONST. JOINT

EXIST HAND RAIL TO BE MODIFIED

EXIST. BREAKWALL

EXISTING BENCHMARK #350 EL. 605.58

EXIST. BOLLARD (TO BE REMOVED)

Krech & Ojard
Consulting Engineers, P.A.

209 W. 1st St., Suite 202 □ Duluth, MN 55802 □ Phone: (218) 727-3282

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Klaus Ojard
REG. NO. E 14016 DATE FEB. 11, 1991

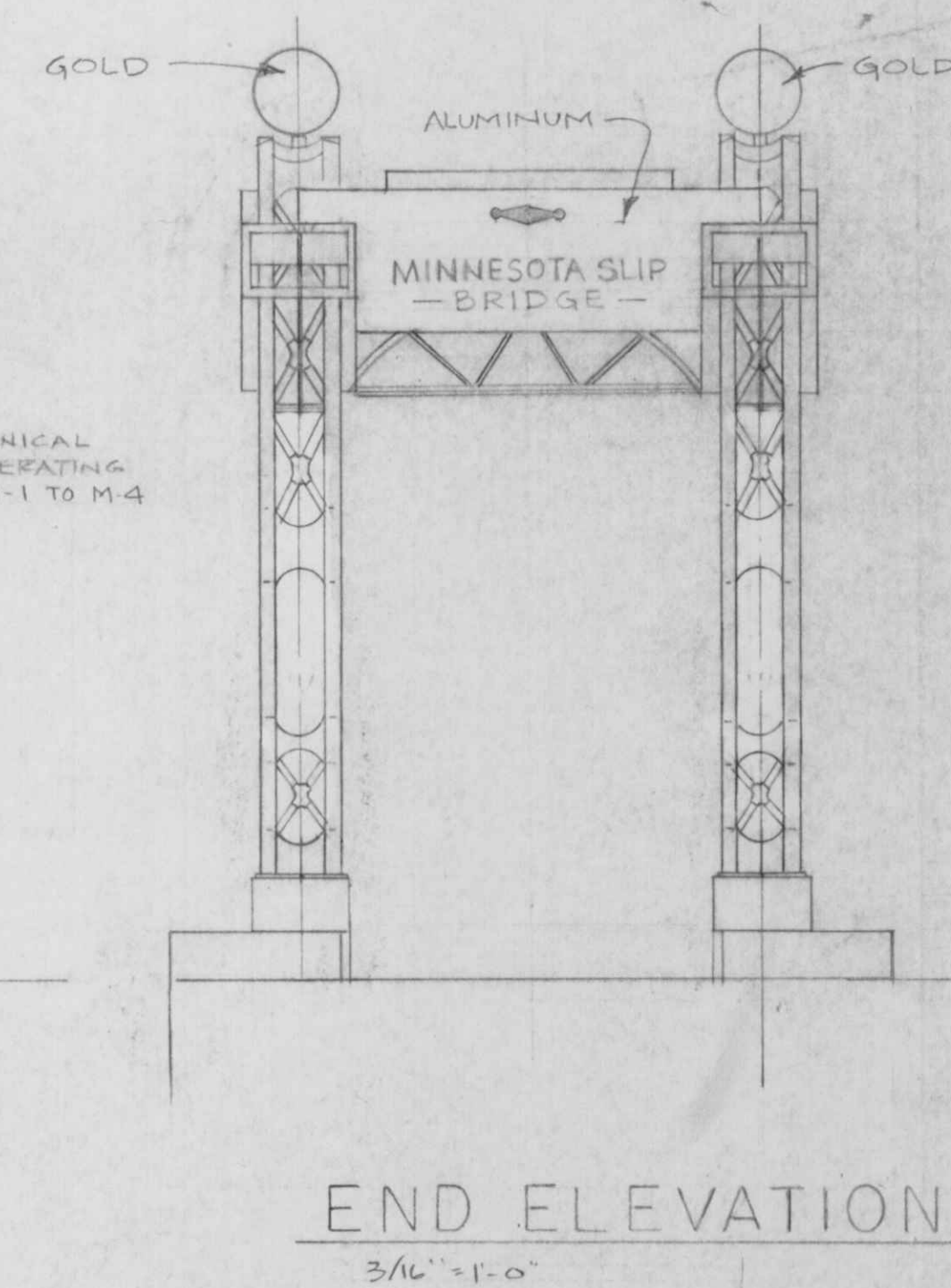
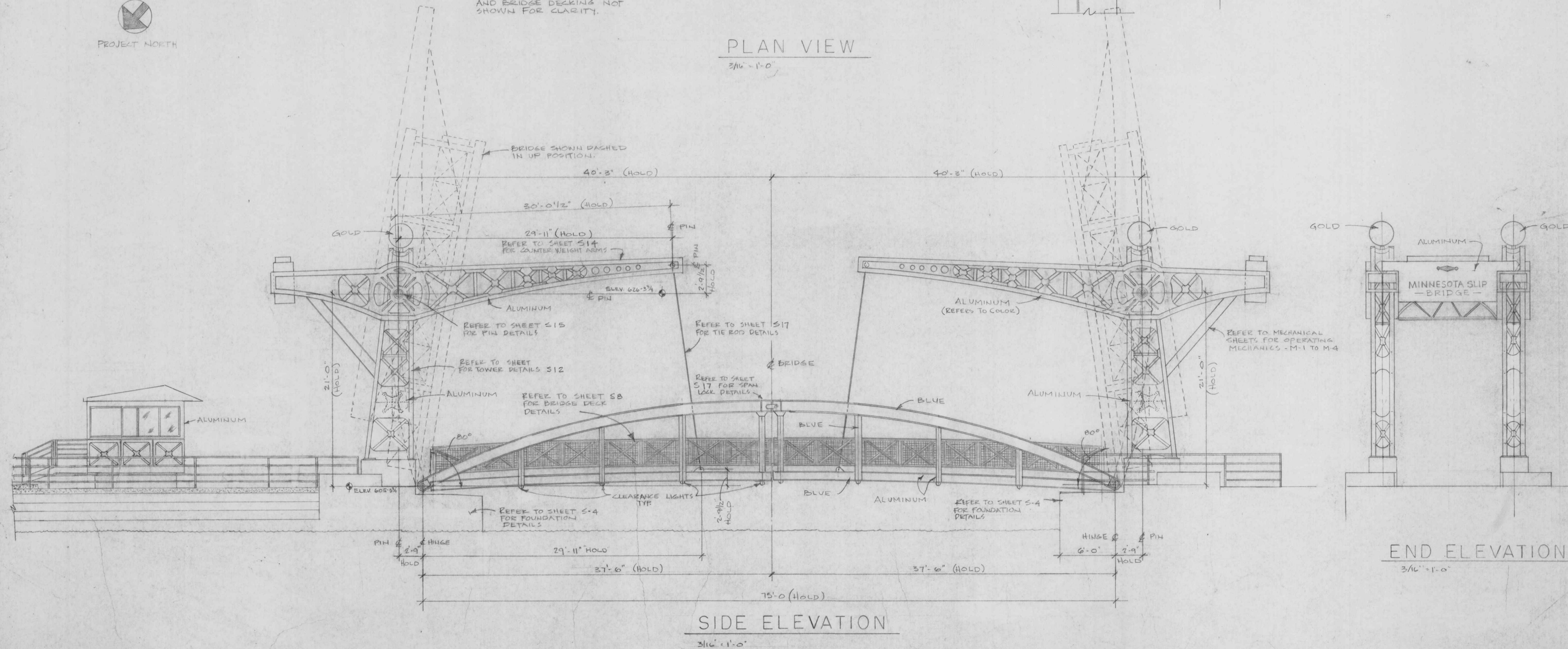
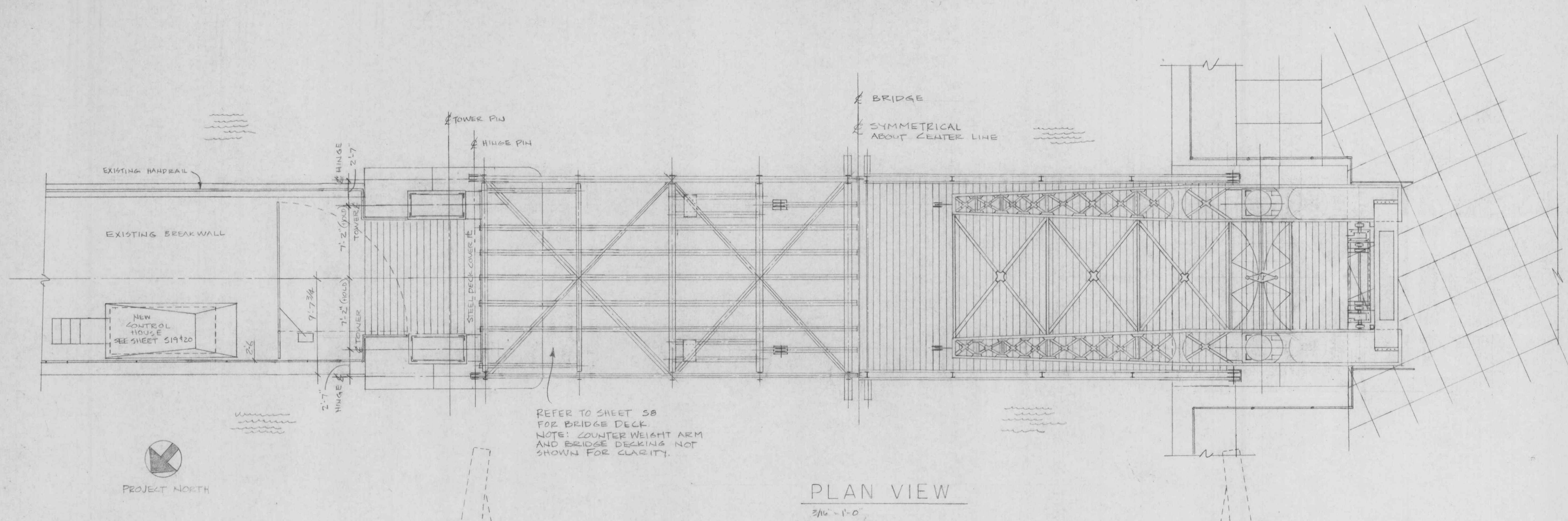
SITE PLAN
MINNESOTA SLIP
DULUTH, MINNESOTA

RELEASE DATE:
REVISIONS:

PROJECT NO. 90-201
DRAWN BY: *LT*
CHECKED BY:

SHEET:

S-1 OF 20



Krech & Ojard
Consulting Engineers, P.A.

209 W 1st St Suite 202 ☐ Duluth, MN 55802 ☐ Phone: (218) 727-3282

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

Richard J. Jand

REG NO E 14016 DATE FEB 1, 1931

Richard S. Jard

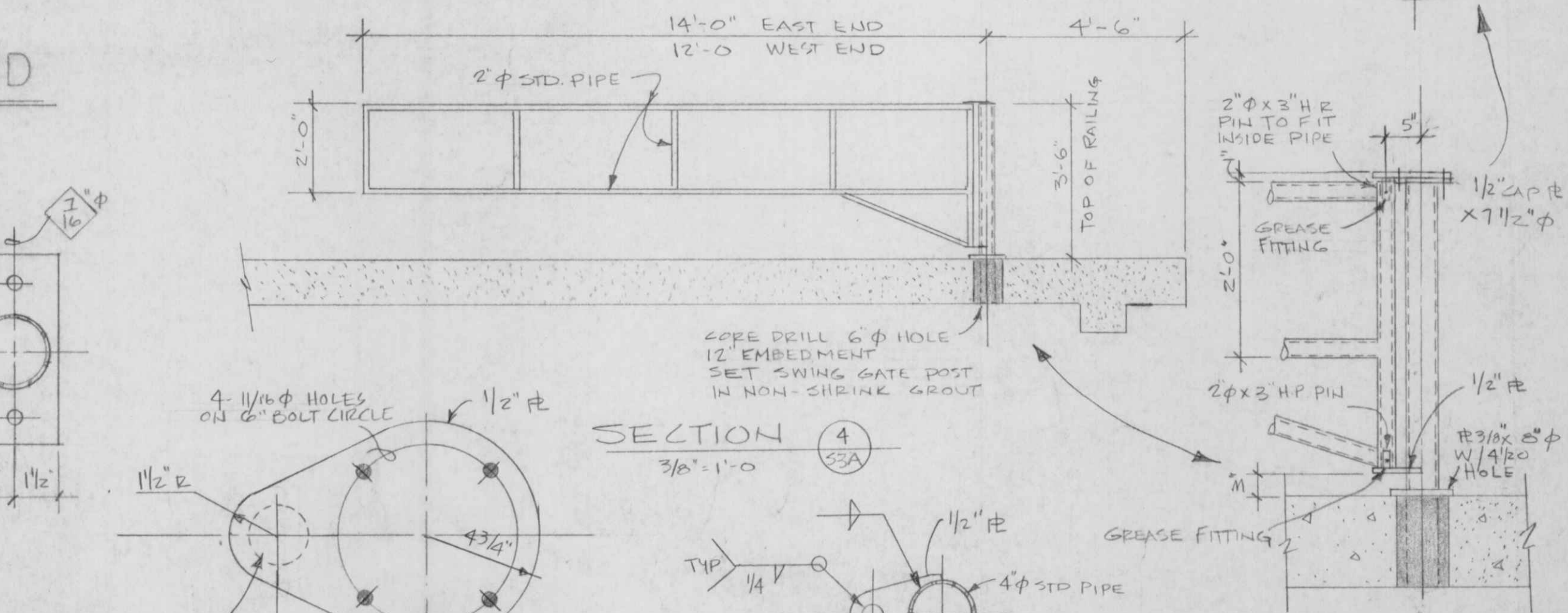
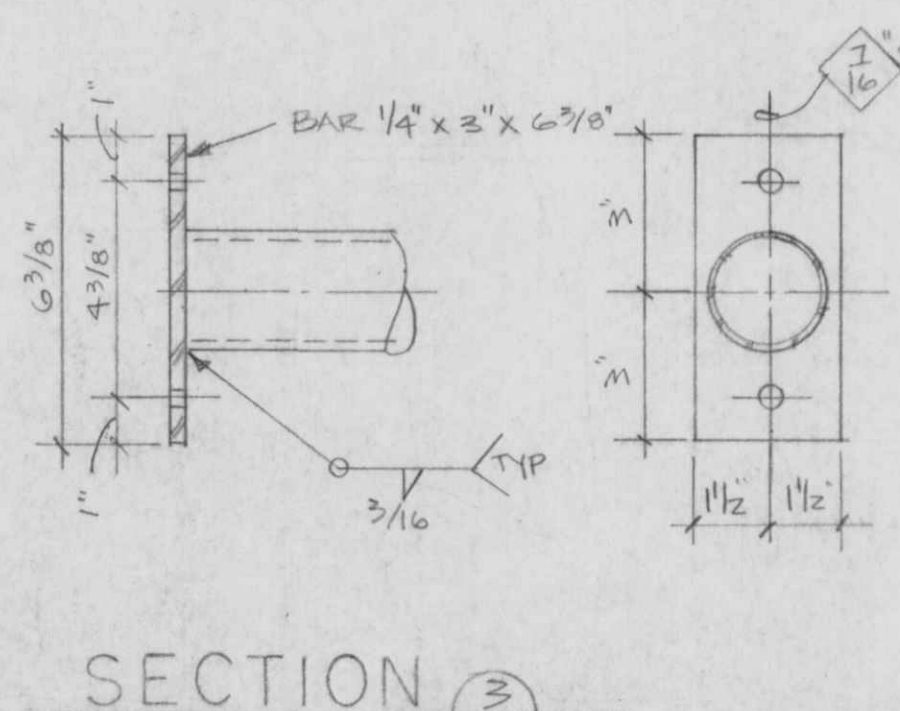
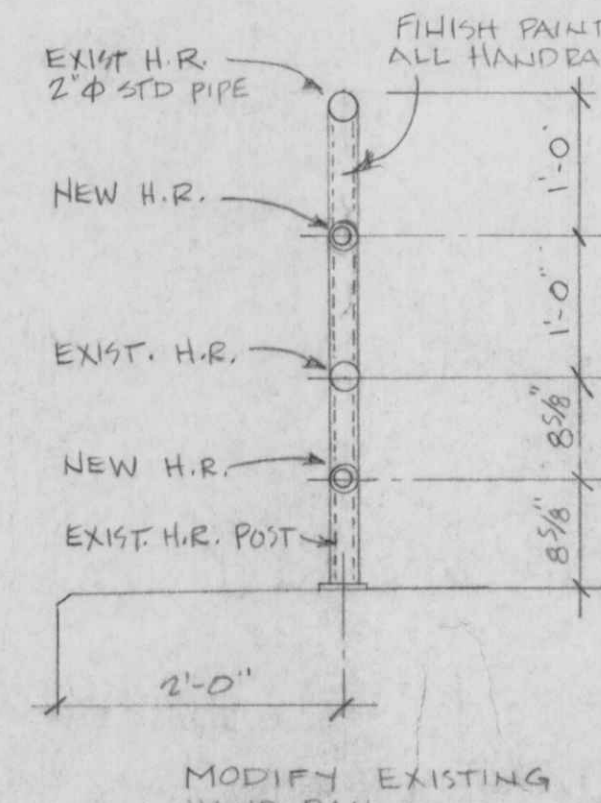
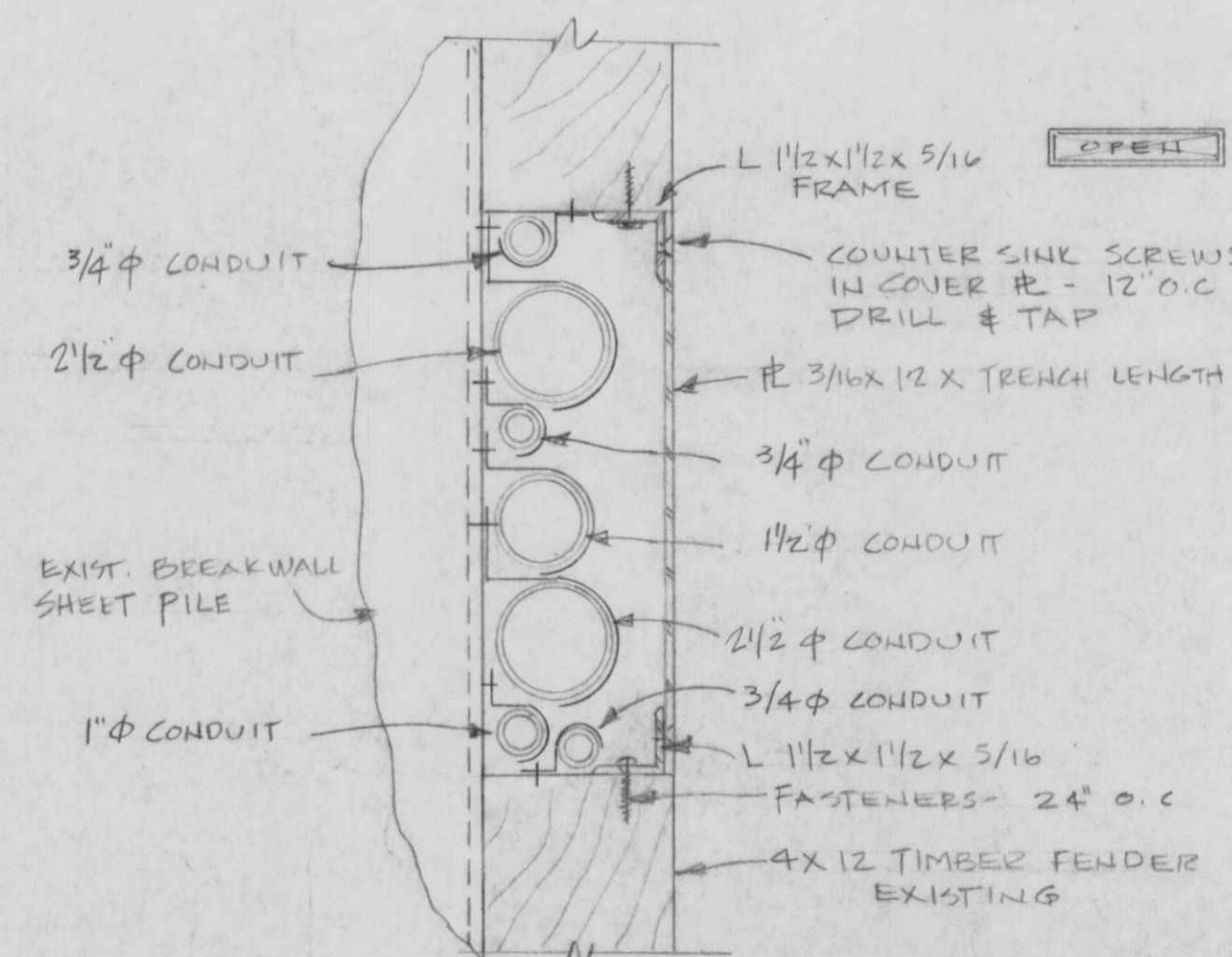
GENERAL ARRANGEMENT
MINNESOTA SLIP BRIDGE

PROJECT NO: _____
DRAWN BY: 71
RELEASE DATE: _____
REVISIONS: _____

SHEET:

S2 OF: 20

City of Duluth Proj.No.8599IE9



MINNESOTA SLIP PEDESTRIAN BRIDGE
SITE PLAN — EAST END
DULUTH MINNESOTA

I HEREBY CERTIFY THAT THIS PLAN,
SPECIFICATION OR REPORT WAS PREPARED
BY ME OR UNDER MY SUPERVISION AND
THAT I AM A DULY REGISTERED PROFES-
SIONAL ENGINEER UNDER THE LAWS OF
THE STATE OF MINNESOTA

Robert S. Oja

REG. NO. E 14016 DATE FEB 1991

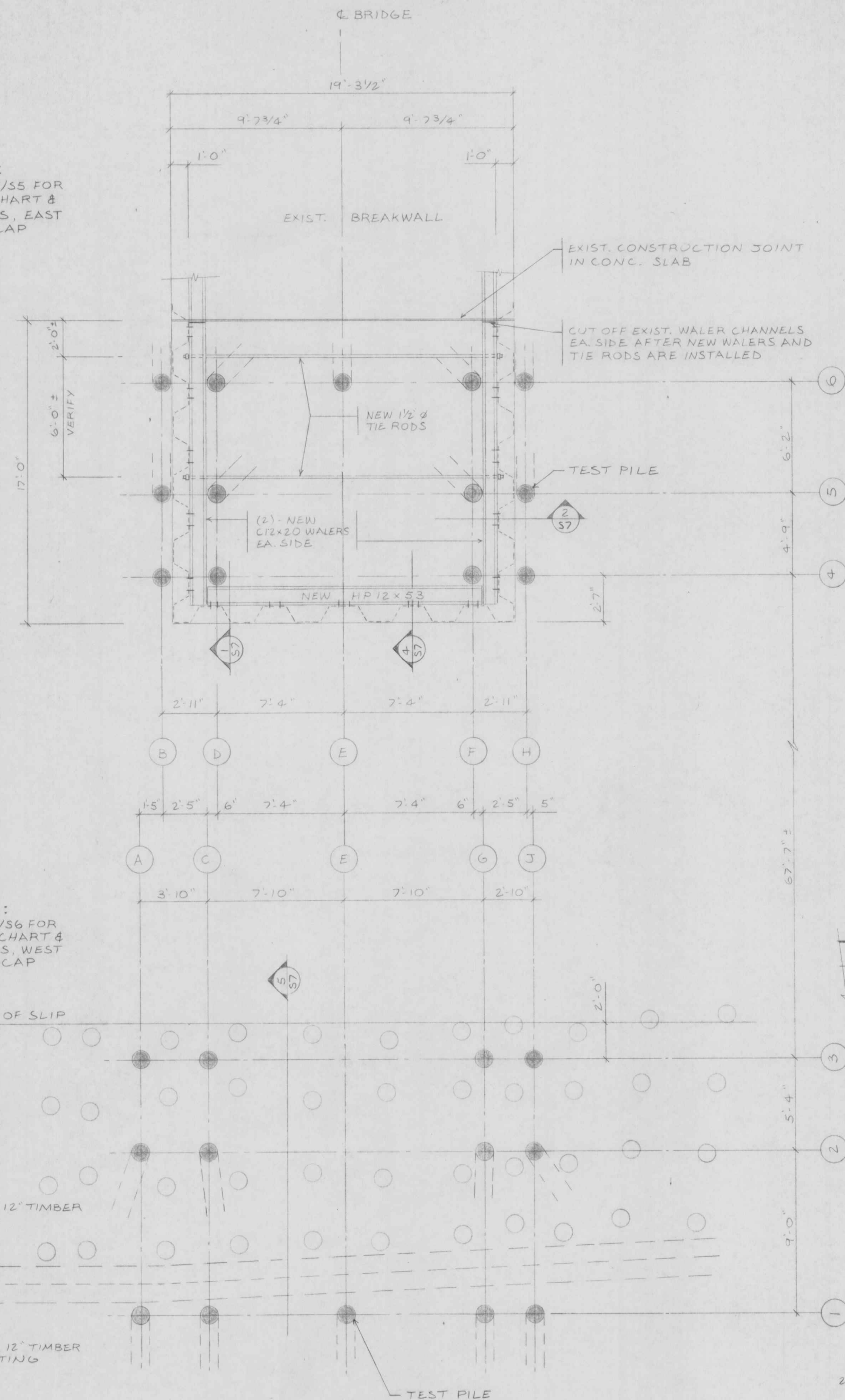
Krech & Ojard
Consulting
Engineers, P.A.

PROJECT NO:
 DRAWN BY: D. —
 RELEASE DATE:
 REVISIONS:

REG. NO. E14016 DATE FEB 11, 1991

209 W. 1st St., Suite 202 ☐ Duluth, MN 55802 ☐ Phone: (218) 727-3282

NOTE:
SEE B/S5 FOR
PILE CHART &
NOTES, EAST
PILE CAP

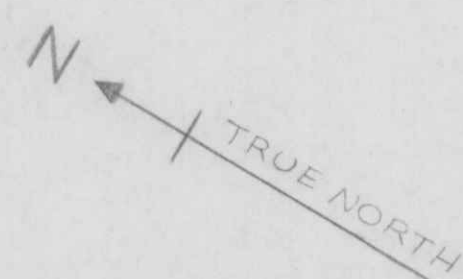


1
S4 PLAN - PILE LOCATIONS
1/4" = 1'-0"

- DENOTES NEW PILE LOCATIONS
- DENOTES EXIST. PILE LOCATIONS

(2) - 2 1/2" ϕ & (1) - 3/4" ϕ
RIGID CONDUIT
BURIED IN PILE
CAP

(2) - 3/4" ϕ & (1) - 1/2" ϕ
CONDUIT TO
CONTROL HOUSE



N
CALLED NORTH

EDGE OF SLIP

STOB UP

3/4" RIGID CONDUIT TO HINGE

6'-11"

4'-11"

4'-10 1/2"

6'-0"

4'-8"

1'-3"

6'-5"

6'-5"

4'-9"

7'-2"

6'-5"

4'-9"

1'-3"

1'-9"

4'-9"

6'-5"

6'-5"

4'-9"

1'-3"

1'-9"

4'-9"

6'-5"

6'-5"

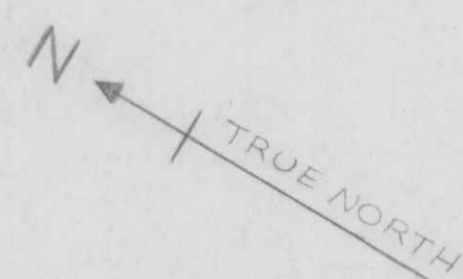
4'-9"

1'-3"

1'-9"

(2) - 2 1/2" ϕ & (1) - 3/4" ϕ
RIGID CONDUIT
BURIED IN PILE
CAP

(2) - 3/4" ϕ & (1) - 1/2" ϕ
CONDUIT TO
CONTROL HOUSE



N
CALLED NORTH

EDGE OF SLIP

STOB UP

3/4" RIGID CONDUIT TO HINGE

6'-11"

4'-11"

4'-10 1/2"

6'-0"

4'-8"

1'-3"

6'-5"

6'-5"

4'-9"

7'-2"

6'-5"

4'-9"

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4'-9"

6'-5"

6'-5"

4'-9"

1'-3"

1'-9"

4'-9"

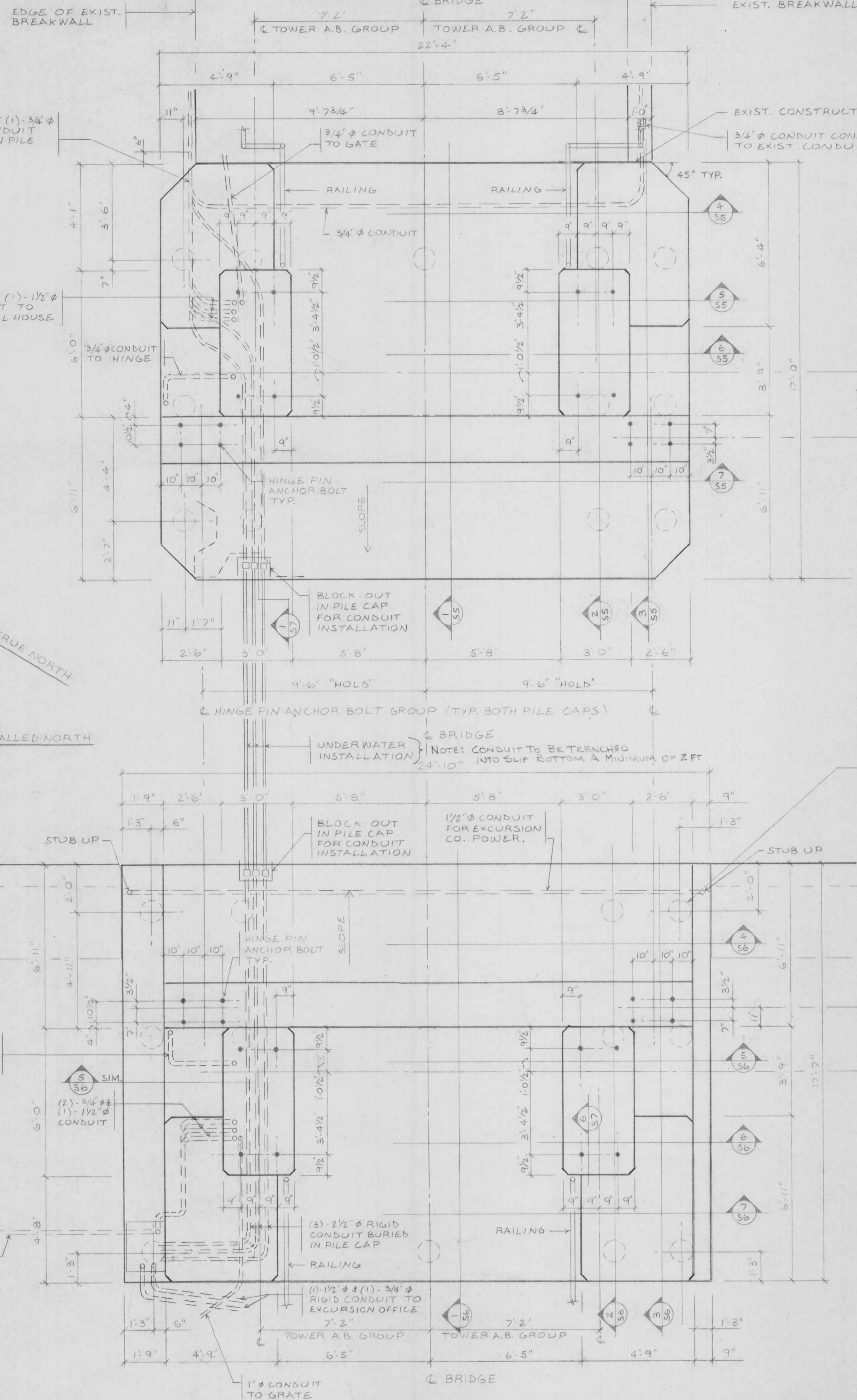
6'-5"

6'-5"

4'-9"

1'-3"

1'-9"



2
S4 PLAN - PILE CAPS & ANCHOR BOLTS
3/8" = 1'-0"

PILE LOCATIONS & PILE CAPS
MINNESOTA SLIP -
DULUTH MN -

PROJECT NO. SEE
DRAWN BY
CHECKED BY

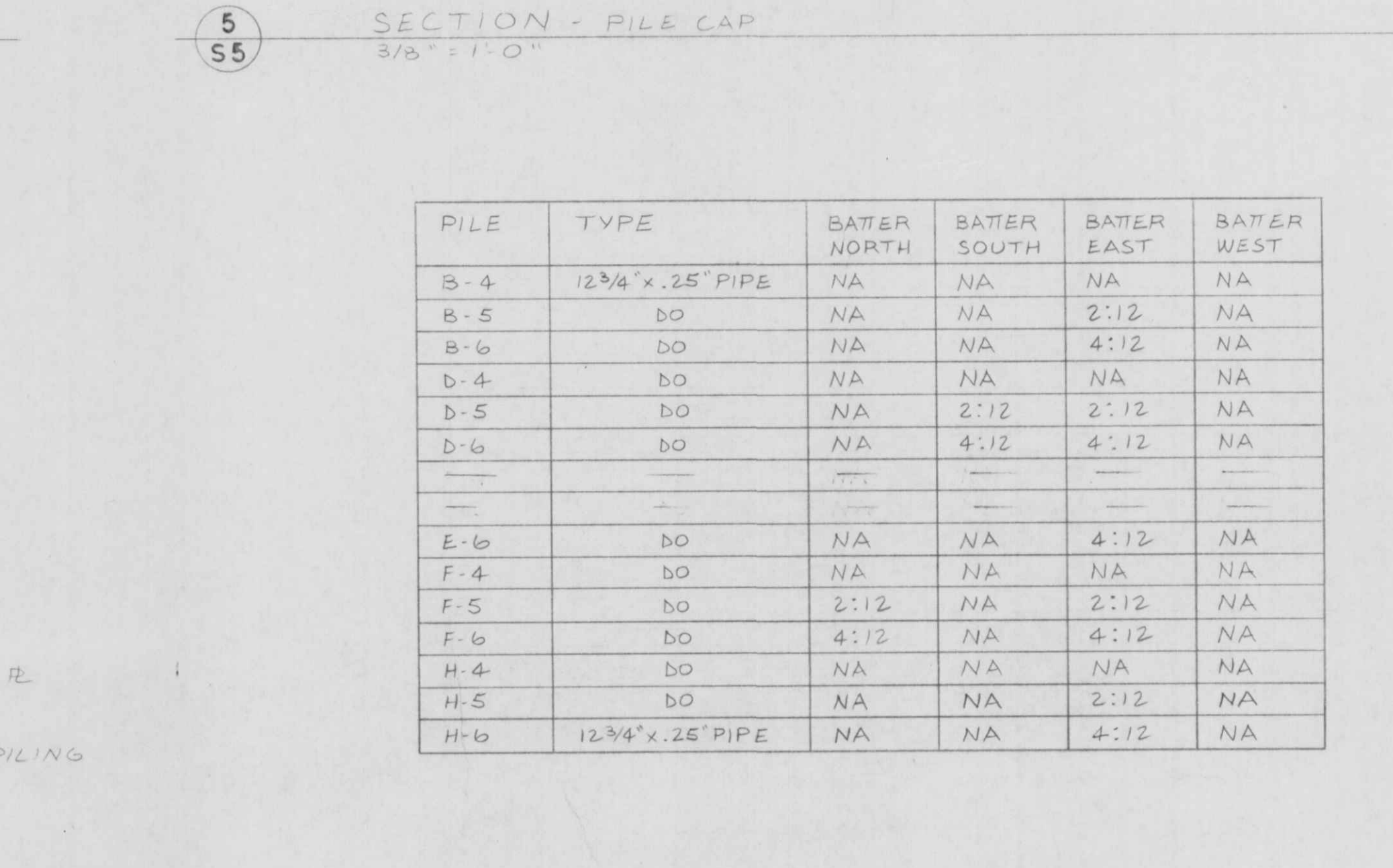
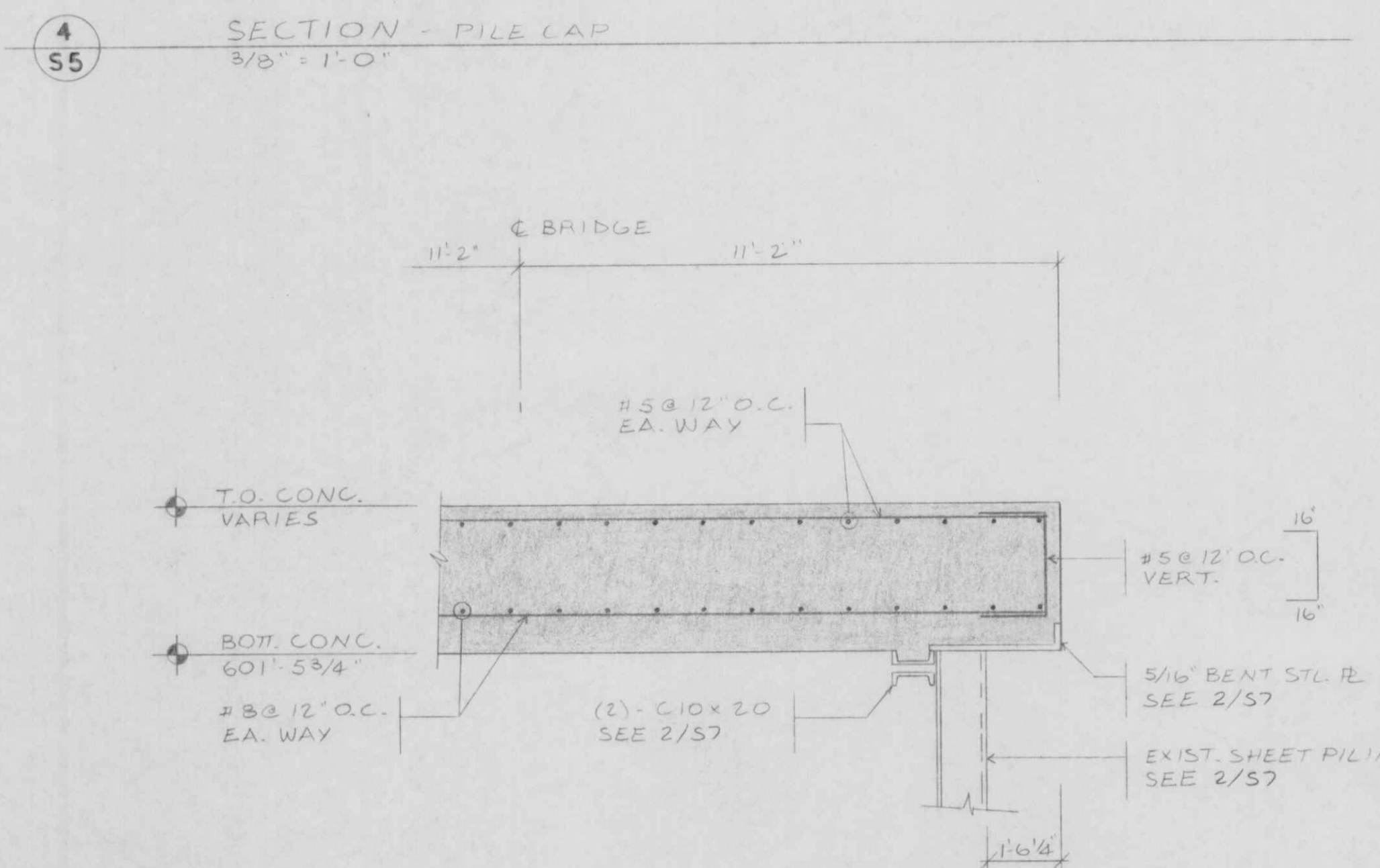
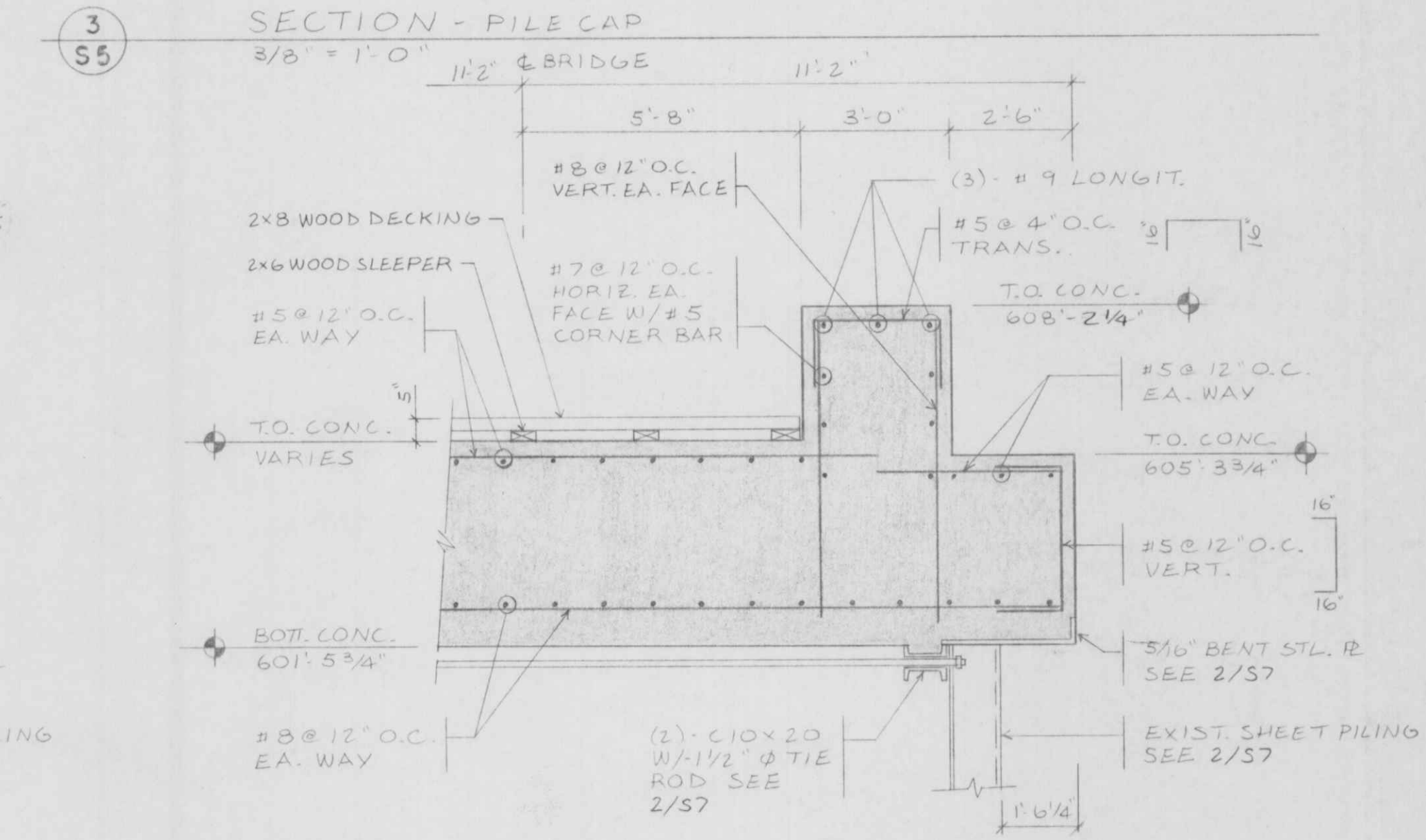
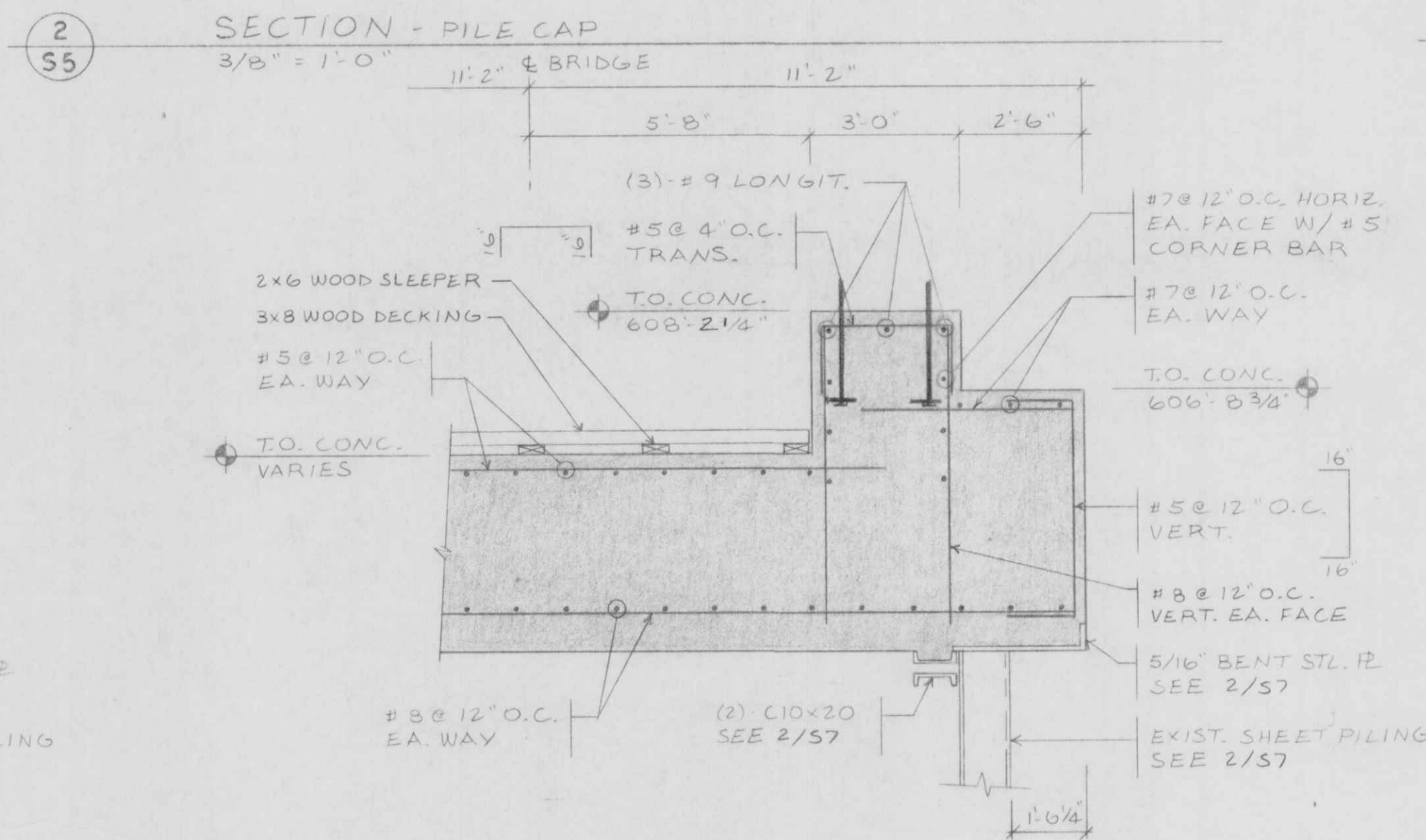
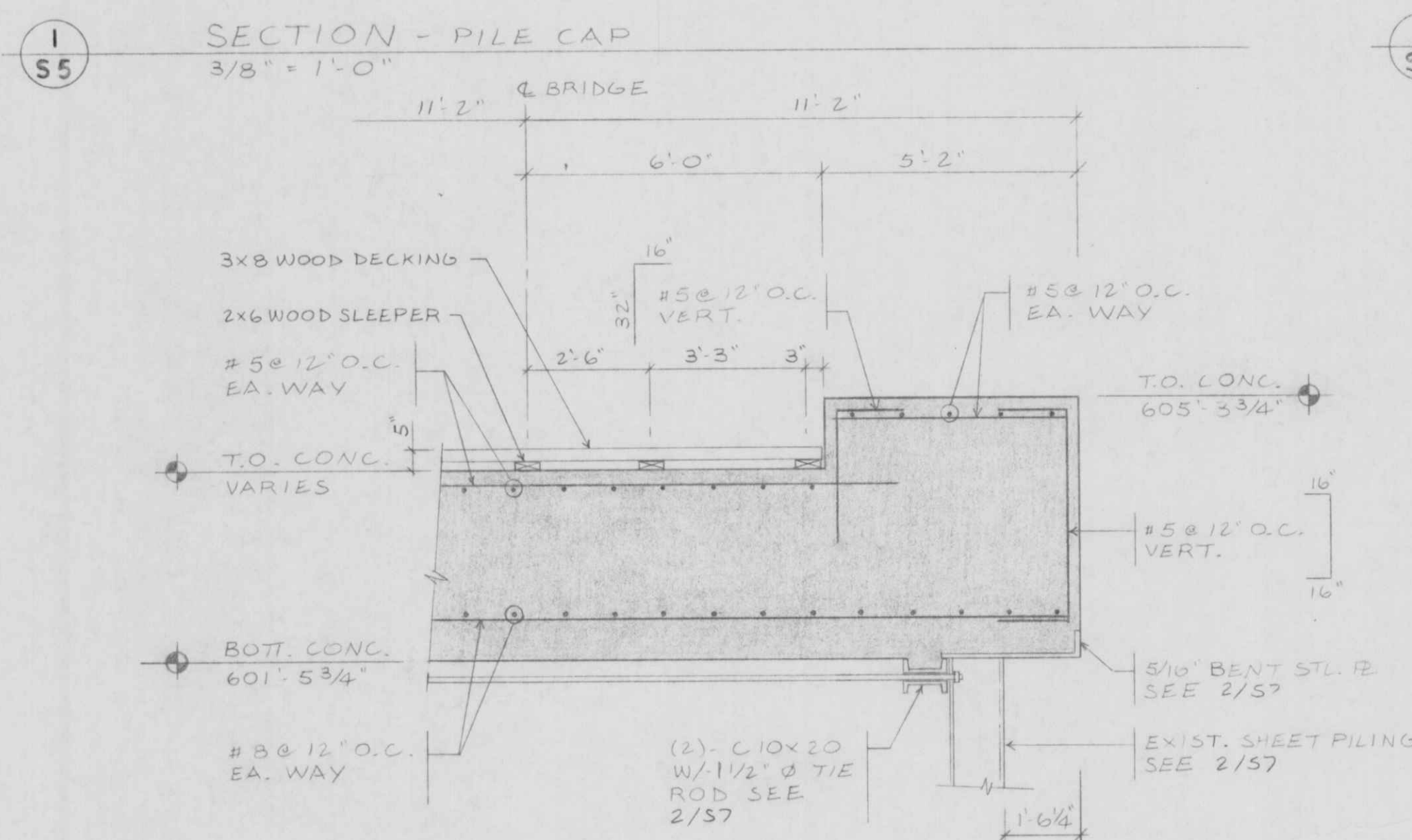
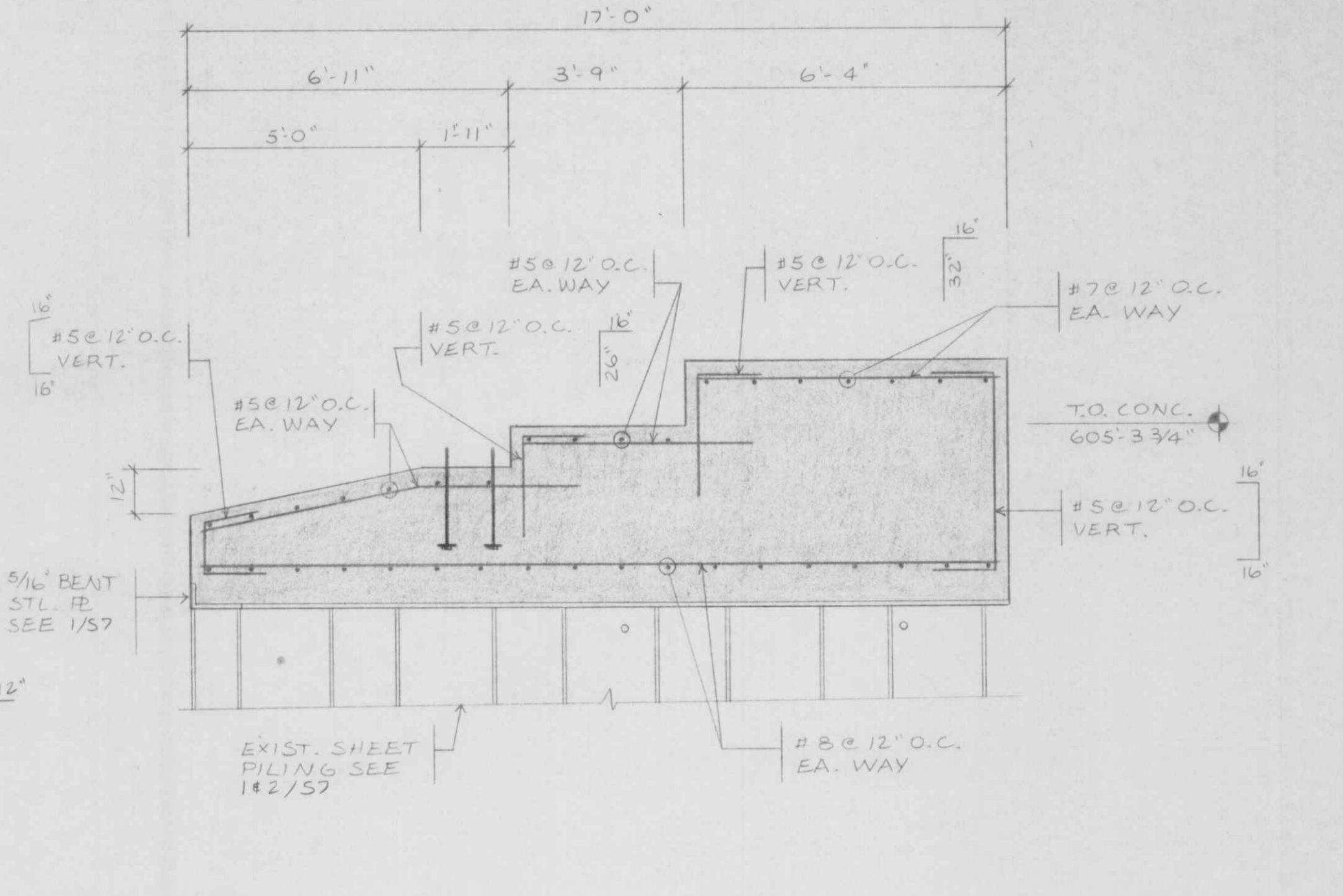
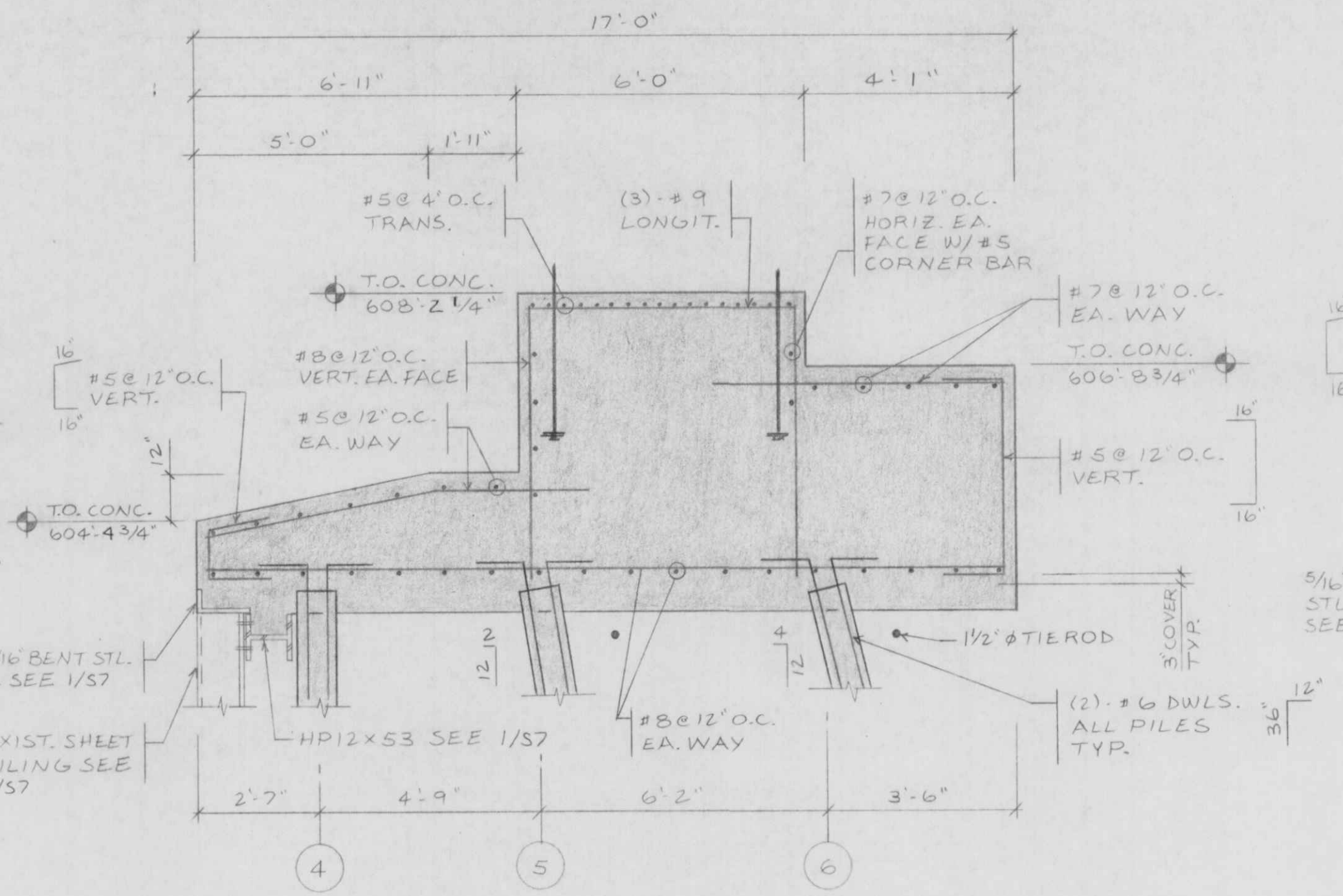
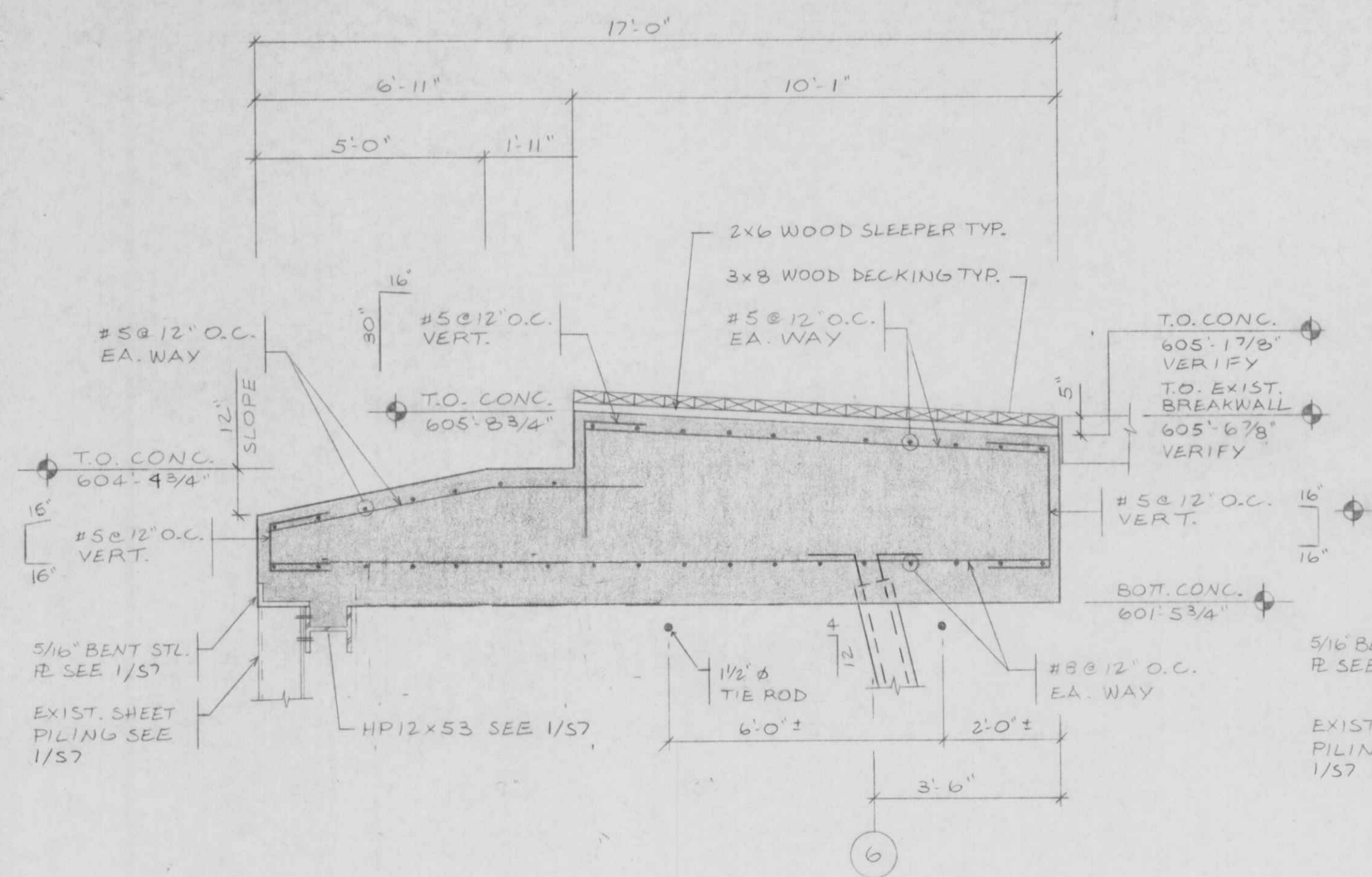
SHEET:

S4 OF 20

I HEREBY CERTIFY THAT THIS PLAN,
SPECIFICATION OR REPORT WAS PREPARED
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THAT I AM A DULY REGISTERED PROFESSIONAL
ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
Krechek & Ojard
REG. NO. E 14016 DATE FEB. 11, 1971

Krechek & Ojard
Consulting Engineers, P.A.

209 W. 1st St., Suite 202, Duluth, MN 55802 Phone: (218) 727-3282

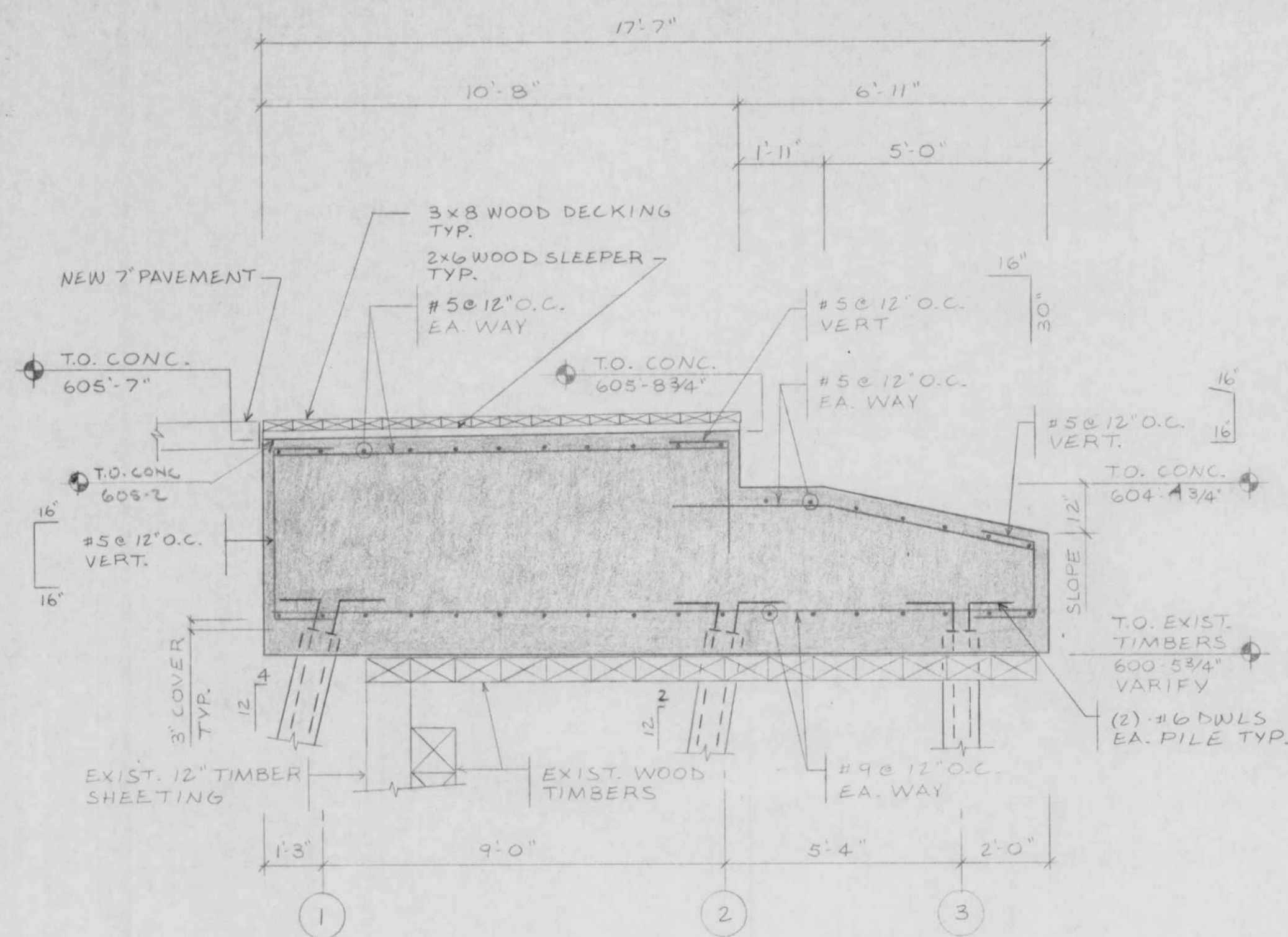


PILE	TYPE	BATTER NORTH	BATTER SOUTH	BATTER EAST	BATTER WEST
B-4	12 3/4" x .25" PIPE	NA	NA	NA	NA
B-5	DO	NA	NA	2:12	NA
B-6	DO	NA	NA	4:12	NA
D-4	DO	NA	NA	NA	NA
D-5	DO	NA	2:12	2:12	NA
D-6	DO	NA	4:12	4:12	NA
E-6	DO	NA	NA	4:12	NA
F-4	DO	NA	NA	NA	NA
F-5	DO	2:12	NA	2:12	NA
F-6	DO	4:12	NA	4:12	NA
H-4	DO	NA	NA	NA	NA
H-5	DO	NA	NA	2:12	NA
H-6	12 3/4" x .25" PIPE	NA	NA	4:12	NA

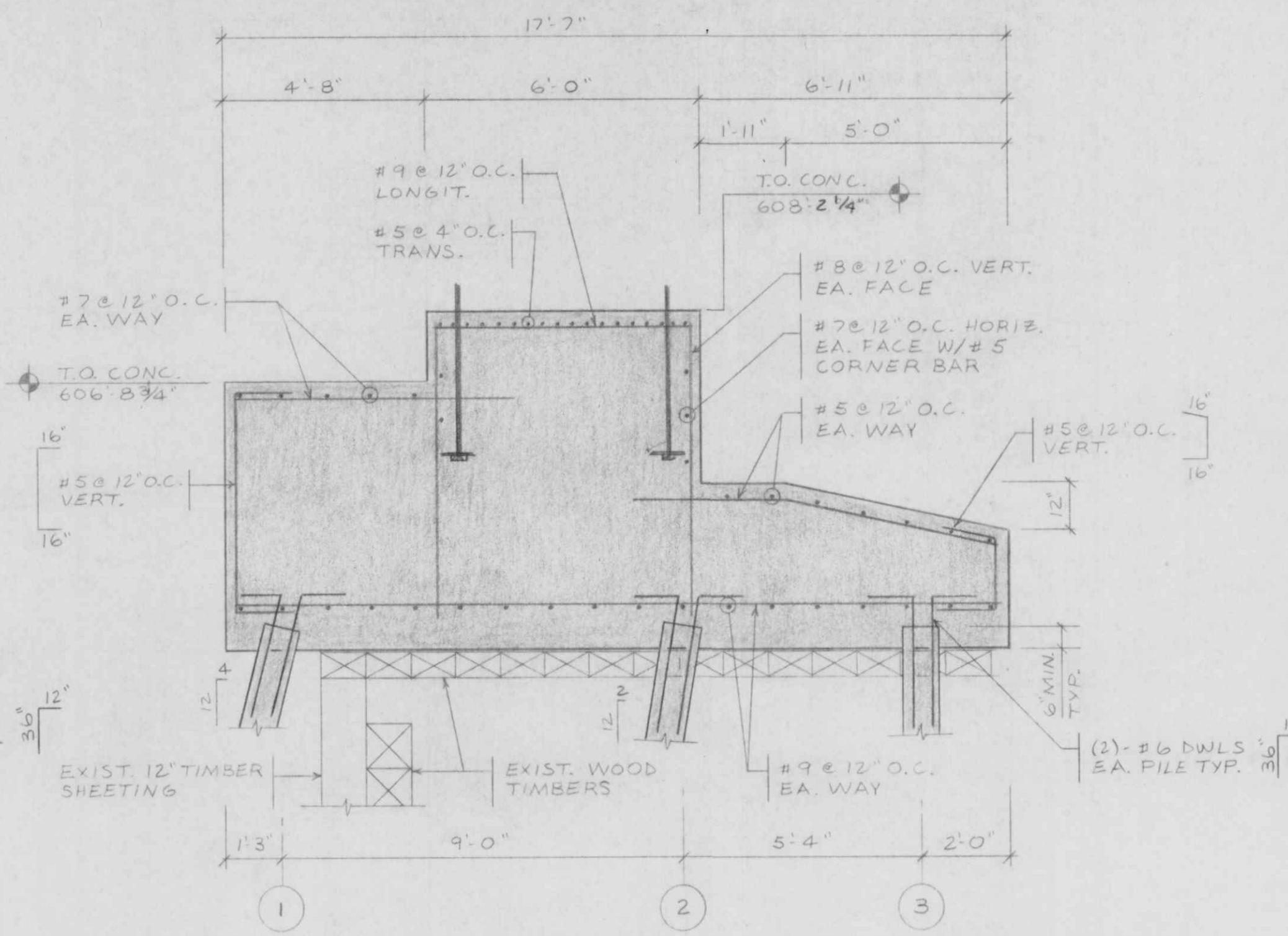
- NOTES :
- ALL PILES TO BE 12 3/4" x .25" ASTM A-53 GRADE B.
 - ALL PILES TO HAVE 1" END PLATES.
 - FILL PILES W/ SAND UP TO MUD LINE, FILL PILES W/ CONC. FROM MUD LINE TO PILE CAP.
 - ALL PILES TO HAVE (2) - #6 DWLS INTO PILE CAP.
 - ALL CONC. TO BE 4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS, UNLESS NOTED OTHERWISE. ALL CONCRETE SHALL CONTAIN 5% ± 1.5% ENTRAINED AIR.
 - REINFORCING BARS TO BE DEFORMED, NEW BILLET STEEL, CONFORMING TO ASTM A-615, GRADE 60.
 - PROVIDE 6" MIN. PILE EMBEDMENT IN PILE CAP.
 - PROVIDE 3" MIN. COVER ON ALL REINFORCEMENT.
 - HORIZONTAL COLD JOINTS IN CONCRETE ARE PERMITTED SUBJECT TO APPROVAL OF ENGINEER.

FOUNDATION SECTIONS & DETAILS
MINNESOTA SLIP -
DULUTH MN -
PROJECT NO. SEE
DRAWN BY: SEE
CHECKED BY: SEE
RELEASE DATE: SEE
REVISIONS: SEE

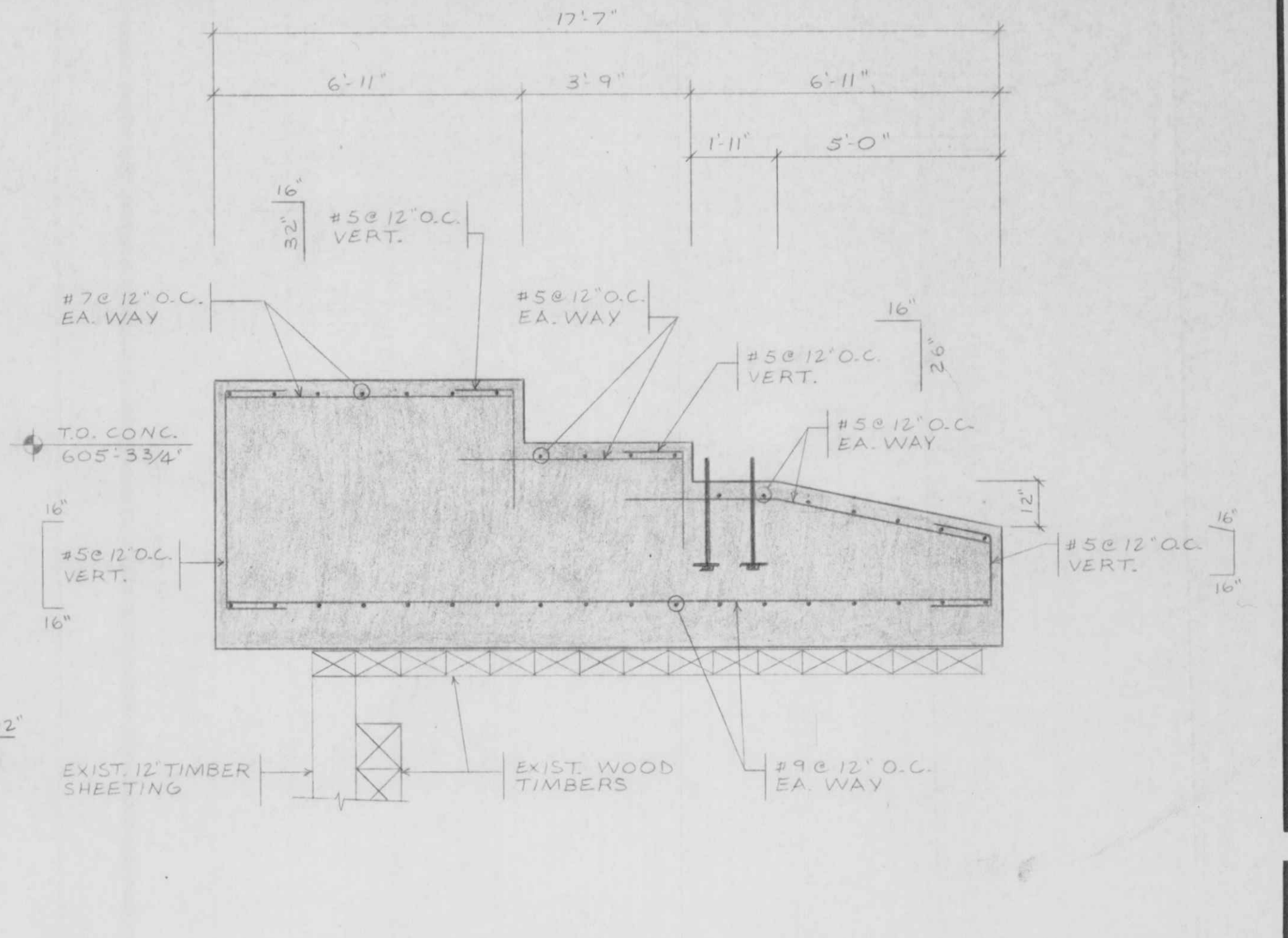
I HEREBY CERTIFY THAT THIS PLAN SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY SUPERVISION AND THAT I AM A DULUTH REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Krech & Ojard
REG. NO. E 14016 DATE FEB 11, 1993



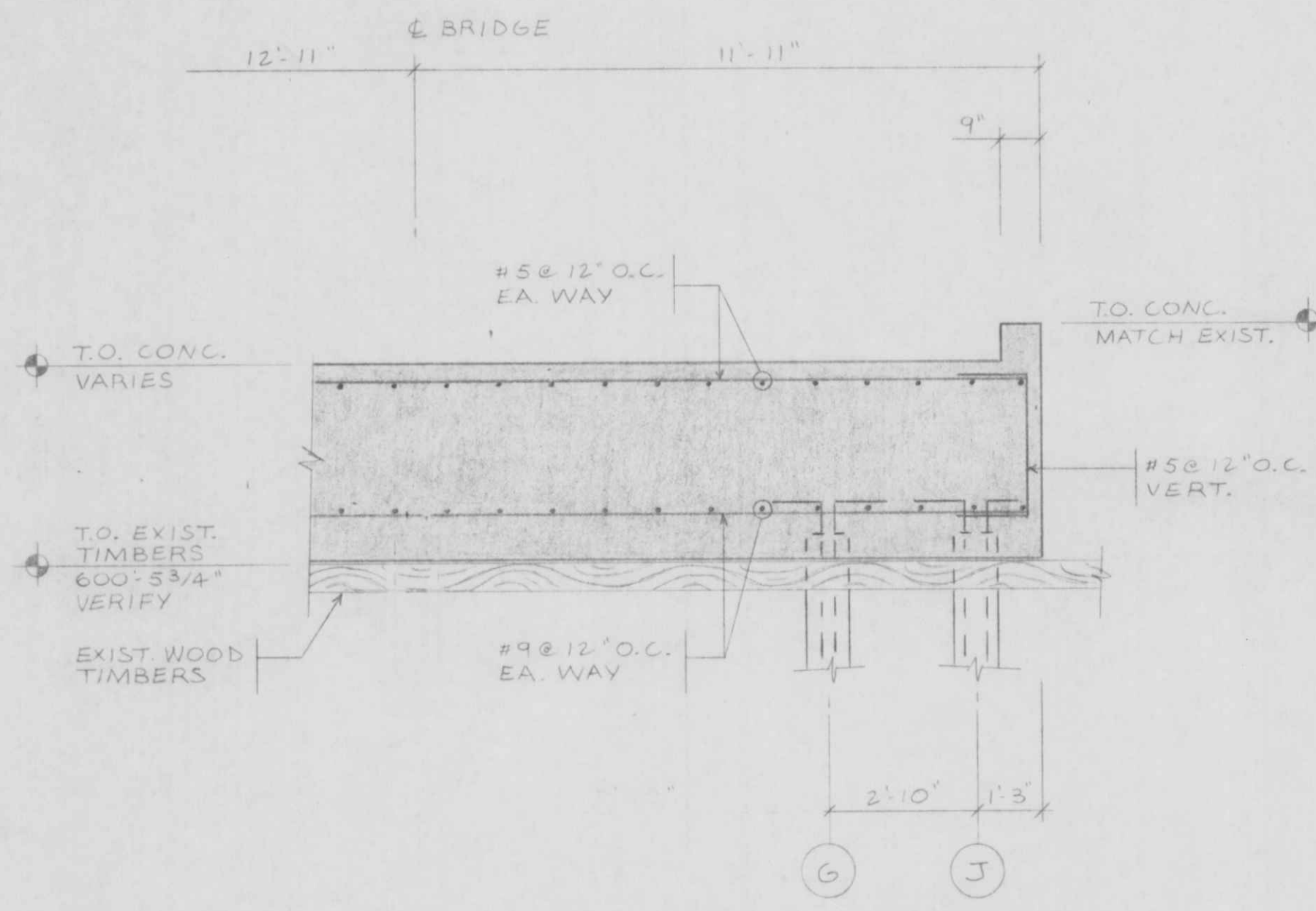
1
SC SECTION - PILE CAP
3/8" = 1'-0"



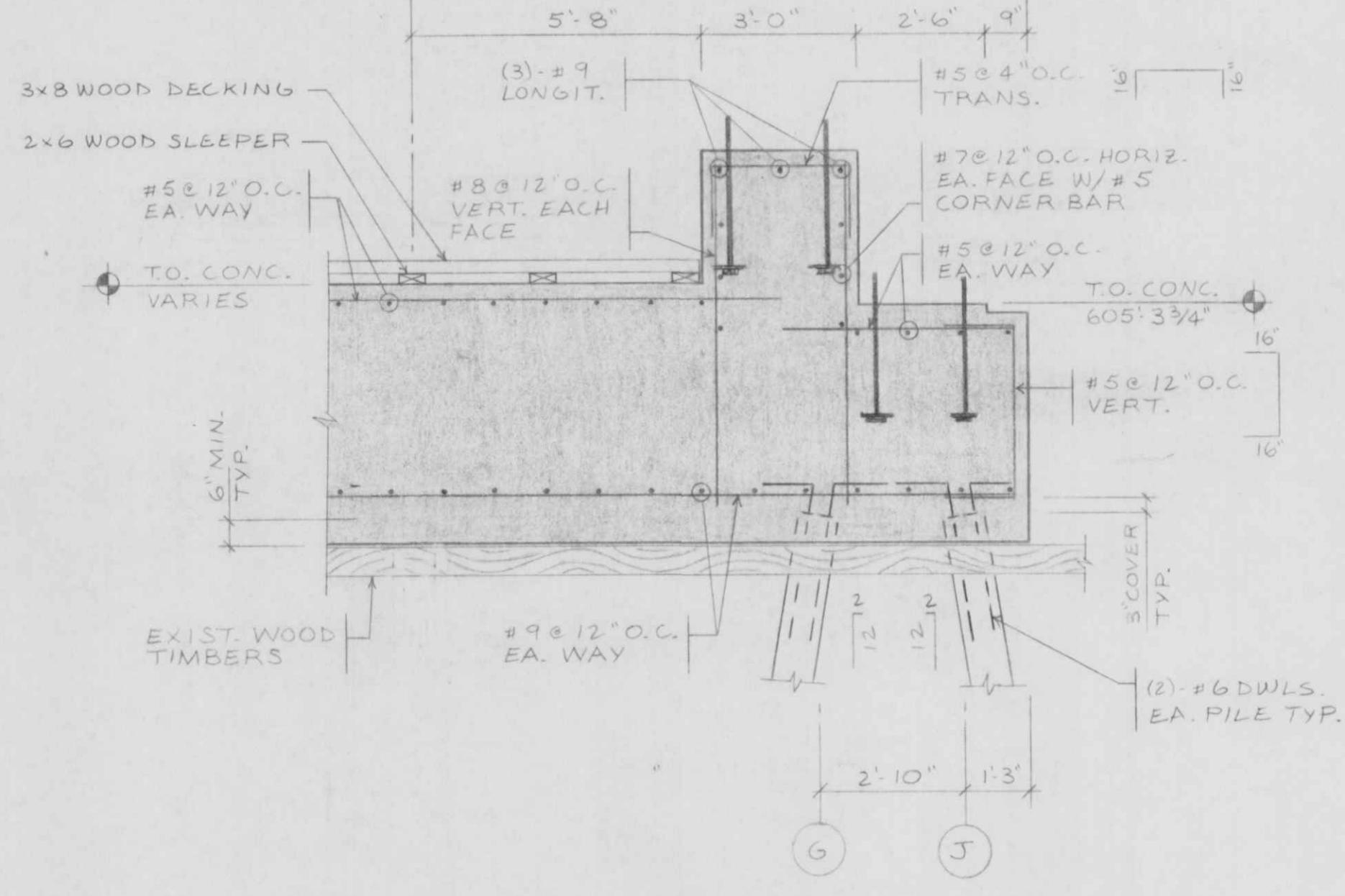
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SC SECTION - PILE CAP
3/8" = 1'-0"



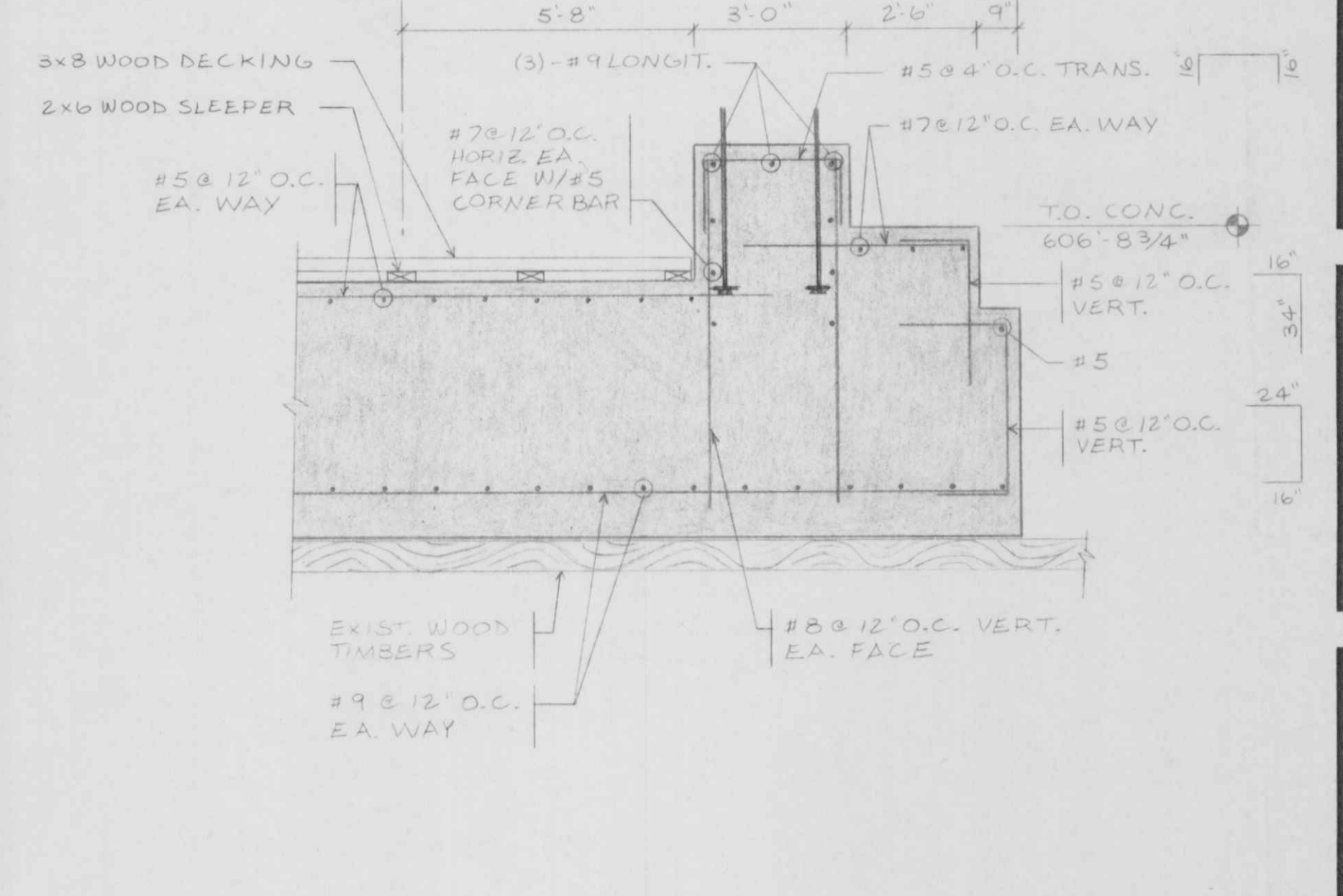
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SC SECTION - PILE CAP
3/8" = 1'-0"



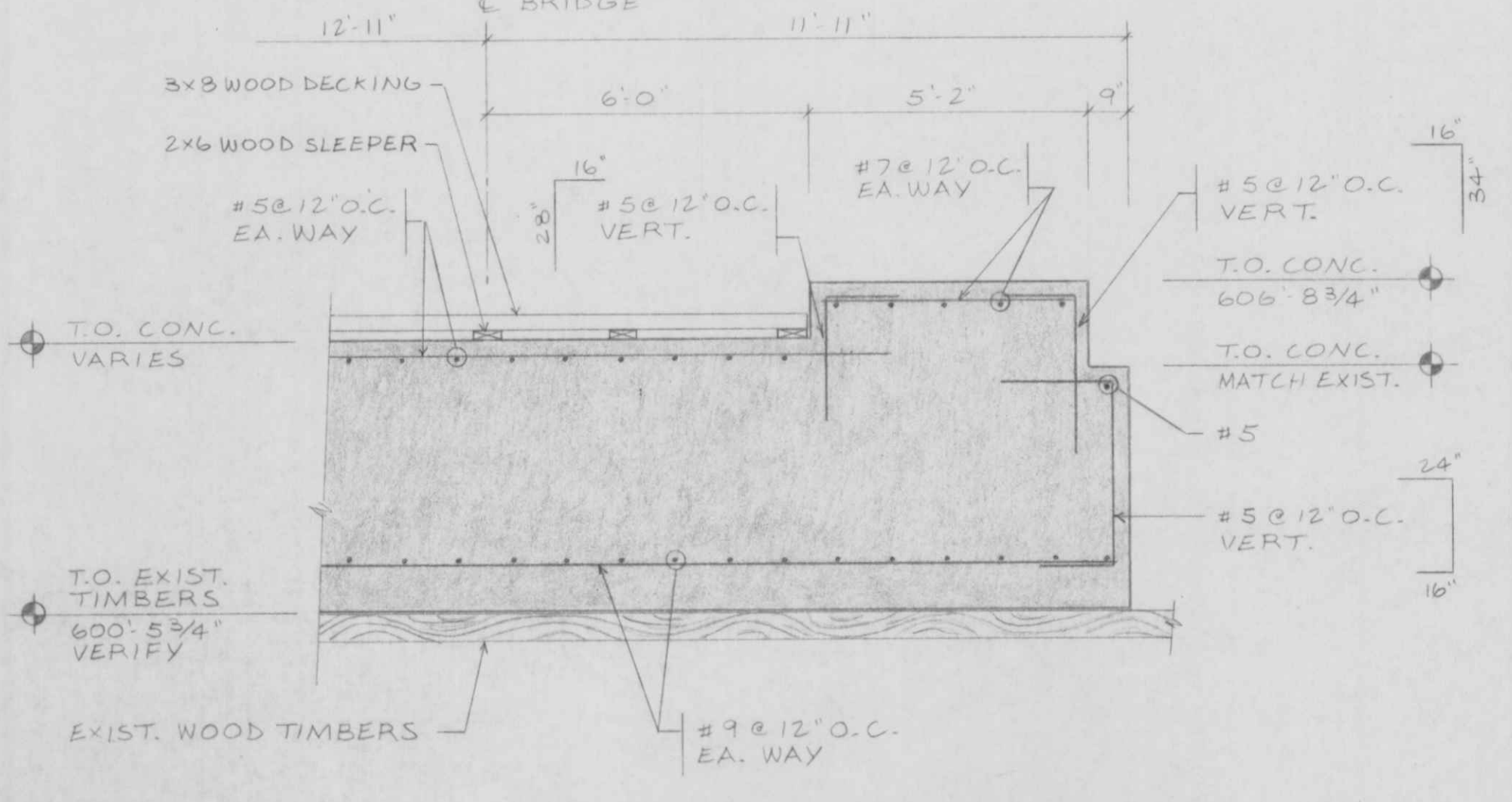
4
SC SECTION - PILE CAP
3/8" = 1'-0"



5
SC SECTION - PILE CAP
3/8" = 1'-0"



6
SC SECTION - PILE CAP
3/8" = 1'-0"



7
SC SECTION - PILE CAP
3/8" = 1'-0"

PILE	TYPE	BATTER NORTH	BATTER SOUTH	BATTER EAST	BATTER WEST
A-1	12 3/4" x .25" PIPE	NA	NA	NA	4:12
A-2	DO	2:12	NA	NA	2:12
A-3	DO	NA	NA	NA	NA
C-1	DO	NA	NA	NA	4:12
C-2	DO	NA	2:12	NA	2:12
C-3	DO	NA	NA	NA	NA
E-1	DO	NA	NA	NA	4:12
G-1	DO	NA	NA	NA	4:12
G-2	DO	2:12	NA	NA	2:12
G-3	DO	NA	NA	NA	NA
J-1	DO	NA	NA	NA	4:12
J-2	DO	NA	2:12	NA	2:12
J-3	12 3/4" x .25" PIPE	NA	NA	NA	NA

8
SC PILE CHART & NOTES - WEST PILE CAP

- NOTES:
- 1) ALL PILES TO BE 12 3/4" Ø x .25" ASTM A-53 GRADE B.
 - 2) ALL PILES TO HAVE 1" END PLATES.
 - 3) FILL PILES W/ SAND UP TO MUD LINE, FILL PILES W/ CONC. FROM MUD LINE TO PILE CAP.
 - 4) ALL PILES TO HAVE (2) #6 DWLS INTO PILE CAP.
 - 5) ALL CONC. TO BE 4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS, UNLESS NOTED OTHERWISE. ALL CONCRETE SHALL CONTAIN 5% ± 1.5% ENTRAINED AIR.
 - 6) REINFORCING BAR TO BE DEFORMED, NEW BILLET STEEL, CONFORMING TO ASTM A-615, GRADE 60.
 - 7) PROVIDE 6" MIN. PILE EMBEDMENT IN PILE CAP.
 - 8) PROVIDE 3" MIN. COVER ON ALL REINFORCEMENT.
 - 9) HORIZONTAL COLD JOINTS IN CONCRETE FOUNDATION ARE PERMITTED SUBJECT TO APPROVAL OF ENGINEER.

FOUNDATION SECTIONS & DETAILS
MINNESOTA SLIP -
DULUTH MN -

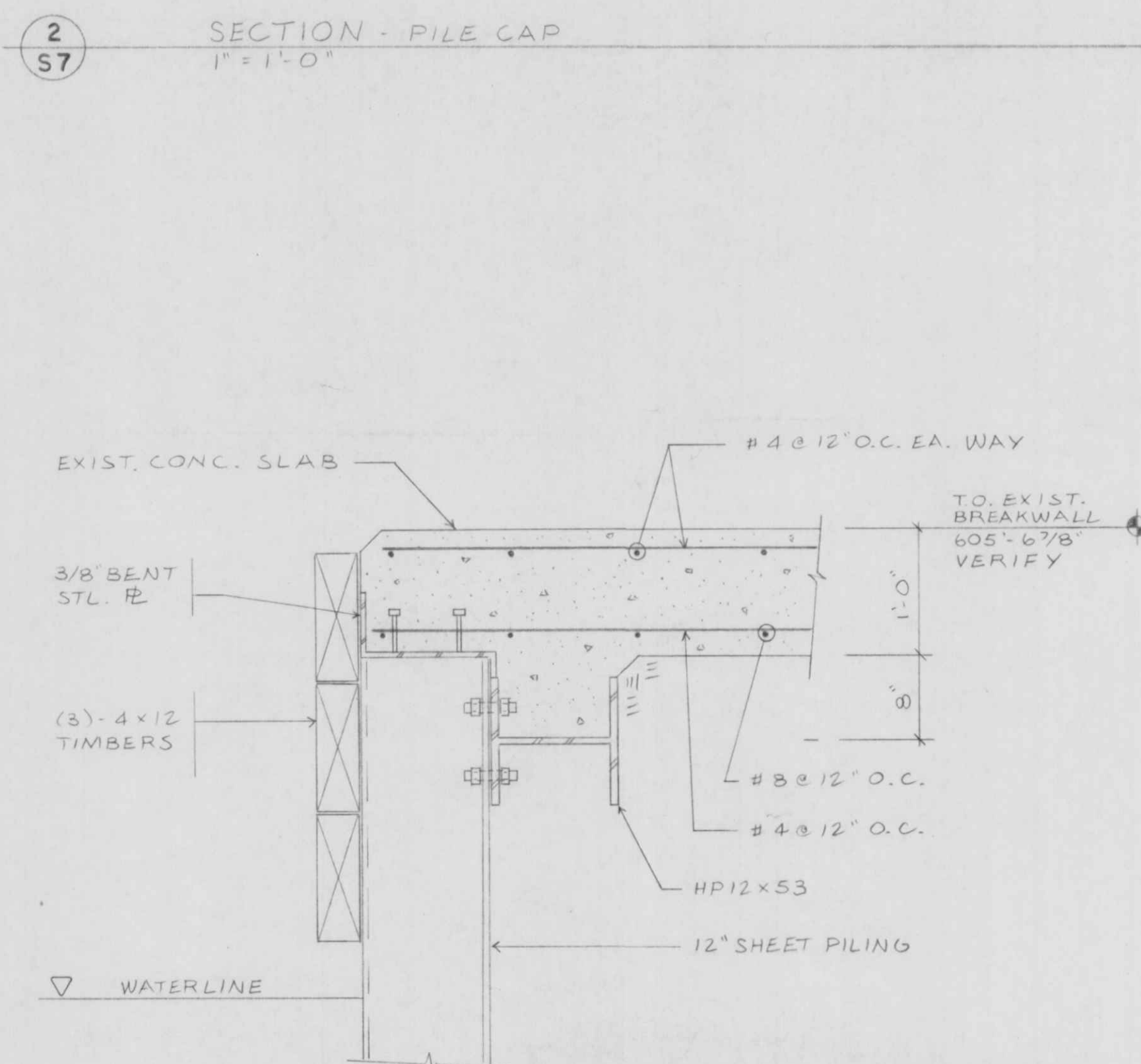
PROJECT NO:
DRAWN BY:
CHECKED BY:

SHEET:

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY SUPERVISION AND THAT I AM A duly REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Krech & Ojard
REG. NO. E14016 DATE FEB. 11, 1971

Krech & Ojard
Consulting Engineers, P.A.

209 W. 1st St., Suite 202 □ Duluth, MN 55802 □ Phone: (218) 721-3282



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THAT I AM A DULY REGISTERED PROfes-
SIONAL ENGINEER UNDER THE LAWS OF
THE STATE OF MINNESOTA

Richard J. Good

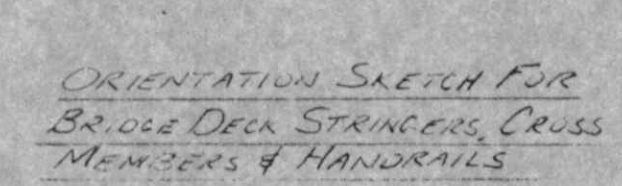
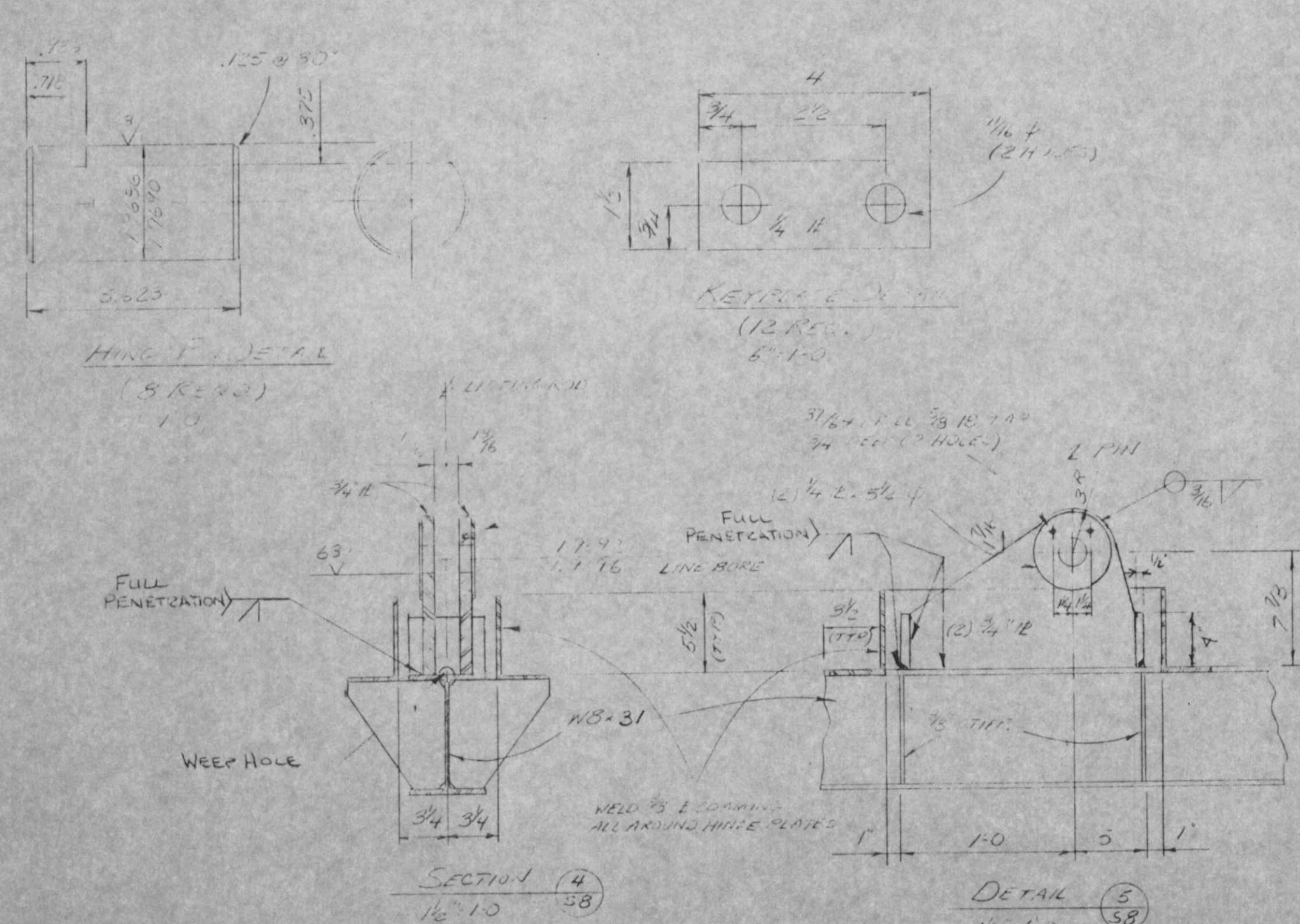
REG. NO. E14016 DATE FEB 11, 1997

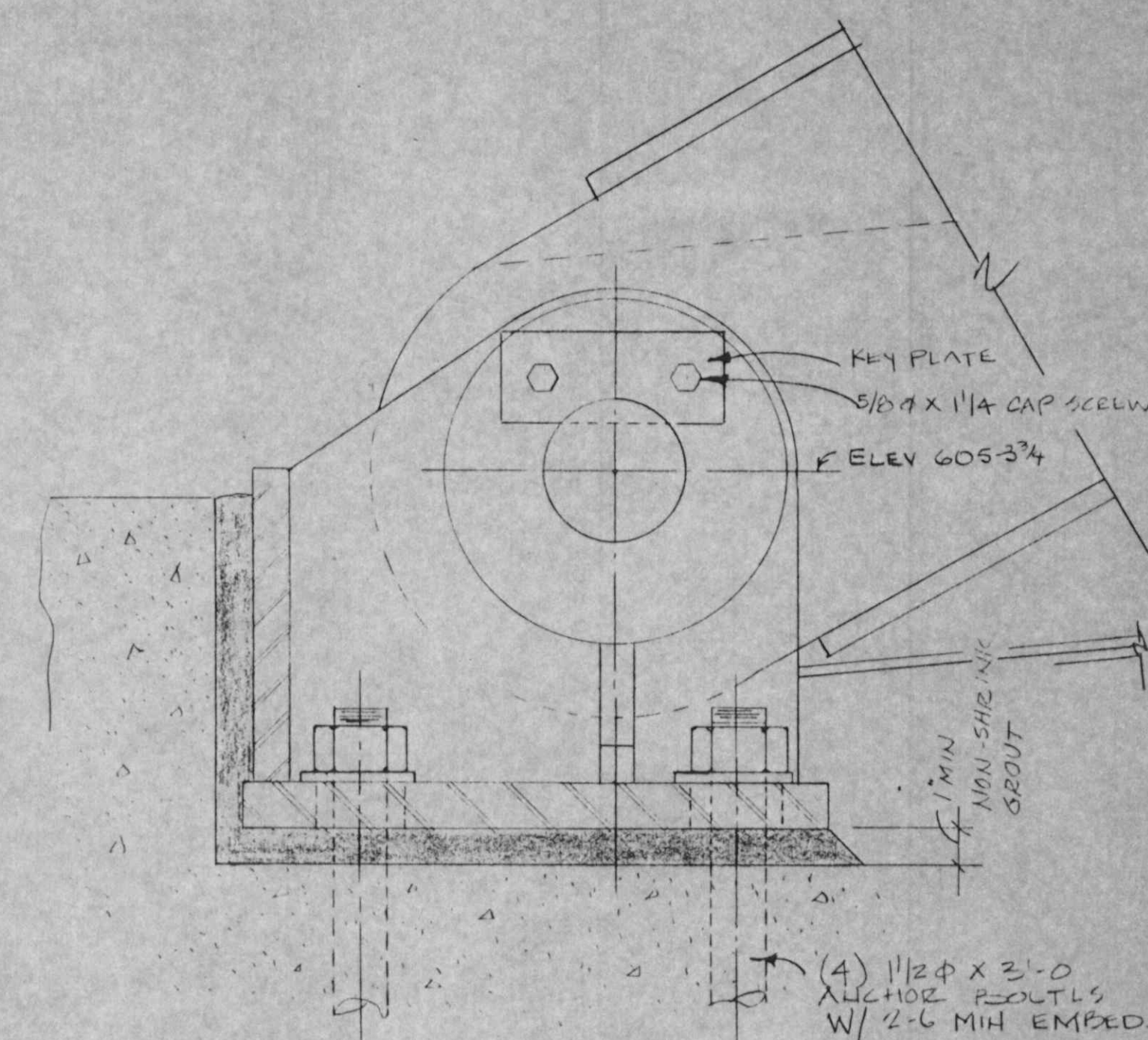
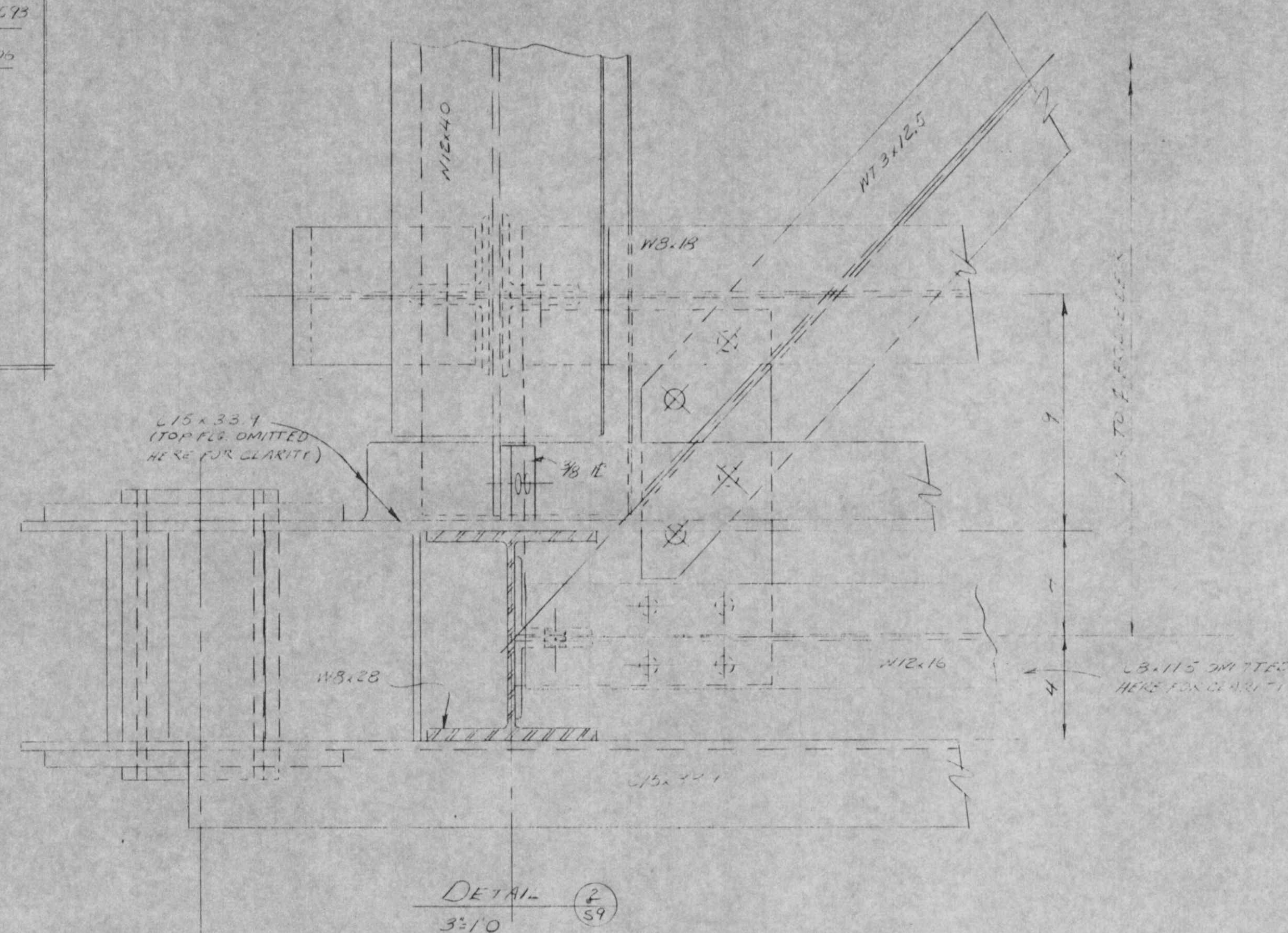
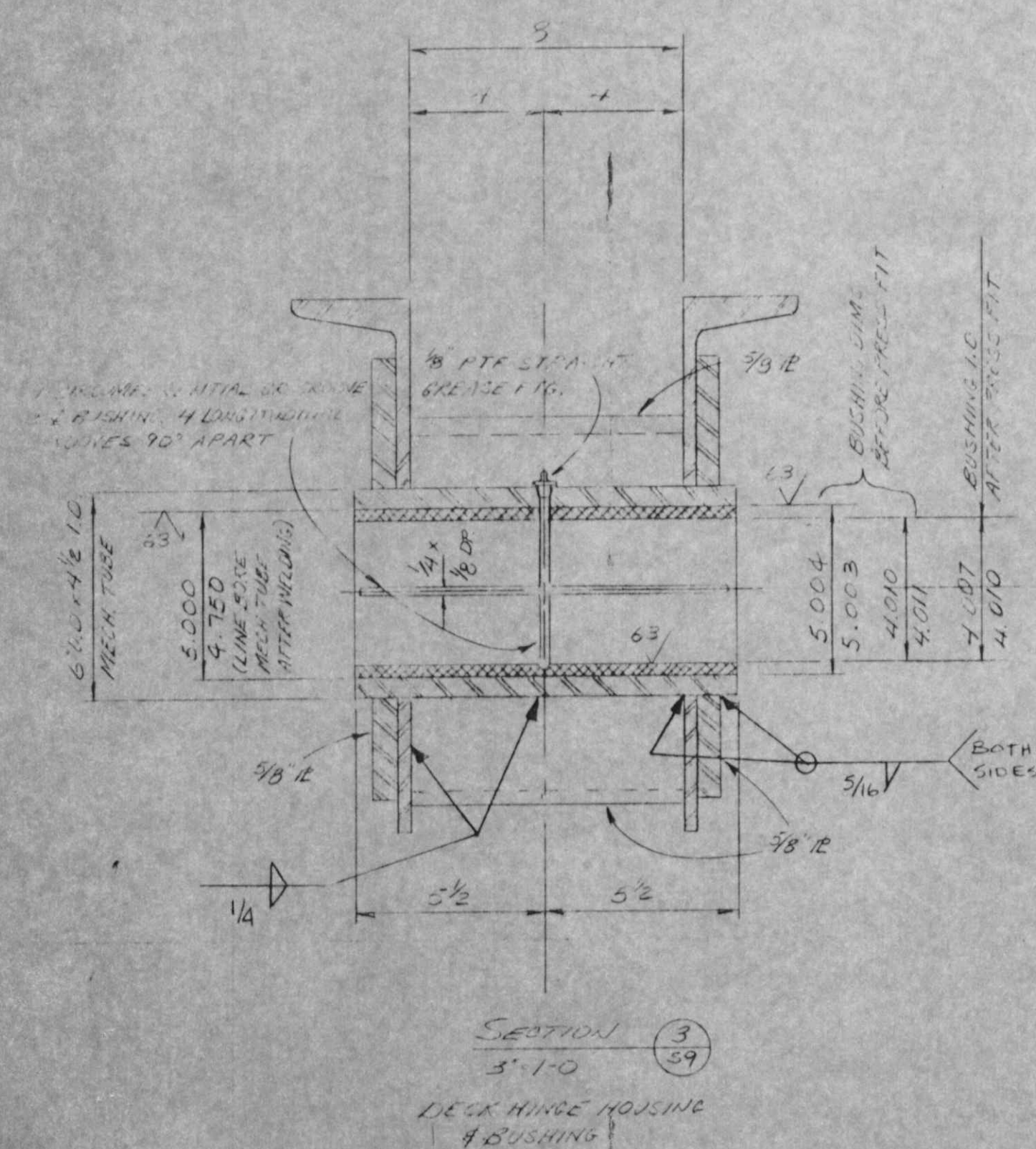
FOUNDATION SECTIONS & DETAILS
MINNESOTA SLIP.
DULUTH MN -

PROJECT NO: _____
DRAWN BY: _____
SEE _____
RELEASE DATE: _____
REVISIONS: _____

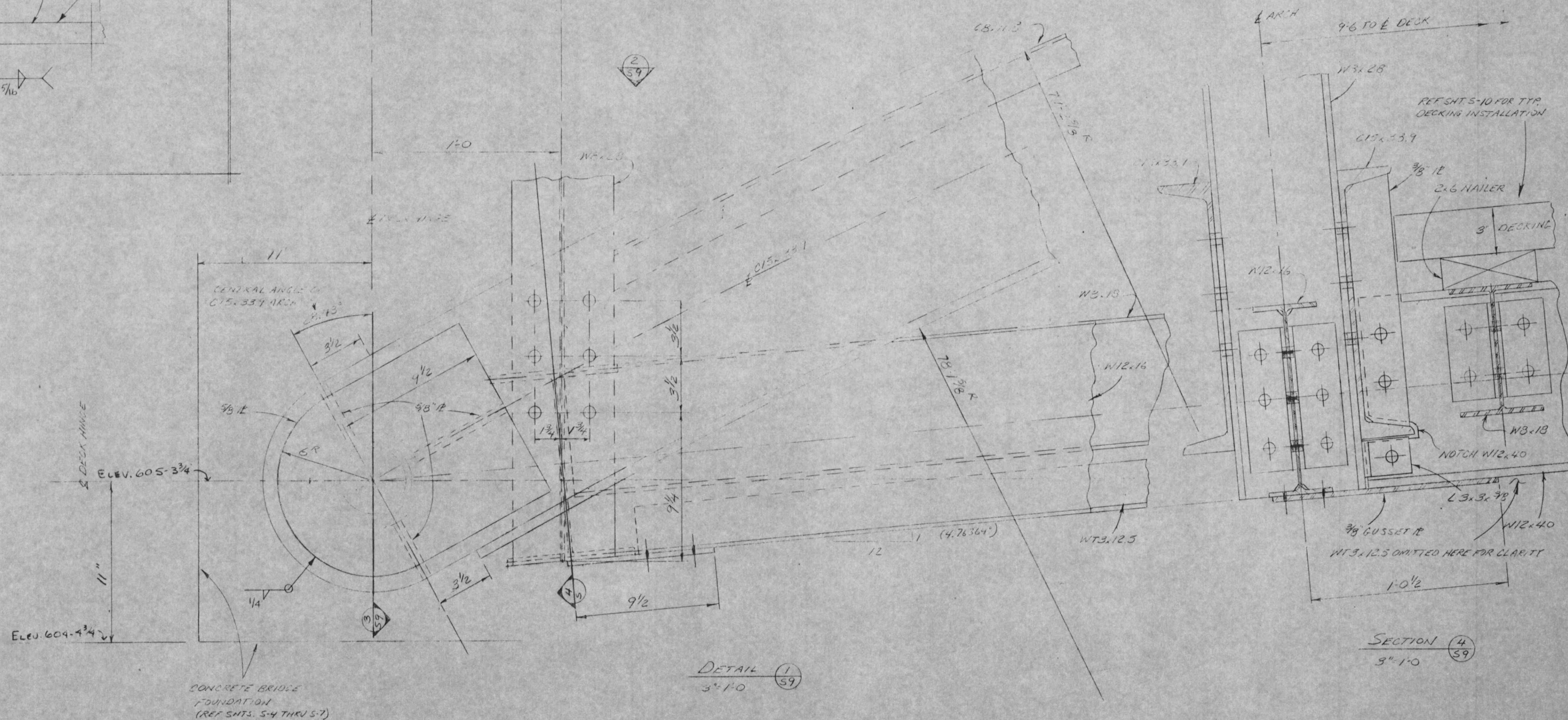
SHEET:

S 7 OF: 20





HINGE PLATE INSTALLATION



Krech & Ojard
Consulting
Engineers P.A.

209 W 1st St Suite 202 ☐ Duluth MN 55802 ☐ Phone: (218) 727-3282

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SIONAL ENGINEER UNDER THE LAWS OF
THE STATE OF MINNESOTA
Richard S. O'Neil

REC'D NO E 14016 DATE FEB 11 1991

MINNESOTA SLIP PEDESTRIAN BRIDGE

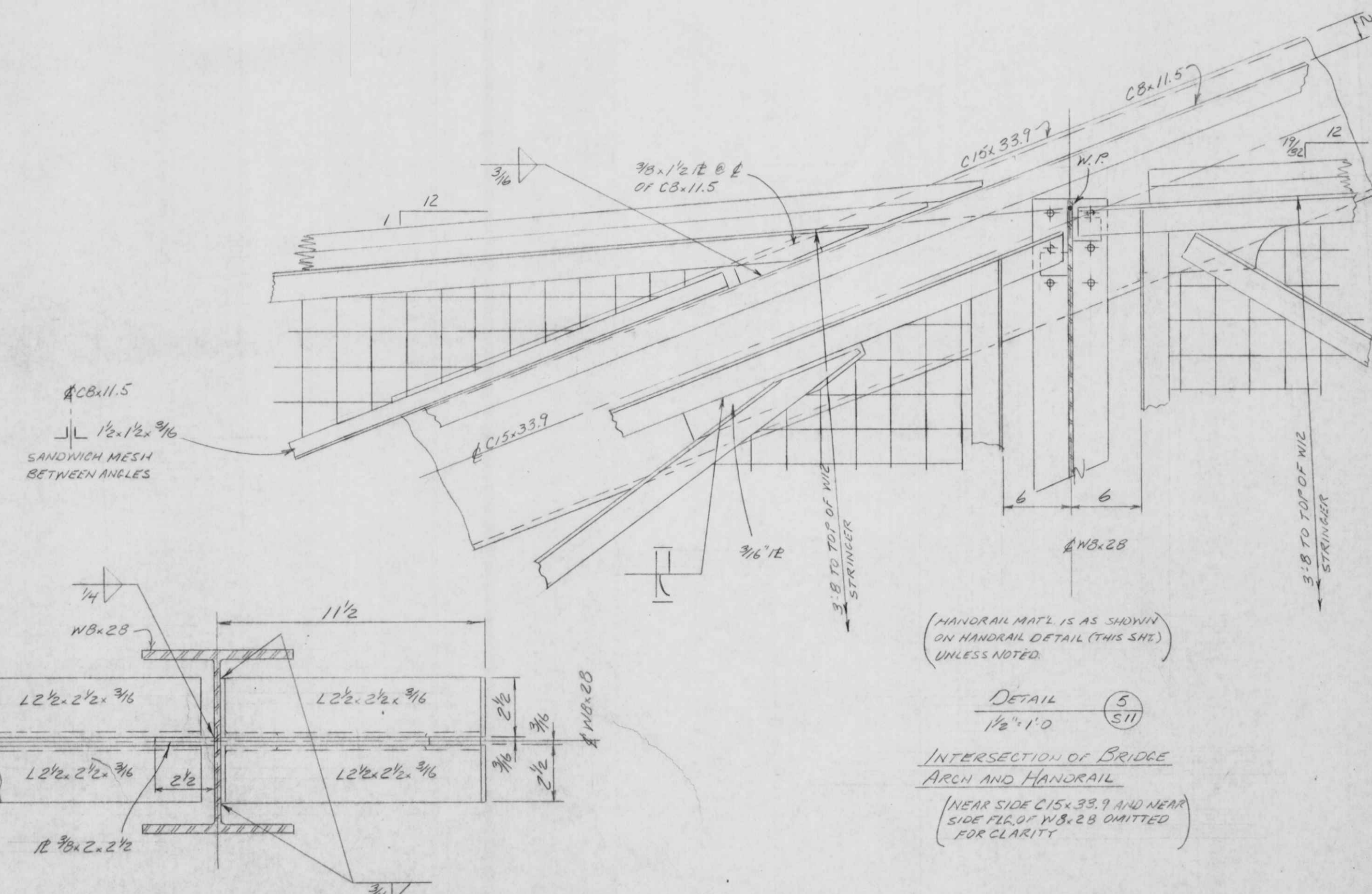
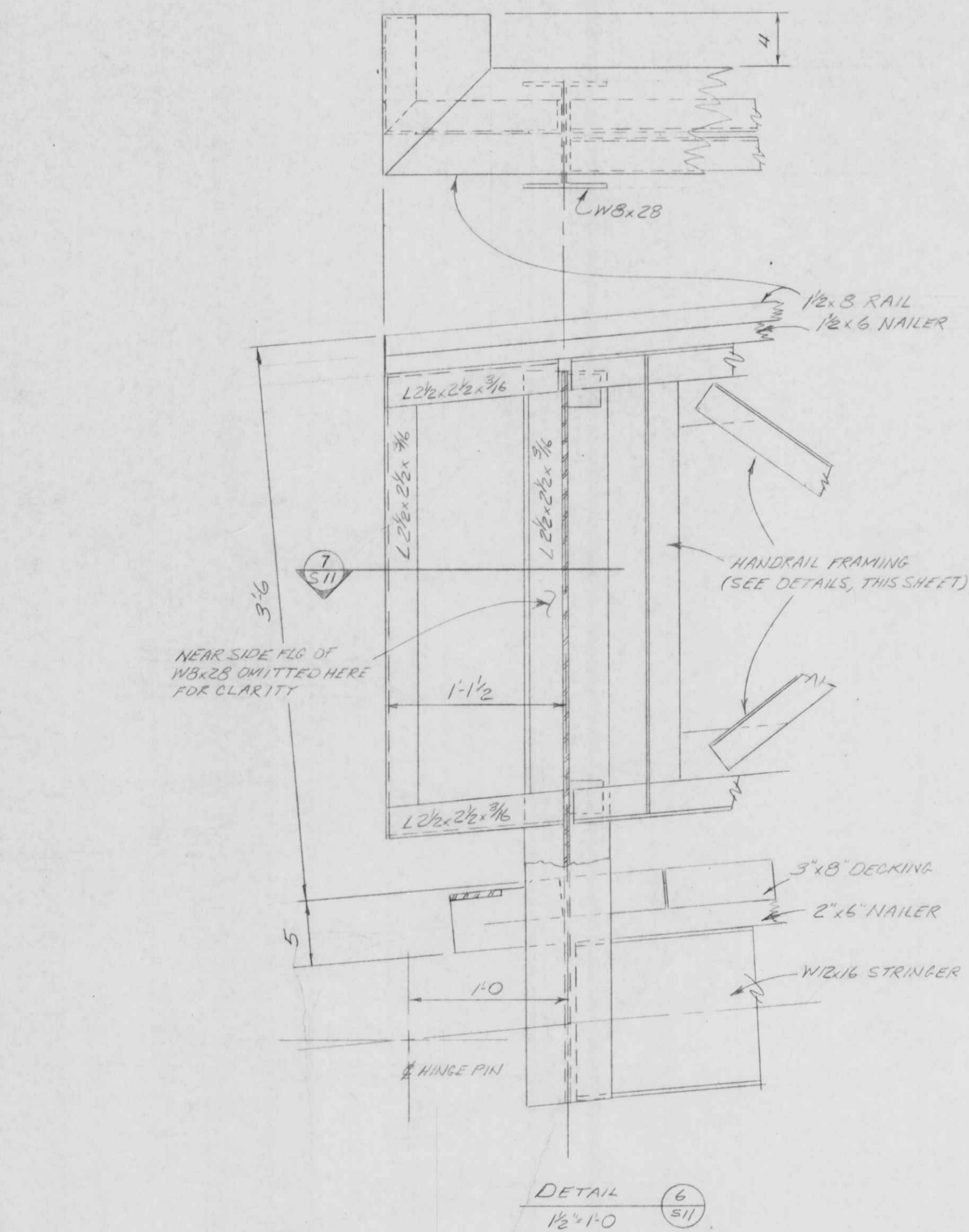
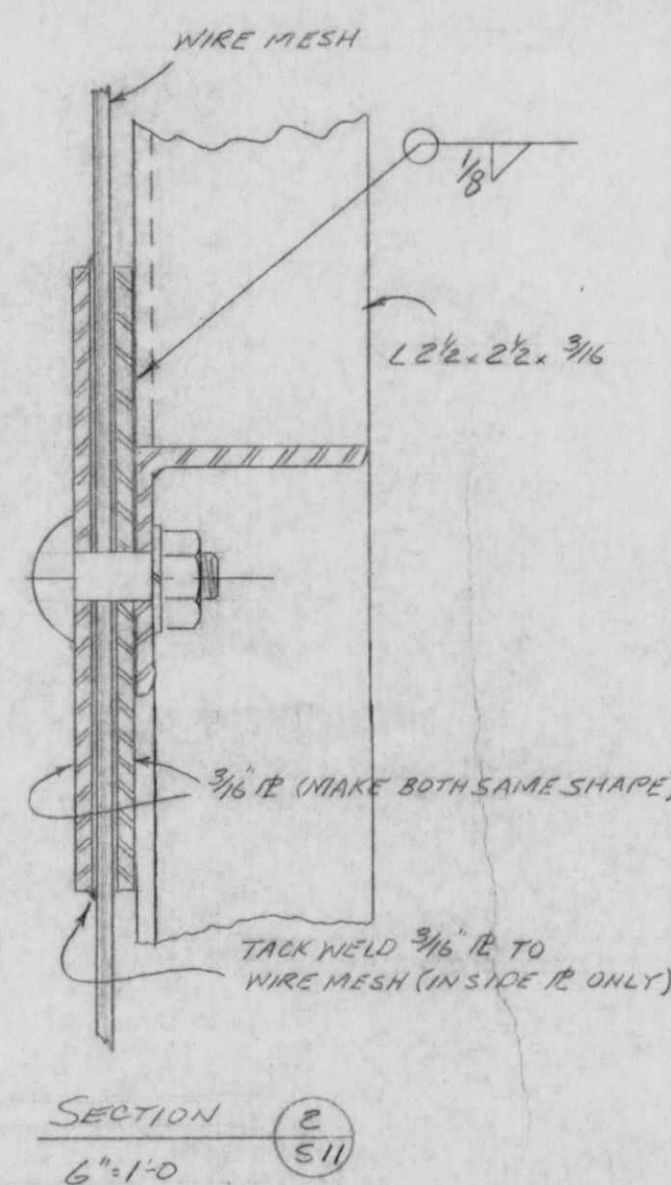
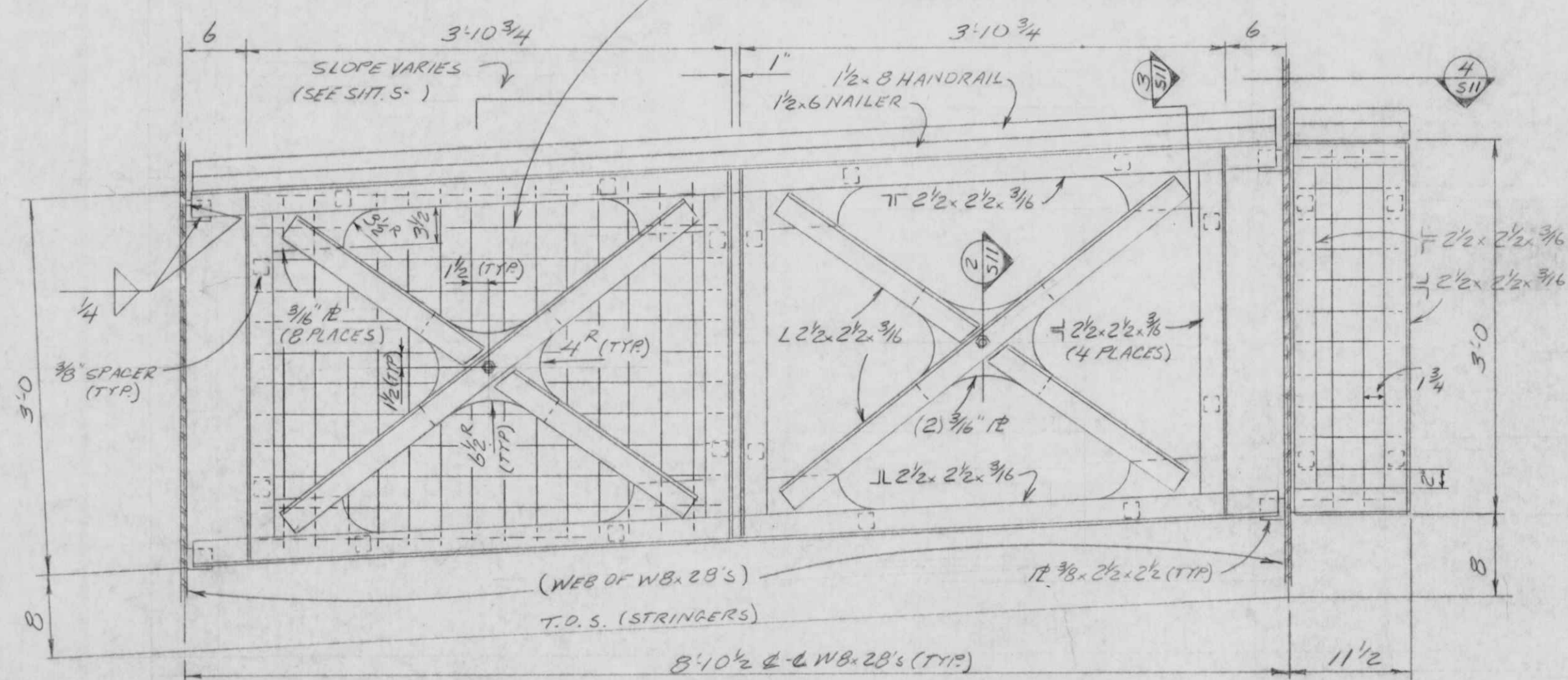
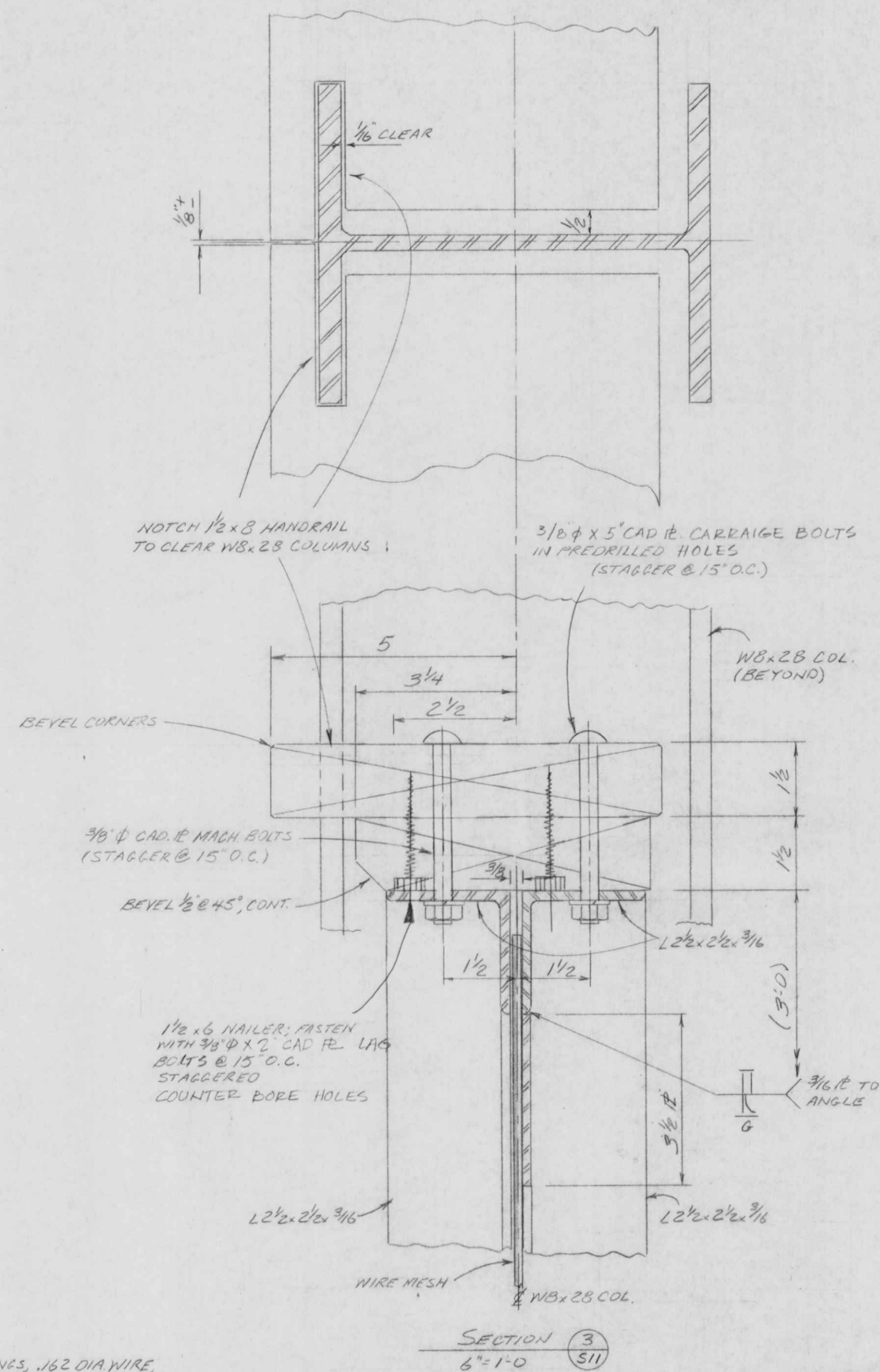
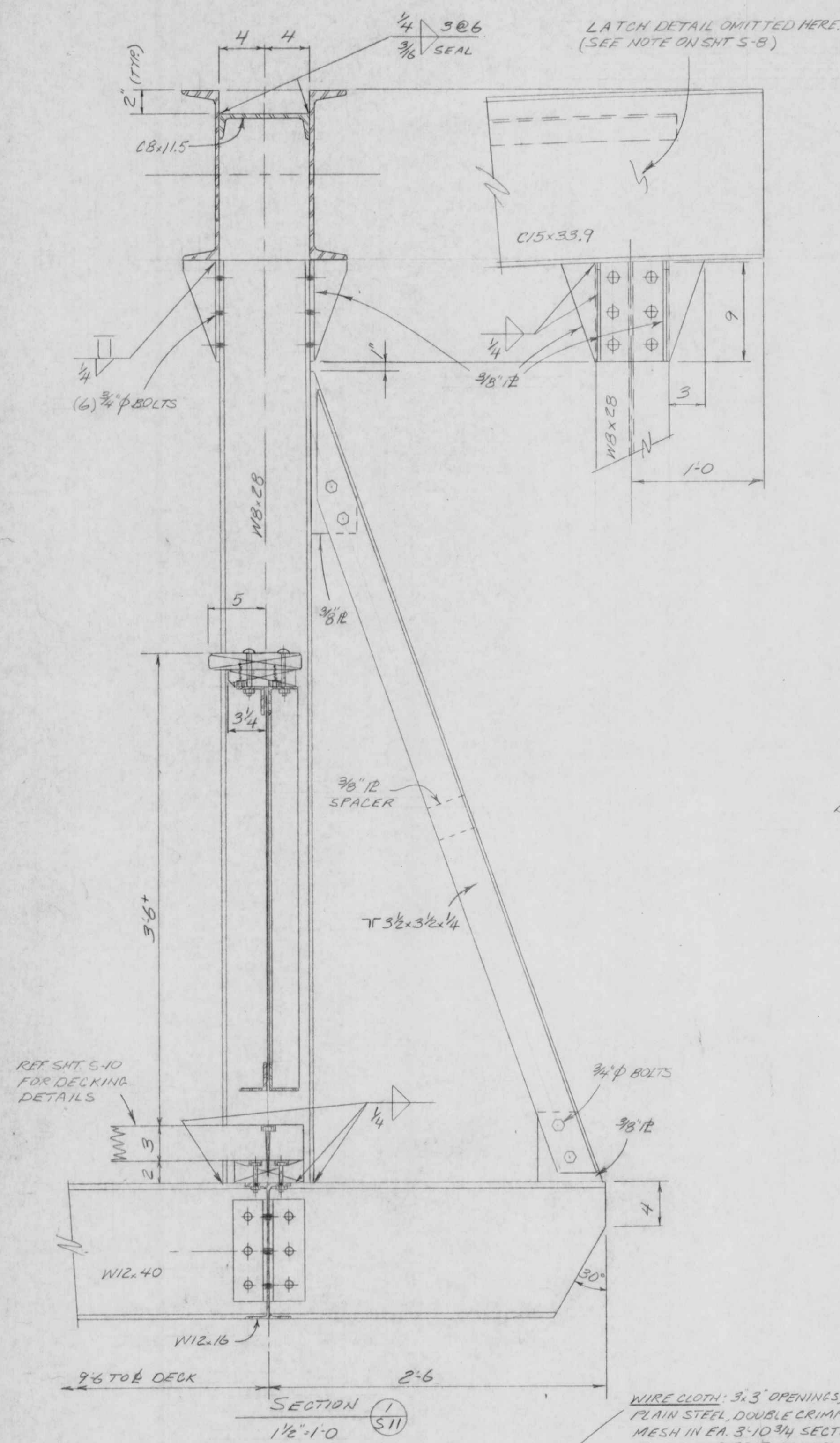
FOR: CITY OF DULUTH

BRIDGE DECK DETAILS/HNGE/P DETAILS

PROJECT NO: 90-201
DRAWN BY: H5.1

SHEET:

S-9 OF: 20



MINNESOTA SLIP/PEDESTRIAN BRIDGE

FOR: CITY OF DULUTH
HANDRAIL DETAILS

HANDRAIL DETAILS

PROJECT NO: 90-201

DRAWN BY: 1451

CHECKED BY:

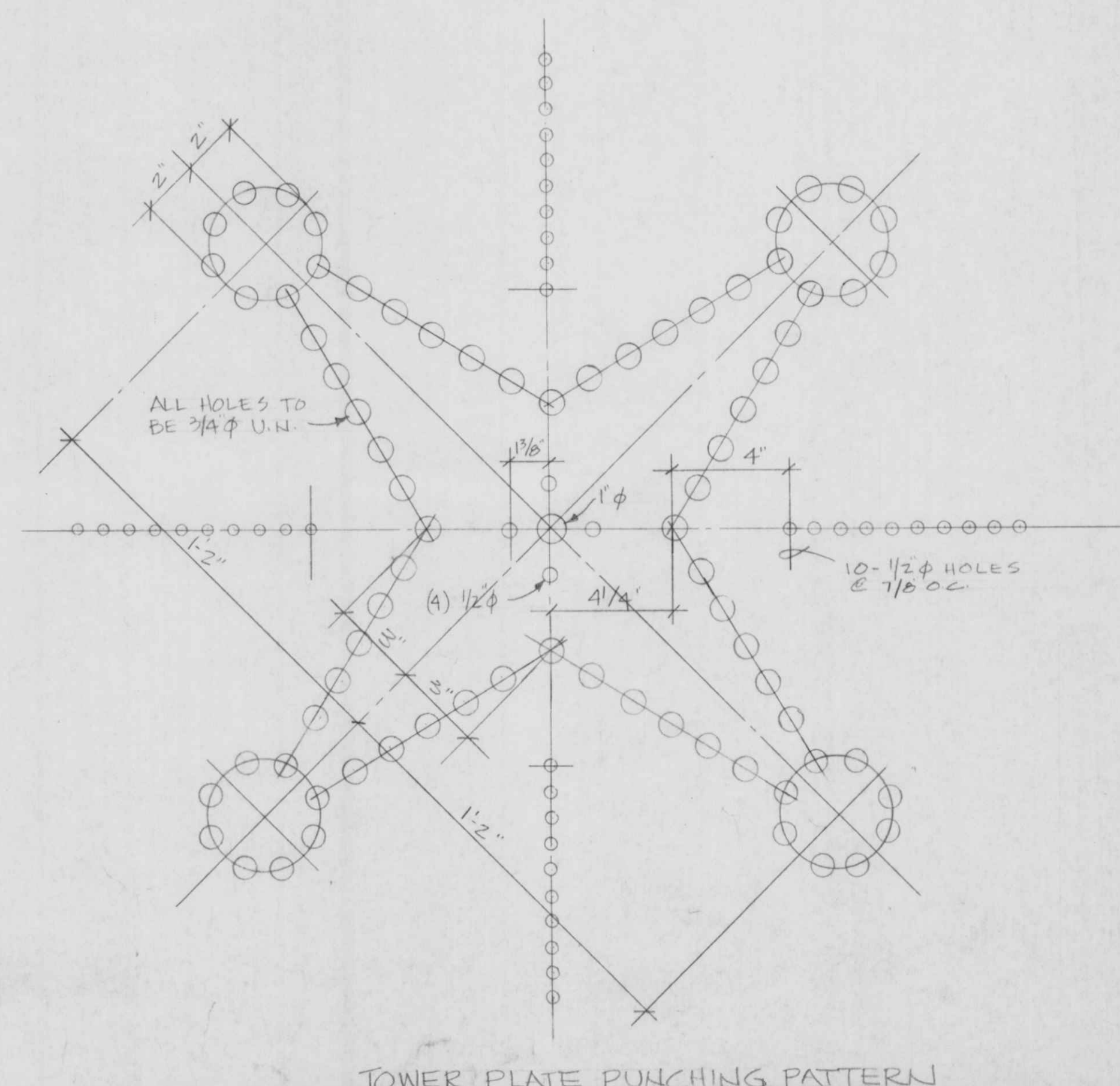
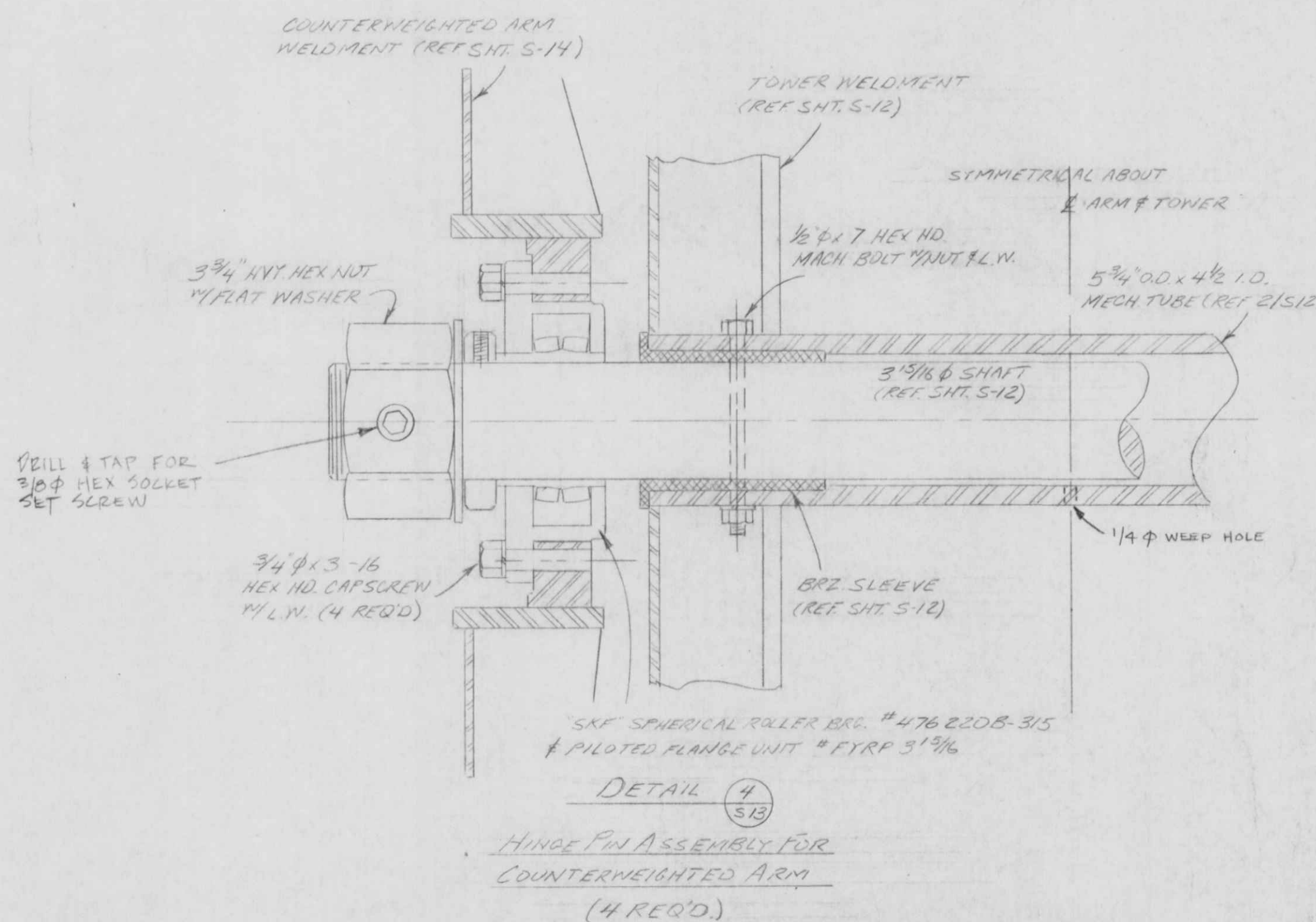
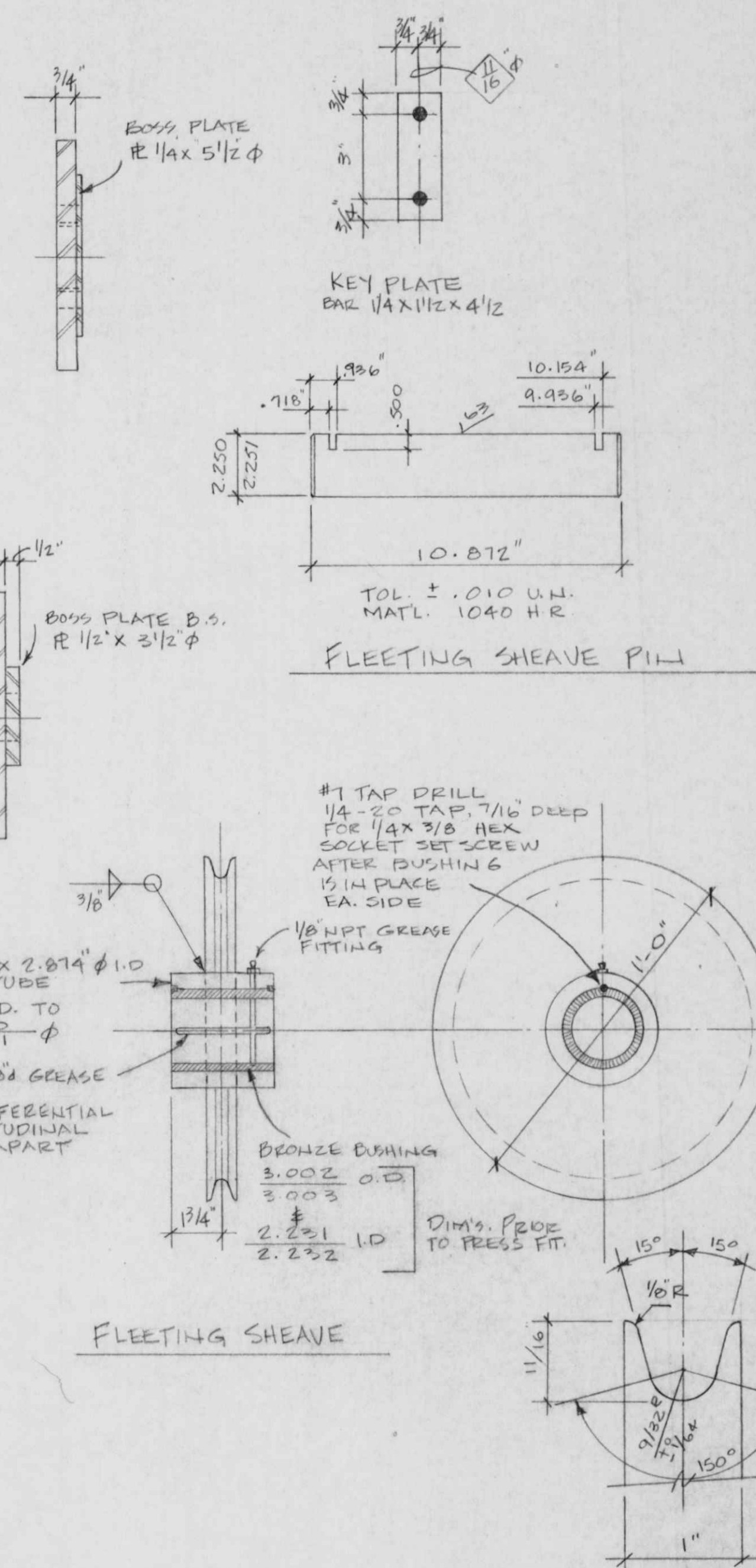
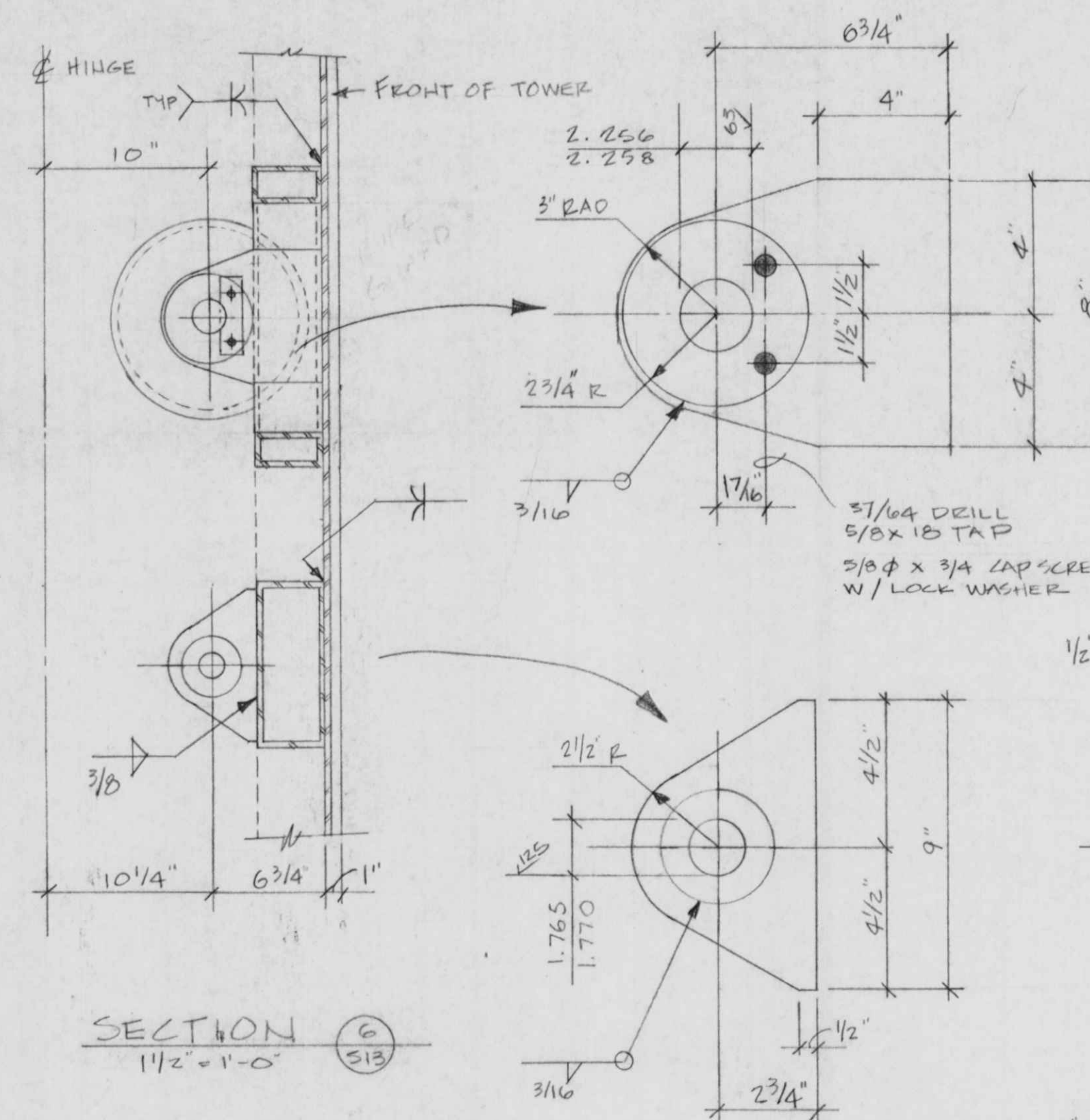
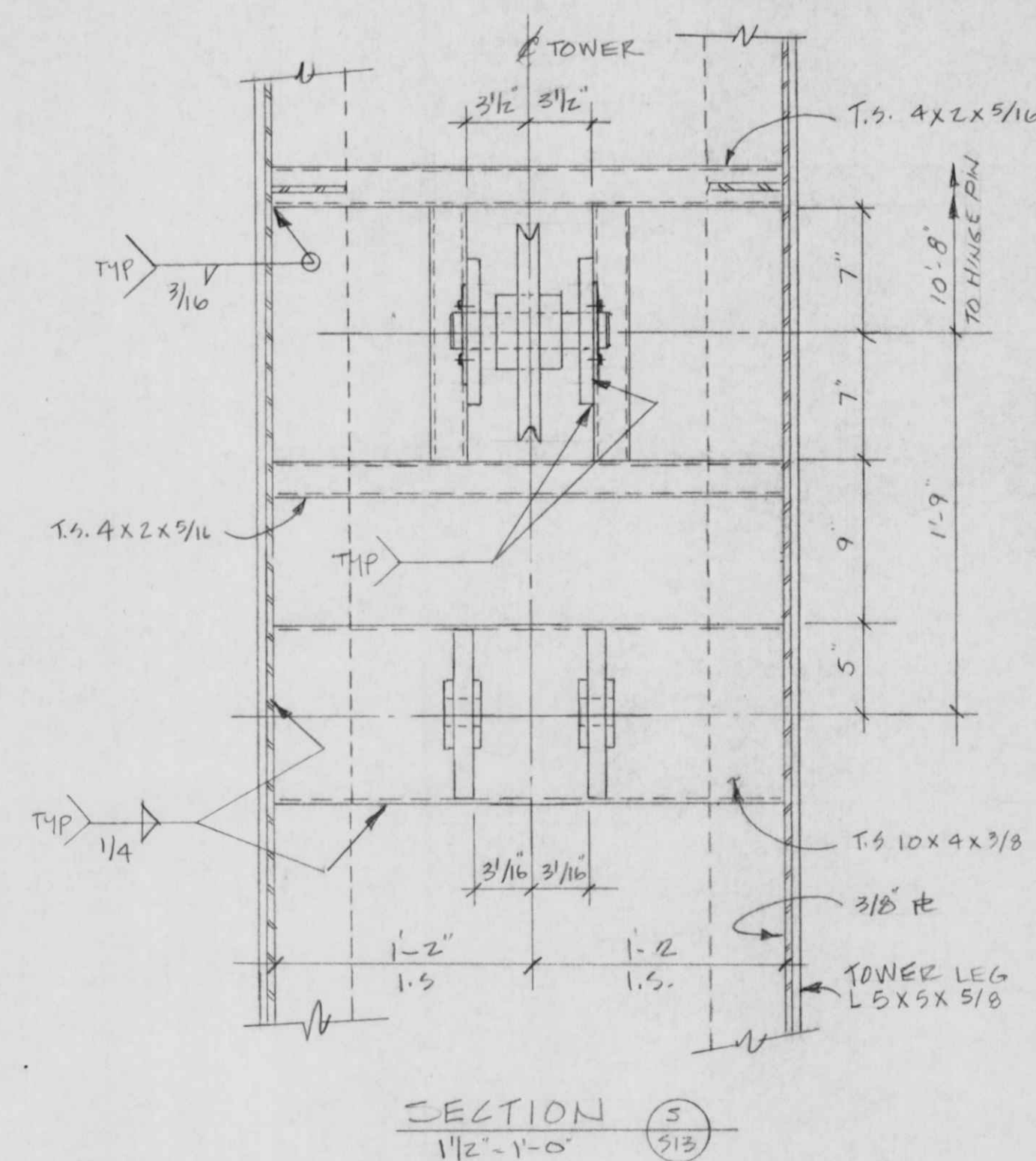
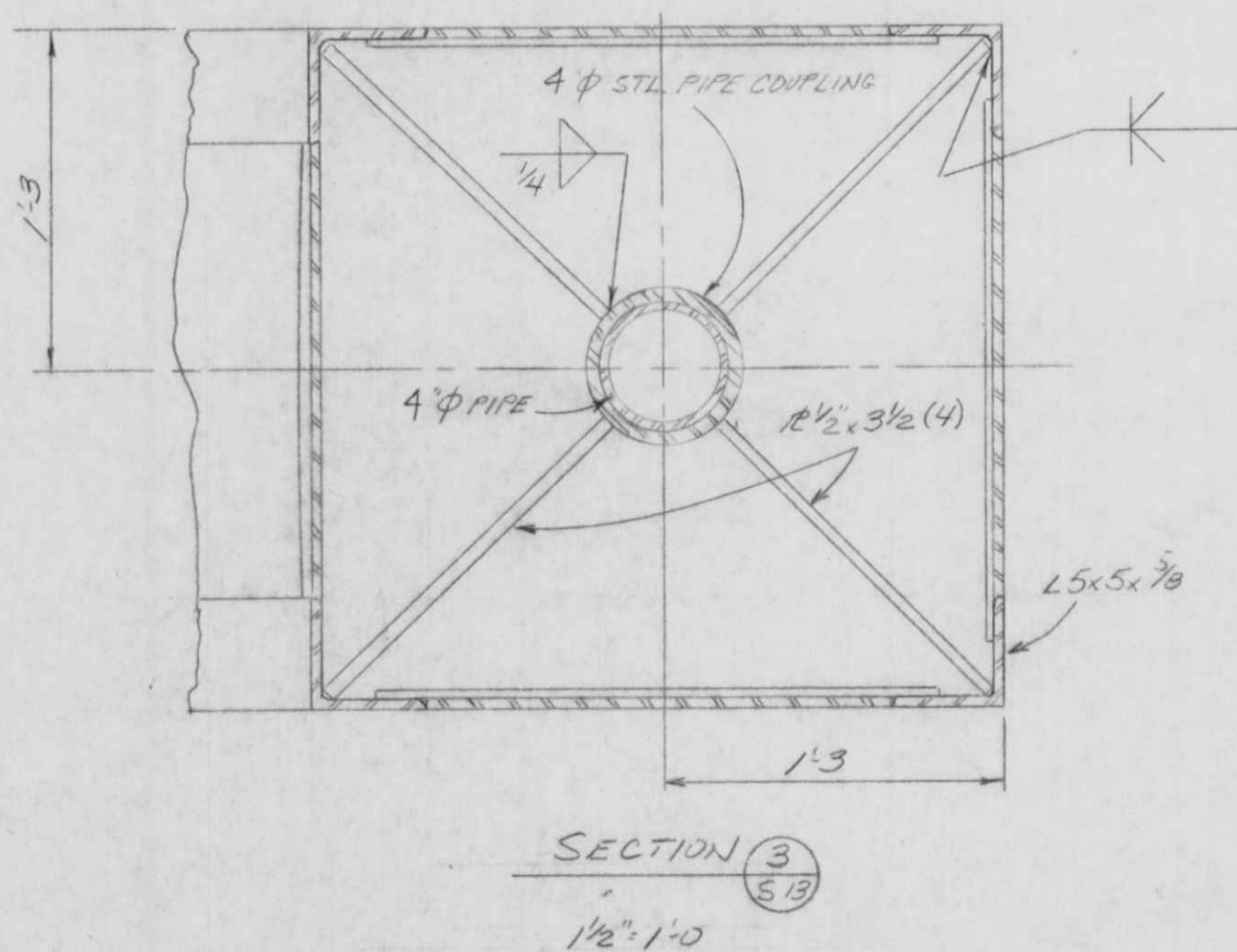
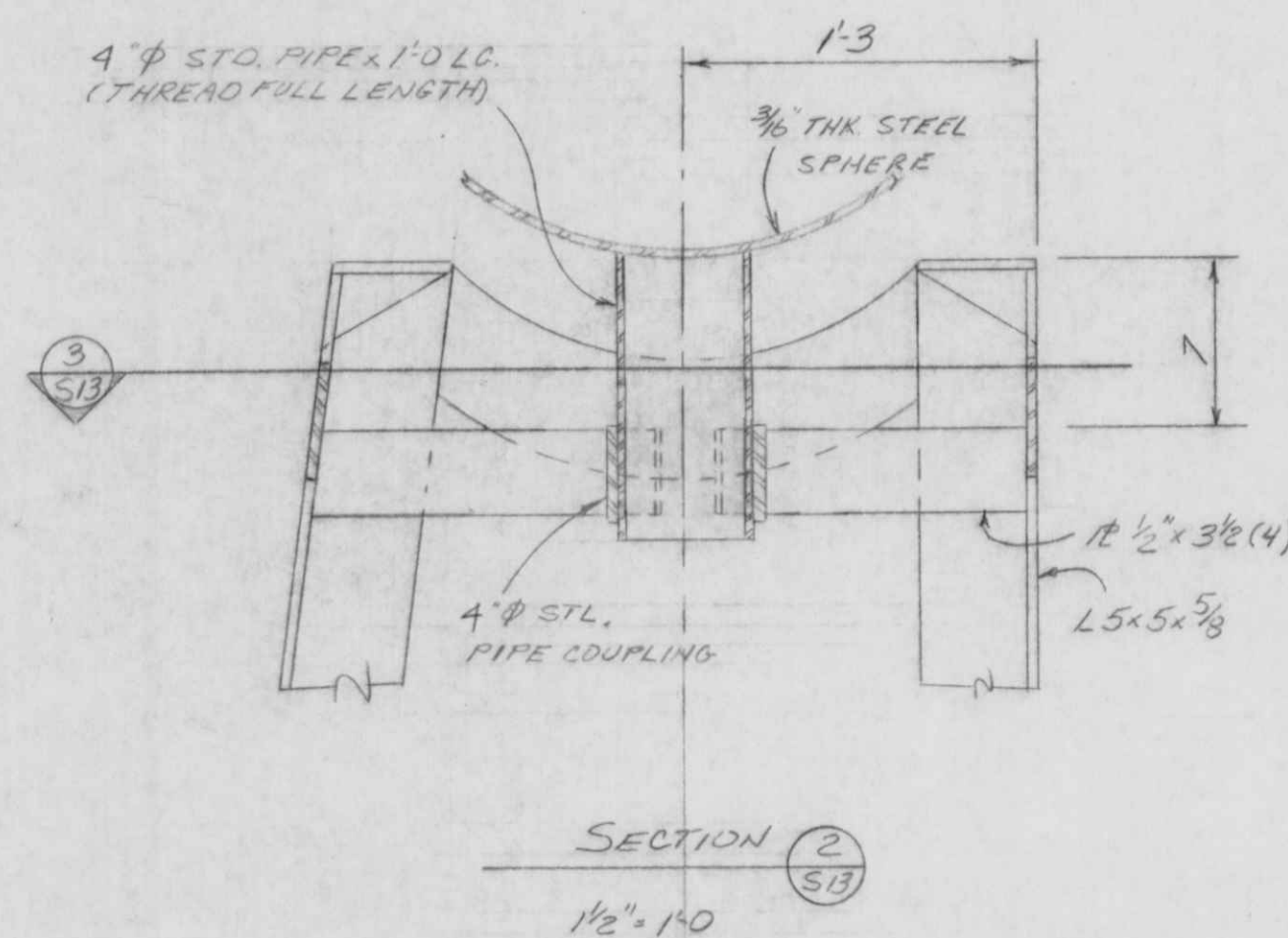
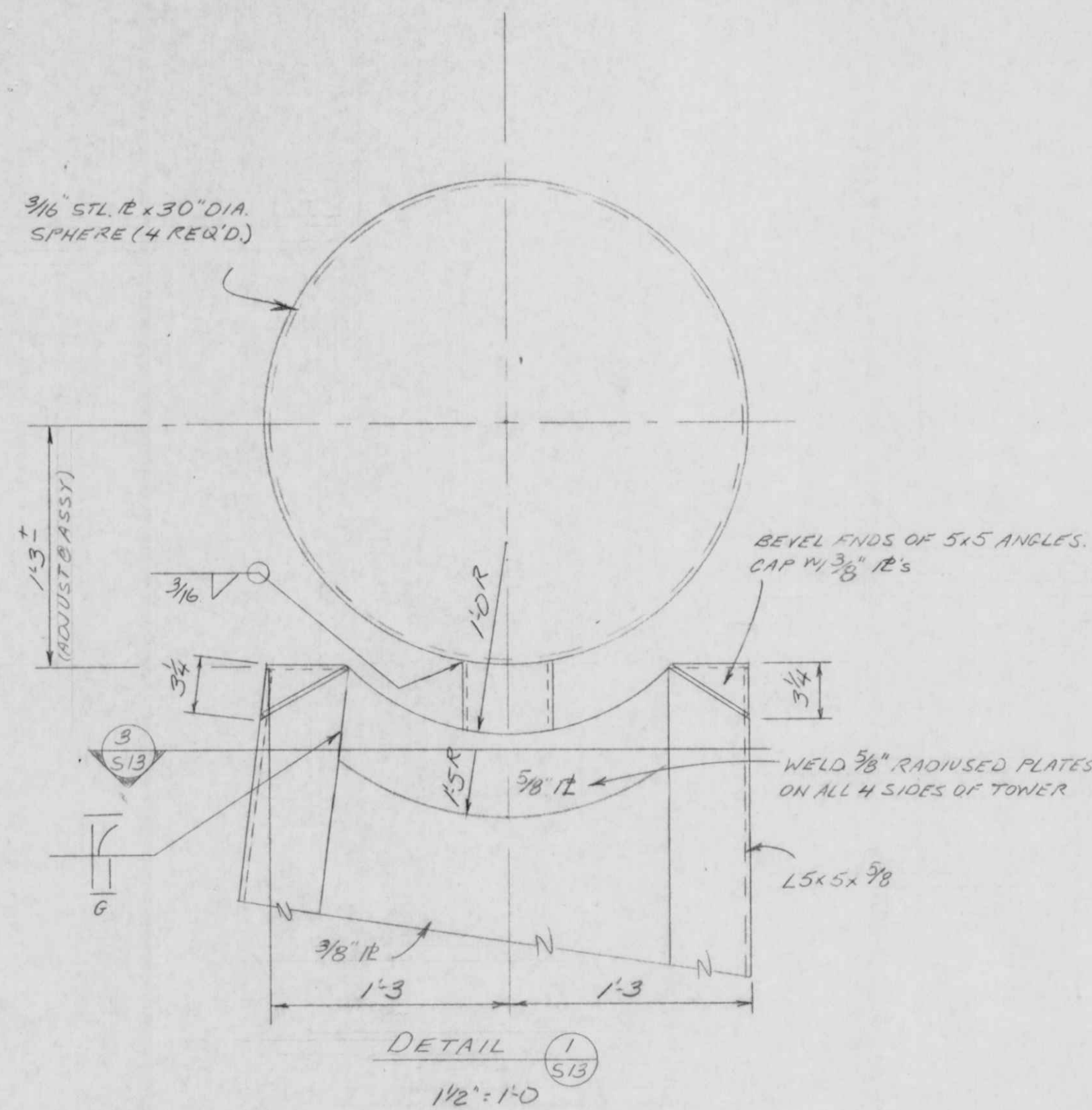
RELEASE DATE:

REVISIONS:

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SIONAL ENGINEER UNDER THE LAWS OF
THE STATE OF MINNESOTA

REG. NO. E 14016 DATE FEB 11, 1991

209 W. 1st St., Suite 202 ☐ Duluth, MN 55802 ☐ Phone: (218) 727-3282



MINNESOTA SLIP PEDESTRIAN BRIDGE

For: CITY OF DULUTH
LIFTING ARM SUPPORT TOWER, DETAILS

PROJECT NO. 90-201
DRAWN BY: H5/J/K/T
CHECKED BY:

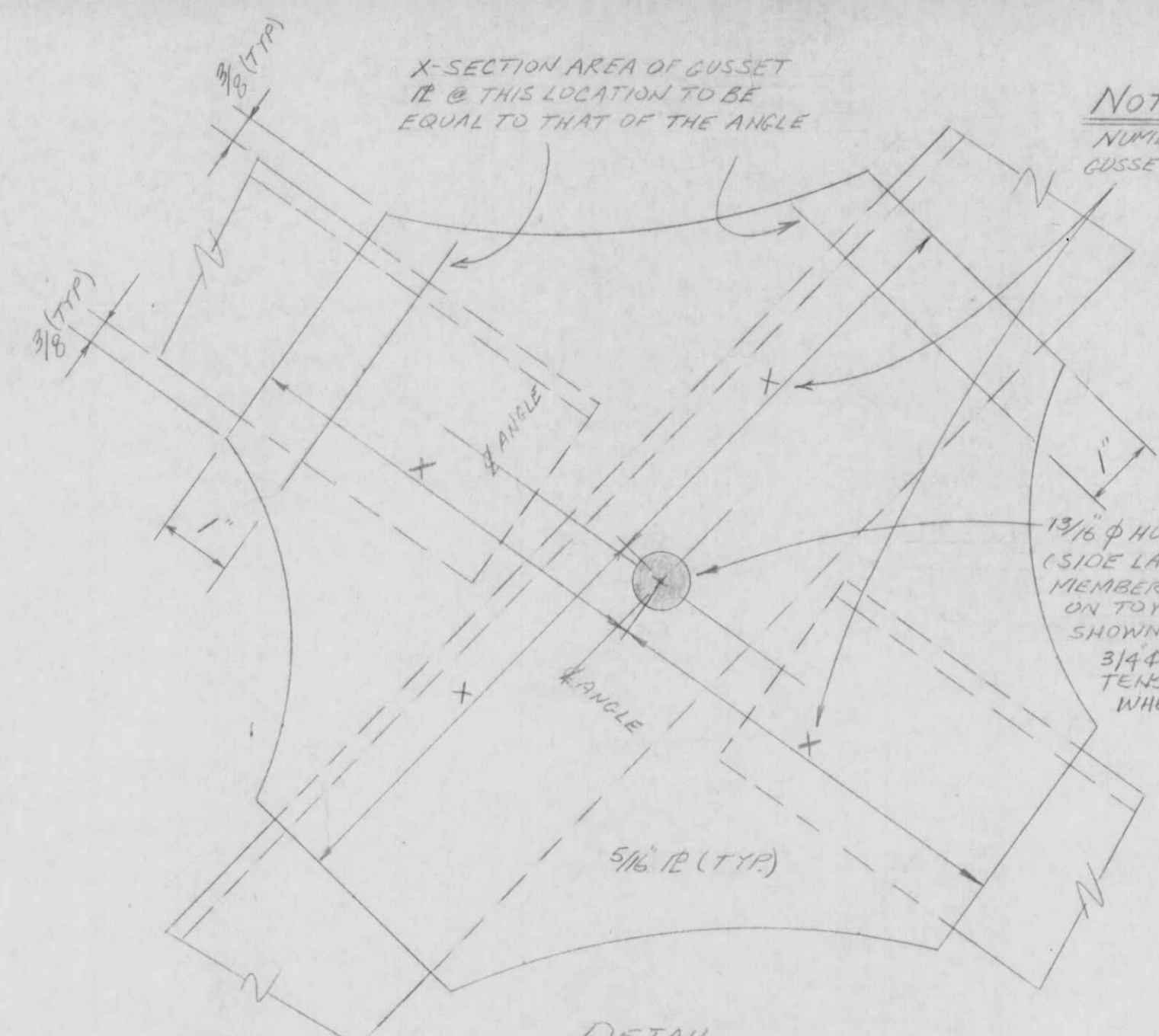
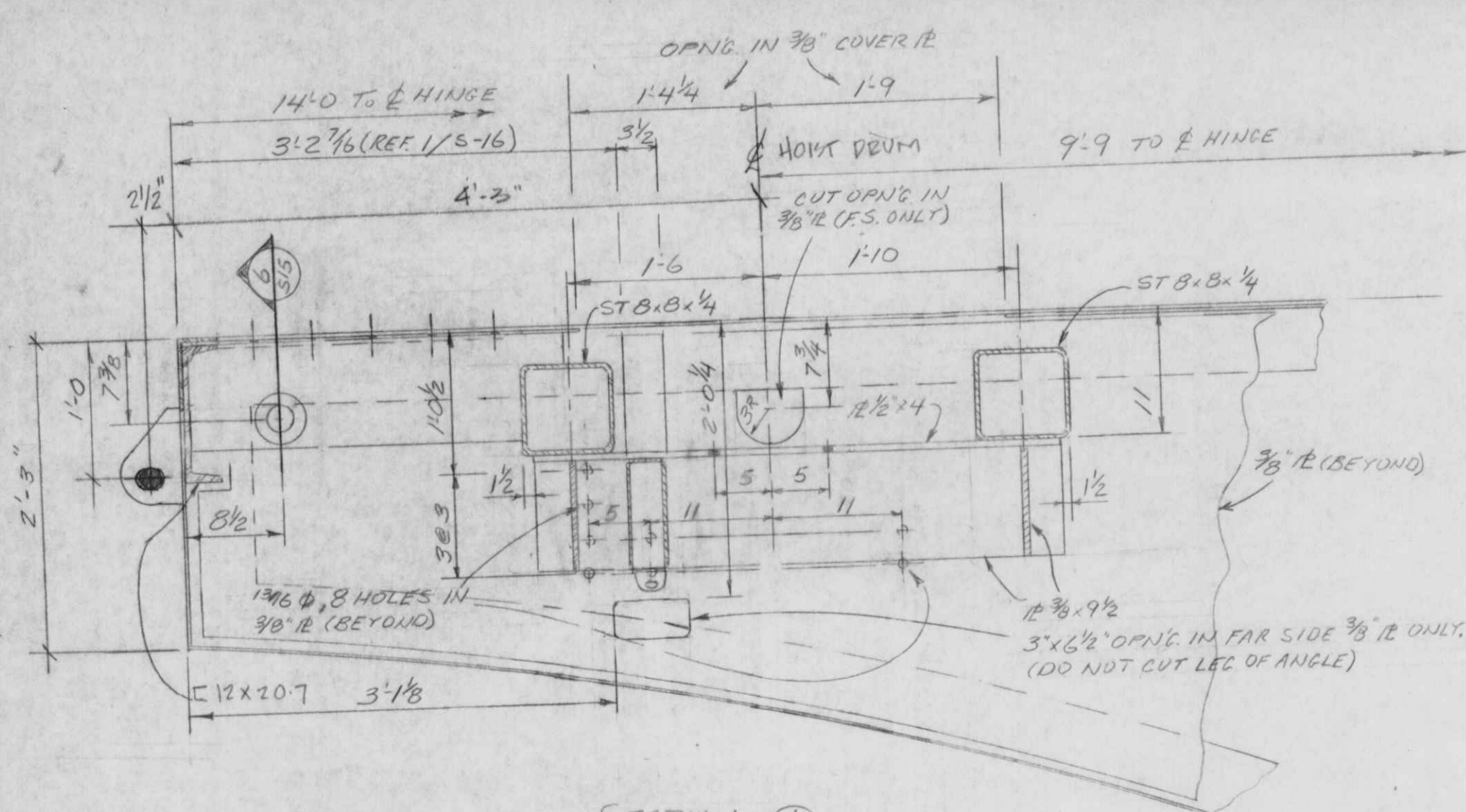
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S-13 OF 20

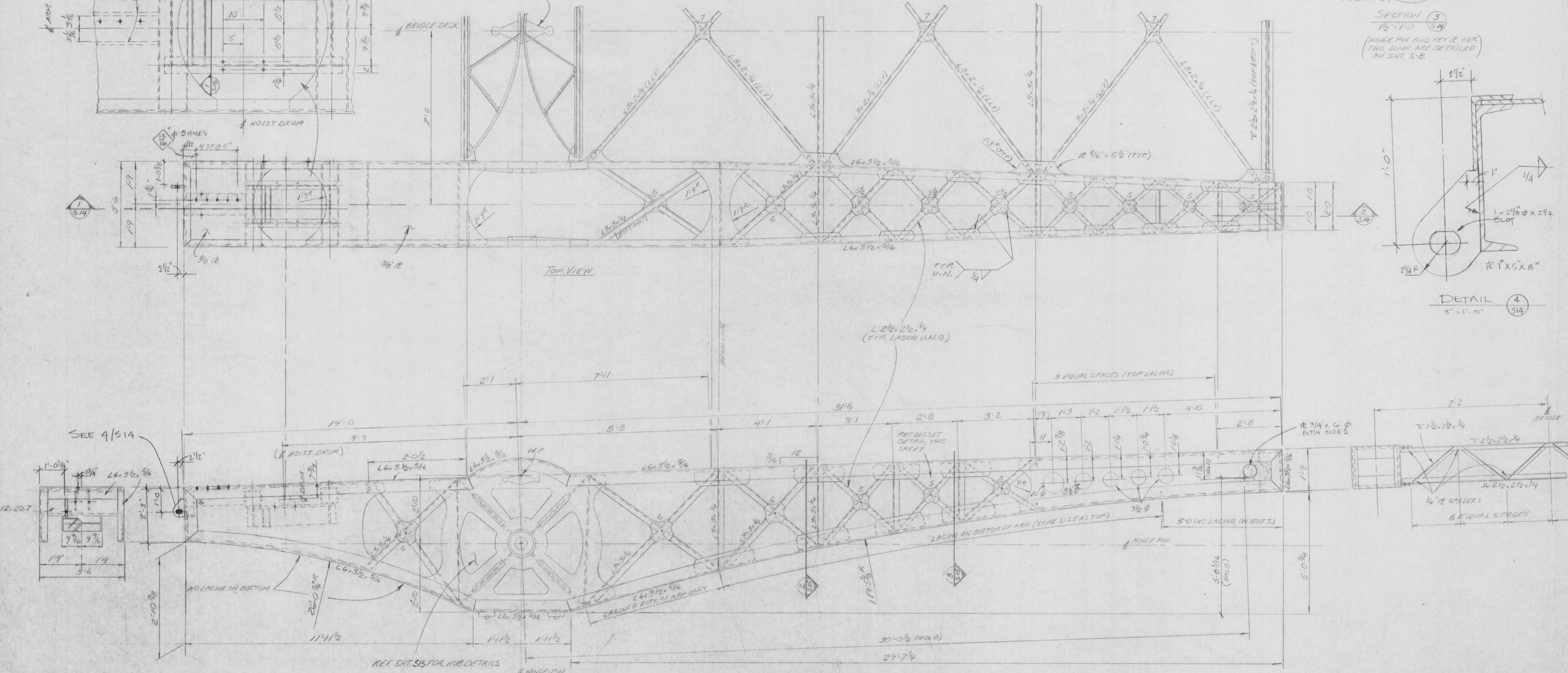
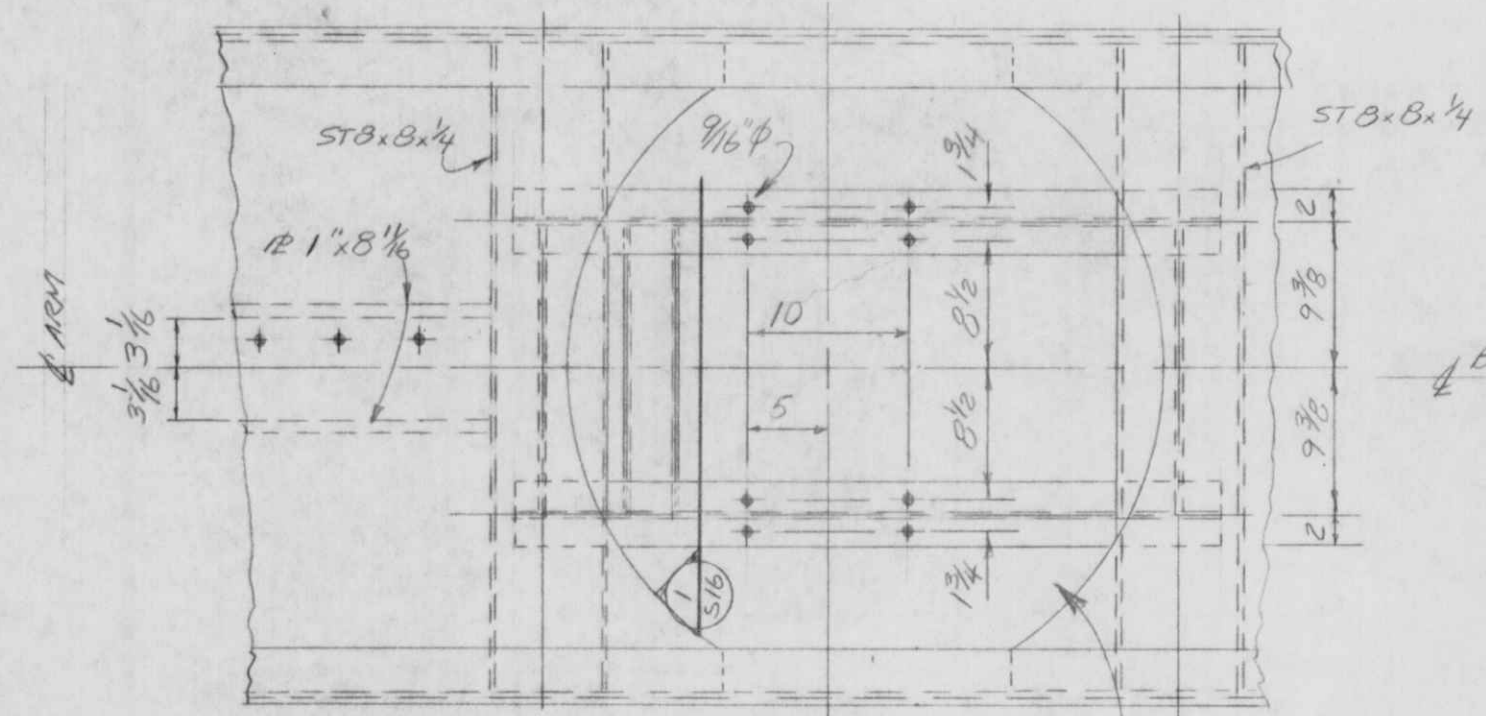
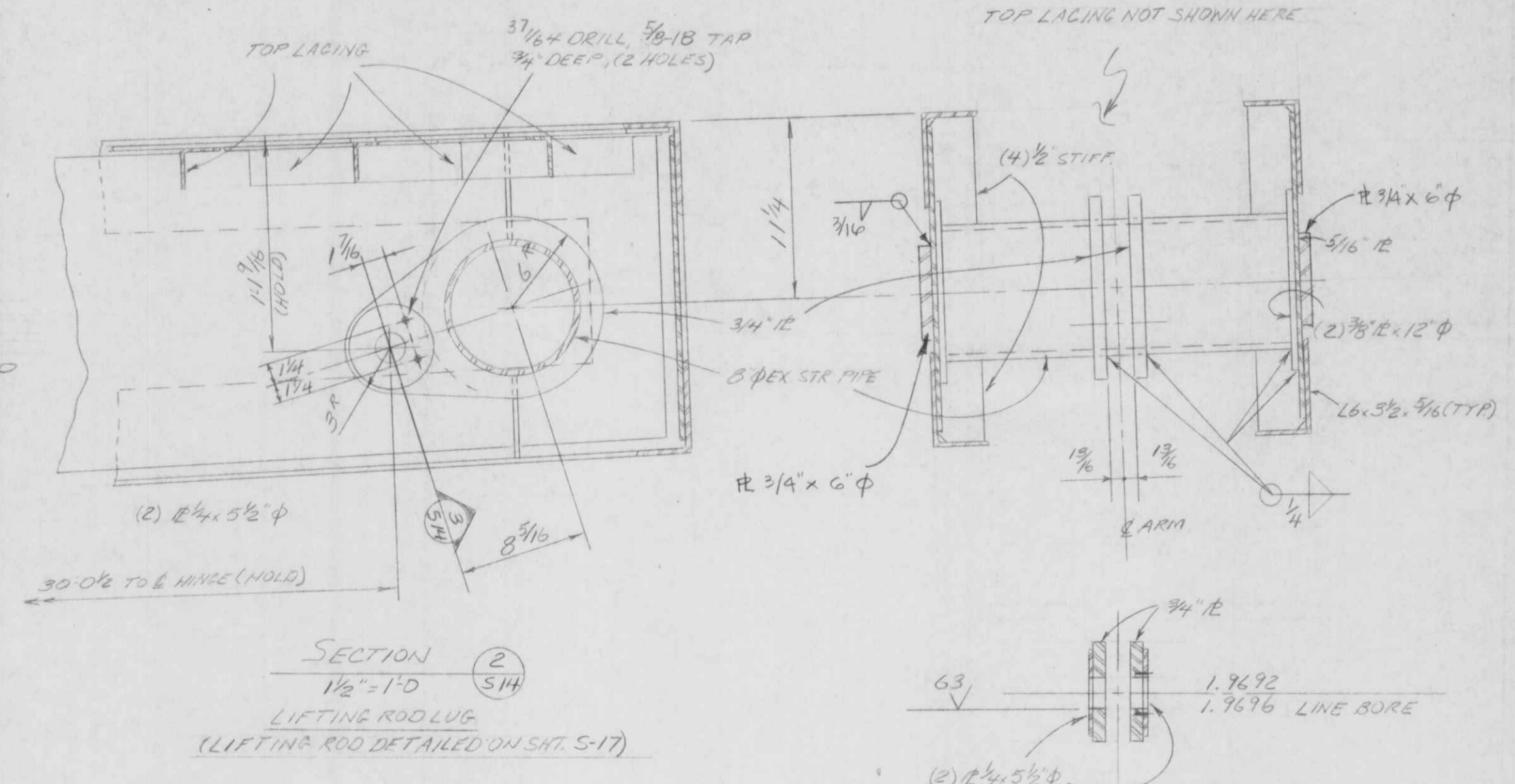
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DATE: FEB 11, 1991
REG. NO. E14016

Krech & Ojard
Consulting Engineers, P.A.

209 W. 1st St., Suite 202, Duluth, MN 55802 Phone: (218) 727-3292



NOTE:
NUMBER SHOWN AT EACH GUSSET PLATE IS "X" DIM.



COUNTERWEIGHTED ARM
(4 REQ'D)
2 AS SHOWN ~ 2 OPP. HAND

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

DATE FEB. 11, 1931

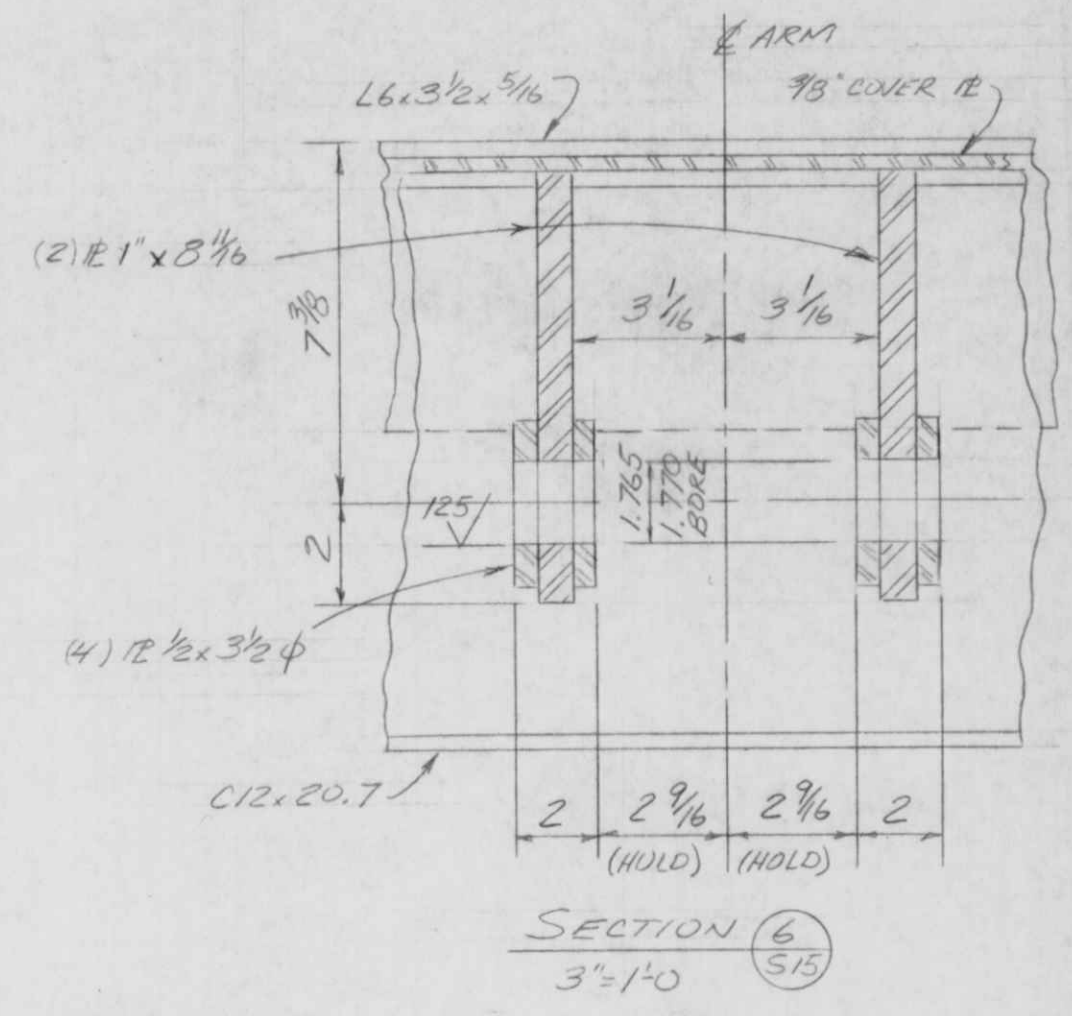
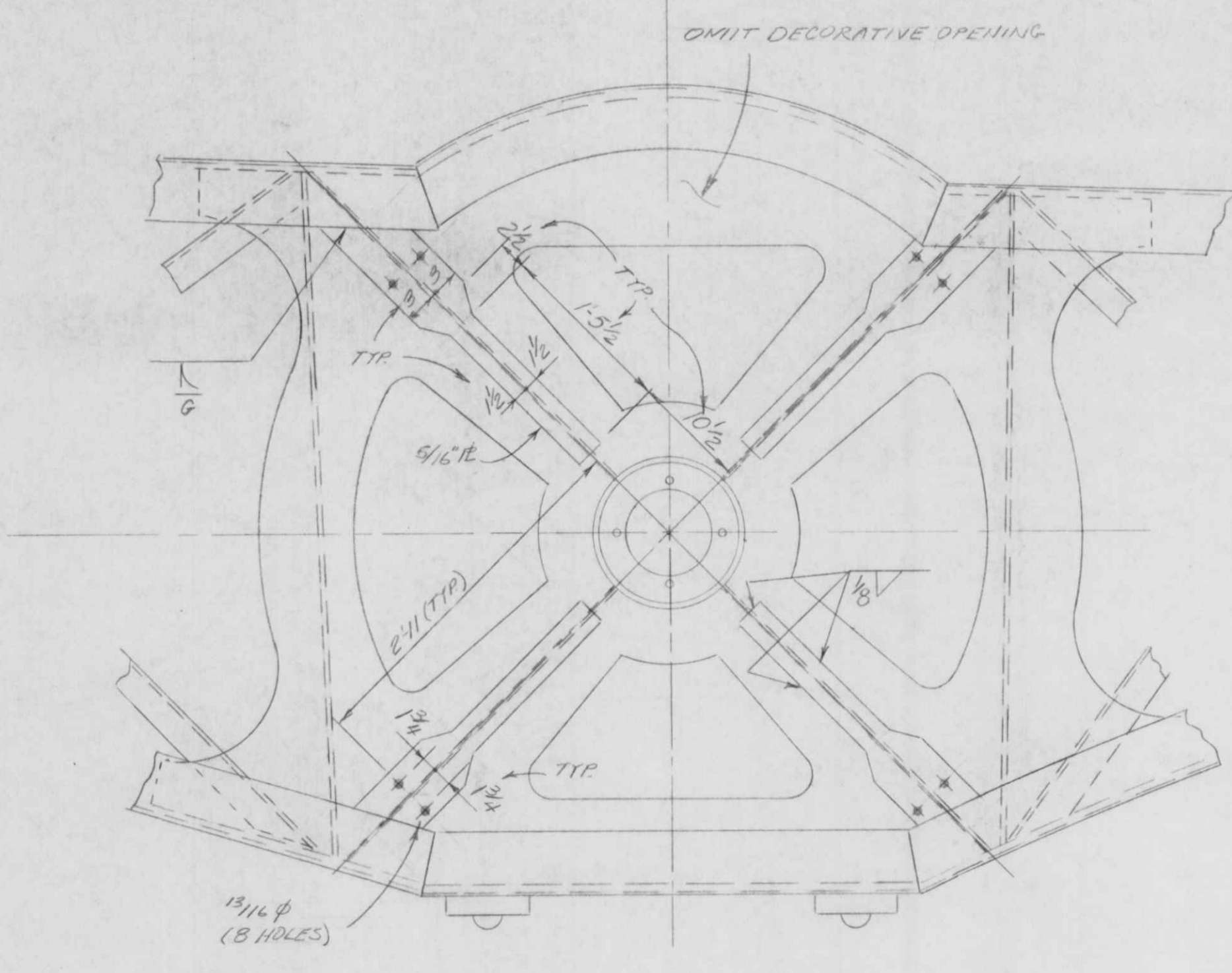
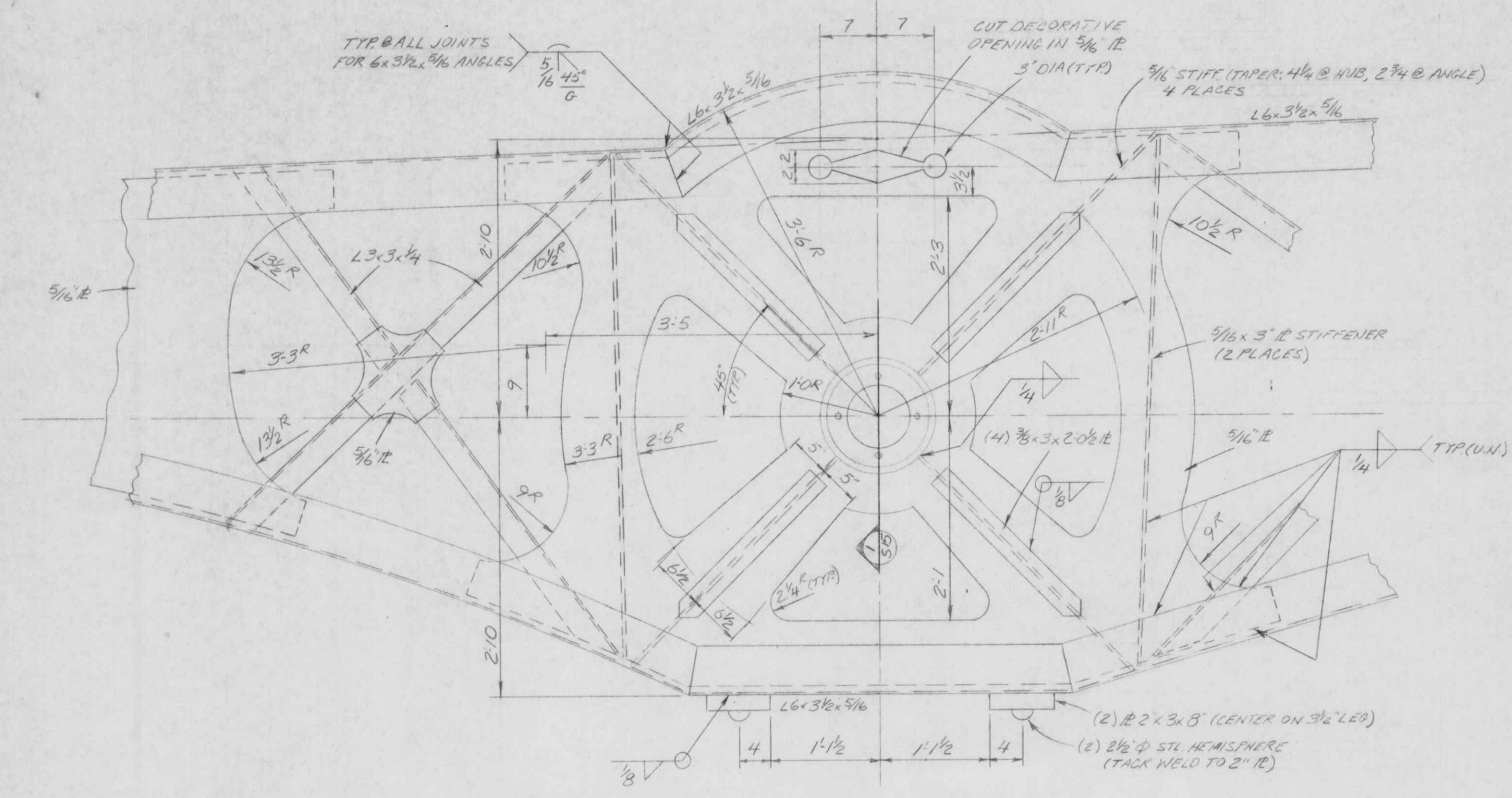
MINNESOTA SLIP PEDESTRIAN BRIDGE
FOR: CITY OF DULUTH
COUNTERWEIGHTED ARM

PROJECT NO. 90-201
DRAWN BY: H.S.U.
CHECKED BY:

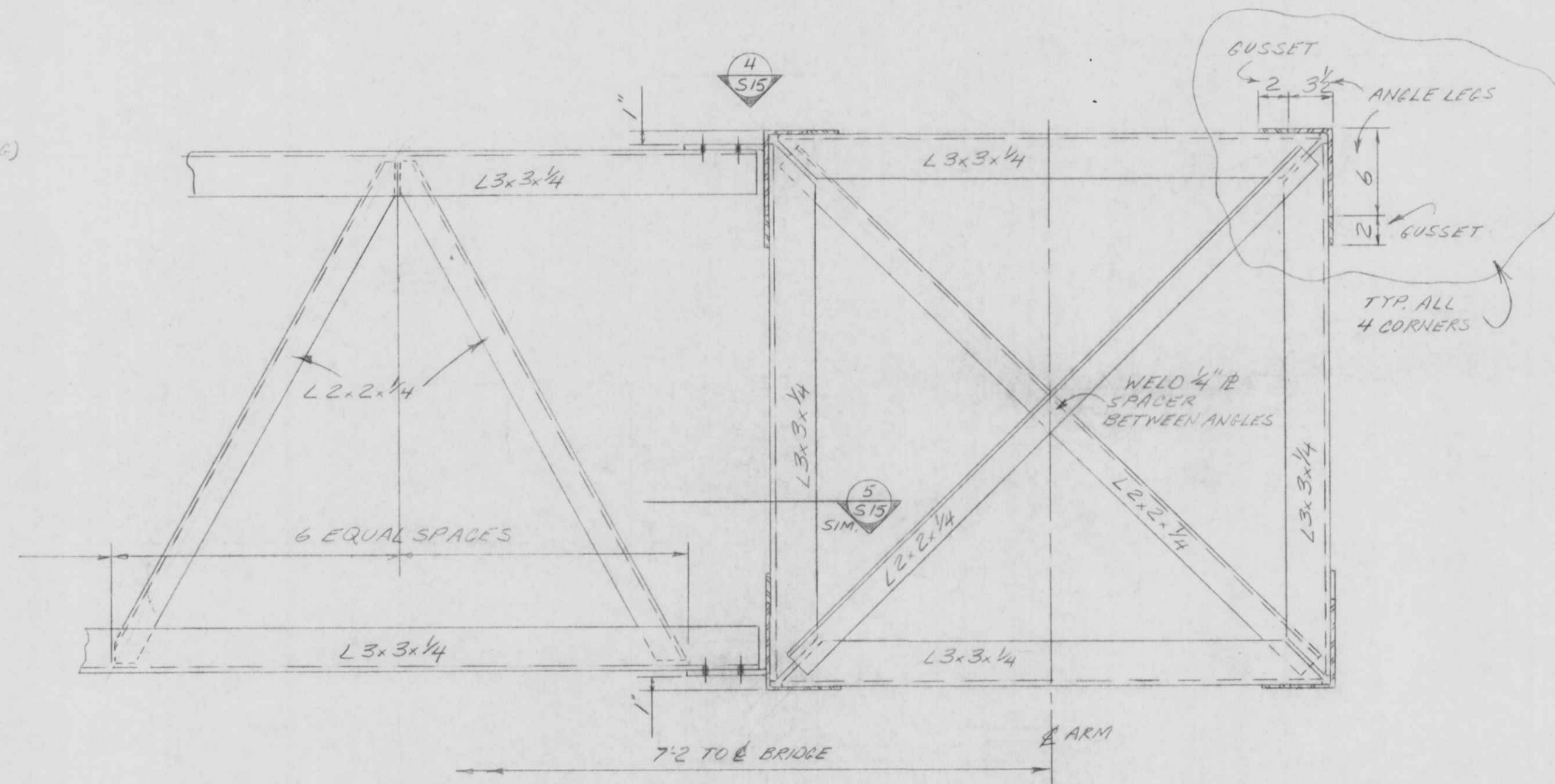
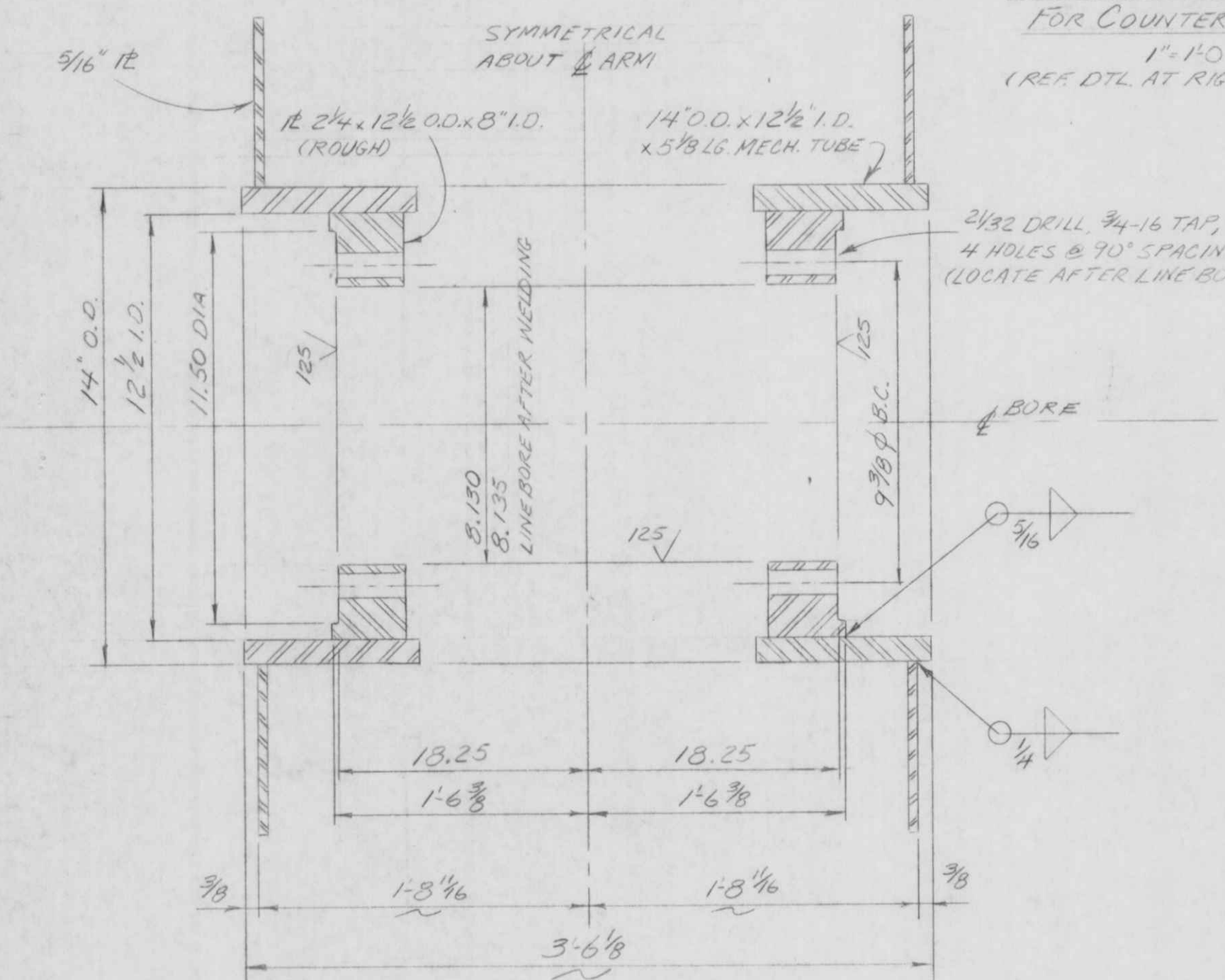
RELEASE DATE:
REVISIONS:

SHEET:

S-14 OF 20

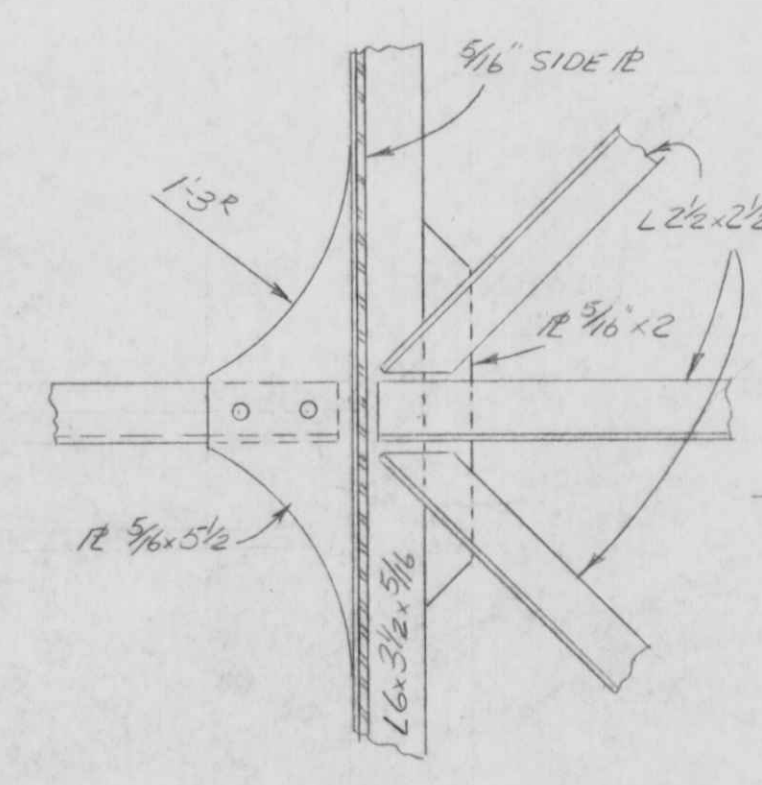
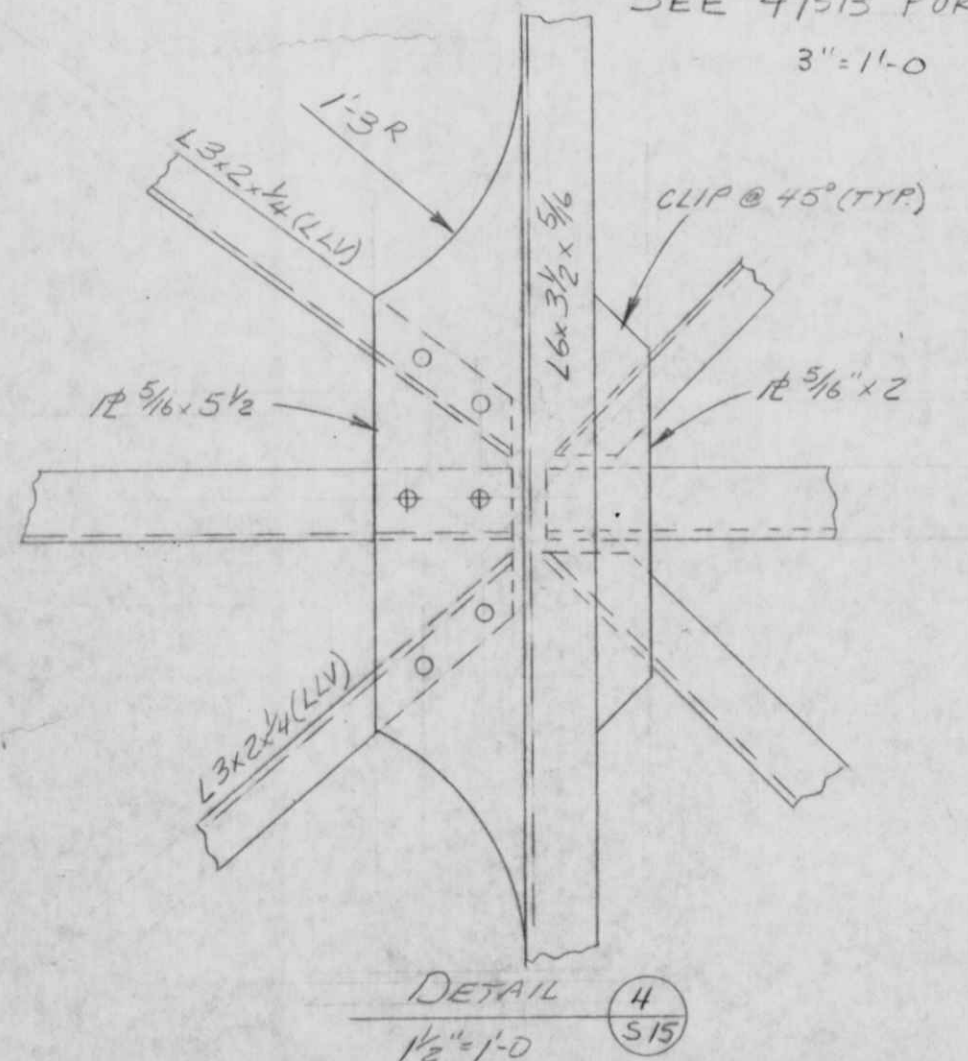


"OUTSIDE" HUB DETAIL
FOR COUNTERWEIGHTED ARM
1" = 1'-0"
(REF DTL AT RIGHT FOR "INSIDE" DETAIL)

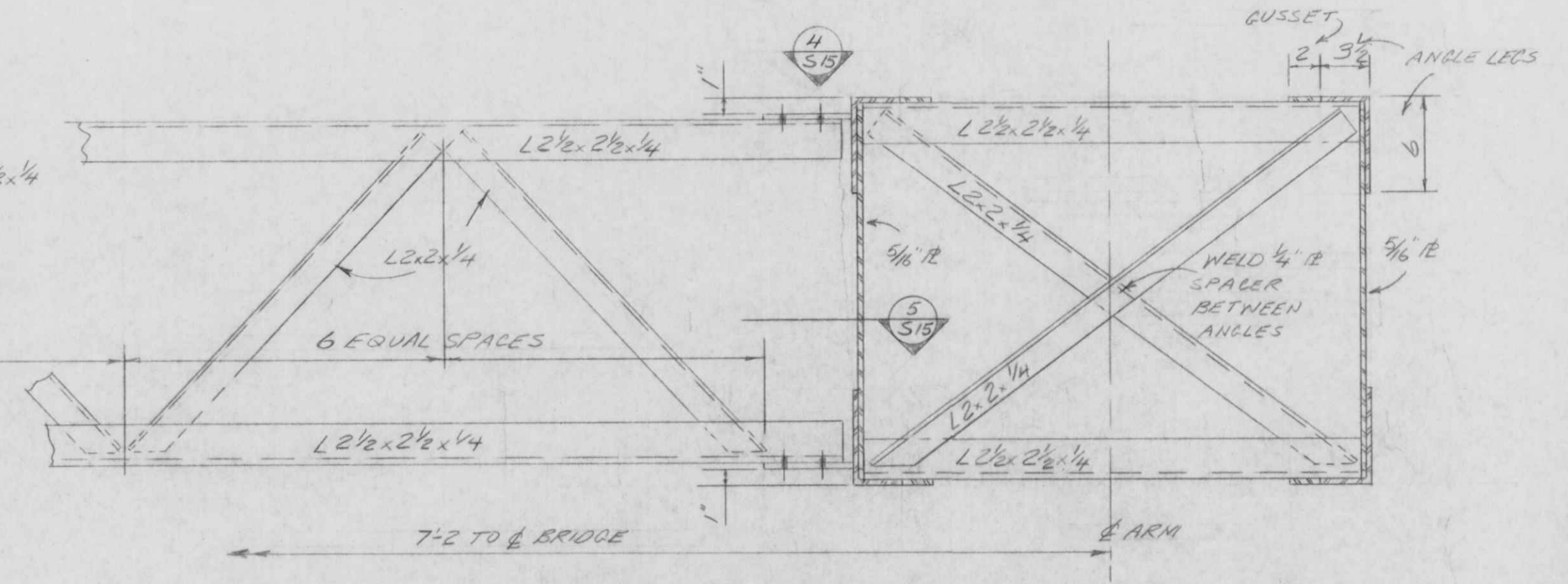


SECTION 2
1/2" = 1'-0"

SECTION 1
THRU HUB WELDMENT
SEE 4/S13 FOR HINGE PIN/BEARING ASSEMBLY
3" = 1'-0"



SECTION 5
1/2" = 1'-0"



SECTION 3
1/2" = 1'-0"

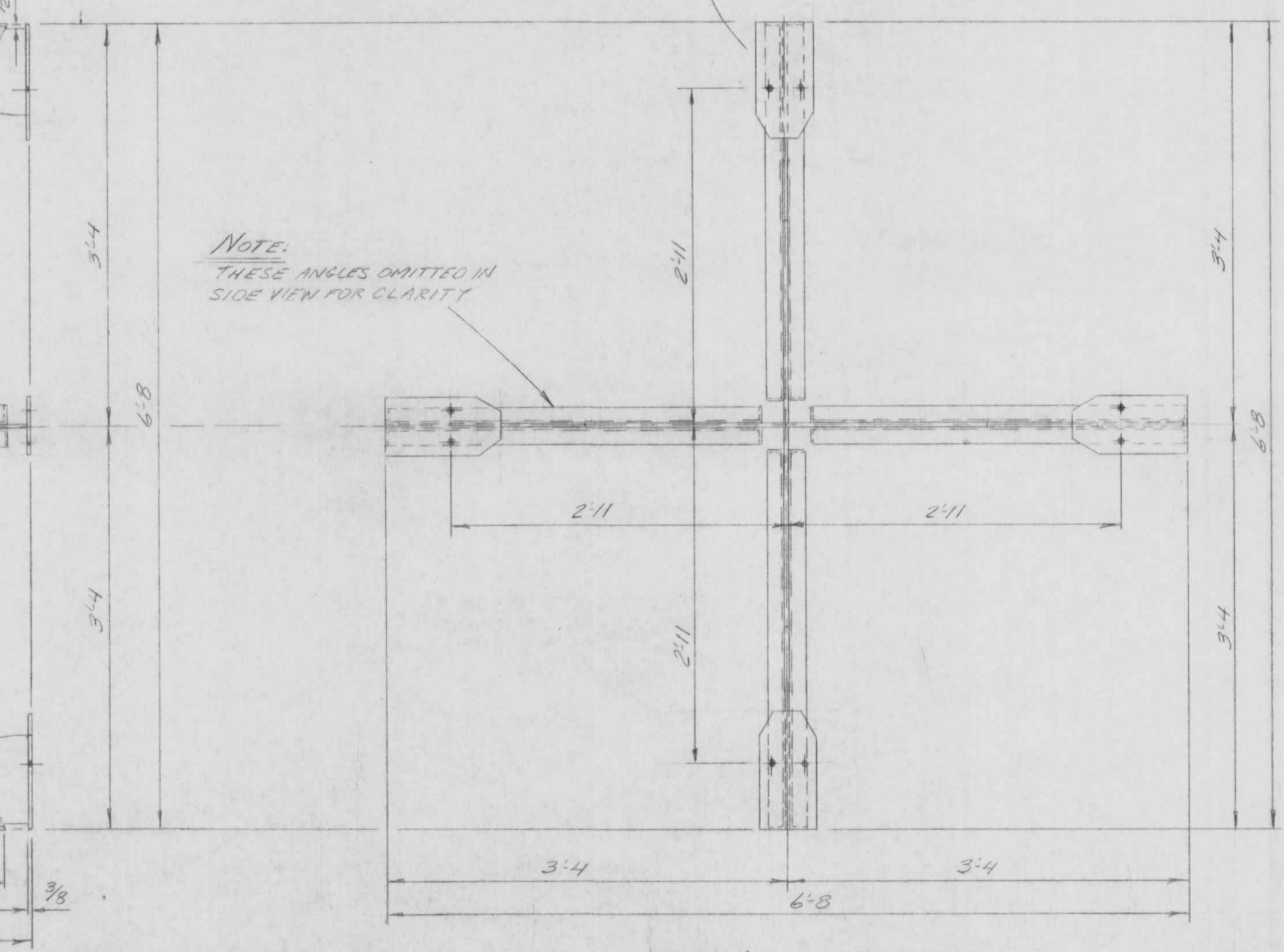
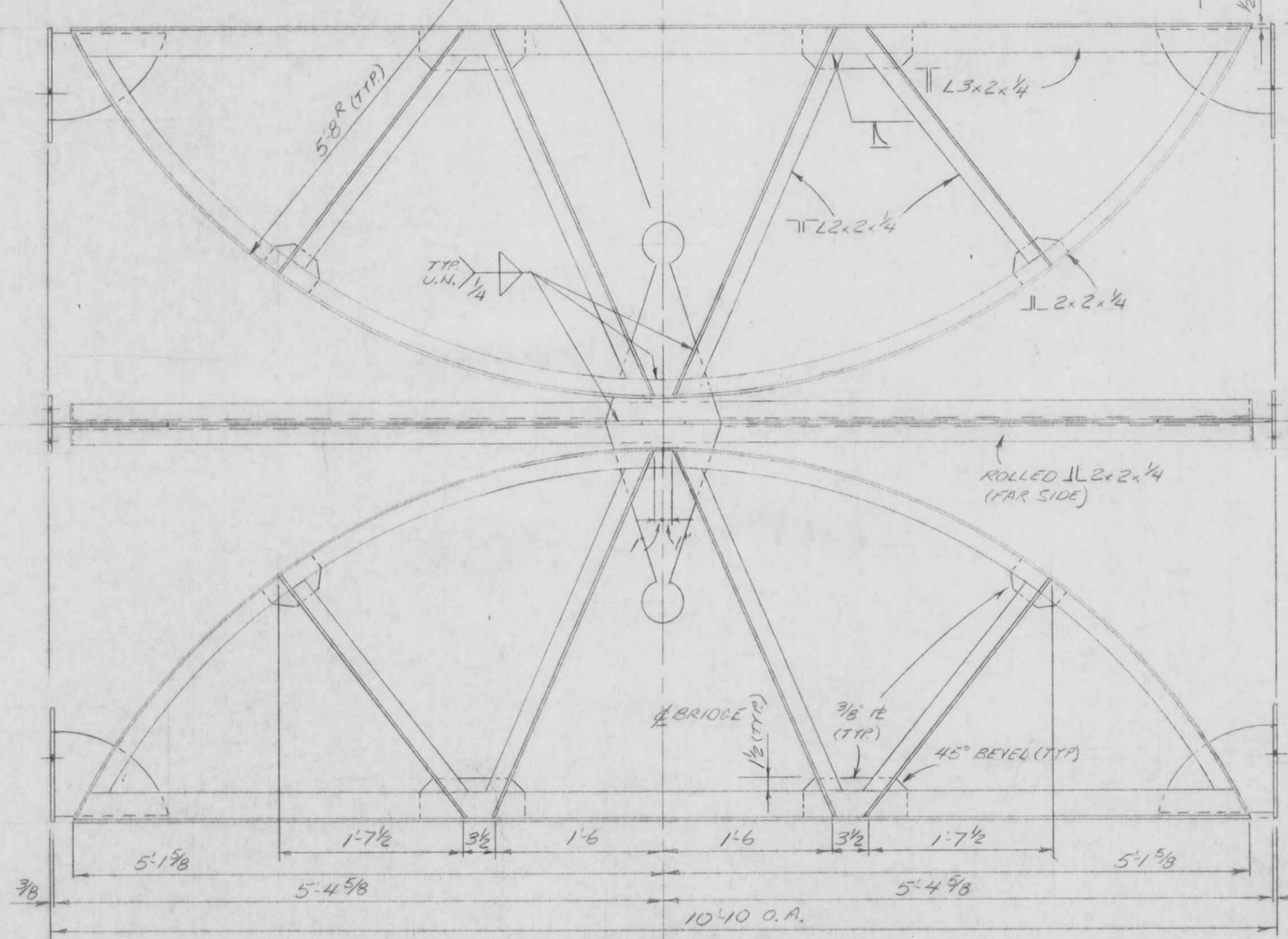
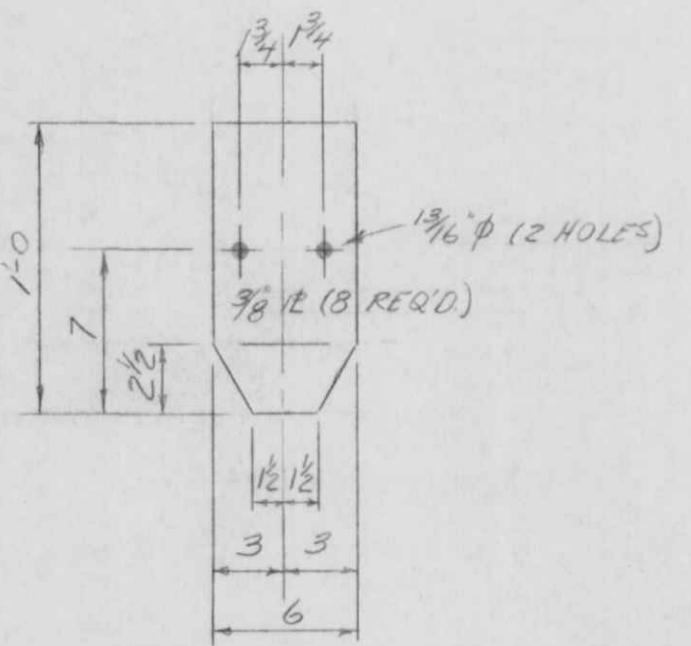
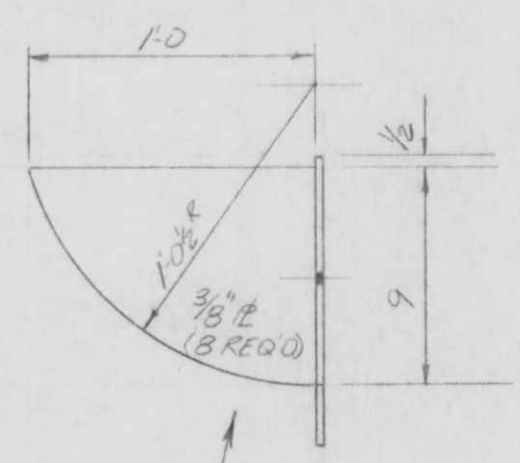
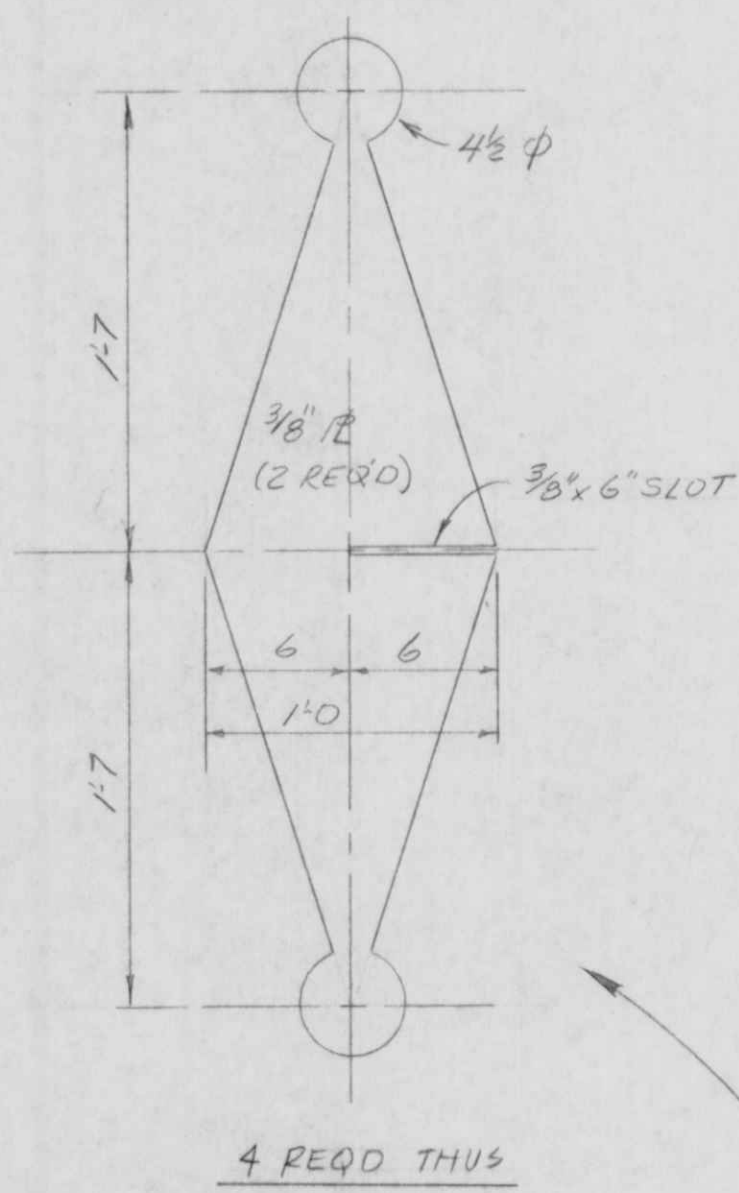
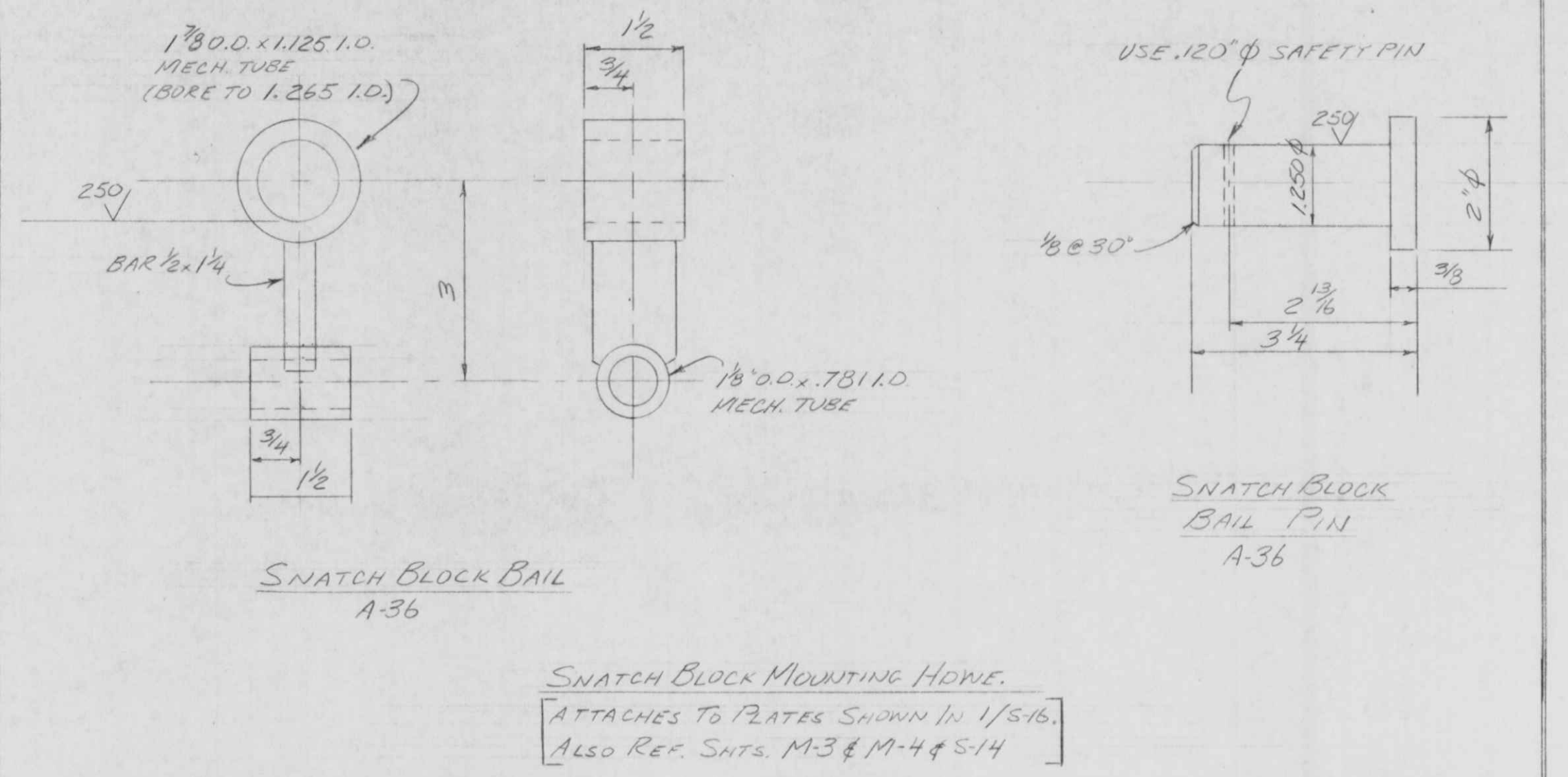
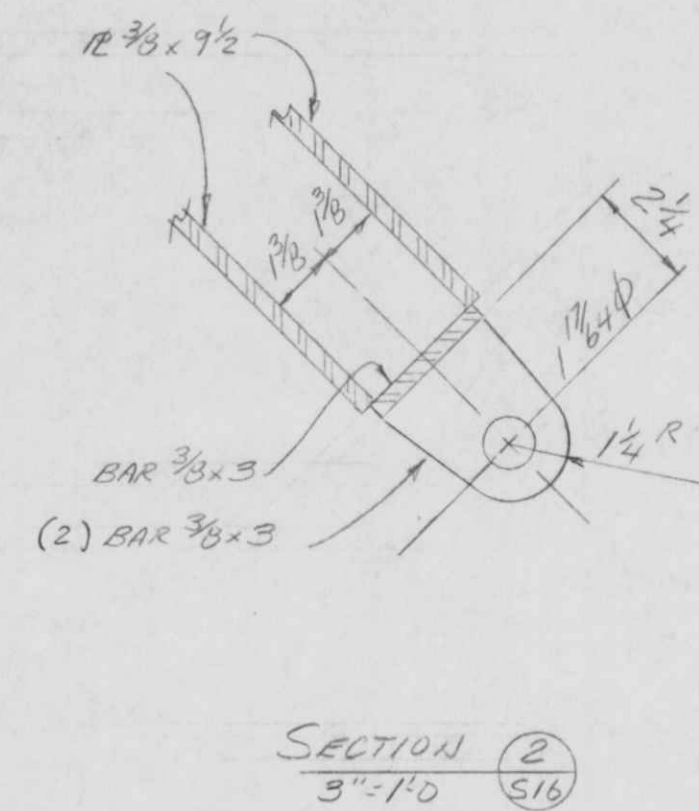
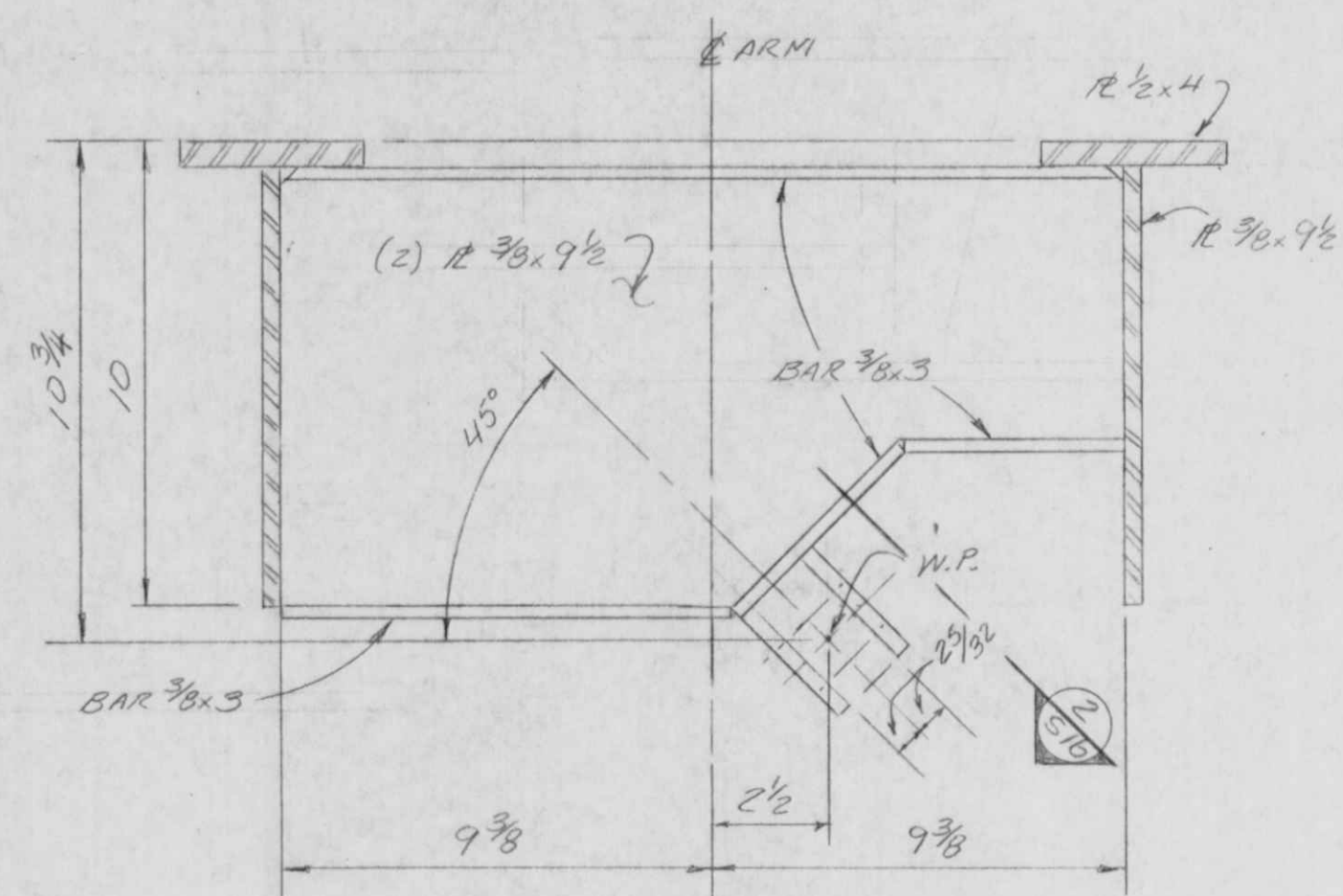
MINNESOTA SLIP PROESTRIAN BRIDGE
FOR: CITY OF DULUTH
COUNTERWEIGHTED ARM DETAILS

PROJECT NO. 90-201
DRAWN BY: HSJ
CHECKED BY:

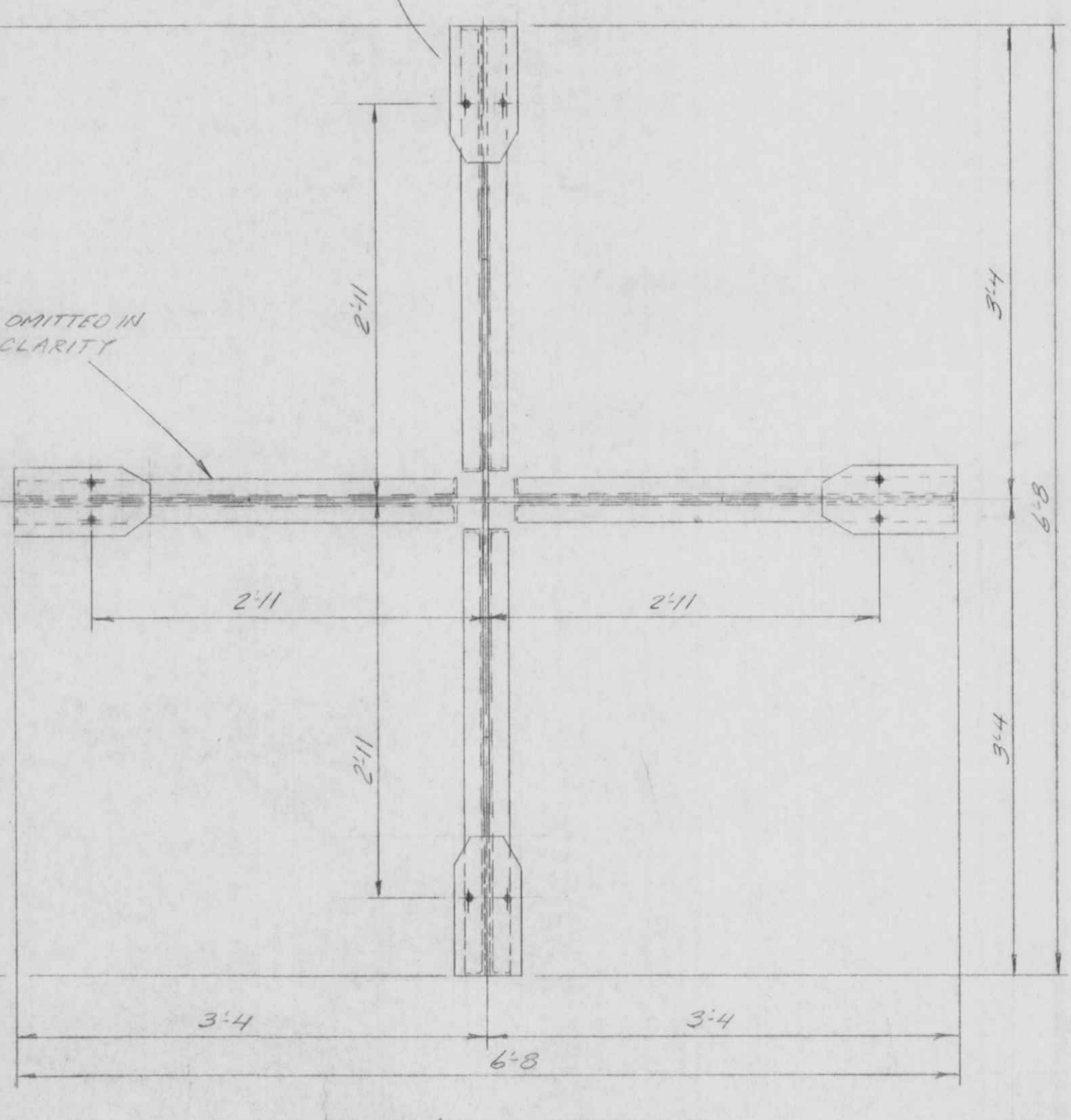
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY SUPERVISION AND THAT I AM A REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE FEB 11, 1991
REG. NO. E 14016

Krech & Ojard
Consulting Engineers, P.A.

209 W 1st St., Suite 202 □ Duluth, MN 55802 □ Phone: (218) 727-3282



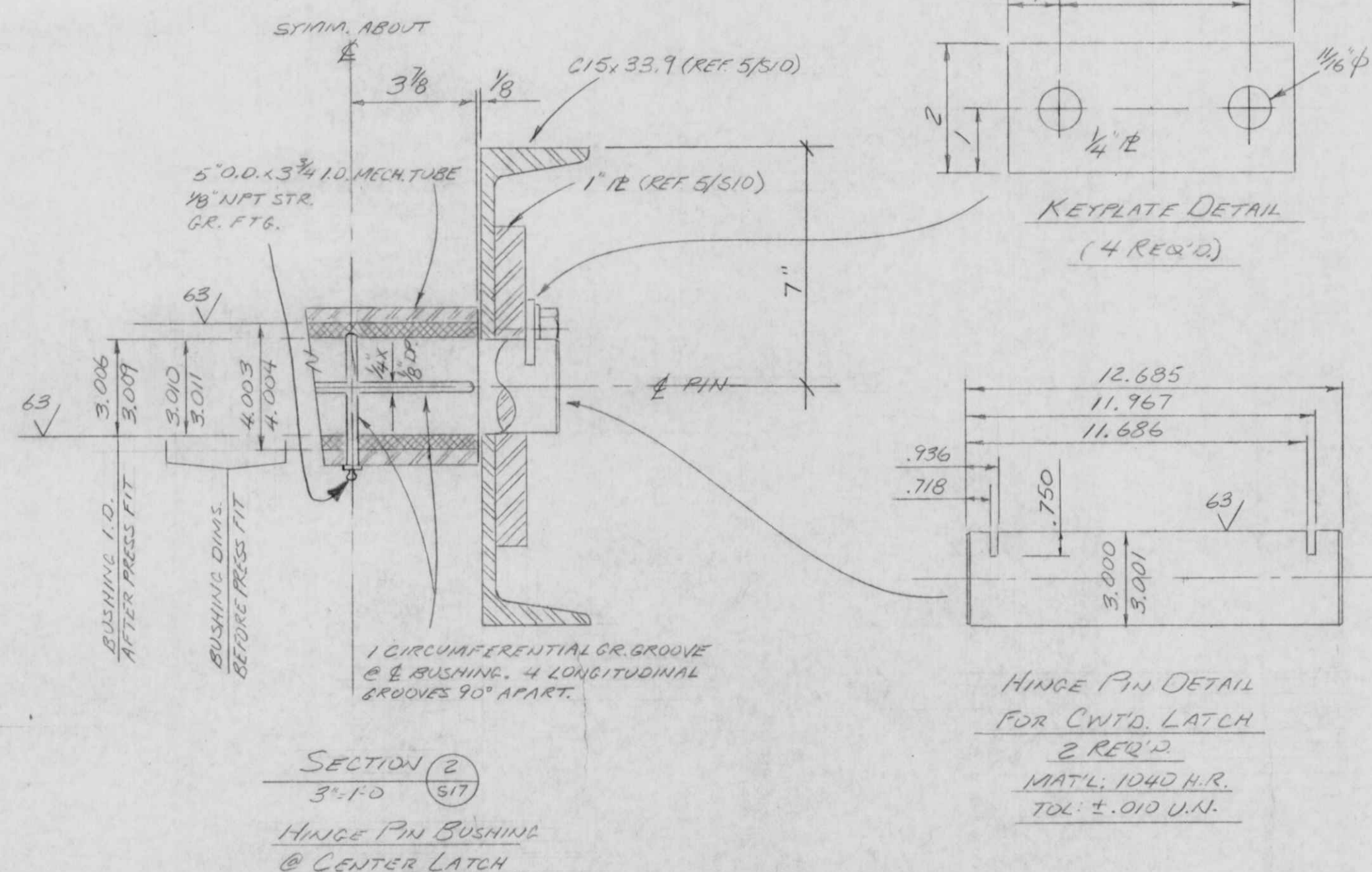
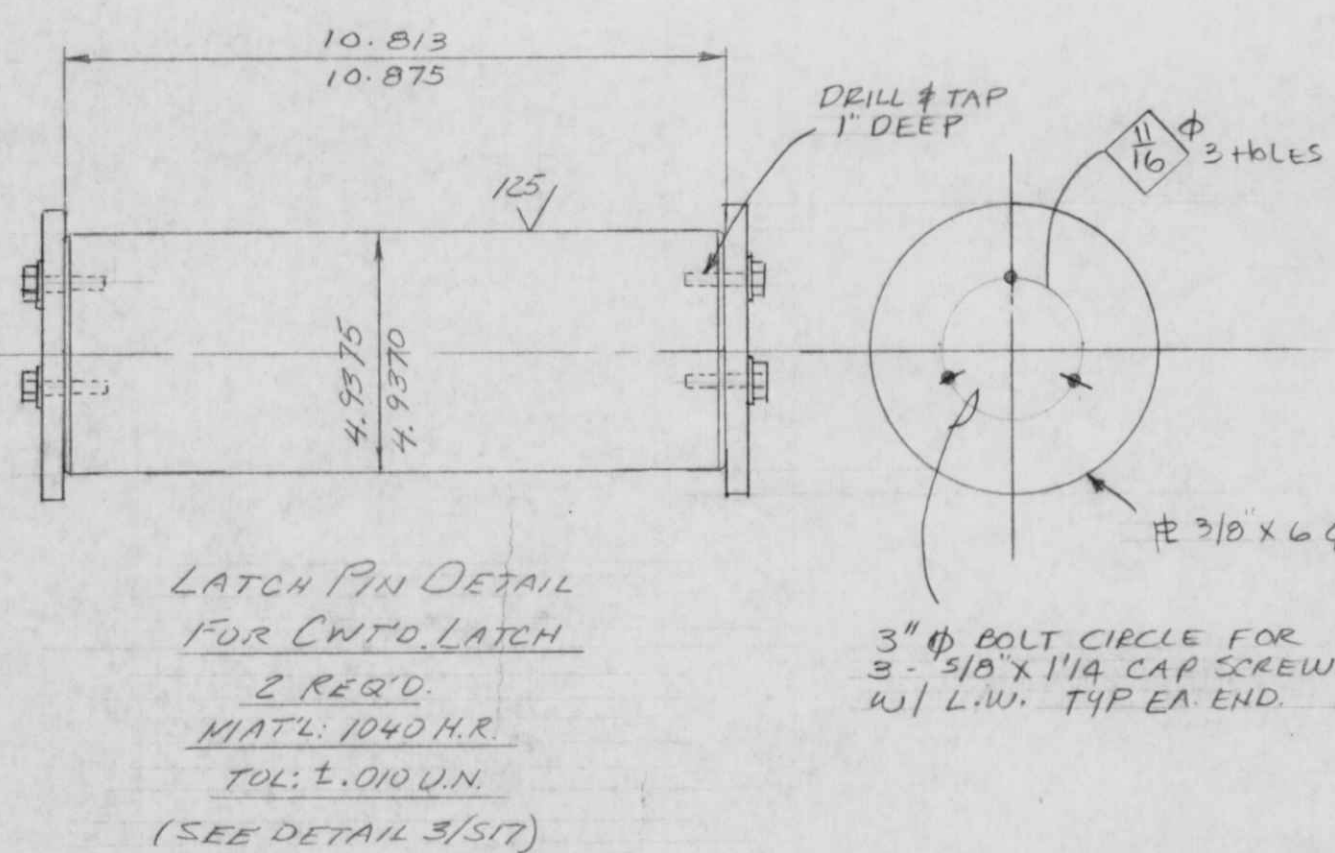
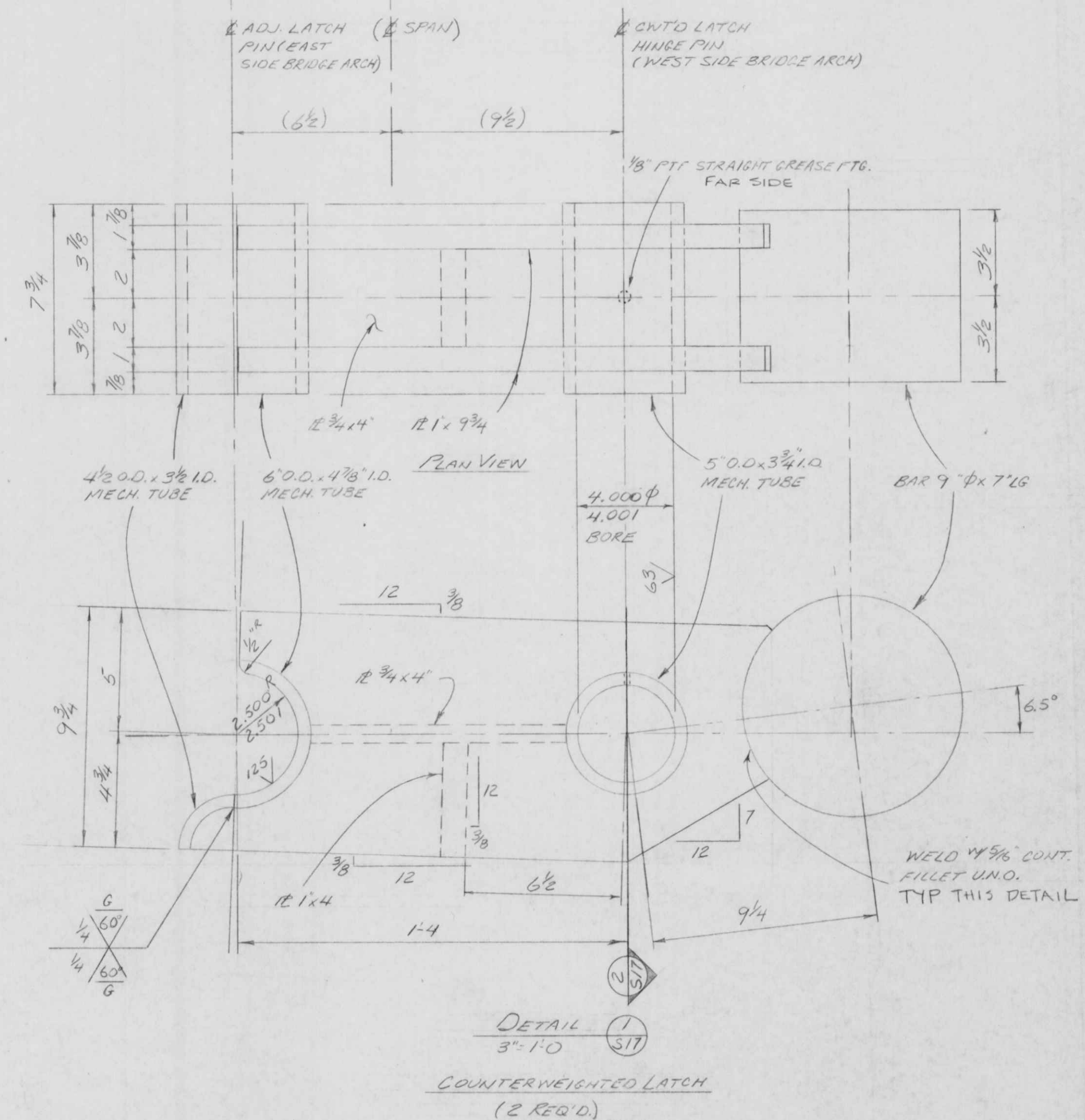
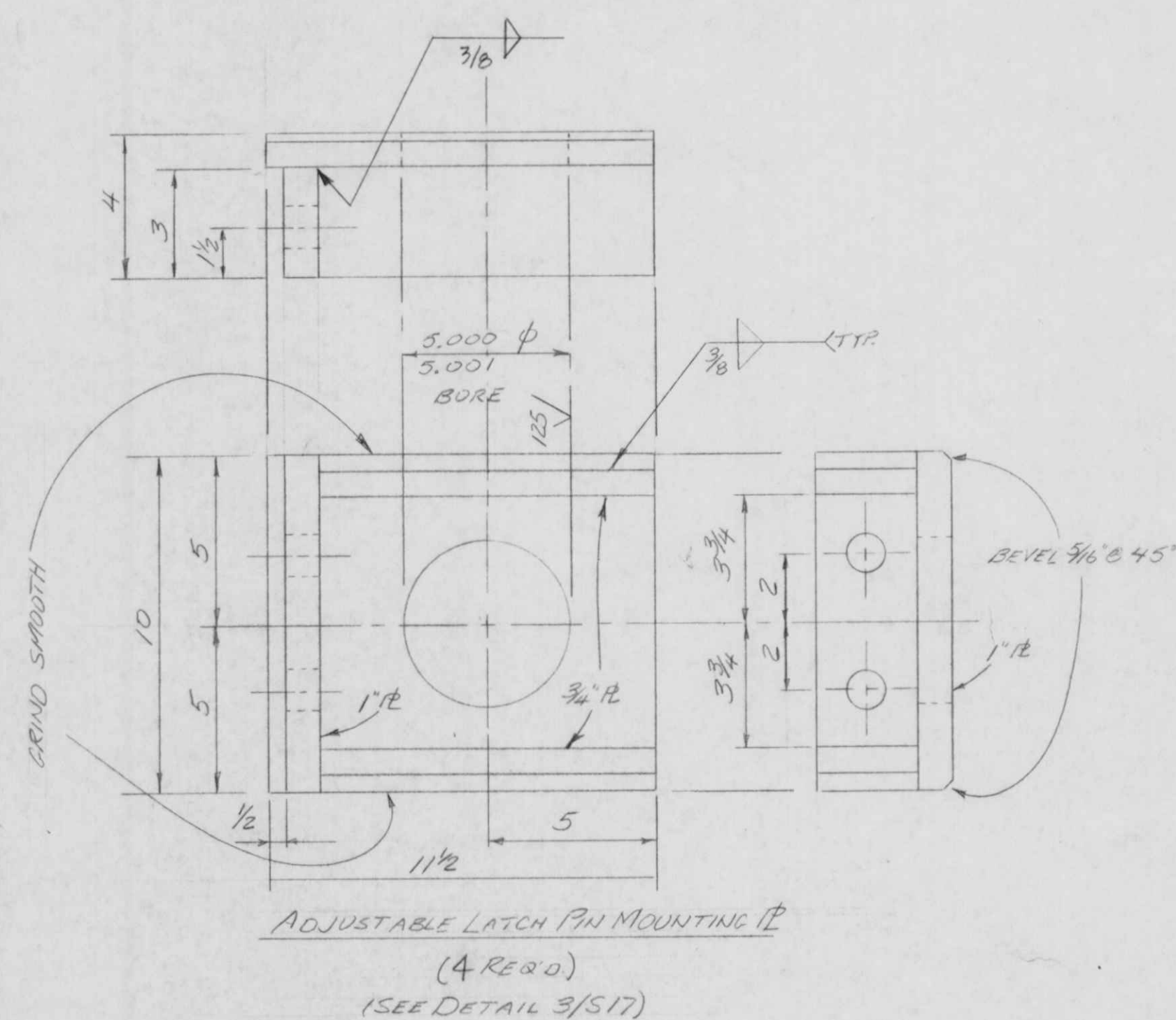
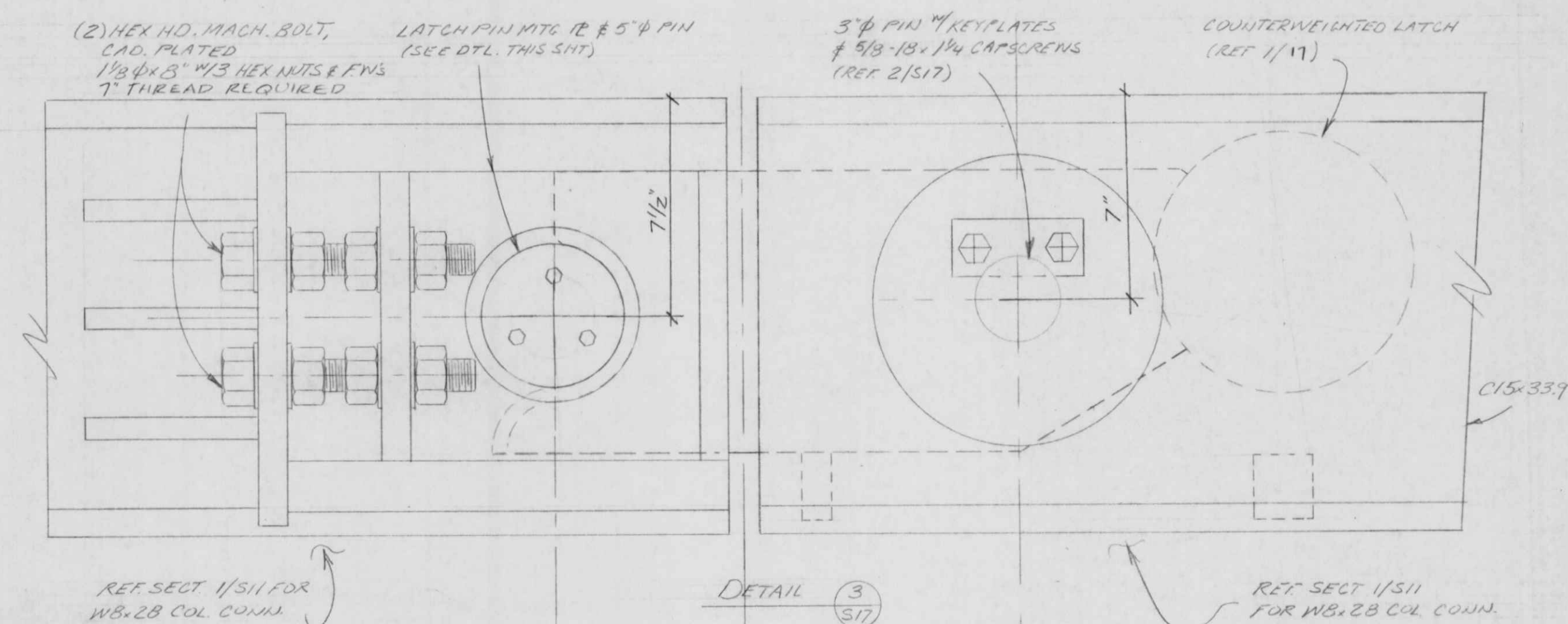
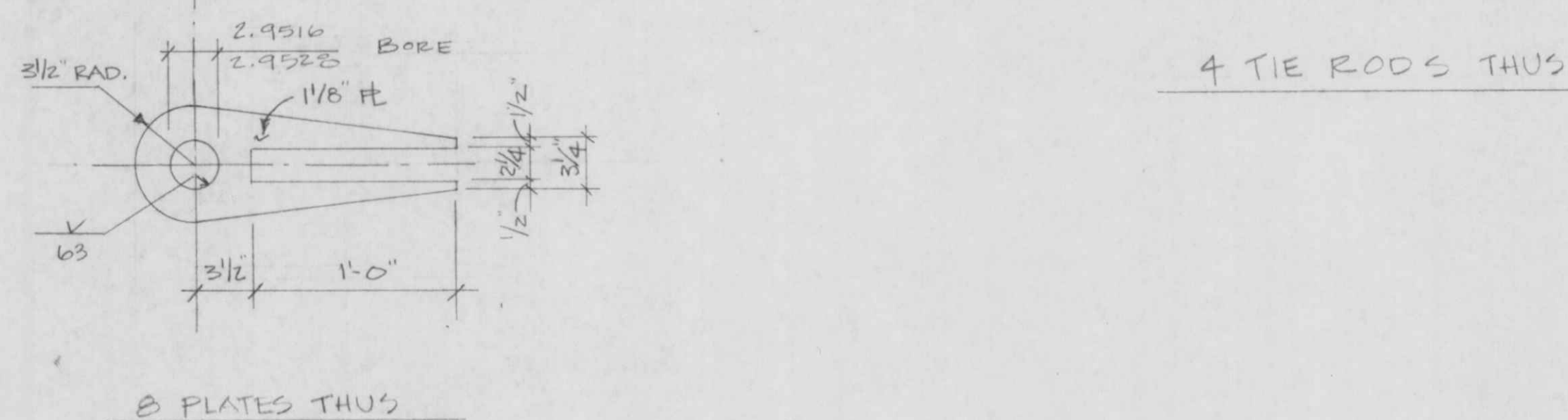
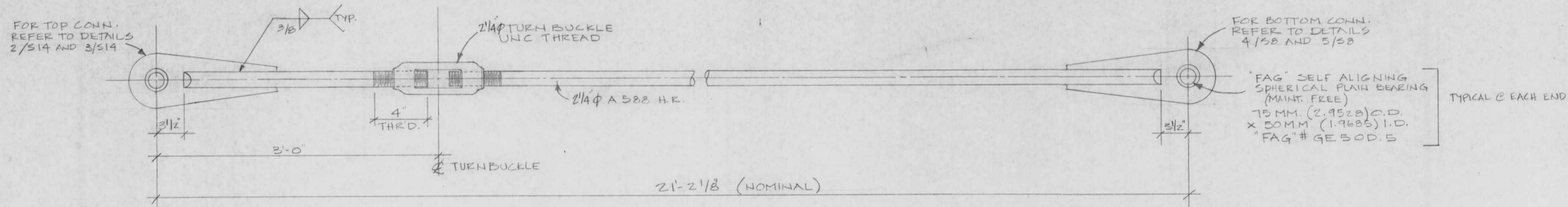
NOTE:
THESE ANGLES OMITTED IN
SIDE VIEW FOR CLARITY



SIDE VIEW
1'-1'0"

PADDLEWHEEL BRACING TRUSS
(2 REQ'D)

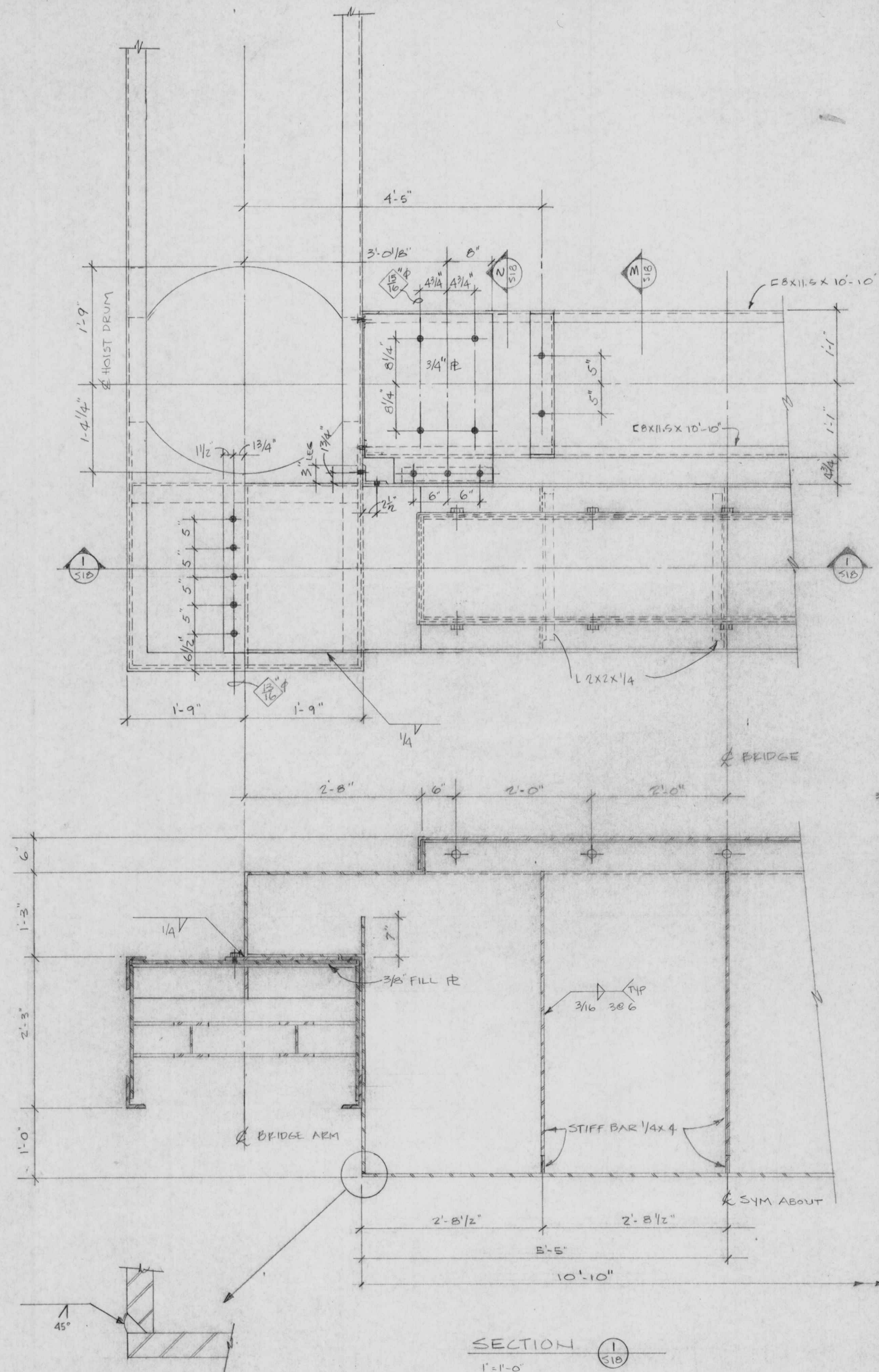
END VIEW
1'-1'0"



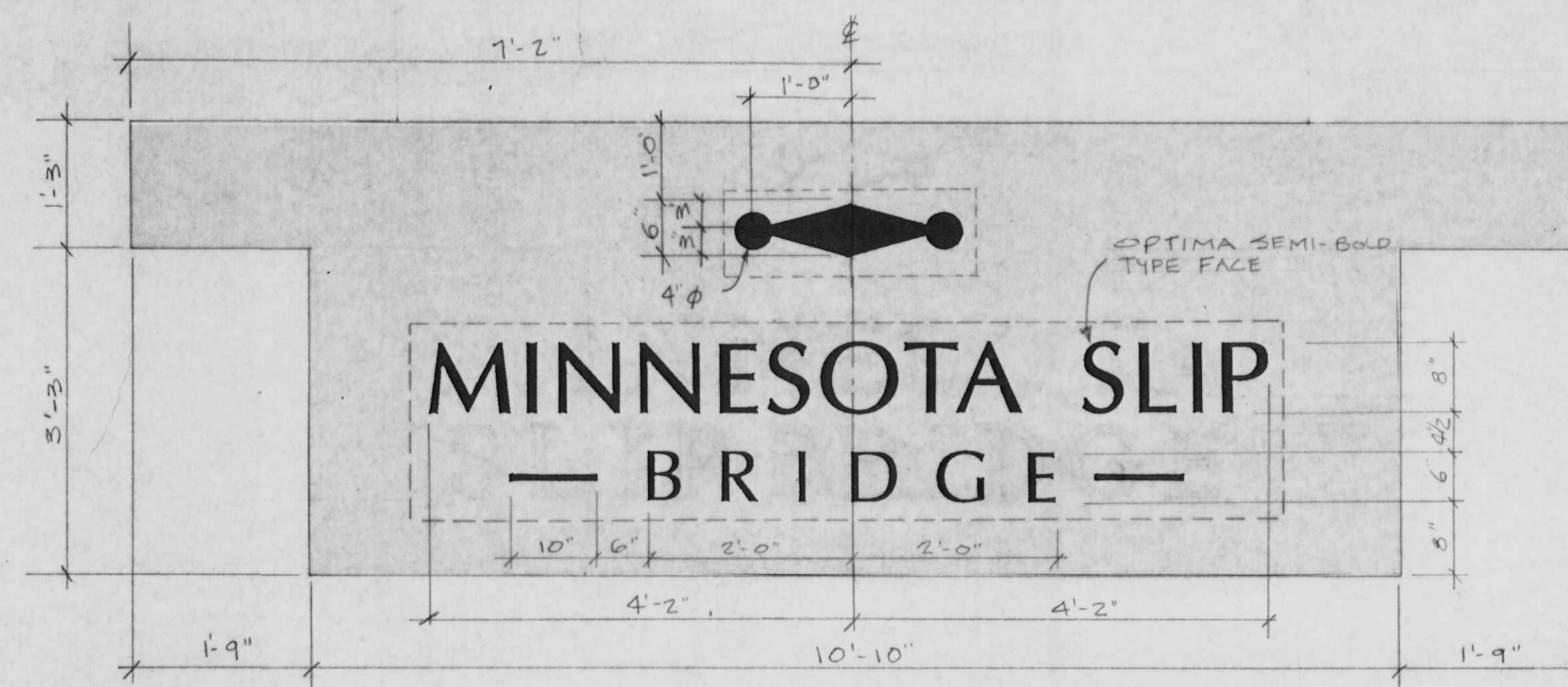
MINNESOTA SLIP PEDESTRIAN BRIDGE
FOR: CITY OF DULUTH
CENTER LATCH DETAIL
PROJECT NO. 90-201
DRAWN BY: 451
CHECKED BY:

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY SUPERVISION AND THAT I AM A DULUTH REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
REG. NO. E 14016 DATE FEB. 11, 1991

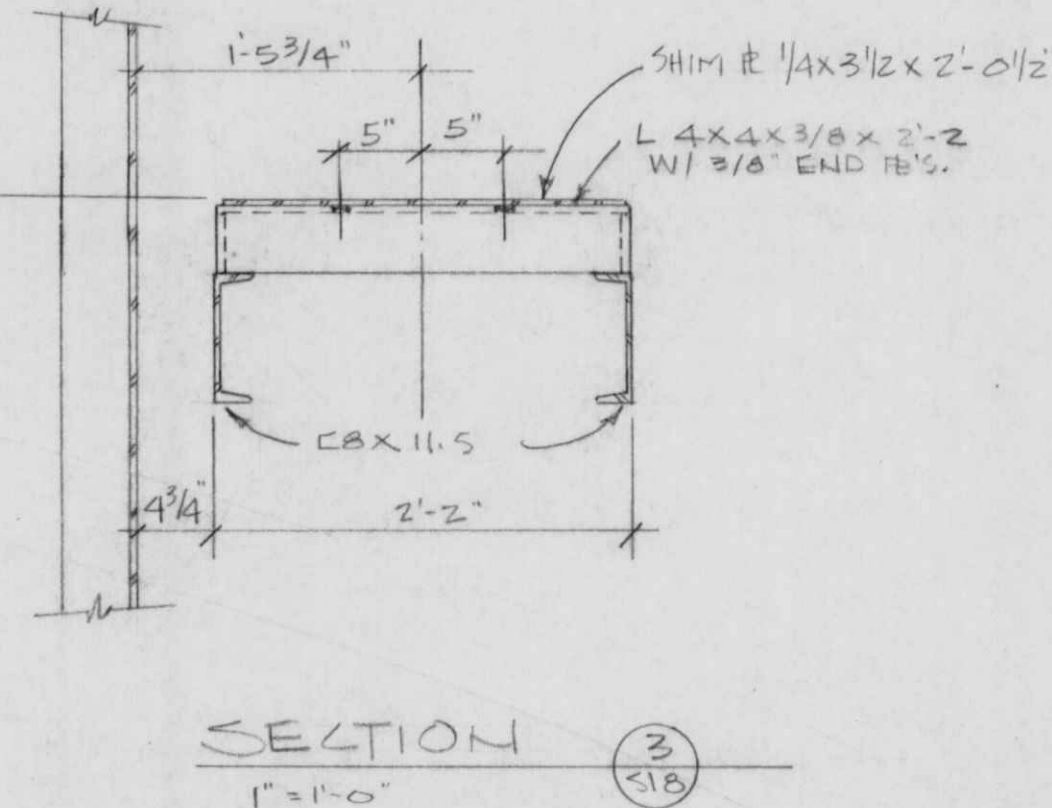
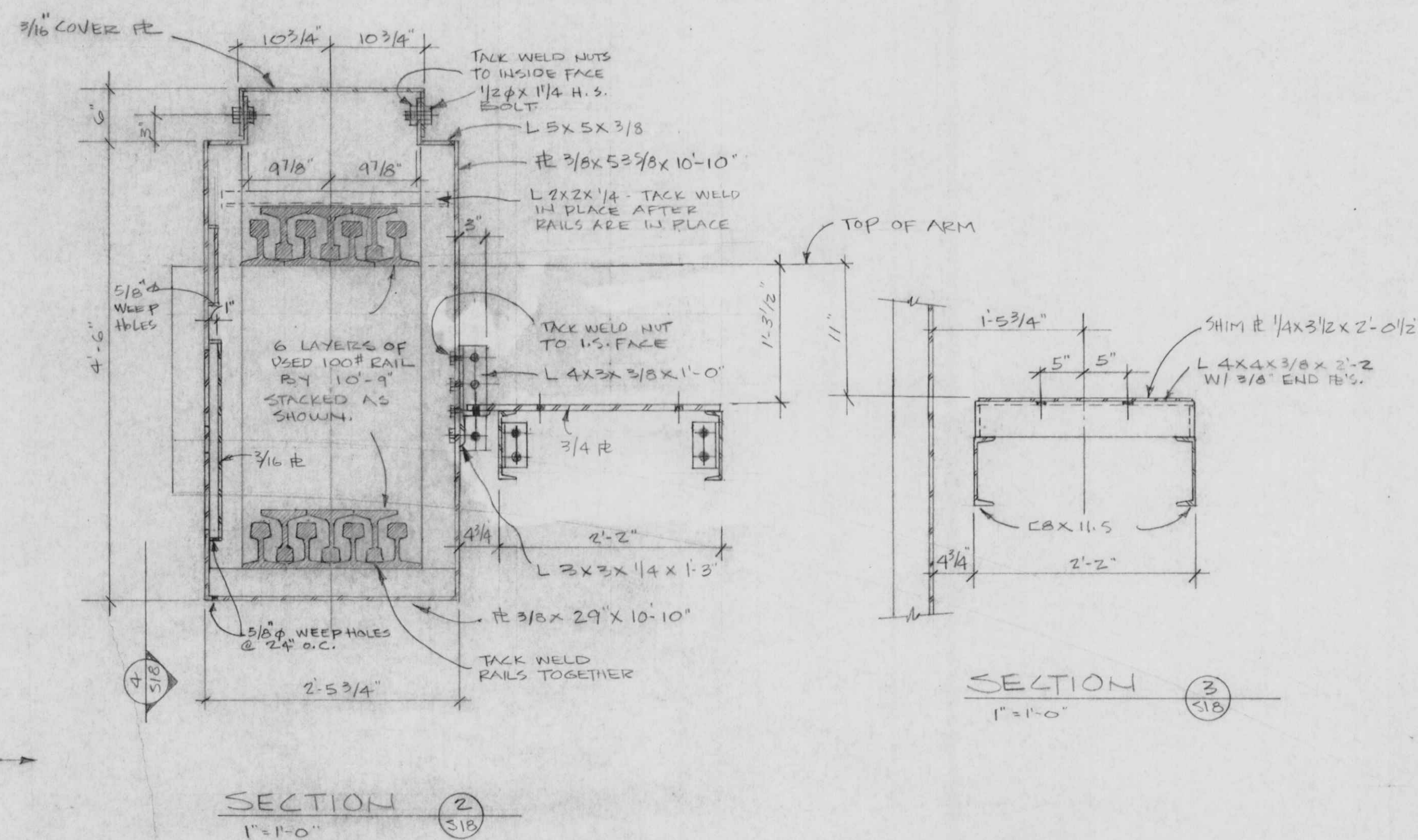
Krech & Ojard
Consulting Engineers, P.A.
209 W. 1st St., Suite 202 □ Duluth, MN 55802 □ Phone: (218) 727-3282 □ Fax: (218) 727-1216



TYP. PLATE WELDING



COUNTERWEIGHT BOX END PLATE (4)
PL 3/8X 54X 14'-4" (SIB)
3/4" = 1'-0"



COUNTERWEIGHT BOX
MINNESOTA SLIP BRIDGE
DULUTH, MINNESOTA

PROJECT NO: _____
DRAWN BY: LT
CHECKED BY: _____
REVISIONS: _____
RELEASE DATE: _____

I HEREBY CERTIFY THAT THIS PLAN,
SPECIFICATION OR REPORT WAS PREPARED
BY ME OR UNDER MY SUPERVISION AND
THAT I AM A DULY REGISTERED PROFES-
SIONAL ENGINEER UNDER THE LAWS OF
THE STATE OF MINNESOTA
Richard S. Ornd
REG. NO. E14016 DATE FEB 11, 1991

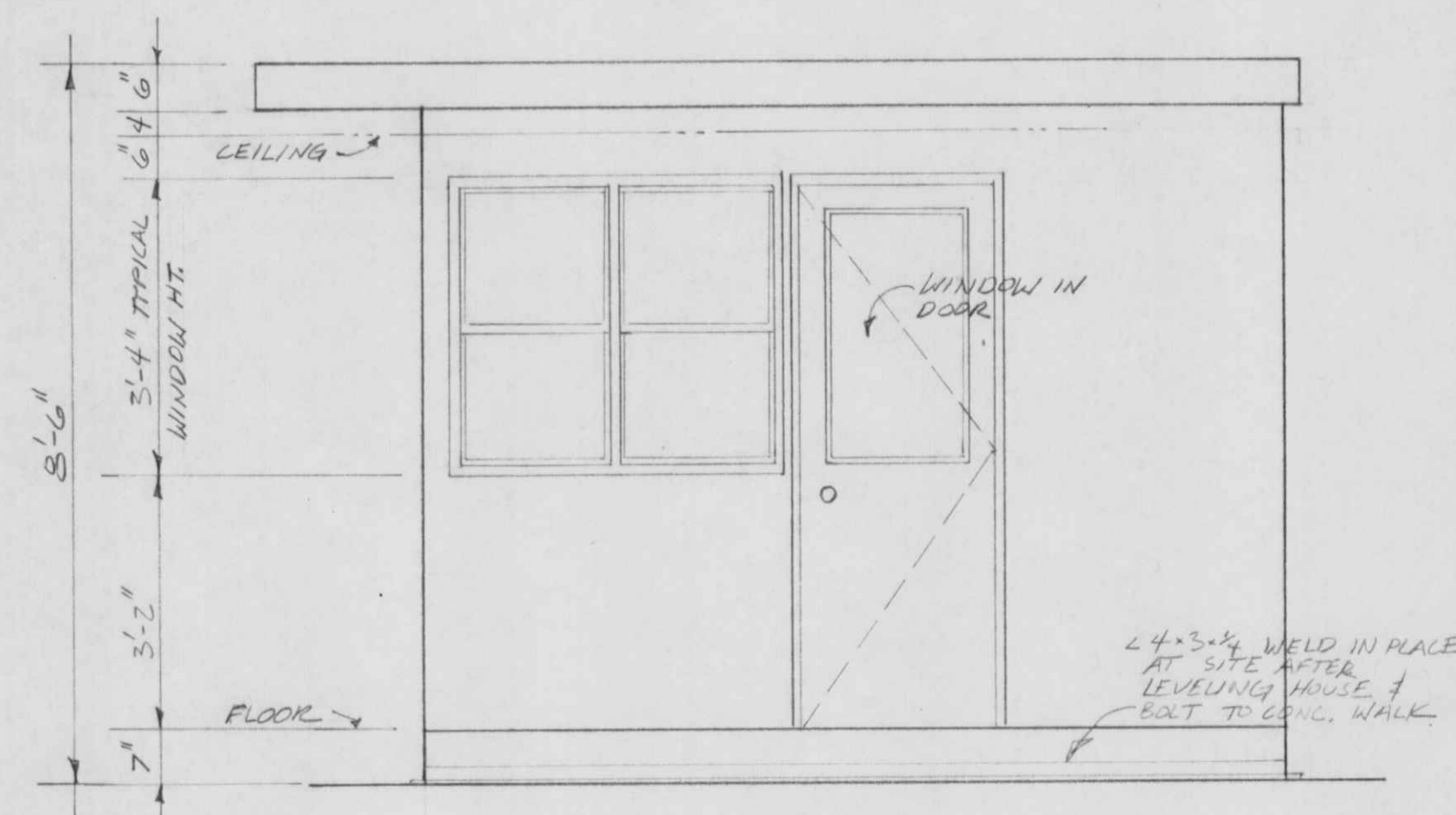
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Consulting Engineers, P.A.

209 W. 1st St., Suite 202 ☐ Duluth, MN 55802 ☐ Phone: (218) 727-3282

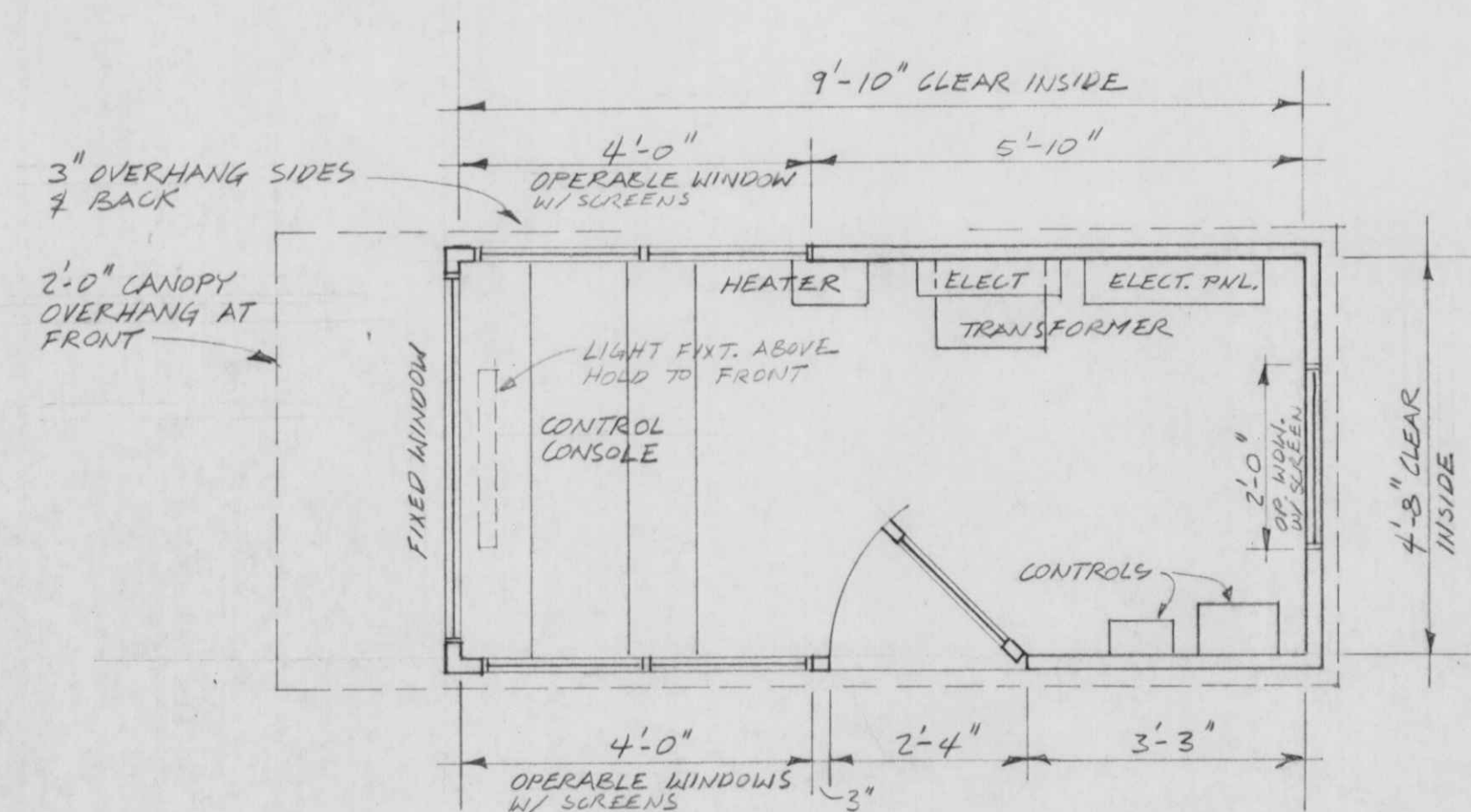
SHEET:

S18 OF: 20

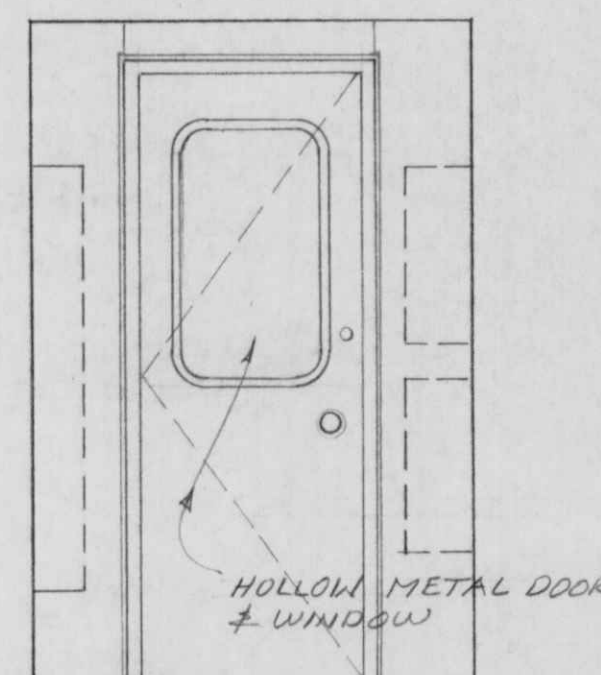
City of Duluth, Proj.No.8599IE9I



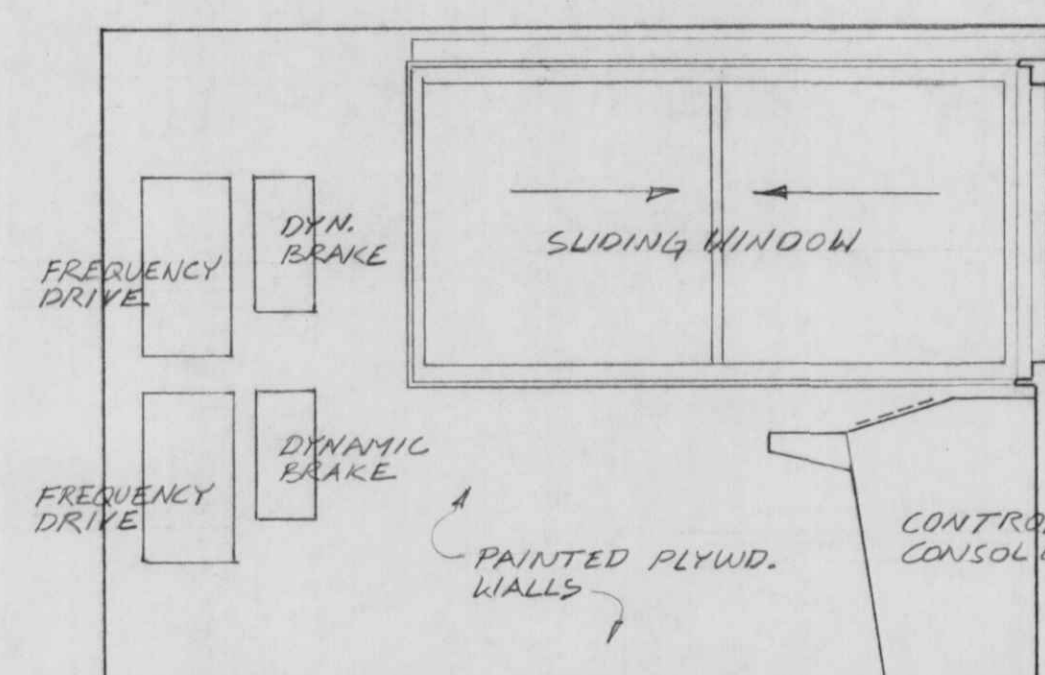
PREFABRICATED HOUSE ELEVATION
1/2" = 1'-0"



PREFABRICATED CONTROL HOUSE
(ALTERNATE BID)



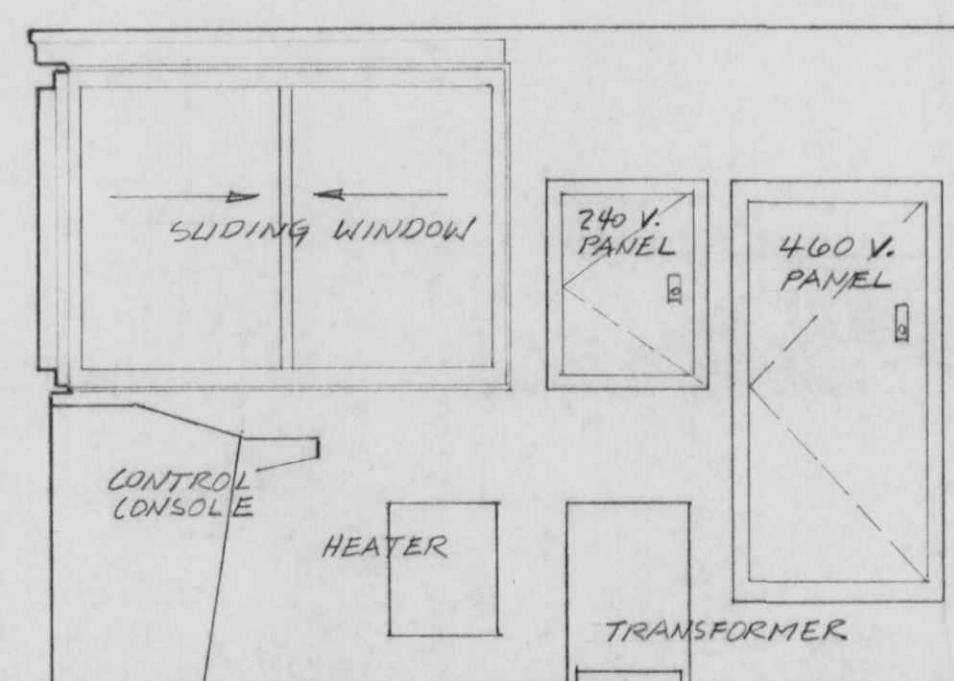
EAST INTERIOR ELEVATION
1/2" = 1'-0"



SOUTH INTERIOR ELEVATION
1/2" = 1'-0"

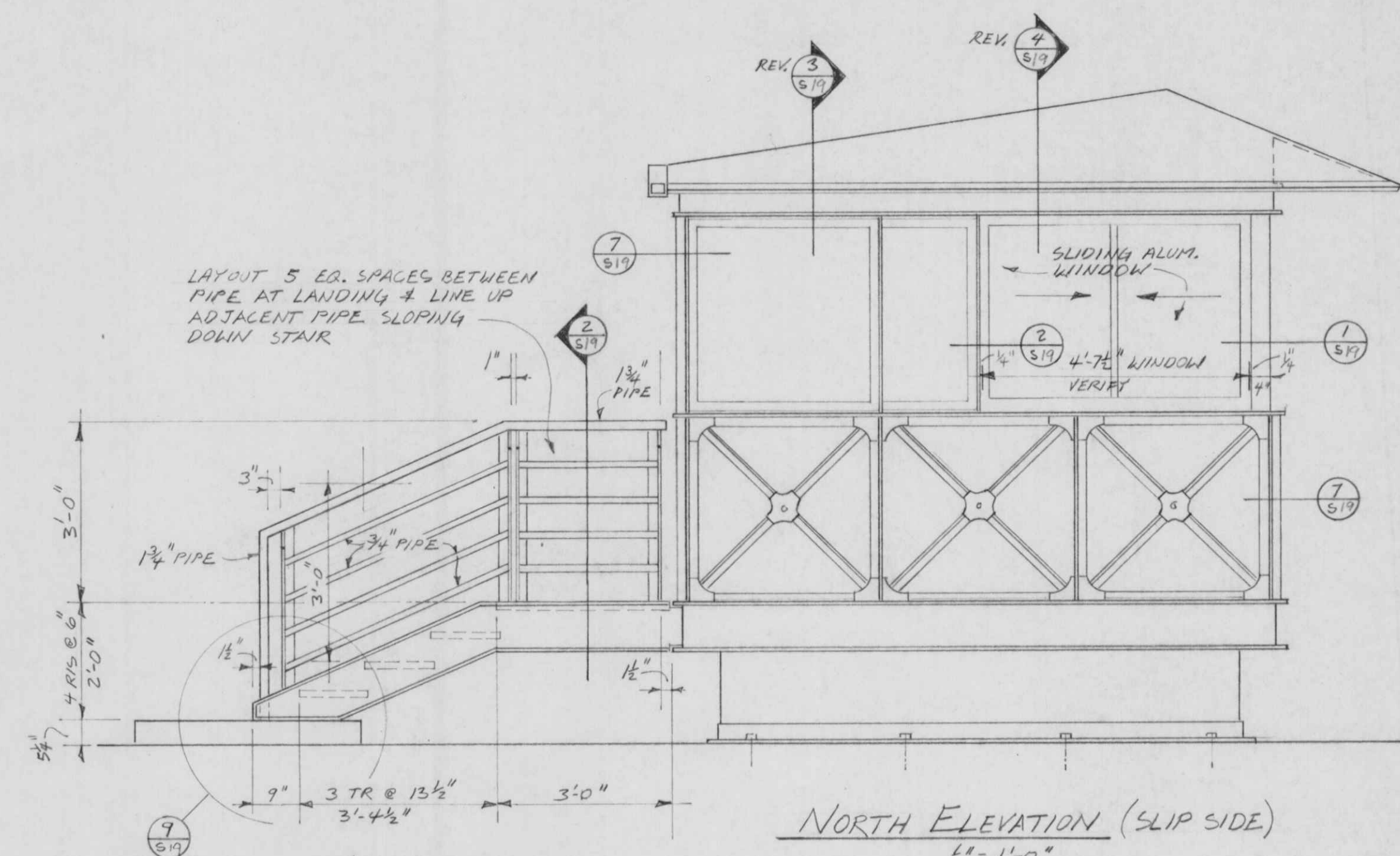


WEST INTERIOR ELEVATION
1/2" = 1'-0"

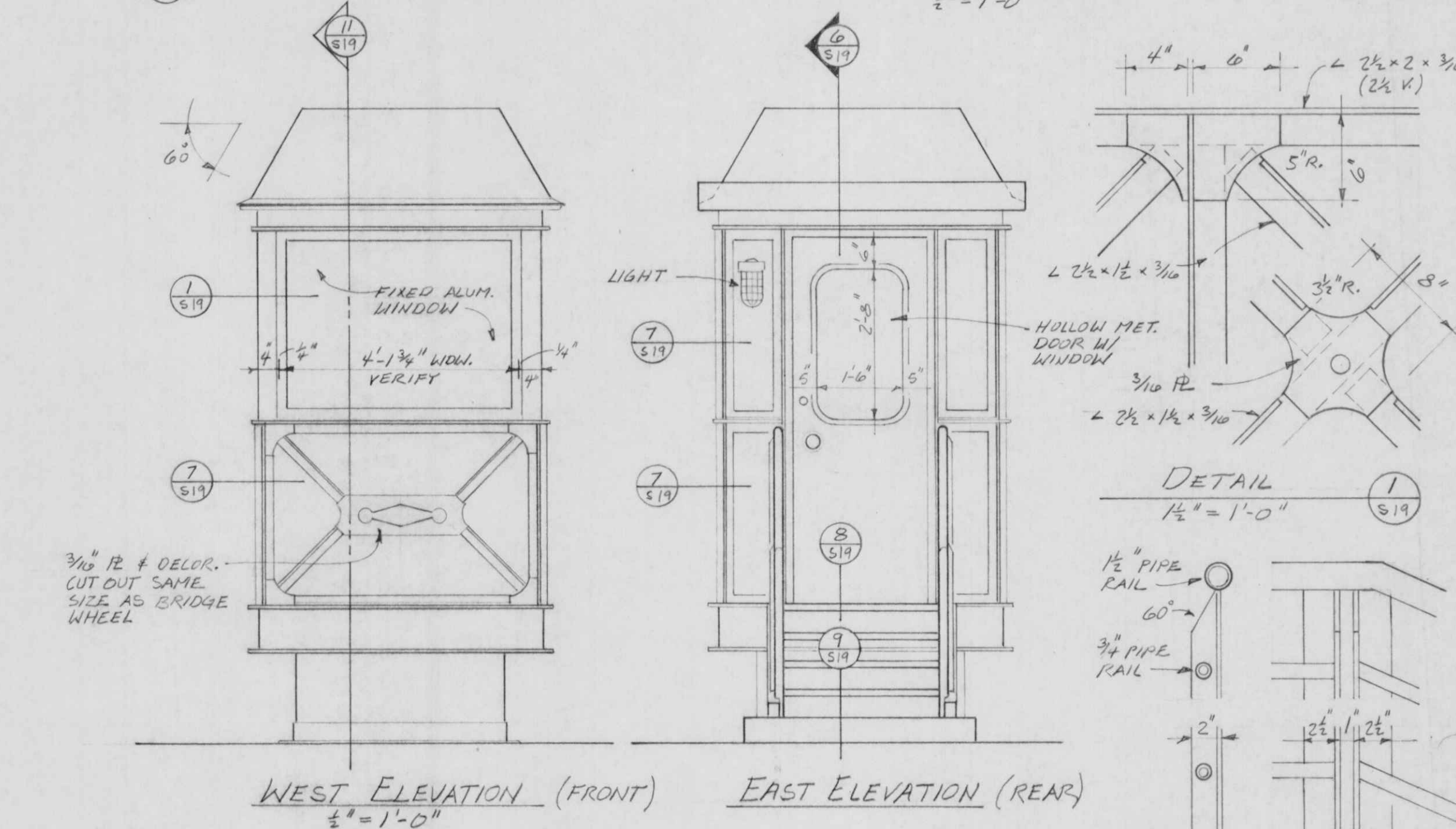


NORTH INTERIOR ELEVATION
1/2" = 1'-0"

CONTROL HOUSE INTERIOR

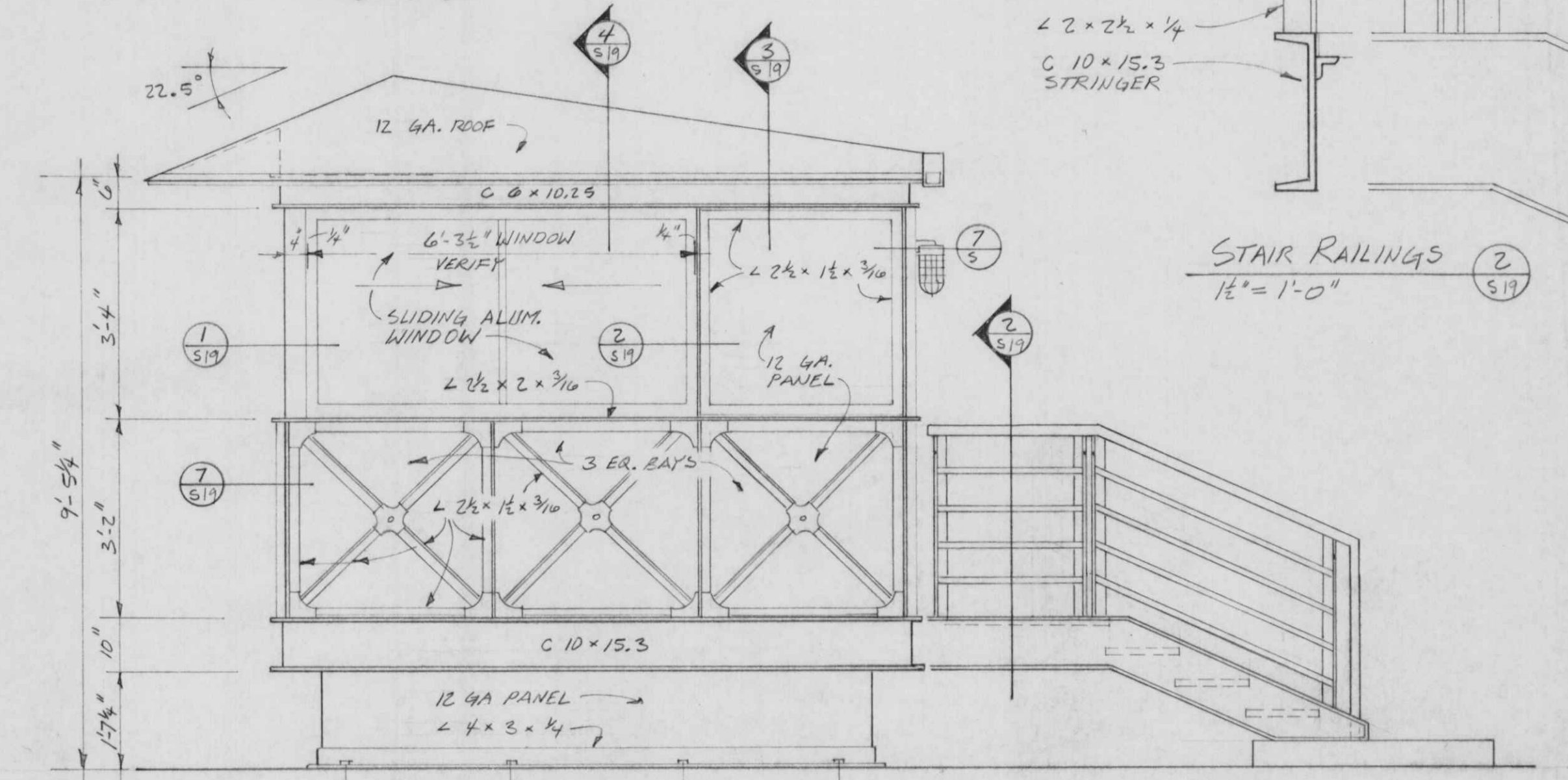


NORTH ELEVATION (SLIP SIDE)
1/2" = 1'-0"



WEST ELEVATION (FRONT)
1/2" = 1'-0"

EAST ELEVATION (REAR)
1/2" = 1'-0"



SOUTH ELEVATION (BAY SIDE)
1/2" = 1'-0"

STAIR RAILINGS
1/2" = 1'-0"

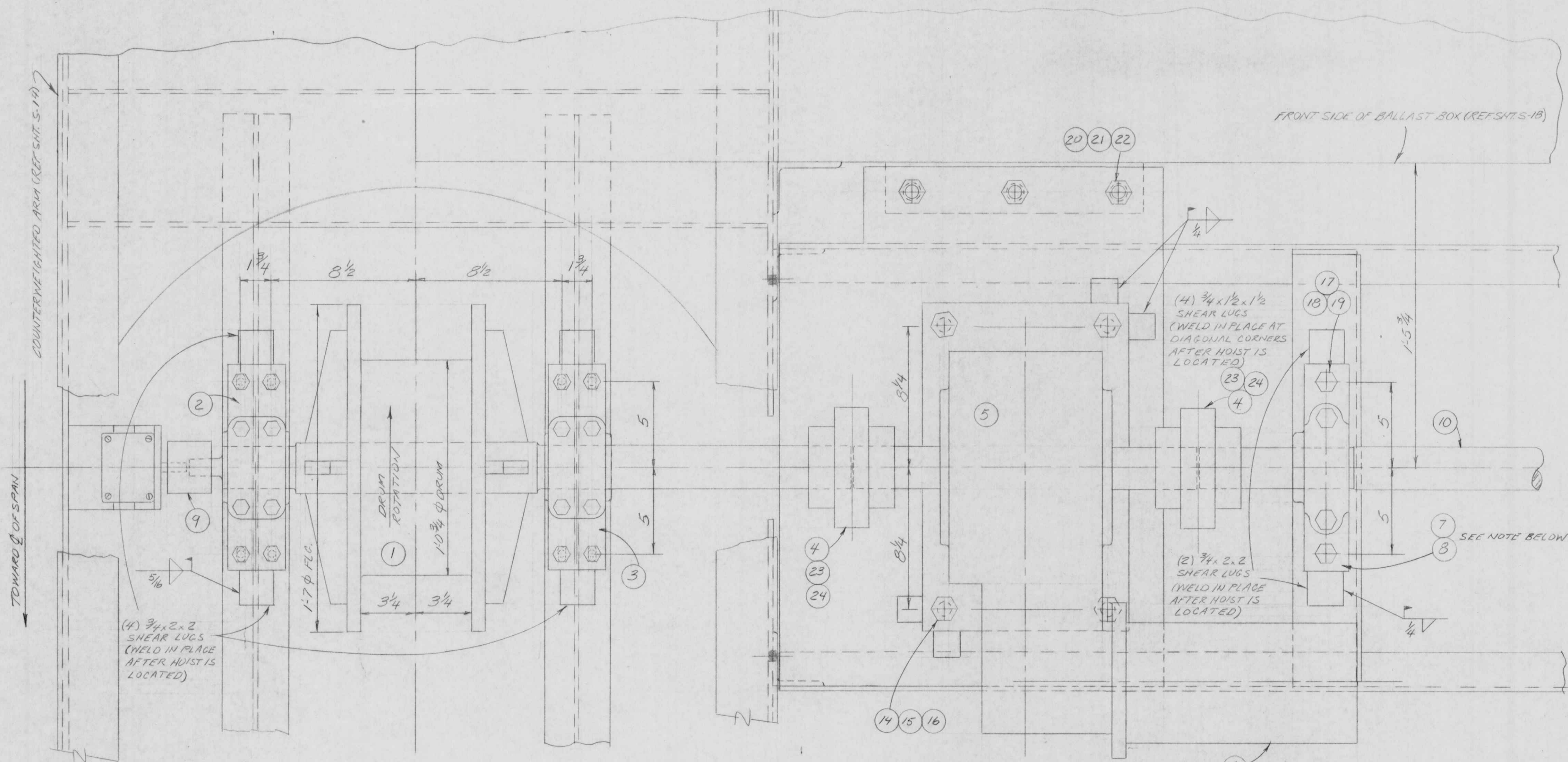
MINNESOTA SLIP PEDESTRIAN BRIDGE
FOR: CITY OF DULUTH

CONTROL HOUSE DETAILS

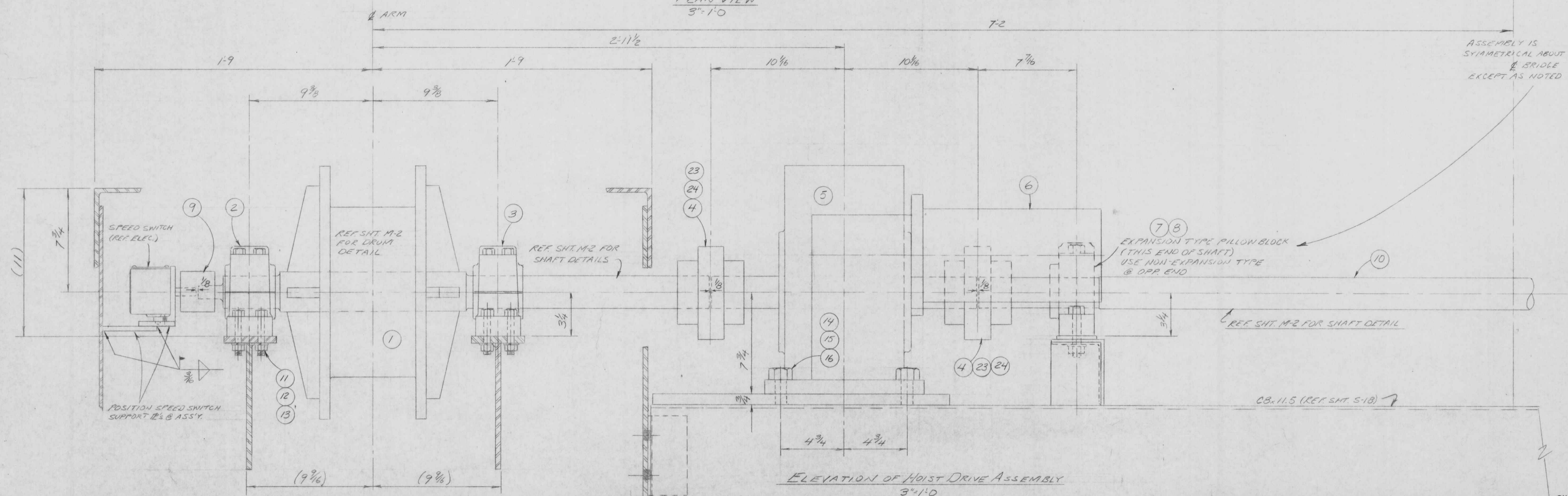
RELEASE DATE: _____
PROJECT NO: _____
DRAWN BY: _____
CHECKED BY: _____

SHEET:

S19 OF 20



PLAN VIEW
3"=1'-0"



ELEVATION OF HOIST DRIVE ASSEMBLY
3"=1'-0"

LIST OF PARTS	
NO.	DESCRIPTION
1	4 HOIST DRUM WELDMENT K&D SHT. M-2
2	4 "DODGE" EXP. TYPE PILLOW BLOCK, DUCTILE IRON #P4B01 06020
3	4 "DODGE" NON-EXP. TYPE PILLOW BLOCK, DUCTILE IRON #P4B01 060166
4	8 "FALK" DOUBLE ENGAGEMENT GEAR COUPLING SIZE 10206
5	4 "FALK OMNI" GEAR REDUCER #600 WDM, 75:1 RED.
6	4 "RELIANCE" MOTOR, 7 1/2 H.P. @ 1750 RPM W/BRAKE (ITEMS 5 & 6 PURCHASED AS A UNIT)
7	2 "DODGE" EXP. TYPE PILLOW BLOCK, CAST IRON, #P2BK 056014
8	2 "DODGE" NON-EXP. TYPE PILLOW BLOCK, CAST IRON, #P2BK 056044
9	4 "DODGE" CHAIN COUPLING, #B 4016 W/CHAIN COUPLING COVER ASS'Y.
10	2 LINE SHAFT K&D SHT. M-2
11	32 HEX. HD. MACH. BOLT 1/2-13 x 5" LG. CR. 2
12	32 1/2" HEX. NUT
13	32 1/2" LOCKWASHER
14	16 HEX. HD. MACH. BOLT 7/8-9 x 3 1/2" LG. CR. 2
15	16 7/8" HEX. NUT
16	16 7/8" LOCKWASHER
17	8 HEX. HD. MACH. BOLT, 5/8-11 x 3 1/2" LG. CR. 2
18	8 5/8" HEX. NUT
19	8 5/8" LOCKWASHER
20	12 HEX. HD. MACH. BOLT 3/4-10 x 2" LG. CR. 2
21	12 3/4" HEX. NUT
22	12 3/4" LOCKWASHER
23	8 KEYSTOCK STD. 3/8 x 3/8 x 2 1/2 LG.
24	8 KEYSTOCK STD. 1/2 x 1/2 x 4 LG.

NOTES:
 1) QUANTITIES SHOWN ON LIST ARE FOR ENTIRE PROJECT
 2) SHEAR LUGS NOT SHOWN ON LIST; REFER TO DNL.
 3) SPECIFIC INFORMATION ON PURCHASED ITEMS MAY BE FOUND IN SPECIFICATIONS.

MINNESOTA SLIP PEDESTRIAN BRIDGE

FOR: CITY OF DULUTH

HOIST ASSEMBLY

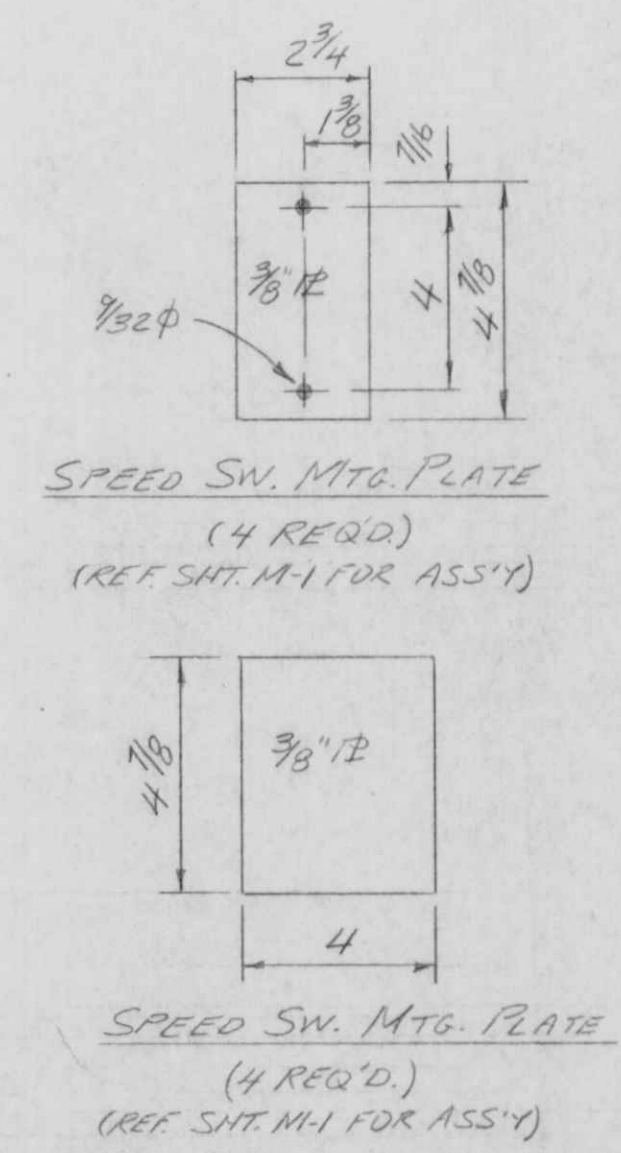
PROJECT NO: 90-201

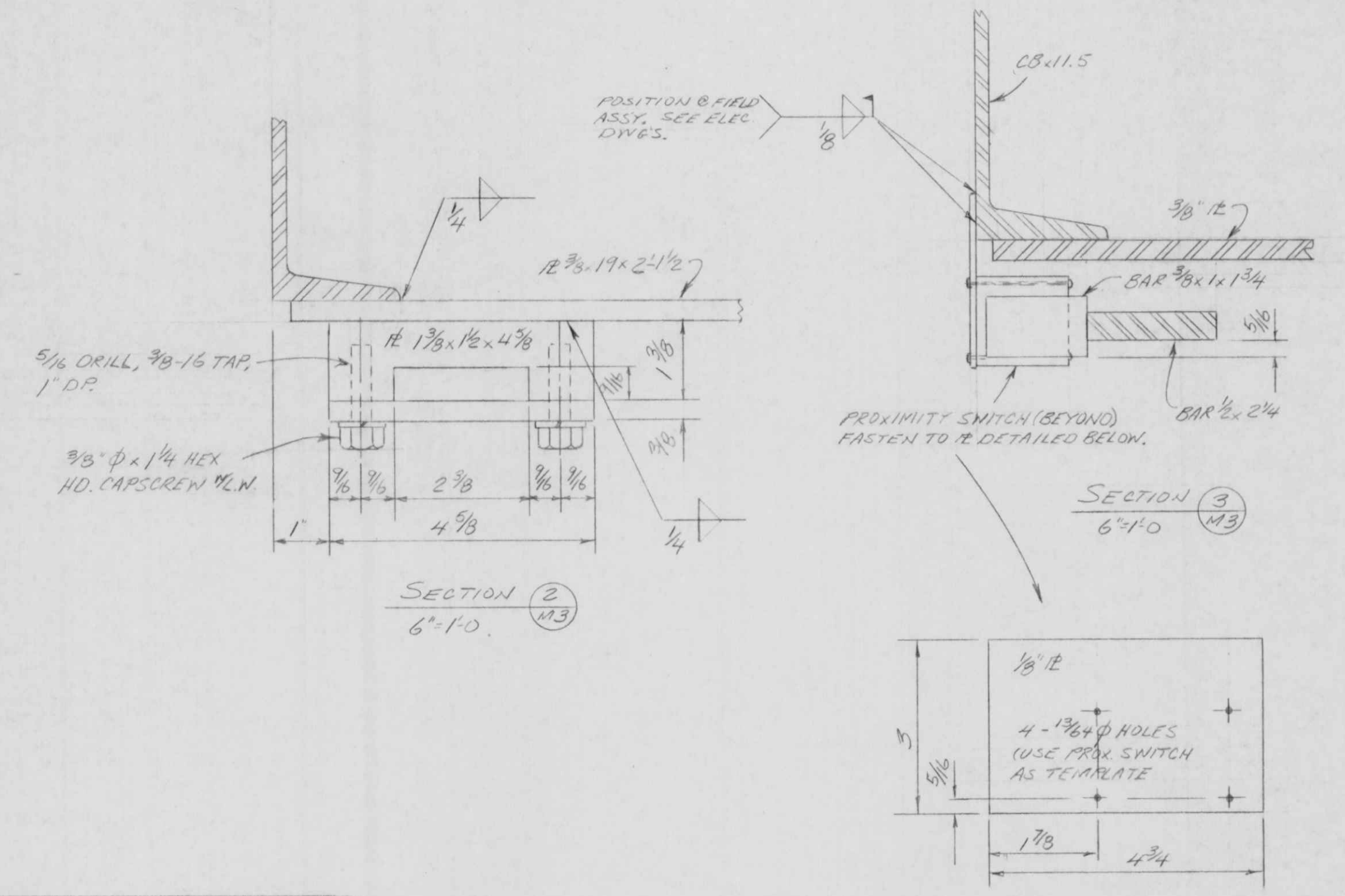
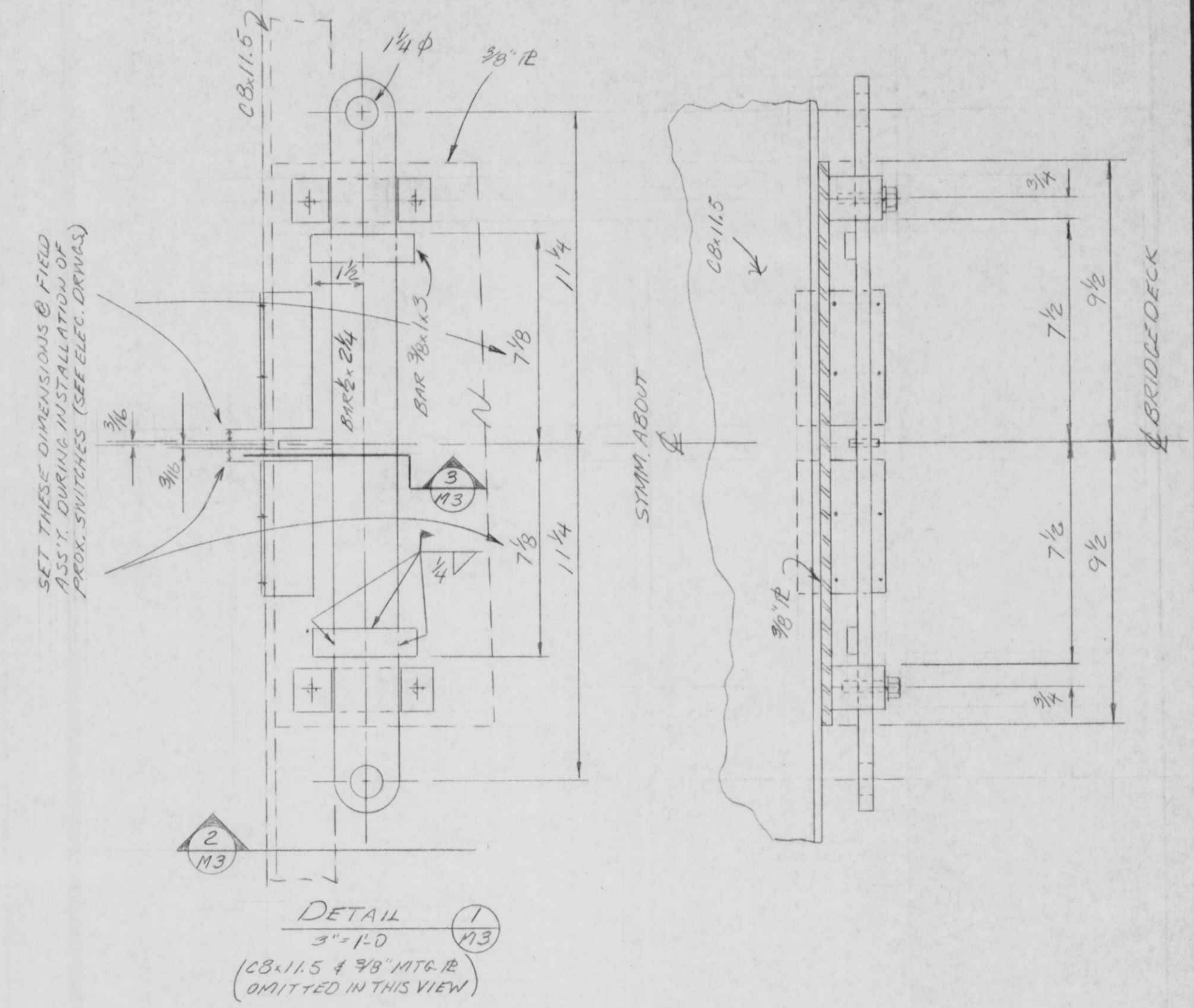
DRAWN BY: HSW

CHECKED BY:

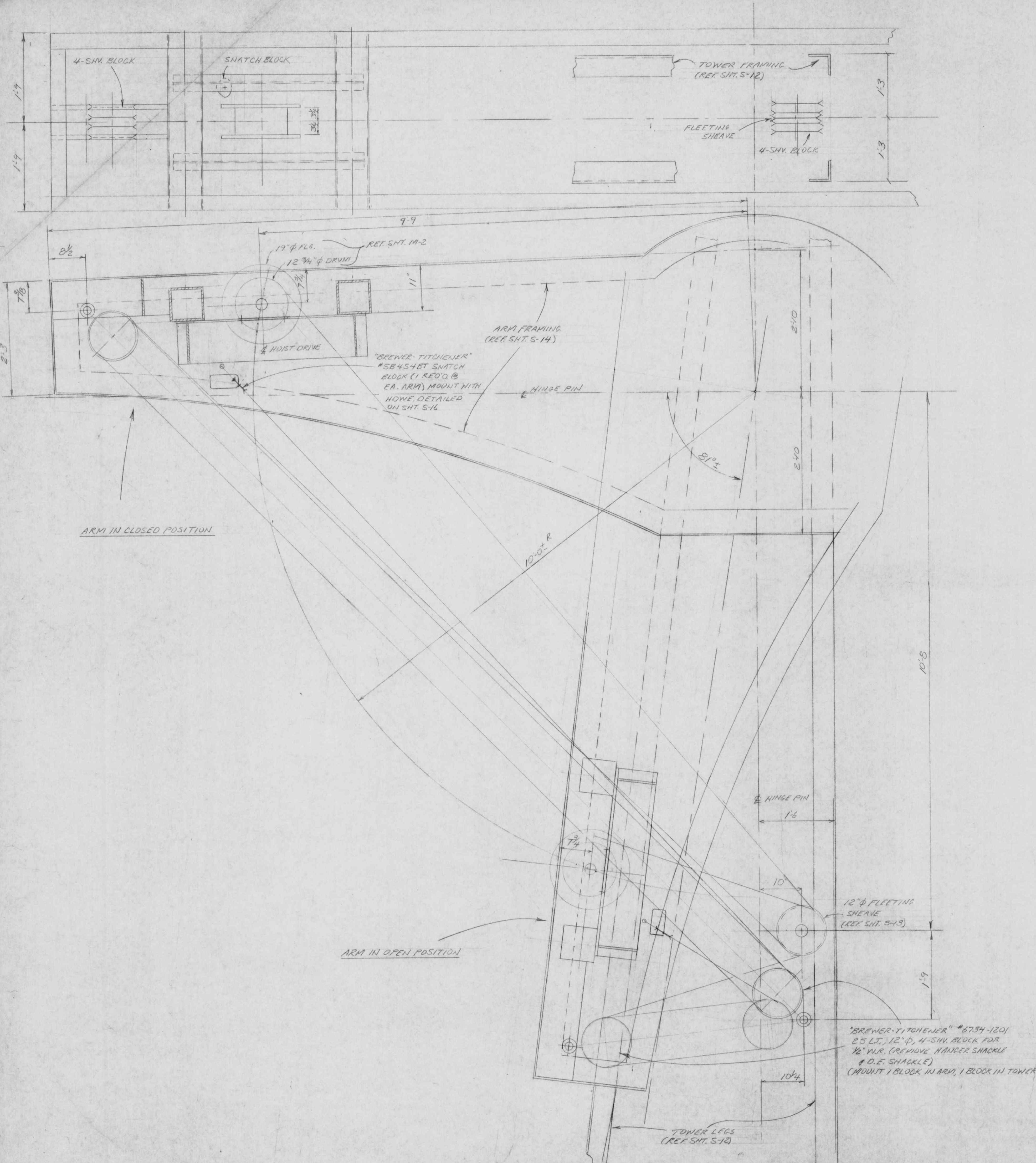
SHEET:

M-1 OF 4





NOTE:
REF. SHT. M-4 FOR ADDITIONAL
MOIST & BLOCK LOCATION DIMENSIONS



MINNESOTA SLIP PEDIESTRIAN BRIDGE
For: City of Duluth
SHEAVE AND WINCH SCHEMATIC

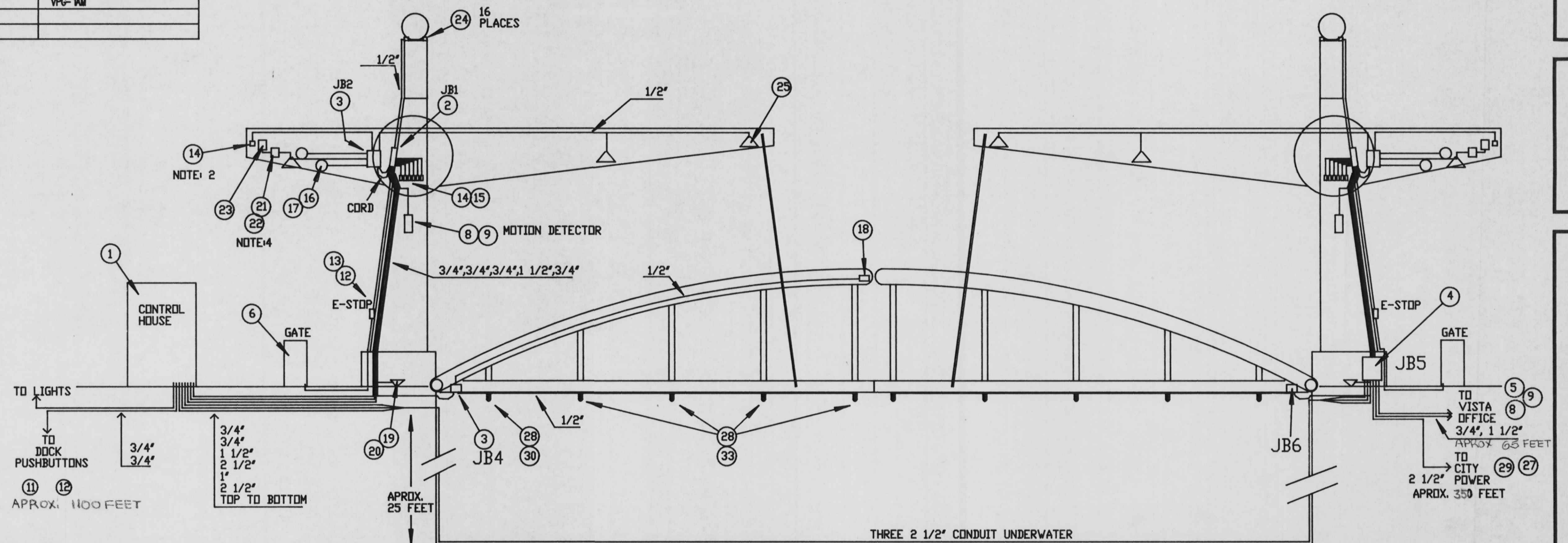
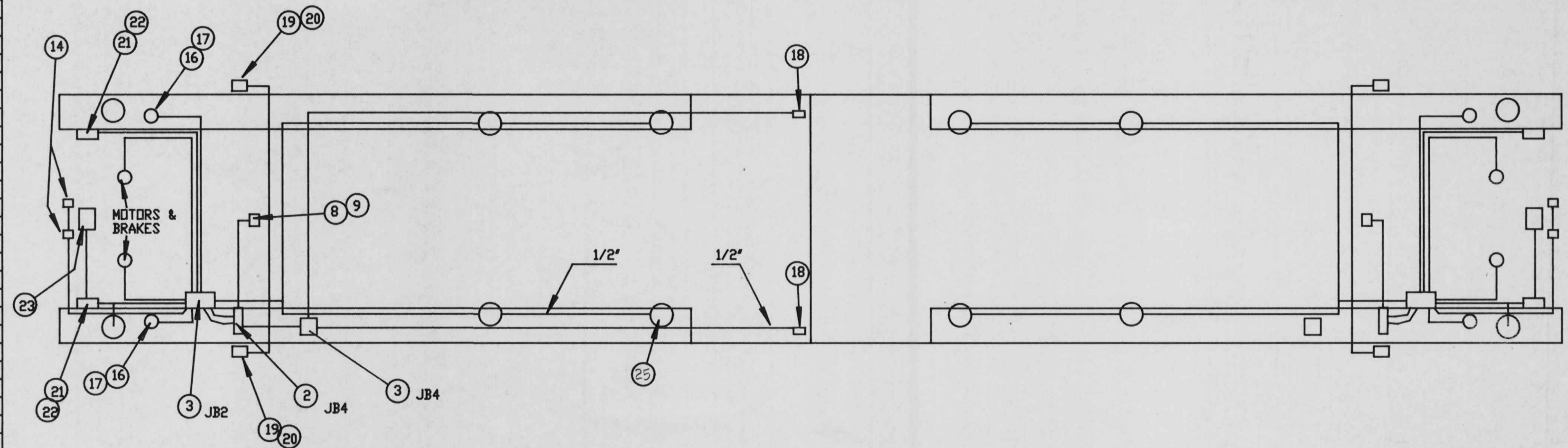
PROJECT NO: 90-201
DRAWN BY: HJS
CHECKED BY:
RELEASE DATE:
REVISIONS:

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Krech & Ojard
REG. NO. E44016 DATE FEB. 11, 1971

Krech & Ojard
Consulting Engineers, P.A.

209 W. 1st St., Suite 202 □ Duluth, MN 55802 □ Phone: (218) 727-3282

PARTS LIST				
REF	QTY	DESCRIPTION	MFGR	PART NO.
1	1	OPERATORS HOUSE ASSY DWG E-9		
2	1	JB 1 AND 7 DWG E-6		
3	1	JB 2, 4, 6, AND 8 DWG E-7		
4	1	JB 5 DWG E-6		
5	1	VISTA CONTROL PANEL DWG E-10		
6	2	PEDESTRIAN GATES	OVERHEAD DOOR	MODEL 300
7				
8	3	CCTV CAMERA	BURLE/RCA	TC851-E/BAS
9	3	ENVIRONMENTAL ENCLOSURE FOR ITEM 8	PELCO	EH4500-1
10				
11	30	MOMENTARY PUSHBUTTON	SQ-D	9001-SKR18H5
12	34	NEMA 4X ENCLOSURE	HOFFMAN	E-1P8533NM
13	4	MUSHROOM HEAD MOMENTARY OPERATOR	SQ-D	9001-SKR25RH6
14	12	PROXIMITY SWITCHES	SQ-D	9006-PMT221A
15	4	LIMIT SWITCH	SQ-D	9007-C54D
16	4	SPEED SWITCH	ALLEN-B	808-K1L
17	4	MOUNTING BRACKET	ALLEN-B	808-N1
18	2	PROXIMITY SWITCH	SQ-D	9006-PMT221A
19	4	PAD MOUNT FIXTURE	KIM	AFL7-250HPS-120V-LGP
20	4	MOUNTING HARDWARE FOR ITEM 19	KIM	SMT-LGP
21	4	CORNER FLOODLIGHTS	KIM	AFL2-150HPS-2-120V-LGP
22	4	MOUNTING BRACKETS FOR ITEM 21	KIM	MM/LGP
23	2	FLOODLIGHTS	STERNER	715-YK-EC-J-18X30-150S-120
24	16	ACCENT LIGHTS	KIM	C-13-120V-ELN-122
25	12	FLOODLIGHTS	KIM	4312-35W-HPS-120V-LGP
26	1	JUNCTION BOX	HOFFMAN	A-645JFG
27	2	CURRENT TRANSFORMERS 200:5	WEST INHOUSE	7524A98603
28	20	INCANDESCENT LIGHTS	APPLETON	REA-1050
29	1	KW METER - IQ DATAPLUS	WEST INHOUSE	2078522601
30	2	RED GLOBES	APPLETON	VPG-1RE
31	2	GREEN GLOBES	APPLETON	VPG-1GR
32	16	AMBER GLOBES	APPLETON	VPG-1AM



- NOTE:
- 1) SEE FOUNDATION DETAILS FOR CONDUIT LAYOUT DETAILS
 - 2) SEE MECHANICAL AND STRUCTURAL DRAWINGS FOR LIMIT SWITCH, JUNCTION BOX, VIDEO CAMERA, MOTION DETECTOR CAMERA, AND LIGHT MOUNTING DETAILS
 - 3) CONDUIT 3/4" UNLESS NOTED
 - 4) VERTICAL MOUNTING
 - 5) SAFETY CHAIN ALL LIGHT FIXTURES
 - 6) REFERENCE NUMBERS SHOWN ON EAST SIDE ONLY, WEST SIDE IDENTICAL EXCEPT WHERE SHOWN

BRIDGE ELECTRICAL ASSY
 3/16" = 1'
 DRAWING NO. E-1

Krech & Ojard
 Consulting P.A.

209 W. 1st St., Suite 202 □ Duluth, MN 55802 □ Phone: (218) 727-3282

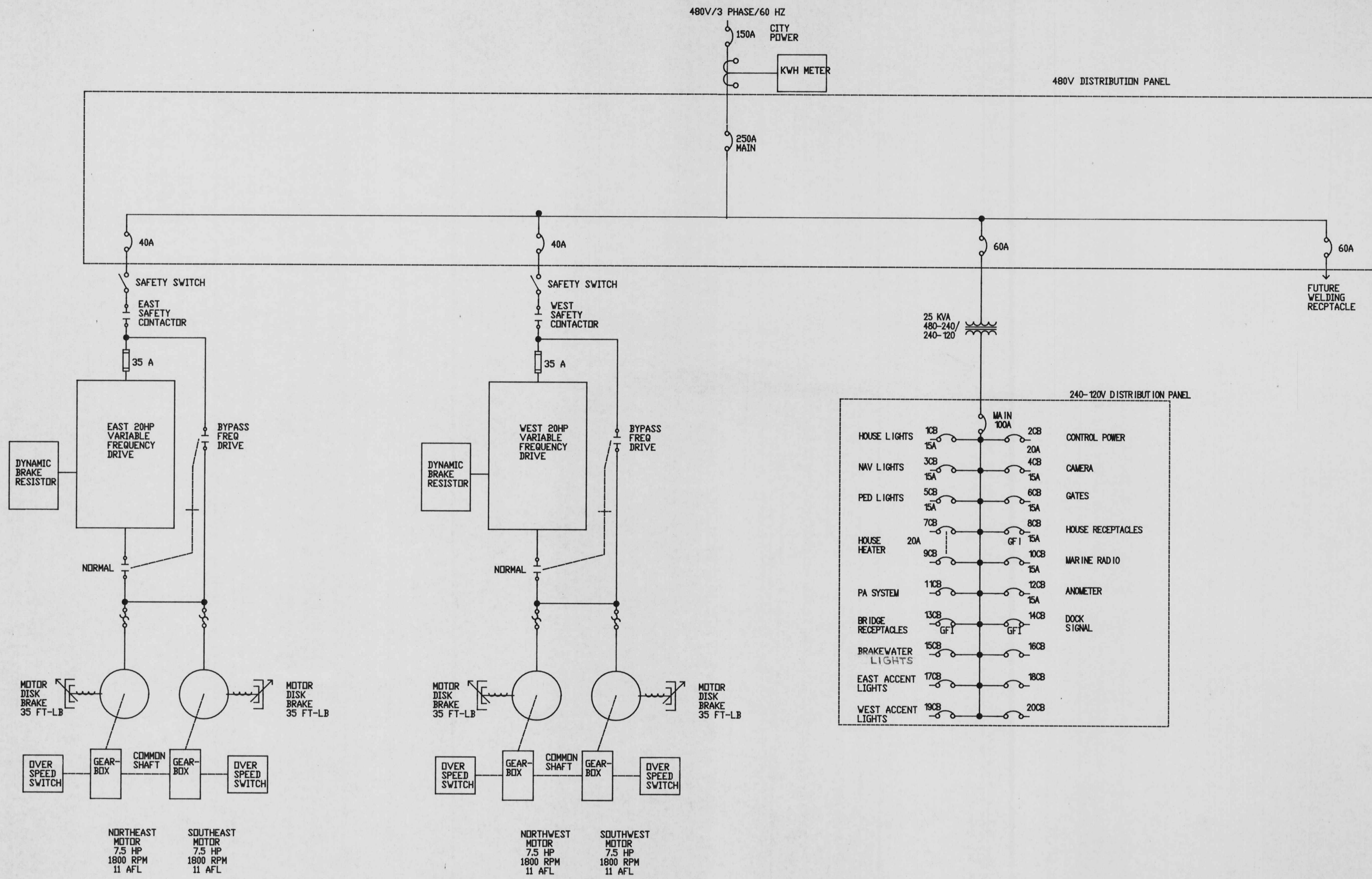
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 A. R. Ojard, P.E.
 REG. NO. 19477 DATE 2/11/91

MINNESOTA SLIP BRIDGE
 ELECTRICAL ASSEMBLY

PROJECT NO:
 DRAWN BY: GRL
 CHECKED BY:
 RELEASE DATE: 2/11/91
 REVISIONS:

SHEET:

E1
 OF:
 14



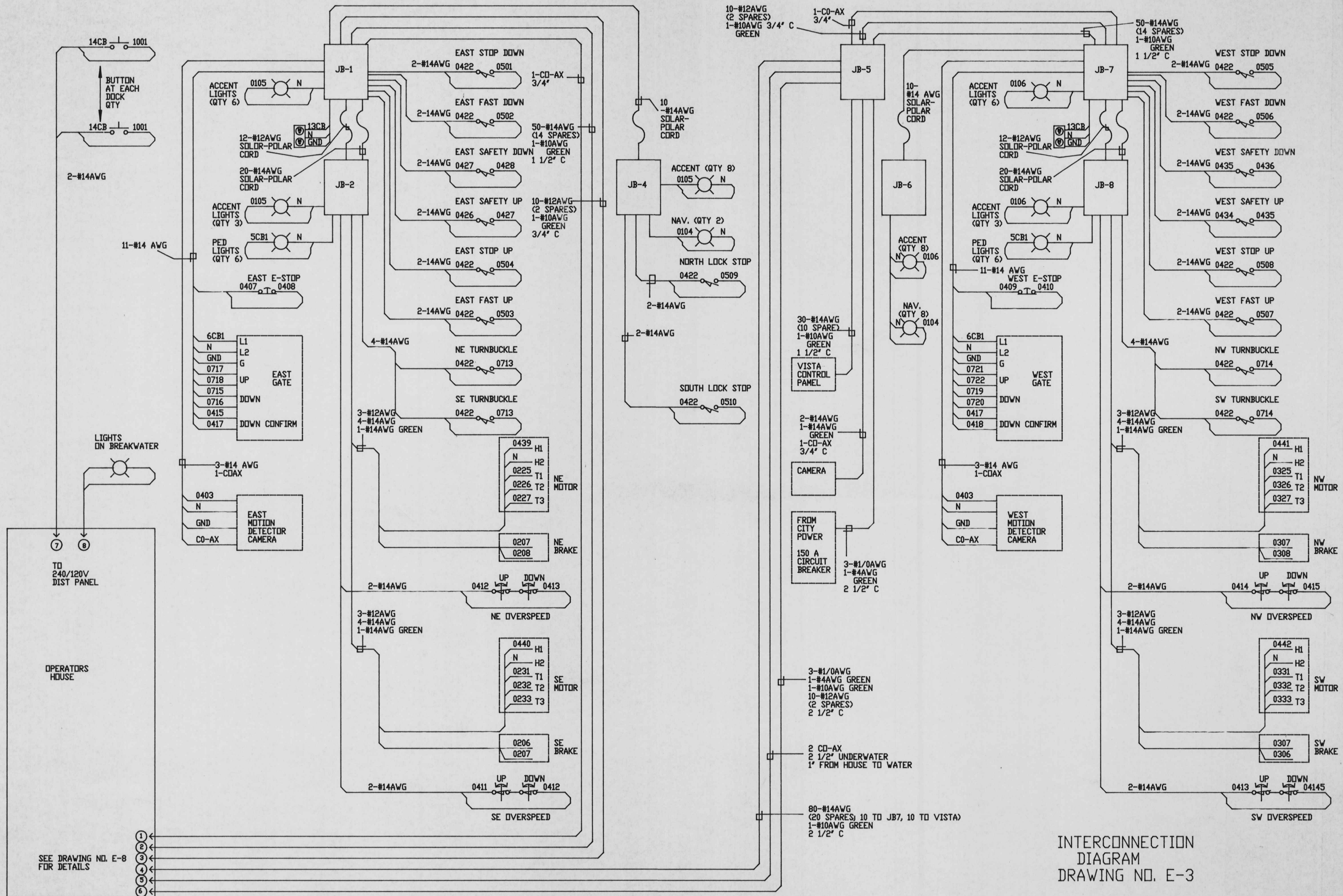
BRIDGE ONE LINE DIAGRAM
 DRAWING NO. E-2

MINNESOTA SLIP BRIDGE
 ONE LINE DIAGRAM

PROJECT NO: 624
 DRAWN BY: GRL
 CHECKED BY:
 RELEASE DATE: 2/11/91
 REVISIONS:

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 R. J. Ojard
 REG. NO. 016972 DWE 2/11/91

Krech & Ojard
 Consulting Engineers, P.A.
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Krech & Ojard
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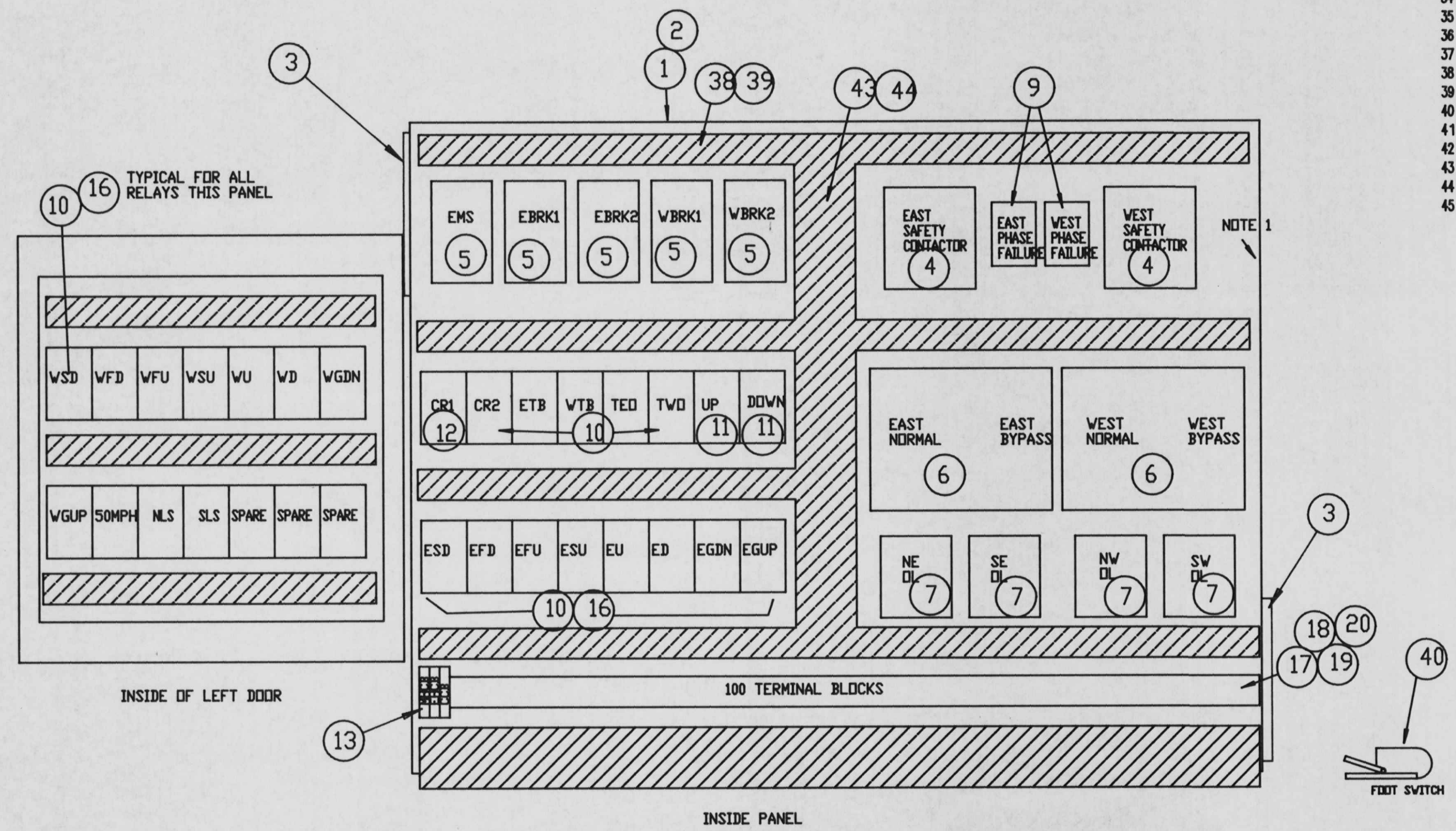
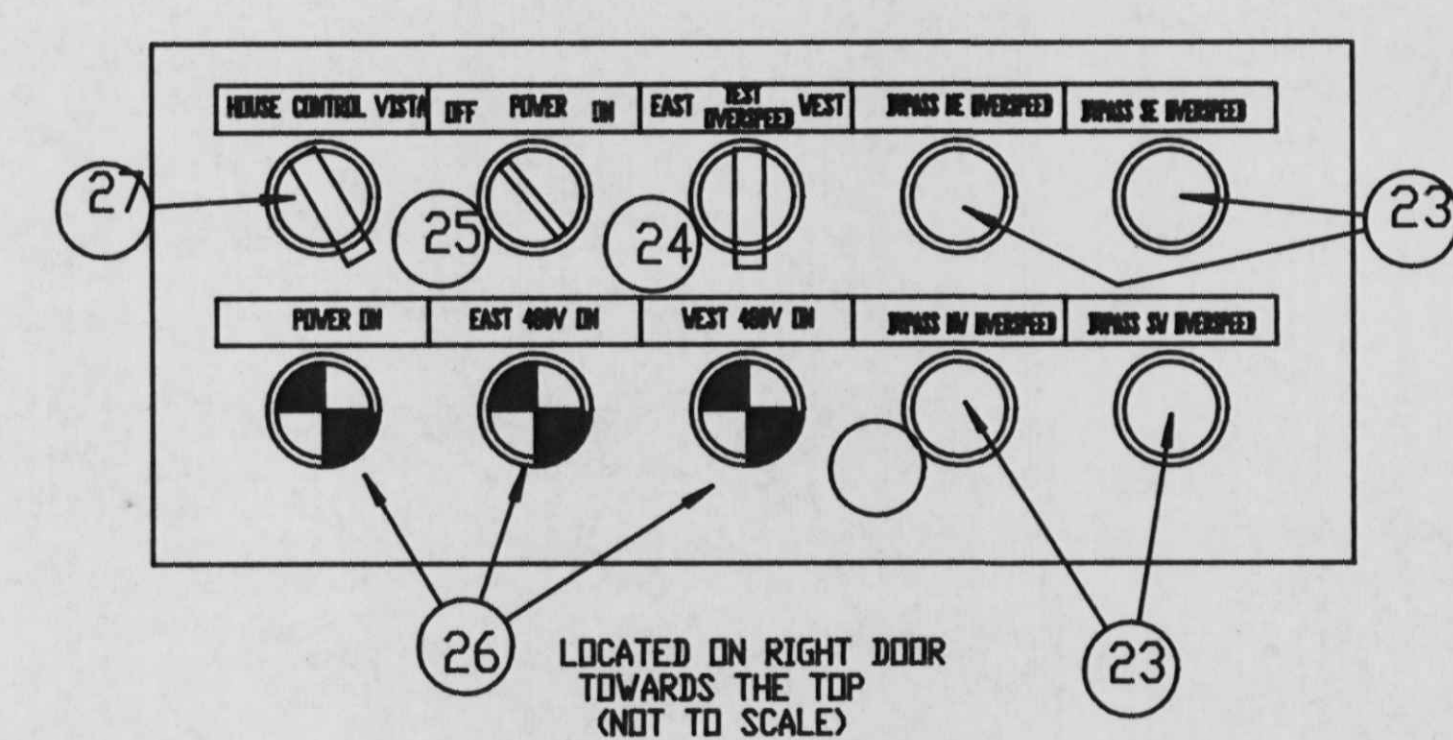
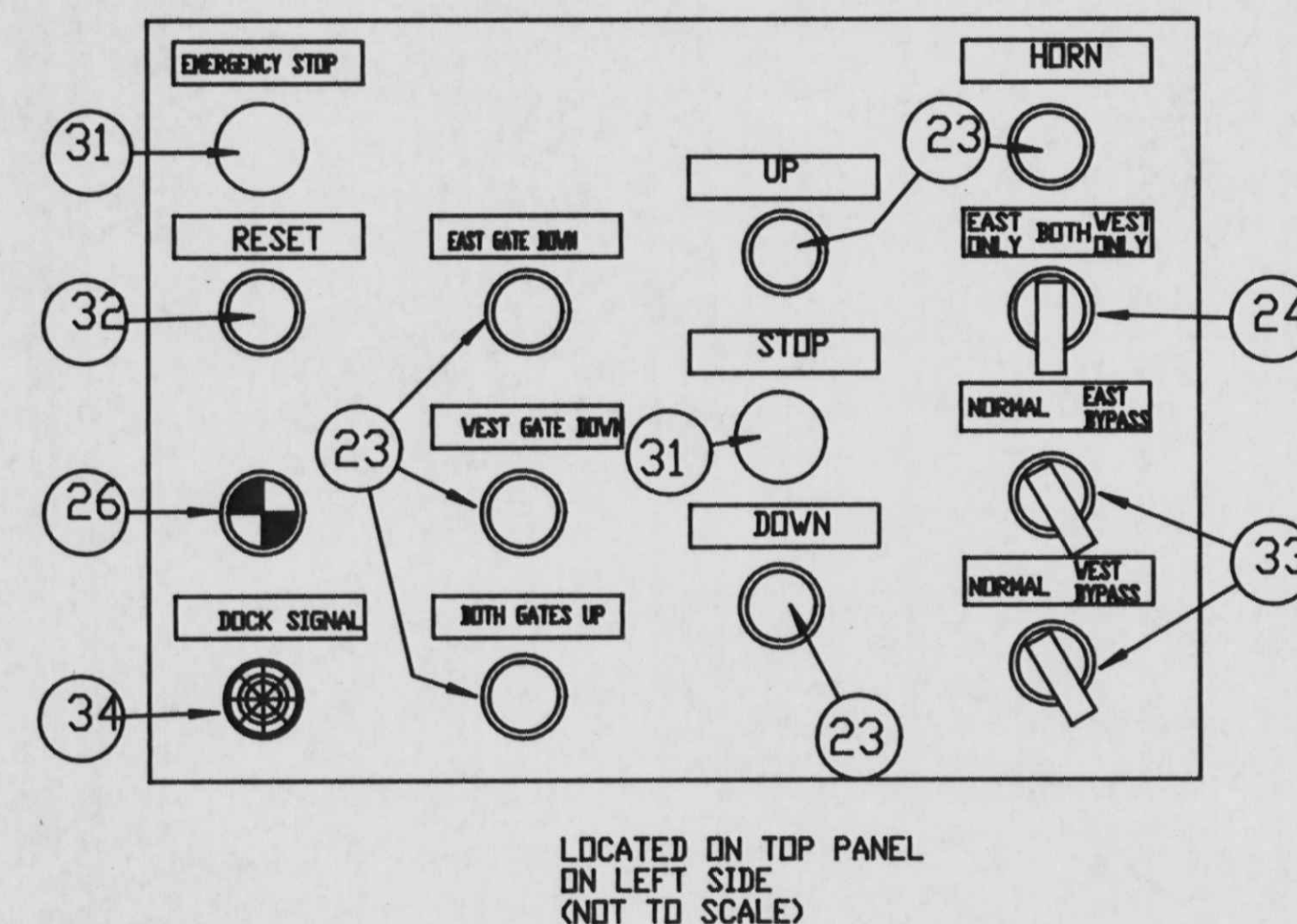
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE: 7/1/91
REG. NO. 16372

MINNESOTA SLIP BRIDGE
BRIDGE INTERCONNECTION

PROJECT NO.:
DRAWN BY: GLL
CHECKED BY:
RELEASE DATE: 2/1/91
REVISIONS:

SHEET:

E3
OF:
14



REF	QTY	DESCRIPTION	MFR	PART NO.
1	1	NEMA 12 CONSOLE	HOFFMAN	C-1248ED
2	1	WRITING DESK FOR ABOVE	HOFFMAN	C-1248W
3	2	LOUVER PLATE KIT	HOFFMAN	A-VK86
4	2	NEMA SIZE 2, 3 POLE CONTACTOR, 120VAC COIL	SQ-D	8502-SD02V02S
5	5	NEMA SIZE 1, 2 POLE CONTACTOR, 120VAC COIL	SQ-D	8502-SC01V02
6	2	NEMA SIZE 2, 3 POLE REVERSING CONTACTOR 120 VAC COIL	SQ-D	8702-SD02V02S
7	4	THERMAL OVERLOADS BLOCKS WITH AUTO-RESET	SQ-D	9065-SE08B2
8	12	OVERLOAD HEATERS FOR ABOVE	SQ-D	
9	2	PHASE FAILURE PROTECTION RELAYS	SQ-D	8430-MPD-V29
10	27	4 POLE CONTROL RELAY 120VAC COIL	SQ-D	8501-X040-V02
11	2	4 POLE ON DELAY TIMERS 120VAC COIL	SQ-D	8501-X040XTE1-V02
12	1	12 POLE CONTROL RELAY 120VAC COIL	SQ-D	8501-X01200-V02
13	3	15 AMP CIRCUIT BREAKER TERMINAL BOARD MOUNT	SQ-D	9080-GCB150
14	2	15 AMP 2 POLE CIRCUIT BREAKERS	SQ-D	650-FAL-24015
15	1	100 WATT 120VAC SPACE HEATER WITH THERMOSTAT	WATLOW	
16	4	8 RELAY MOUNTING RACK	SQ-D	8501-X08
17	100	TERMINAL BLOCKS	SQ-D	9080-GP6
18	1	END BARRIERS	SQ-D	9080-GP6B
19	2	END CLAMPS	SQ-D	9080-GH10
20	2	36" MOUNTING CHANNEL	SQ-D	9080-GH136
21	2	THREE POLE FUSE BLOCKS FOR ITEM 22		
22	10	35 AMP FUSES	BUSSMAN	JJS
23	10	NON-ILLUMINATED PUSHBUTTON, RED, FULL GUARD	SQ-D	9001-SKR1R15
24	2	3 POSITION SELECTOR SWITCH SPRING RETURN TO CENTER	SQ-D	9001-SKS3FB
25	1	2 POSITION SELECTOR SWITCH KEY OPERATED	SQ-D	9001-KS1K1
26	4	PILOT LIGHTS AMBER LENS 120VAC	SQ-D	9001-SKP1A31
27	1	2 POSITION SELECTOR SWITCH	SQ-D	9001-SKS1FB
28	8	CONTACT BLOCKS	SQ-D	9001-KA1
29	2	N.O. AUX CONTACT BLOCKS FOR CONTACTORS	SQ-D	9999-SX6
30	2	N.C. AUX CONTACT BLOCKS FOR CONTACTORS	SQ-D	9999-SX7
31	2	MUSHROOM HEAD MAINTAINED OPERATOR	SQ-D	9001-SKGRPH13
32	1	ILLUMINATED PUSHBUTTON, 120VAC, GREEN FULL GUARD	SQ-D	9001-SK1L1GH13
33	2	TWO POSITION SELECTOR SWITCH SPRING RETURN TO LEFT	SQ-D	9001-SKS34FB
34	1	MALLORY SONALERT MALLORY TYPE SC10E	NEWARK	64F274
35	1000	FEET #14 AWG SIS WIRE		
36	500	FEET #12 AWG SIS WIRE		
37	100	FEET #10 AWG SIS WIRE		
38	18 FT	1.5"x3" WIRE DUCT	HOFFMAN	A-150300GR
39	18 FT	1.5" COVER FOR ABOVE	HOFFMAN	A-150GR
40	1	FOOT SWITCH	SQ-D	9002-AW-132
41	23	ENGRAVED TAGS 2 1/4"x1/2"		
42				
43	6 FT	3"x3" WIRE DUCT	HOFFMAN	A-300300GR
44	6 FT	3" COVER	HOFFMAN	A-300GR
45	2	MOTION DETECTORS	BURLE/RCA	TC8210MD

NOTE: 1) ITEMS 14, 15, 21, AND 22 MOUNTED ON INSIDE RIGHT SIDE OF ENCLOSURE WALL
2) MOUNT ITEM 45 ON INSIDE OF RIGHT DOOR

CONTROL PANEL ASSY
1/4" = 1"
DRAWING NO. E-4

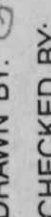
MINNESOTA SLIP BRIDGE
CONTROL PANEL ASSEMBLY

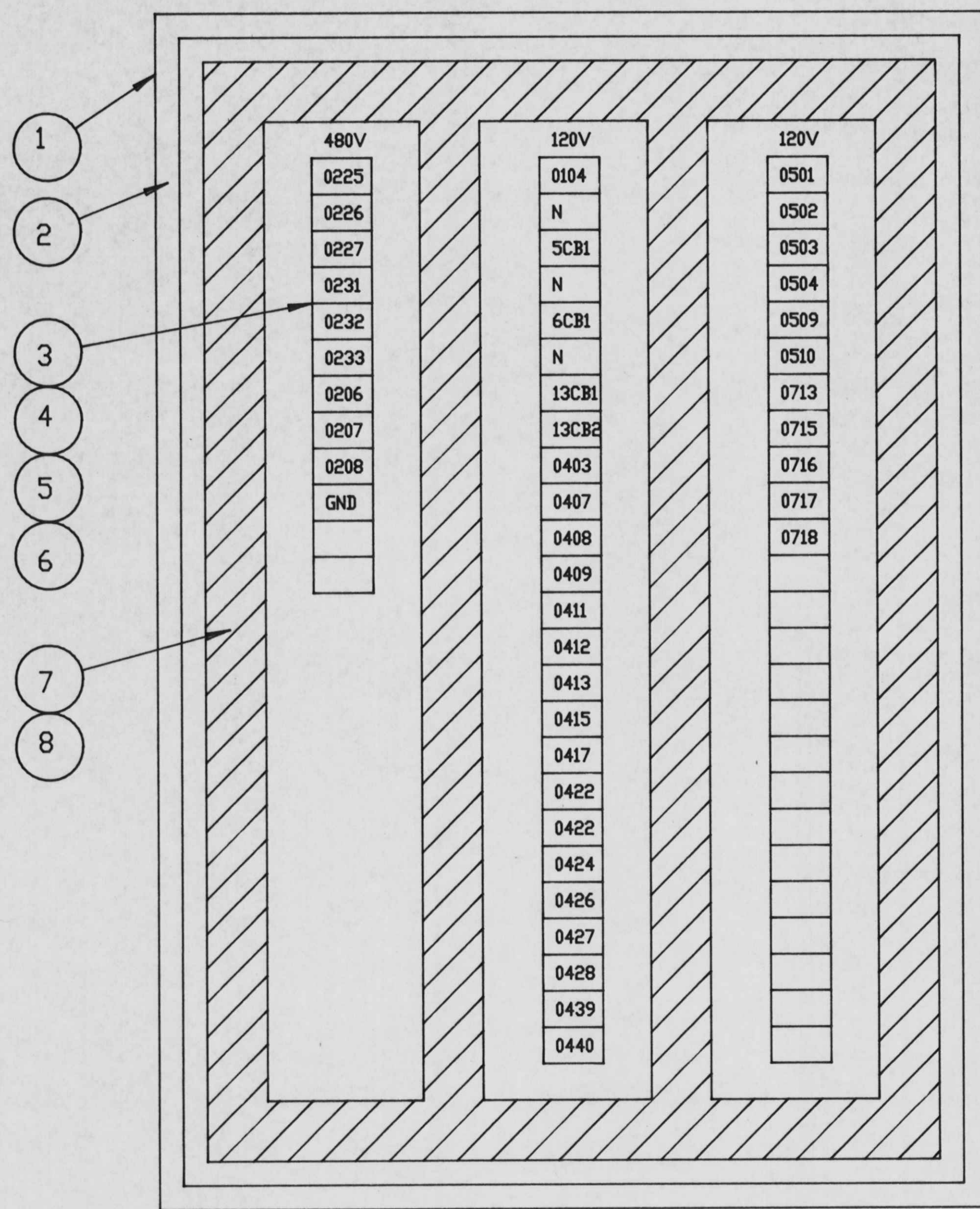
PROJECT NO. 2/11/91
DRAWN BY: GRL
CHECKED BY:
RELEASE DATE: 2/11/91
REVISIONS:

SHEET:
E4
OF:
14

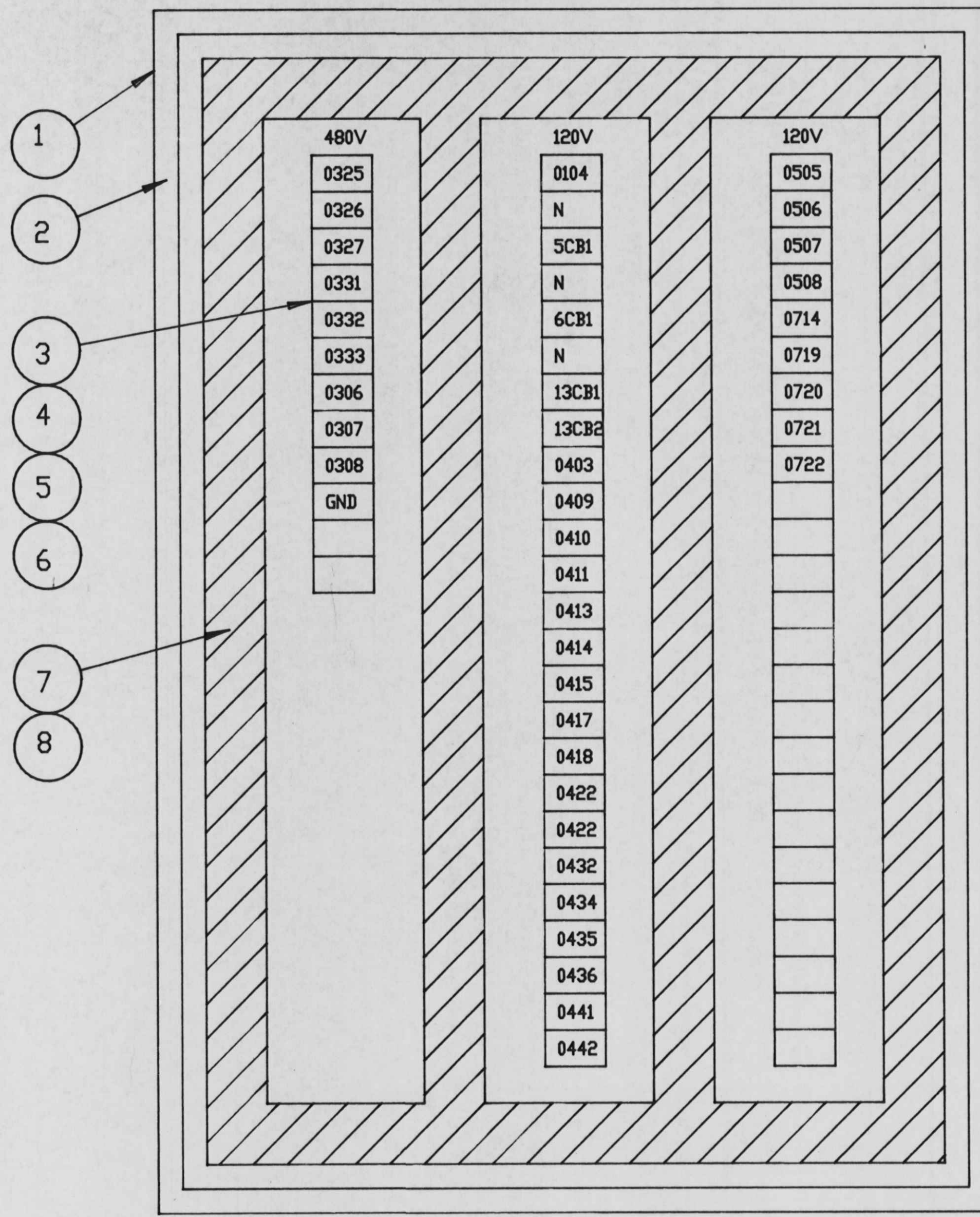
Krech & Ojard
Consulting Engineers, P.A.

209 W. 1st St., Suite 202 □ Duluth, MN 55802 □ Phone: (218) 727-3282 □ Fax: (218) 727-1216



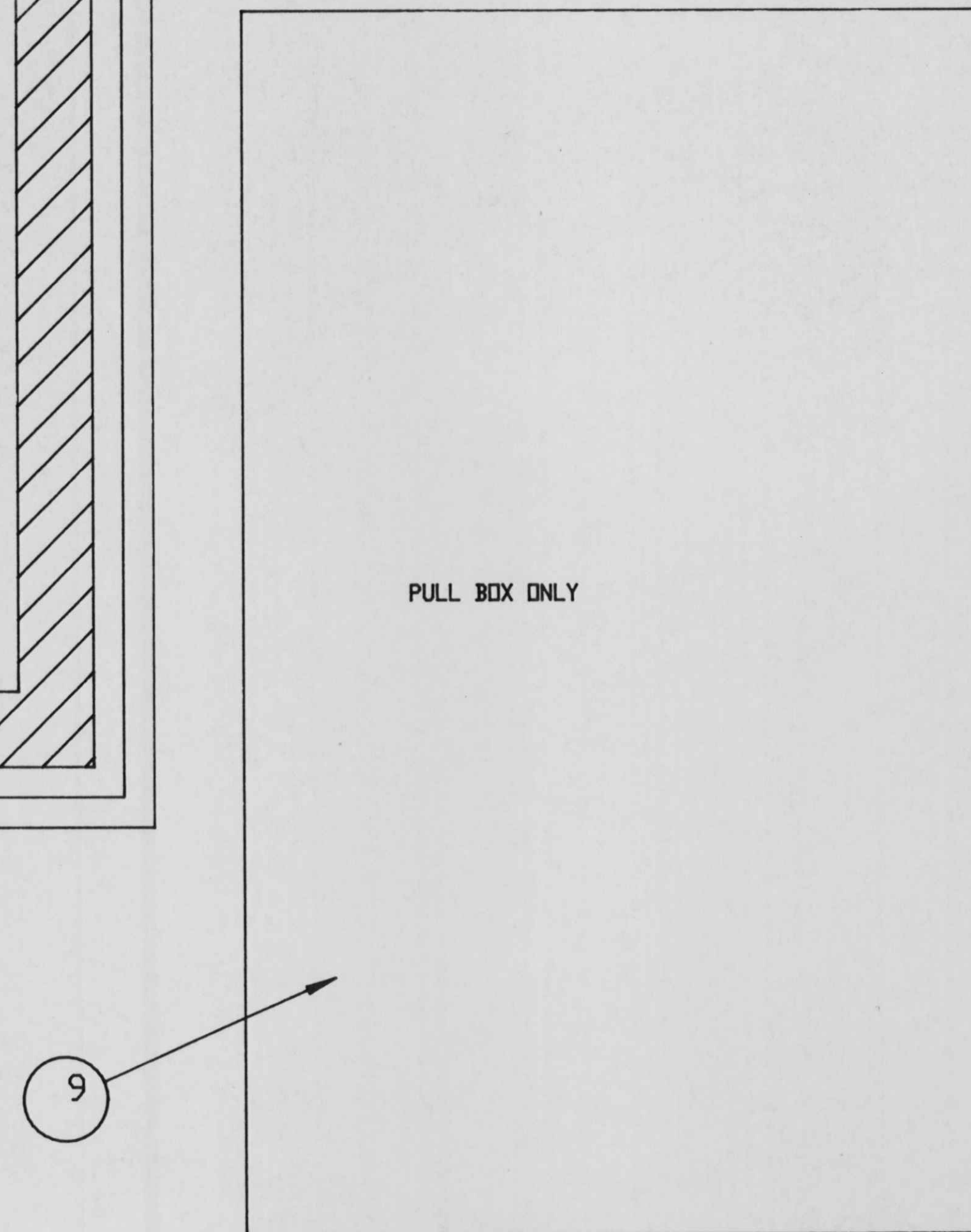


JB-1



JB-7

PARTS LIST				
REF	QTY	DESCRIPTION	MFR	PART NO.
1	2	FIBERGLASS NEMA 4X ENCLOSURE 20" x 19" x 16.25" x 6"	HOFFMAN	A-20H1606GQRLP
2	2	PANEL FOR ABOVE	HOFFMAN	A-20P16
3	150	TERMINAL BLOCKS	SQ-D	9080-GP6
4	6	END BARRIERS	SQ-D	9080-GP8
5	12	END CLAMPS	SQ-D	9080-GH10
6	6	36" MOUNTING CHANNEL	SQ-D	9080-GH136
7	18	1 1/2"x3" WIRE DUCT	HOFFMAN	A-150300GR
8	18	1 1/2" COVER FOR ABOVE	HOFFMAN	A-1500GR
9	1	FIBERGLASS NEMA 4X ENCLOSURE 36" x 30" x 8"	HOFFMAN	A-36H3008GQRLP



JB-5

JB1, JB5, AND JB-7
NOT TO SCALE
DRAWING NO. E-6

MINNESOTA SLIP BRIDGE
JUNCTION BOX ASSEMBLY

PROJECT NO:
DRAWN BY: GR
CHECKED BY:
RELEASE DATE: 2/11/91
REVISIONS:

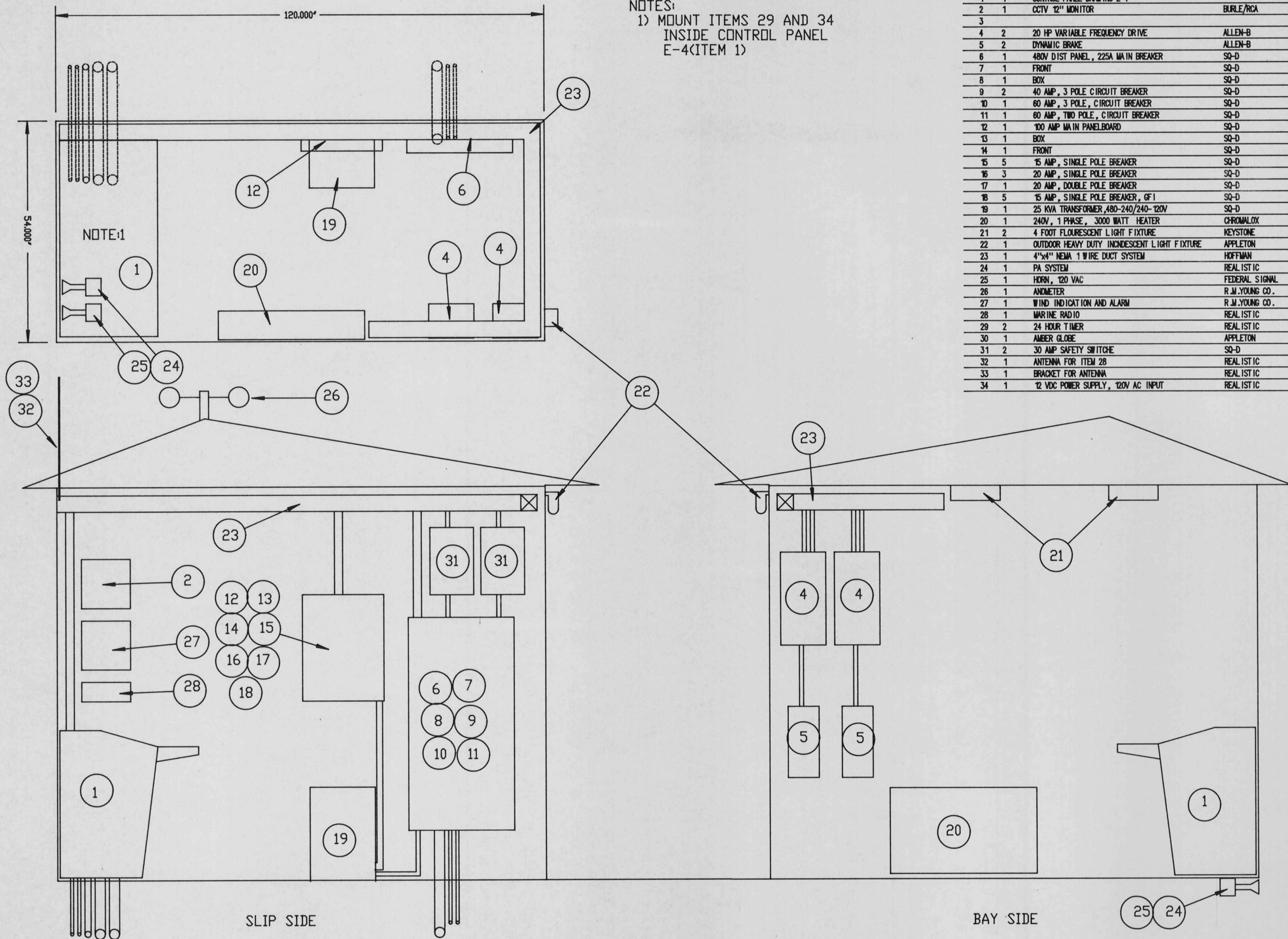
I HEREBY CERTIFY THAT THIS PLAN,
SPECIFICATION OR REPORT WAS PREPARED
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SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL
ENGINEER UNDER THE LAWS OF
THE STATE OF MINNESOTA
A. R. Krech
REG. NO. 019672 DATE 02/11/91

Krech & Ojard
Consulting Engineers, P.A.

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SHEET:

E 6
OF
14



NOTES:
1) MOUNT ITEMS 29 AND 34
INSIDE CONTROL PANEL
E-4 (ITEM 1)

PARTS LIST

REF	QTY	DESCRIPTION	WFO	PART NO.
1	1	CONTROL PANEL DRAWING E-4		
2	1	CCTV 12" MONITOR	BURLE/RCA	TC1112
3				
4	2	20 HP VARIABLE FREQUENCY DRIVE	ALLEN-B	1336-B020-EAE-L3
5	2	DYNAMIC BRAKE	ALLEN-B	1336-M00-B-010
6	1	480V DIST PANEL, 225A MAIN BREAKER	SQ-D	HCND952-2MIN
7	1	FRONT	SQ-D	HC22652T(S)
8	1	BOX	SQ-D	HC2652B
9	2	40 AMP, 3 POLE CIRCUIT BREAKER	SQ-D	FA34040
10	1	60 AMP, 3 POLE, CIRCUIT BREAKER	SQ-D	FA34060
11	1	60 AMP, TWO POLE, CIRCUIT BREAKER	SQ-D	FA24060
12	1	100 AMP MAIN PANELBOARD	SQ-D	1630-M00D20M100CU
13	1	BOX	SQ-D	W426
14	1	FRONT	SQ-D	WMC26(S)
15	5	15 AMP, SINGLE POLE BREAKER	SQ-D	Q0B115
16	3	20 AMP, SINGLE POLE BREAKER	SQ-D	Q0B120
17	1	20 AMP, DOUBLE POLE BREAKER	SQ-D	Q0B220
18	5	15 AMP, SINGLE POLE BREAKER, GF1	SQ-D	Q0B115GF1
19	1	25 KVA TRANSFORMER, 480-240/240-120V	SQ-D	25S3H
20	1	240V, 1 PHASE, 3000 WATT HEATER	CHROMALOX	HCH-301 PCH330915
21	2	4 FOOT FLOURESCENT LIGHT FIXTURE	KEYSTONE	CS240-120V-ESB
22	1	OUTDOOR HEAVY DUTY INCANDESCENT LIGHT FIXTURE	APPLETON	REA-12LB
23	1	4"x4" NEMA 1 WIRE DUCT SYSTEM	HOFFMAN	
24	1	PA SYSTEM	REALISTIC	MPA-25
25	1	HORN, 120 VAC	FEDERAL SIGNAL	350-WB
26	1	ANOMETER	R.M. YOUNG CO.	MODEL 05103
27	1	WIND INDICATION AND ALARM	R.M. YOUNG CO.	MODEL 04404
28	1	MARINE RADIO	REALISTIC	19-1002
29	2	24 HOUR TIMER	REALISTIC	63-865
30	1	AMBER GLOBE	APPLETON	VPG-1AM
31	2	30 AMP SAFETY SWITCH	SQ-D	3110-HU361
32	1	ANTENNA FOR ITEM 28	REALISTIC	19-101
33	1	BRACKET FOR ANTENNA	REALISTIC	19-102
34	1	12 VDC POWER SUPPLY, 120V AC INPUT	REALISTIC	22-120

ELECTRICAL ASSY
OPERATORS HOUSE
1" = 1'
DRAWING E-9

MINNESOTA SLIP BRIDGE
OP'S HOUSE ELECTRICAL ASSY.

PROJECT NO:
DRAWN BY: GRL
CHECKED BY:

RELEASE DATE: 2/11/91
REVISIONS:

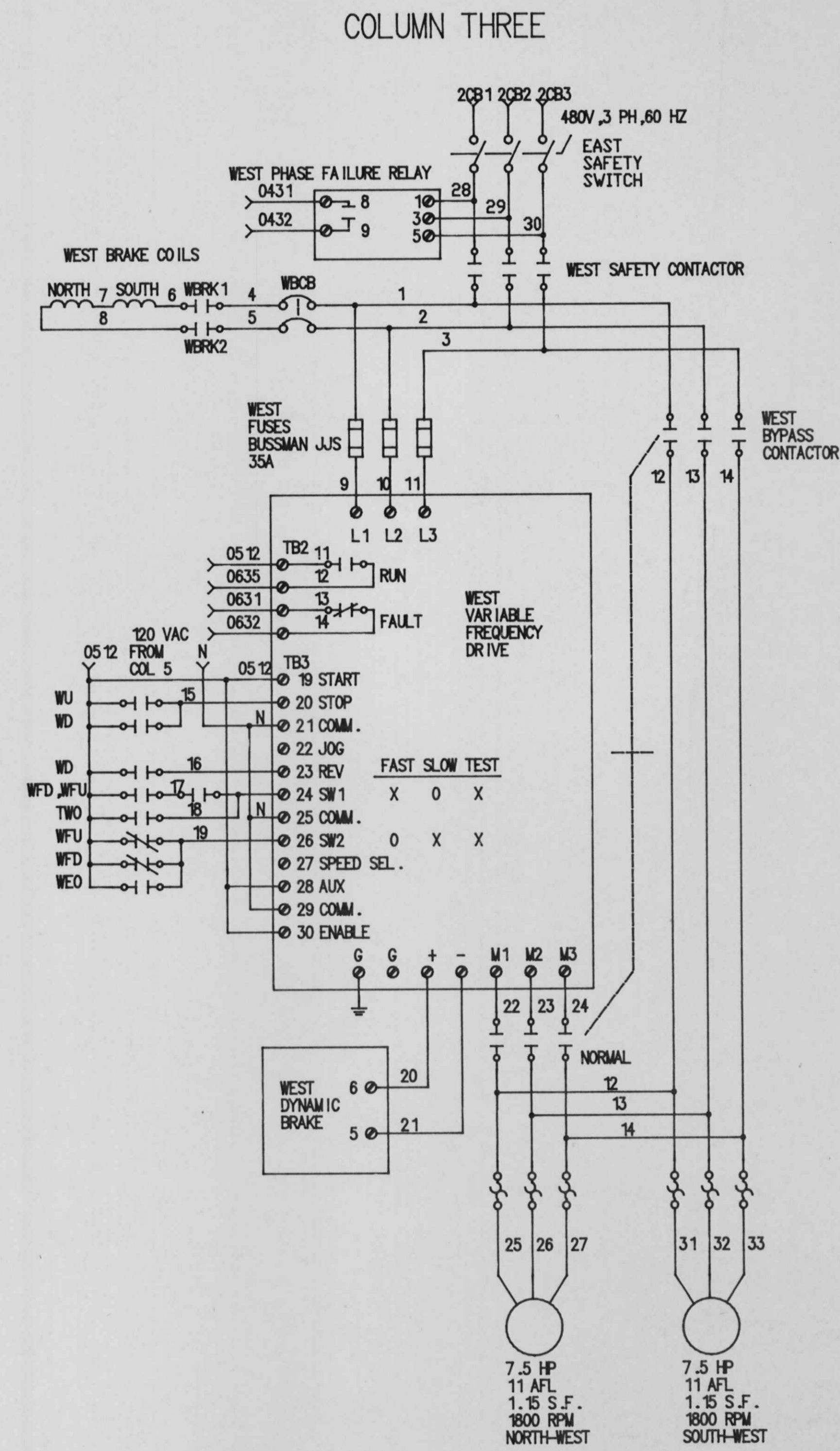
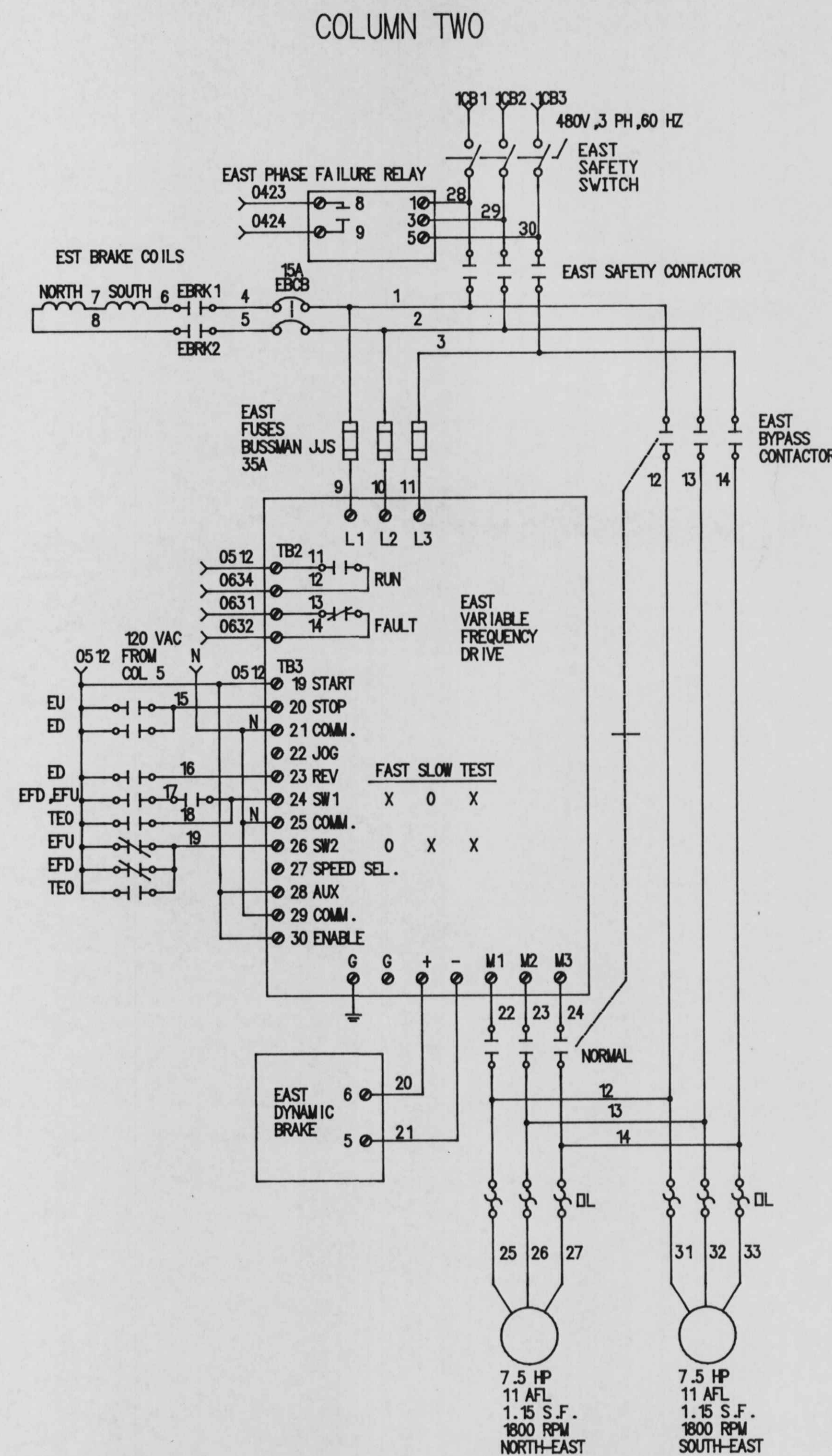
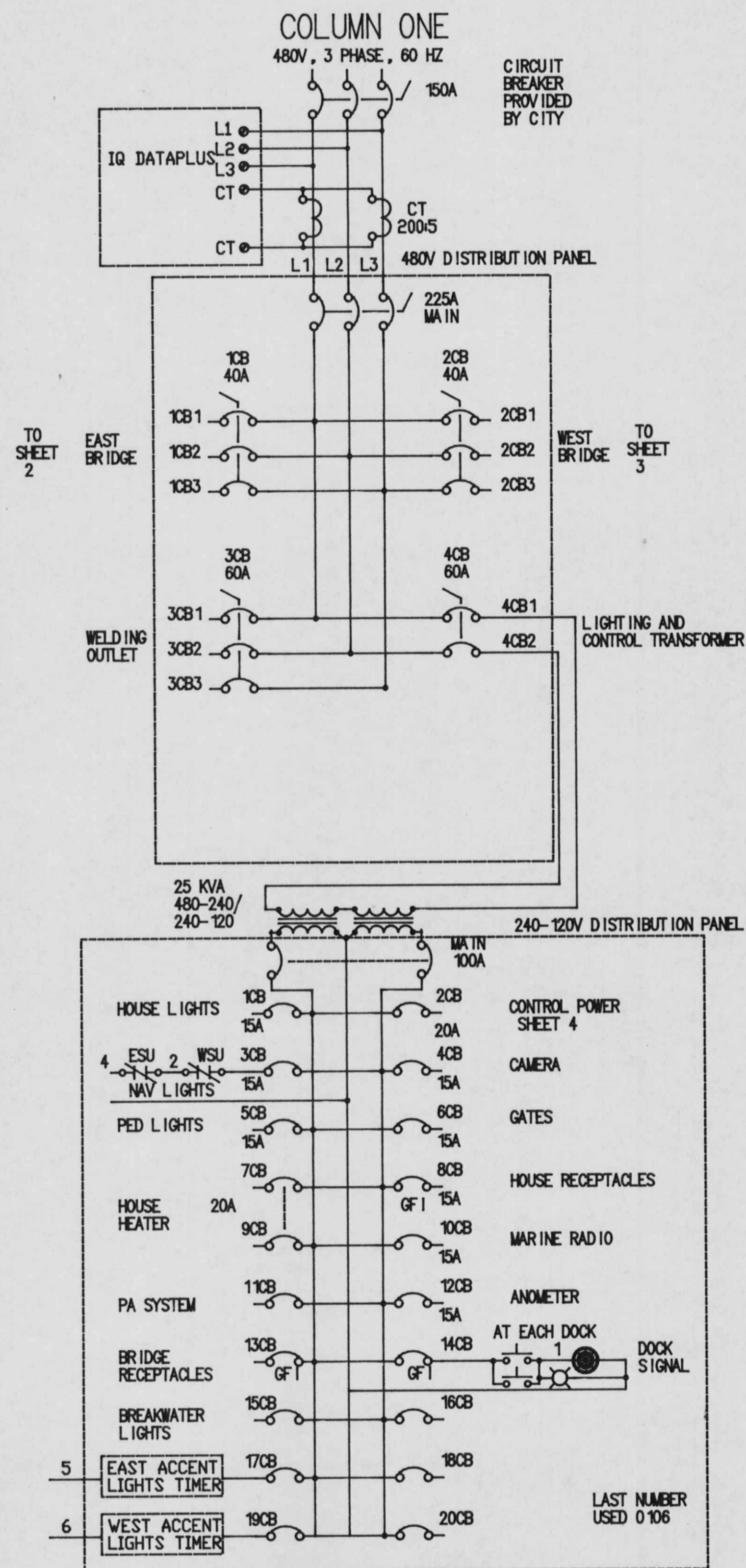
SHEET:
E9
OF:
14

City of Duluth Proj.No.85991E91

Krech & Ojard
Consulting Engineers, P.A.

209 W. 1st St., Suite 202 □ Duluth, MN 55802 □ Phone: (218) 727-3282

I HEREBY CERTIFY THAT THIS PLAN,
SPECIFICATION OR REPORT WAS PREPARED
BY ME OR UNDER MY SUPERVISION AND
THAT I AM A DULY REGISTERED PROFESSIONAL
ENGINEER UNDER THE LAWS OF
THE STATE OF MINNESOTA.
DATE: 2/11/91
REG. NO. 00000772



DRAWING NUMBERS CONSIST OF FOUR DIGITS
THE FIRST TWO DIGITS ARE THE COLUMN NUMBER,
THE SECOND TWO DIGITS ARE THE WIRE NUMBER:
EXAMPLE: 0415 IS WIRE NUMBER 15 IN COL. 4

COL 1,2 & 3
DRAWING NO.E- 11

MINNESOTA SLIP BRIDGE
ELECTRICAL SCHEMATIC

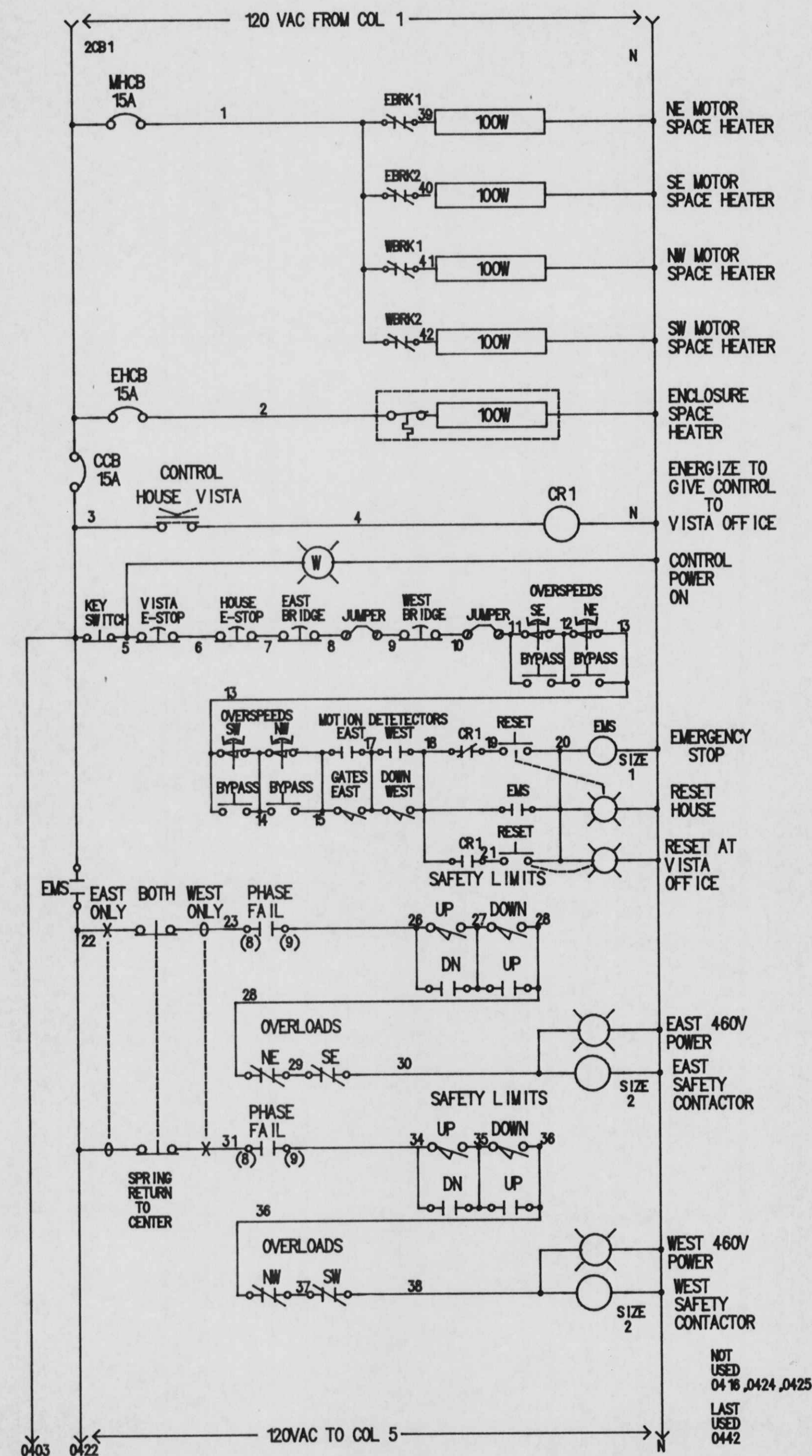
PROJECT NO: 211191
DRAWN BY: GRL
CHECKED BY:
RELEASE DATE: 2/11/91
REVISIONS:

SHEET:
E11
OF:
14

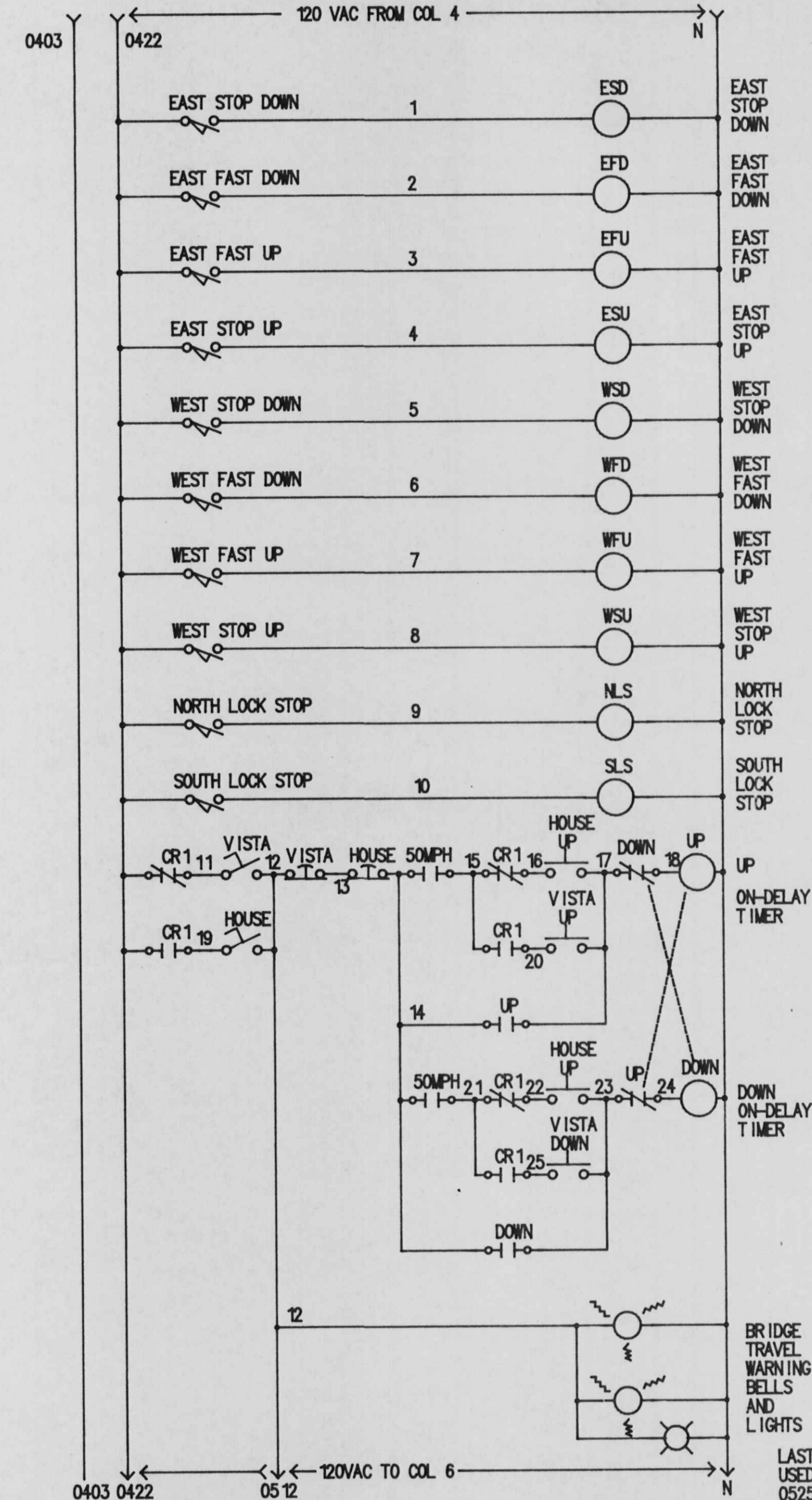
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Consulting Engineers, P.A.

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Duluth, MN 55802
Phone: (218) 727-3282

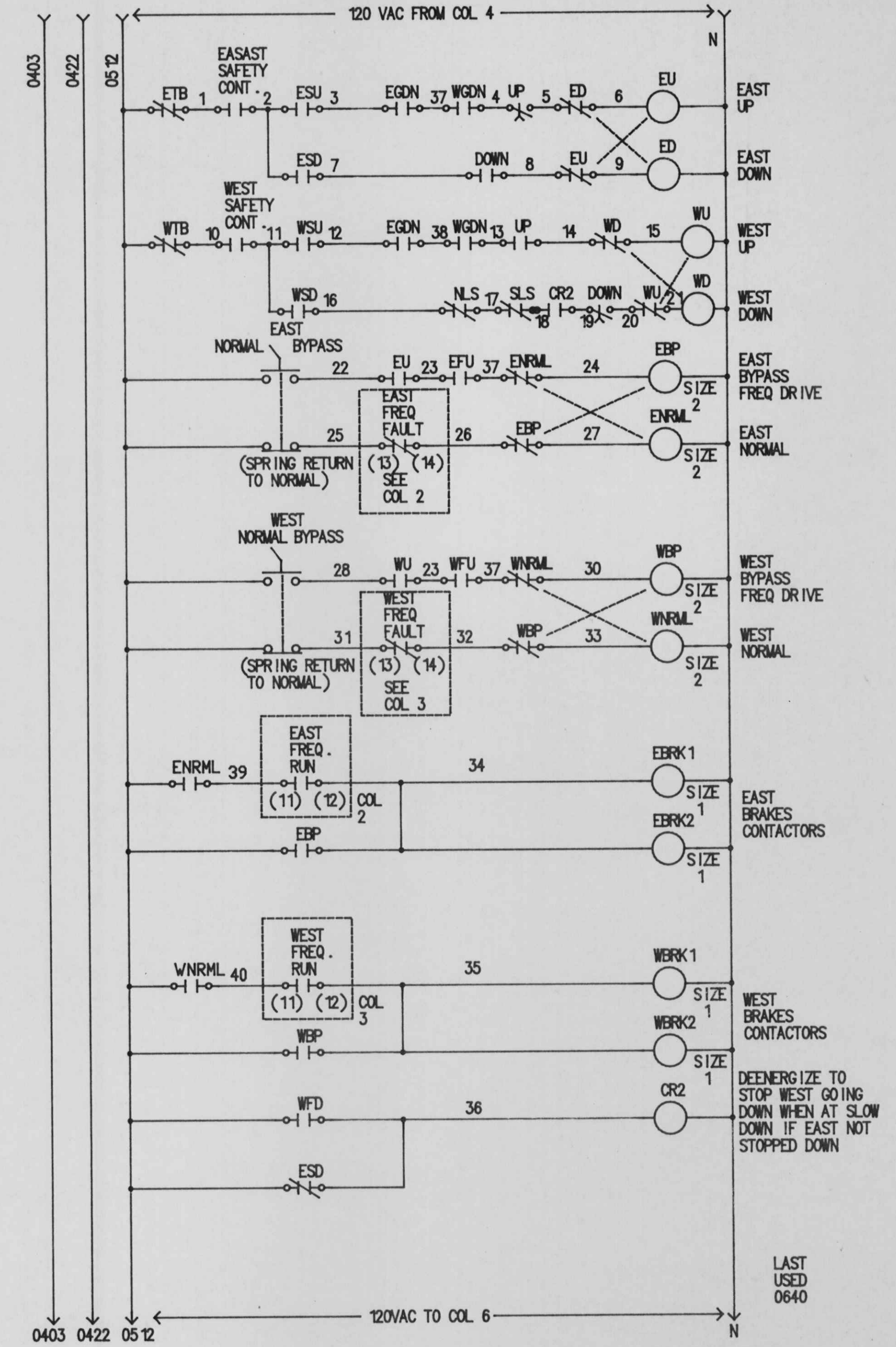
COLUMN FOUR



COLUMN FIVE



COLUMN SIX



DRAWING NUMBERS CONSIST OF FOUR DIGITS
THE FIRST TWO DIGITS ARE THE COLUMN NUMBER,
THE SECOND TWO DIGITS ARE THE WIRE NUMBER:
EXAMPLE: 0415 IS WIRE NUMBER 15 IN COL. 4

COL 4, 5 & 6
DRAWING NO. E-12

MINNESOTA SLIP BRIDGE
ELECTRICAL SCHEMATIC

PROJECT NO:
DRAWN BY: GRL
CHECKED BY:

RELEASE DATE: 2/11/91
REVISIONS:

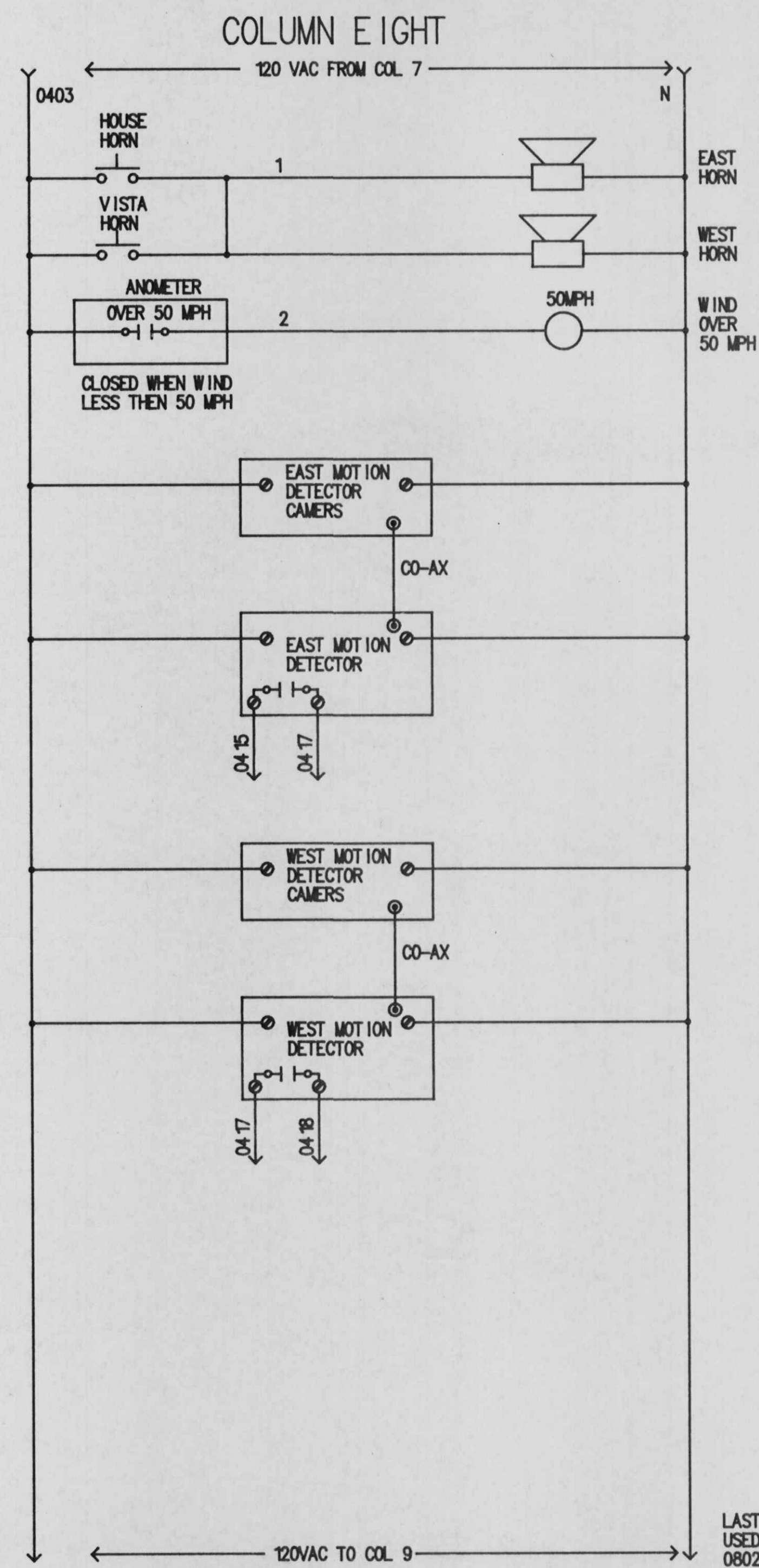
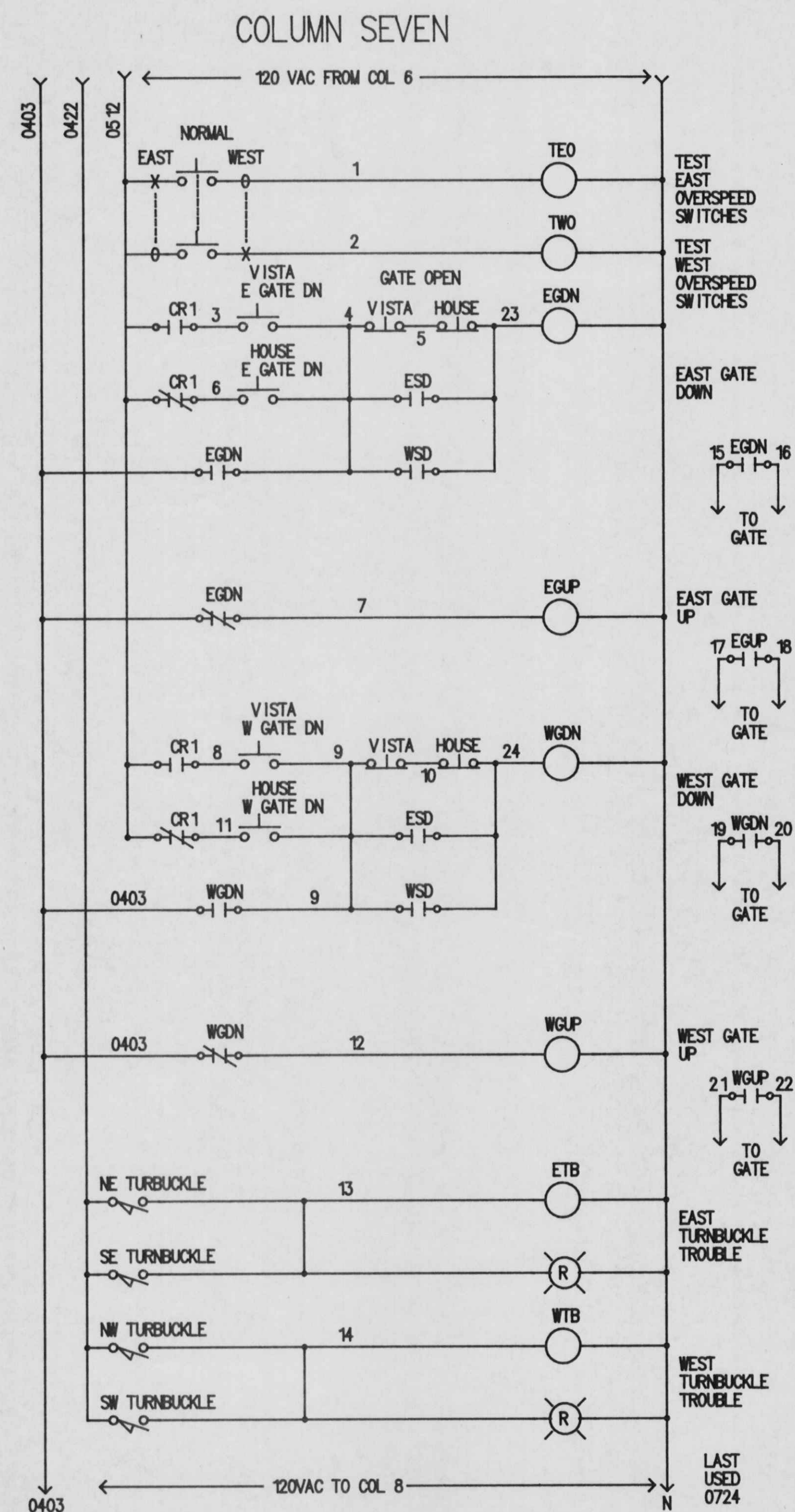
I HEREBY CERTIFY THAT THIS PLAN,
SPECIFICATION OR REPORT WAS PREPARED
BY ME OR UNDER MY SUPERVISION AND
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ELECTRICAL ENGINEER UNDER THE LAWS OF
THE STATE OF MINNESOTA
A. K. OJARD
REG. NO. 014672 DATE 1/11/91

Krech & Ojard
Consulting Engineers, P.A.

209 W. 1st St., Suite 202 □ Duluth, MN 55802 □ Phone: (218) 727-3282

SHEET:

E12
OF:
14



COLUMN NINE

DRAWING NUMBERS CONSIST OF FOUR DIGITS
THE FIRST TWO DIGITS ARE THE COL. NUMBER;
THE SECOND TWO DIGITS ARE THE WIRE NUMBER:
EXAMPLE: 04 15 IS WIRE NUMBER 15 IN COL. 4

SCHMATIC
COL 7,8 & 9
DRAWING NO. 13

MINNESOTA SLIP BRIDGE
ELECTRICAL SCHEMATIC

PROJECT NO:
DRAWN BY: GRL
CHECKED BY:

RELEASE DATE: 2/11/91
REVISIONS:

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A. R. Ojard
REG. NO. 019072 DATE 2/11/91

Krech & Ojard
Consulting Engineers, P.A.

209 W. 1st St., Suite 202 □ Duluth, MN 55802 □ Phone: (218) 727-3282

SHEET:

E13
OF:
14

WIRE ROUTE TABLE

WIRE NO.	ROUTE	WIRE SIZE AND TYPE
0101	1TB, DOCK SIGNAL	#14 AWG SIS
0102	WSU, ESU	#14 AWG SIS
0104	1TB, ESU	#14 AWG SIS
0201	EAST SAFETY CONTACTOR, EBCB, EAST FUSES, EAST BYPASS	#10 AWG SIS
0202	EAST SAFETY CONTACTOR, EBCB, EAST FUSES, EAST BYPASS	#10 AWG SIS
0203	EAST SAFETY CONTACTOR, EBCB, EAST FUSES, EAST BYPASS	#10 AWG SIS
0204	EBCB, EBRK1	#12 AWG SIS
0205	EBCB, EBRK2	#12 AWG SIS
0206	1TB, EBRK1	#12 AWG SIS
0208	1TB, EBRK2	#12 AWG SIS
0212	EAST BYPASS, NORMAL, NEOL, SEDL	#10 AWG SIS
0213	EAST BYPASS, NORMAL, NEOL, SEDL	#10 AWG SIS
0214	EAST BYPASS, NORMAL, NEOL, SEDL	#10 AWG SIS
0215	1TB, EU, ED	#14 AWG SIS
0216	1TB, ED	#14 AWG SIS
0217	EFU, EFU	#14 AWG SIS
0218	1TB, TED	#14 AWG SIS
0219	1TB, EFU, EFD, TED	#14 AWG SIS
0228	EAST SAFETY CONTACTOR, EAST PHASE FAILURE RELAY	#12 AWG SIS
0229	EAST SAFETY CONTACTOR, EAST PHASE FAILURE RELAY	#12 AWG SIS
0230	EAST SAFETY CONTACTOR, EAST PHASE FAILURE RELAY	#12 AWG SIS
0301	WEST SAFETY CONTACTOR, WBCB, WEST FUSES, WEST BYPASS	#10 AWG SIS
0302	WEST SAFETY CONTACTOR, WBCB, WEST FUSES, WEST BYPASS	#10 AWG SIS
0303	WEST SAFETY CONTACTOR, WBCB, WEST FUSES, WEST BYPASS	#10 AWG SIS
0304	WBCB, WBRK1	#12 AWG SIS
0305	WBCB, WBRK2	#12 AWG SIS
0306	1TB, WBRK1	#12 AWG SIS
0308	1TB, WBRK2	#12 AWG SIS
0312	WEST BYPASS, NORMAL, NWOL, SWOL	#10 AWG SIS
0313	WEST BYPASS, NORMAL, NWOL, SWOL	#10 AWG SIS
0314	WEST BYPASS, NORMAL, NWOL, SWOL	#10 AWG SIS
0315	1TB, WU, WD	#14 AWG SIS
0316	1TB, WD	#14 AWG SIS
0317	WFD, WFU	#14 AWG SIS
0318	1TB, TWO	#14 AWG SIS
0319	1TB, WFU, WFD, TWO	#14 AWG SIS
0328	WEST SAFETY CONTACTOR, WEST PHASE FAILURE RELAY	#12 AWG SIS
0329	WEST SAFETY CONTACTOR, WEST PHASE FAILURE RELAY	#12 AWG SIS
0330	WEST SAFETY CONTACTOR, WEST PHASE FAILURE RELAY	#12 AWG SIS
0401	MHCB, EBRK1, EBRK2, WBRK1, WBRK2	#14 AWG SIS
0402	EHCB, ENCLOSURE SPACE HEATER	#14 AWG SIS
0403	1TB, CCB, HOUSE-VIST SW, KEY-SW, EMS, EGDN, WGDN, HORN BUTTON, EAST MOTION DETECTOR, WEST MOTION DETECTOR	#14 AWG SIS
0404	HOUSE-VISTA SW, CR1	#14 AWG SIS
0405	1TB, POWER ON LIGHT, KEY SW	#14 AWG SIS
0406	1TB, E-STOP BUTTON	#14 AWG SIS
0407	1TB, E-STOP BUTTON	#14 AWG SIS
0408	1TB	#14 AWG SIS
0409	1TB	#14 AWG SIS
0410	1TB	#14 AWG SIS
0411	1TB, SE BYPASS SW	#14 AWG SIS
0412	1TB, SE BYPASS SW, NE BYPASS SW	#14 AWG SIS
0413	1TB, NE BYPASS SW, SW BYPASS SW	#14 AWG SIS
0414	1TB, SW BYPASS SW, NW BYPASS SW	#14 AWG SIS
0415	1TB, NW BYPASS SW, EAST MOTION DETECTOR	#14 AWG SIS
0416		
0417	1TB, EAST MOTION DETECTOR, WEST MOTION DETECTOR	#14 AWG SIS
0418	1TB, CR1, EMS, WEST MOTION DETECTOR	#14 AWG SIS
0419	CR1, RESET BUTTON	#14 AWG SIS
0420	1TB, EMS, RESET LIGHT	#14 AWG SIS
0421	1TB, CR1	#14 AWG SIS
0422	1TB, EMS, EAST-BOTH-WEST SW, CR1	#14 AWG SIS
0423	EAST-BOTH-WEST SW, EAST PHASE FAIL	#14 AWG SIS
0424		
0425		
0426	1TB, EAST PHASE FAILURE, DN	#14 AWG SIS
0427	1TB, DN, UP	#14 AWG SIS
0428	1TB, UP, NEOL	#14 AWG SIS
0429	NEOL, SEDL	#14 AWG SIS
0430	SEOL, EAST POWER LIGHT, EAST SAFETY CONTACTOR	#14 AWG SIS

WIRE ROUTE TABLE

WIRE NO.	ROUTE	WIRE SIZE AND TYPE
0431	EAST-BOTH-WEST SW, WEST PHASE FAILURE	#14 AWG SIS
0432		
0433		
0434	1TB, WEST PHASE FAILURE, DN	#14 AWG SIS
0435	1TB, DN, UP	#14 AWG SIS
0436	1TB, UP, NWOL	#14 AWG SIS
0437	NWOL, SWOL	#14 AWG SIS
0438	1TB, SWOL, WEST POWER LIGHT, WEST SAFETY CONTACTOR	#14 AWG SIS
0439	1TB, EBRK1	#14 AWG SIS
0440	1TB, EBRK2	#14 AWG SIS
0441	1TB, WBRK1	#14 AWG SIS
0442	1TB, WBRK2	#14 AWG SIS
0501	1TB, ESD	#14 AWG SIS
0502	1TB, EFD	#14 AWG SIS
0503	1TB, EFU	#14 AWG SIS
0504	1TB, ESU	#14 AWG SIS
0505	1TB, WSD	#14 AWG SIS
0506	1TB, WFD	#14 AWG SIS
0507	1TB, WFU	#14 AWG SIS
0508	1TB, WSU	#14 AWG SIS
0509	1TB, NLS	#14 AWG SIS
0510	1TB, SLS	#14 AWG SIS
0511	1TB, CR1	#14 AWG SIS
0512	1TB, HOUSE FOOT SW, ETB, WTB, EAST NORMAL-BYPASS SW, WEST NORMAL-BYPASS SW, ENRML, EAST BYPASS CONTACTOR, WNRML, WEST BYPASS CONTACTOR, WFD, ESD, TEST OVERSPEED SW, CR1	#14 AWG SIS
0513	1TB, STOP BUTTON	#14 AWG SIS
0514	STOP BUTTON, 50MPH, UP, DOWN	#14 AWG SIS
0515	50 MPH, CR1	#14 AWG SIS
0516	UP BUTTON, CR1	#14 AWG SIS
0517	1TB, UP BUTTON, UP, DOWN	#14 AWG SIS
0518	UP, DOWN	#14 AWG SIS
0519	1TB	#14 AWG SIS
0520	1TB, CR1	#14 AWG SIS
0521	50 MPH, CR1	#14 AWG SIS
0522	DOWN BUTTON, CR1	#14 AWG SIS
0523	1TB, DOWN BUTTON, UP, DOWN	#14 AWG SIS
0524	UP, DOWN	#14 AWG SIS
0525	1TB, CR1	#14 AWG SIS
0601	EAST SAFETY CONTACTOR, ETB	#14 AWG SIS
0602	EAST SAFETY CONTACTOR, ESU, ESD	#14 AWG SIS
0603	ESU, EGDN	#14 AWG SIS
0604	WGDN, UP	#14 AWG SIS
0605	UP, ED	#14 AWG SIS
0606	ED, EU	#14 AWG SIS
0607	ESD, DOWN	#14 AWG SIS
0608	DOWN, EU	#14 AWG SIS
0609	EU, ED	#14 AWG SIS
0610	WEST SAFETY CONTACTOR, WTB	#14 AWG SIS
0611	WEST SAFETY CONTACTOR, WSU, WSD	#14 AWG SIS
0612	WSU, EGDN	#14 AWG SIS
0613	WGDN, UP	#14 AWG SIS
0614	UP, WD	#14 AWG SIS
0615	WD, WU	#14 AWG SIS
0616	WSD, NLS	#14 AWG SIS
0617	NLS, SLS	#14 AWG SIS
0618	SLS, CR2	#14 AWG SIS
0619	CR2, DOWN	#14 AWG SIS
0620	DOWN, WU	#14 AWG SIS
0621	WU, WD	#14 AWG SIS
0622	EAST NORMAL-BYPASS SW, EU	#14 AWG SIS
0623	EU, EFU	#14 AWG SIS
0624	ENRML, EBP	#14 AWG SIS
0625	1TB, EAST NORMAL-BYPASS SW	#14 AWG SIS
0626	1TB, EBP	#14 AWG SIS
0627	EBP, ENRML	#14 AWG SIS
0628	WEST NORMAL-BYPASS SW, WU	#14 AWG SIS
0629	WU, WFU	#14 AWG SIS
0630	WNRML, WBP	#14 AWG SIS
0631	1TB, WEST NORMAL-BYPASS SW	#14 AWG SIS
0632	1TB, WBP	#14 AWG SIS
0633	WBP, WNRML	#14 AWG SIS

WIRE ROUTE TABLE

WIRE NO.	ROUTE	WIRE SIZE AND TYPE
0634	1TB, EBRK1, EBRK2, EBP	#14 AWG SIS
0635	1TB, WBRK1, WBRK2, WBP	#14 AWG SIS
0636	WFD, WSD, CR2	#14 AWG SIS
0637	EFU, ENRML	#14 AWG SIS
0638	WFU, WNRML	#14 AWG SIS
0639	1TB, ENRML	#14 AWG SIS
0640	1TB, WNRML	#14 AWG SIS
0701	TEST OVERSPEED SW, TED	#14 AWG SIS
0702	TEST OVERSPEED SW, TWO	#14 AWG SIS
0703	1TB, CR1	#14 AWG SIS
0704	1TB, EAST GATE DOWN BUTTON, ESD, WSD, EGDN	#14 AWG SIS
0705	1TB, GATE OPEN BUTTON	#14 AWG SIS
0706	CR1, EAST GATE DOWN BUTTON	#14 AWG SIS
0707	EGDN, EGUP	#14 AWG SIS
0708	1TB, CR1	#14 AWG SIS
0709	1TB, WEST GATE DOWN BUTTON, ESD, WSD, WGDN	#14 AWG SIS
0710	1TB, GATES OPEN BUTTON	#14 AWG SIS
0711	CR1, WEST GATE DOWN BUTTON	#14 AWG SIS
0712	WGDN, WGUP	#14 AWG SIS
0713	1TB, ETB	#14 AWG SIS
0714	1TB, WTB	#14 AWG SIS
0715	1TB, EGDN	#14 AWG SIS
0716	1TB, EGDN	#14 AWG SIS
0717	1TB, EGUP	#14 AWG SIS
0718	1TB, EGUP	#14 AWG SIS
0719	1TB, WGDN	#14 AWG SIS
0720	1TB, WGDN	#14 AWG SIS
0721	1TB, WGUP	#14 AWG SIS
0722	1TB, WGUP	#14 AWG SIS
0723	GATE OPEN BUTTON, EGDN, ESD, WSD	#14 AWG SIS
0724	GATE OPEN BUTTON, WGDN, ESD, WSD	#14 AWG SIS
0801	1TB, HORN BUTTON	#14 AWG SIS
0802	1TB, 50 MPH	#14 AWG SIS

DRAWING NO E-14

Krech & Ojard
Consulting Engineers, P.A.

I HEREBY CERTIFY THAT THIS PLAN SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
A. K. Ojard
REG. NO. 009472 DATE 2/11/91

MINNESOTA SLIP BRIDGE
CONTROL PANEL WIRE ROUTE TABLE

RELEASE DATE: 2/11/91
REVISIONS:

PROJECT NO.
DRAWN BY: GRL
CHECKED BY:

SHEET:

E14
OF
14