

CONSTRUCTION SPECIFICATIONS

July 28, 2014

Project #: P14-08-EB

Bid #: 14-23DS

Bid Opening Date: Friday, August 15, 2014 @ 2:00pm CST

Wade Stadium Improvements Phase 1: Field and Lighting Duluth, MN

City of Duluth

Property and Facilities Management
1532 W Michigan Street
Duluth, MN 55806
(218) 730-4434

11 East Superior Street, Suite 340
Duluth, MN 55802
218.724.8578
tkda.com



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Duluth, MN 55802
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tkda.com

DULUTH, MINNESOTA

July 28, 2014

**CITY OF DULUTH, MINNESOTA
WADE STADIUM IMPROVEMENTS
PHASE 1**

CERTIFICATIONS

I hereby certify that Division 26 of these Specifications was prepared by me or under my direct supervision and that I am a duly Licensed Engineer under the laws of the State of Minnesota.

Christopher J. Leiter, PE
Reg. No. 47889

A handwritten signature in black ink, reading 'Christopher J. Leiter', written over a horizontal line.

I hereby certify that Divisions 3, 4 and 5 of these Specifications were prepared by me or under my direct supervision and that I am a duly Licensed Engineer under the laws of the State of Minnesota.

C. Brett Morse, PE
Reg. No. 25469

A handwritten signature in black ink, reading 'C. Brett Morse', written over a horizontal line.

I hereby certify that Divisions 01, 11, 31, 32 and 33 of these Specifications were prepared by me or under my direct supervision and that I am a duly Licensed Engineer under the laws of the State of Minnesota.

David Salo, PE
Reg. No. 18553

A handwritten signature in blue ink, reading 'David Salo', written over a horizontal line.

I hereby certify that Divisions 11 and 32 of these Specifications were prepared by me or under my direct supervision and that I am a duly Licensed Registered Landscape Architect under the laws of the State of Minnesota.

Richard Gray, ASLA
Reg. No. 16346

A handwritten signature in blue ink, reading 'Richard Gray', written over a horizontal line.

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Date: July 28, 2014

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CITY OF DULUTH INVITATION TO BID

PROJECT NAME/DESCRIPTION: Wade Stadium Improvements – Phase I: Field and Lighting

PROJECT NUMBER: P14-08-EB

BID NUMBER: 14-23DS

Sealed bids will be received by the City Purchasing Agent in and for the Corporation of the City of Duluth, Minnesota in Room 100 City Hall, Duluth, Minnesota 55802, (218) 730-5340 at 2:00 p.m., local time on Friday, August 15, 2014, for the Wade Stadium Improvements – Phase I: Field and Lighting; immediately thereafter, bids will be taken to Room 106A City Hall where they will be publicly opened and read aloud.

NOTICE TO BIDDERS:

1. **A Project Labor Agreement (PLA) will be required for any bid that is over or could virtually go over \$150,000.**
2. **Unless a 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. Submit a signed copy from the State of Minnesota 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
3. **A mandatory pre-bid meeting and walk-thru of the site will take place at 10am, Tuesday August 5th, onsite at Wade Stadium.**

This advertisement is also available on the City of Duluth website at
http://www.duluthgov.info/db_frames/bid_information.cfm

ONLY IF REQUIRED – Each bidder must review the 2014 edition of the City of Duluth Public Works/Utilities Department – Engineering Division Standard Construction Specifications on the city website (www.duluthmn.gov) as these Specifications are incorporated by reference and deemed to be a part of this project as if fully incorporated and set forth herein.

In general, this project consists of: Site work in preparation for artificial turf, coordination with turf supplier/installer, removal of existing stadium lighting for replacement with new, brick restoration and masonry wall reconstruction, replacement of stadium seating, purchase of field maintenance equipment, purchase and installation of a new scoreboard, painting and miscellaneous repair of stadium.

The purchase and installation of the artificial turf is under a separate contract with AstroTurf. The awarded bidder of this contract will coordinate the schedule with AstroTurf and will comply with AstroTurf's stringline check of the planarity of the stone base to ensure it meets required tolerances.

Qualified bidders will meet the project completion date of April 1, 2015. Coordination with AstroTurf is critical to completing this project on time. Enough time must be allotted AstroTurf to complete the installation of the artificial turf to meet our schedule. Liquidated damages of \$1,000 per day will be assigned to the awarded contractor for each day after April 1, 2015 the project is extended.

Please note that due a very tight construction schedule, we ask that all bidders be prepared to provide payment and performance bonds immediately upon award of the bid. The City intends to aware the bid upon opening of the bids, after review and verification of bids takes place.

Proposal forms, contract documents, plans and specifications as prepared by the firm of TKDA are on file at the following offices: City Purchasing Office; City Architect's Office; Duluth Builder's Exchange; McGrawhill Construction; Minnesota Builder's Exchange; Reed Construction Data, and the office of TKDA, 11 East Superior Street, Suite 340. Duluth, MN 55802.

Copies of these plans and specifications may be obtained from Sheldon Planroom, 124 E Superior St, Duluth, MN 55802. Copies of bidding documents may be obtained by purchase from Sheldon's.

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 percent (5%) of the total bid, shall be submitted with each bid.

Attention is called to the fact that not less than the minimum salaries, wages and benefits as set forth in the contract documents must be paid on this project. 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 disadvantage business enterprises when possible.

The City of Duluth reserves the right to reject any or all bids or to waive any informality in the bidding. Bids may be held by the City of Duluth for a period not to exceed thirty (30) days from the date of opening the bids for the purpose of reviewing the bids and investigating the qualifications of the bidders, prior to awarding the contract.

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

CITY OF DULUTH

Dennis Sears
Purchasing Agent

INSTRUCTIONS TO BIDDERS

1. Use of Separate Bid Forms. These contract documents include a complete set of bidding and contract forms which are for the convenience of bidders and are not to be detached from the contract document, filled out, or executed. Separate copies of bid forms are furnished for that purpose.
2. Interpretations or Addenda. No oral interpretation will be made to any bidder as to the meaning of the contract documents or any part thereof. Every request for such an interpretation shall be made in writing and emailed to *Ken Johnson, TKDA*: ken.johnson@tkda.com. Any inquiry received seven or more days prior to the date fixed for opening of bids will be given consideration. Every interpretation made to a bidder will be in the form of an addendum to the contract documents, and when issued, will be on file in the offices of the Purchasing Agent and City Architect at least five days before bids are opened. In addition, all addenda will be emailed to each person holding contract documents, but it shall be the bidder's responsibility to make inquiry as to the addenda issued. All such addenda shall become part of the contract, and all bidders shall be bound by such addenda, whether or not received by the bidders.
3. Inspection of Site. Each bidder should visit the site of the proposed work and become fully acquainted with the existing conditions there relating to construction and labor, and should fully understand the facilities involved, the difficulties, and the restrictions attending the performance of the contract. The bidder should thoroughly examine and become familiar with the drawings, technical specifications, and all other contract documents. The contractor, by the execution of the contract, shall in no way be relieved of any obligation under it due to failure to receive or examine any form or legal instrument or to visit the site and become acquainted with the conditions there existing; and the City of Duluth will be justified in rejecting any claim based on facts regarding the failure to do so.
4. Alternative Bids. No alternative bids will be considered unless alternative bids are specifically requested by the technical specifications.
5. Bids.
 - a. All bids must be submitted on forms supplied by the City of Duluth Purchasing Agent and shall be subject to all requirements of the contract documents, including the drawings, and these Instructions to Bidders. All bids must be regular in every respect; and no interlineations, excisions, or special conditions shall be made or included in the bid form by the bidder.
 - b. Bid documents including the bid and the bid guaranty shall be enclosed in an envelope which shall be sealed and clearly labeled with the project number, if any, name of bidder, and date and time of bid opening, in order to guard against premature opening of the bid. If proposal is mailed, this envelope shall be placed in another envelope which shall be sealed and labeled with project number, if any, name of bidder, and date and time of bid opening -- and addressed to City of Duluth Purchasing Agent, 100 City Hall, Duluth, Minnesota 55802.

c. The City of Duluth may consider as irregular any bid on which there is an alteration of or departure from the bid form hereto attached, and at its option may reject the same.

d. If the project is awarded, it will be awarded by the City of Duluth to the lowest responsible bidder assuming that the bids are within funds available based on the lowest base bid and or in combination with selected alternates (if any). The alternates will be accepted in numerical priority order, as shown on the bid form. By the award of the contract, it is assumed that the work will be completed within the time-frame as specified within the contract documents.

e. Each bidder shall include in the bid the following information:

Principals -- Names
Social Security Numbers
Home Addresses, including city, state, & zip code

Firm -- Name
Treasury Number
Address
City, State & Zip Code

Mechanical & Electrical Subcontractors -- Names of firms that will do the mechanical and electrical work and the amounts of the mechanical and electrical sub-bids, if applicable and when (where indicated on Bid Proposal Form).

6. Bid Guaranty.

a. The bid must be accompanied by a bid guaranty which shall not be less than five percent (5%) of the amount of the bid. At the option of the bidder, the guaranty may be a certified check, bank draft, negotiable U.S. Government bond (at par value), or a bid bond. No bid will be considered unless it is accompanied by the required guaranty. Certified check or bank draft must be made payable to the order of the City of Duluth, Minnesota. Cash deposits will not be accepted. The bid guaranty shall insure the execution of the agreement and the furnishing of the surety bond or bonds by the successful bidder, all as required by the contract documents.

b. Revised bids submitted before the opening of bids, whether forwarded by mail or telegram, if representing an increase in excess of two percent (2%) of the original bid, must have bid guaranty adjusted accordingly; otherwise, the bid will not be considered.

c. Certified checks or bank drafts, or the amount thereof, bid bonds, and negotiable U.S. Government bonds of unsuccessful bidders, will be returned as soon as practical after the opening of bids.

7. Collusive Agreements

a. The successful bidder on each City of Duluth construction project shall be required to execute a City of Duluth non-collusive affidavit to the effect that he has not entered into a collusive agreement with any other person, firm, or corporation in regard to any bid submitted.

b. Before executing any subcontract, the successful bidder shall submit the name of any proposed subcontractor for prior approval, and an affidavit substantially in the form provided in Section 103 of General Conditions hereof.

8. Unit Prices. The unit price for each of the several items in the proposal of each bidder shall include its prorata share of overhead so that the sum of the products obtained by multiplying the quantity shown for each item by the unit price bid represents the total bid. Any bid not conforming to this requirement may be rejected as informal. The special attention of all bidders is called to this provision; for should conditions make it necessary to revise the quantities, no limit will be fixed for such increased or decreased quantities nor extra compensation allowed, provided the net monetary value of all such additive and subtractive changes in quantities of such items of work (i.e., difference in cost) shall not increase or decrease the original contract price by more than twenty-five percent (25%), except for work not covered in the drawings and technical specifications as provided for in Section 109 hereof.

9. Corrections. Erasures or other changes in the bids must be explained or noted over the signature of the bidder.

10. Time for Receiving Bids.

a. Bids received prior to the advertised hour of opening will be securely kept, sealed. The officer whose duty it is to open them will decide when the specified time has arrived, and no bid received thereafter will be considered.

11. Opening of Bids. At the time and place fixed for the opening of bids, the City Purchasing Agent will cause to be opened and publicly read aloud every bid received within the time set for receiving bids, irrespective of any irregularities therein. Bidders and other persons properly interested may be present, in person or by representative.

12. Withdrawal of Bids. Bids may be withdrawn by request of the bidder prior to bid opening. The bid guaranty of any bidder withdrawing a bid will be returned promptly.

13. Award of Contract: Rejection of Bids.

a. The contract will be awarded to the responsible bidder submitting the lowest bid complying with the conditions of the Invitation to Bid. The City of Duluth, however, reserves the right to reject any and all such bids and to waive any informality in bids received whenever such rejection or waiver is in its interest.

b. The City of Duluth reserves the right to consider as unqualified to do the work of general construction, any bidder who does not habitually perform with his own forces the major portions of the work involved in construction of the improvements embraced in the contract documents.

14. Execution of Agreement: Performance and Payment Bond.

a. Subsequent to the award and within ten (10) days after the prescribed forms are presented for signature, the successful bidder shall execute and deliver to the City of Duluth an agreement in the form as furnished by the City, in such number of copies as the City of Duluth may require.

b. Having satisfied all conditions of award as set forth elsewhere in these documents, the successful bidder shall, within the period specified in paragraph "a" above, furnish:

1) A performance bond for the use and benefit of the City of Duluth to complete the contract according to its terms, and conditioned on saving the City of Duluth harmless from all costs and charges that may accrue on account of completing the specified work; and

2) A payment bond for the use and benefit of all persons furnishing labor and materials for the performance of the contract conditioned upon the payment, as they become due, of all just claims for labor and materials.

Both the performance bond and the payment bond shall be in a penal sum of not less than the amount of the contract awarded. Such bonds shall be in the same form as that included in the contract documents and shall bear the same date as, or a date subsequent to, that of the agreement. A current power of attorney for the person who signs for any surety company shall be attached to such bonds.

c. The failure of the successful bidder to execute such agreement to supply the required bond or bonds within ten (10) days after the prescribed forms are presented for signature, or within such extended period as the City of Duluth may grant, based on reasons determined sufficient by the City of Duluth, shall constitute a default, and the City of Duluth may either award the contract to the next lowest responsible bidder or re-advertise for bids, and may charge against the bidder the difference between the amount of the bid and the amount for which a contract for the work is subsequently executed, irrespective of whether the amount thus due exceeds the amount of the bid bond. If a more favorable bid is received by re-advertising, the defaulting bidder shall have no claim against the City of Duluth for a refund.

15. Wages and Salaries.

a. Attention of bidders is particularly called to the requirements concerning the payment of not less than the prevailing wage and salary rates specified in the contract documents and the conditions of employment with respect to certain categories and classifications of employees.

b. The rates of pay set forth under General Conditions are the minimums to be paid during the life of the contract. It is therefore the responsibility of bidders to inform themselves as to local labor conditions, such as the length of work day and work week, overtime compensations, health and welfare contributions, labor supply, and prospective changes or adjustments of rates.

16. Equal Employment Opportunity. Attention of bidders is particularly called to the requirement

for ensuring that employees and applicants for employment are not discriminated against because of their race, color, religion, sex, or national origin. (See Supplementary General Conditions, Part II, Section II).

17. Employment and Business. Attention of bidders is particularly called to the requirement that, to the greatest extent feasible, opportunities for training and employment made possible by this project shall be given to lower income residents of the City of Duluth. Additionally, efforts should be made, if any work is subcontracted, to award subcontracts to concerns located in or owned in substantial part by persons residing in the City of Duluth.

18. Sales and Use Taxes. It is assumed that, in the preparation of his proposal, the bidder has taken into consideration his liability from any sales, use, or excise tax that might be assessed in the purchase of, storage, use, or consumption of any materials, services, or supplies for performance of the contract work. Any such tax paid by the contractor will be considered as his expense, for which no direct compensation will be made by the City to the contractor over and above the accepted bid.

19. Pre-Bid/Pre-Construction Meetings.

a. Fourteen (14) days prior to bid date, a mandatory pre-bid meeting will be held (see Bid Form for time and place). All prime bidders are requested to attend. All bidders will be allowed to make inquiries regarding the contract documents. All formal decisions will be documented by addendum. Failure of any prime bidders to attend this meeting could jeopardize the contract award.

b. Approximately seven (7) days after City Council approval of contract award, the successful bidder is required to attend a pre-construction meeting. At this meeting, the successful bidder will present his construction schedule, cost breakdown, required submittals, etc.

20. Equal Employment Opportunity (EEO) Affirmative Action Policy Statement and Compliance Certificate.

a. The successful bidder on each City of Duluth construction project shall be required to execute a certificate substantially in the form herein provided.

b. Before executing any subcontract in excess of \$2,500, the successful bidder shall require the subcontractor to execute a form similar in nature to the form herein provided.

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REQUEST FOR BID
Date: July 28, 2014
Project #: P14-08-EB
Bid #: 14-23DS

CITY OF DULUTH

RETURN BY BID OPENING TIME TO:
PURCHASING DIVISION
100 City Hall
Duluth, Minnesota 55802
(218) 730-5000
dsears@duluthmn.gov

WADE STADIUM IMPROVEMENTS PHASE I: FIELD AND LIGHTING

BID OPENING AT: 2:00PM ON FRIDAY, AUGUST 15, 2014

NOTE: All bids must be written, signed and transmitted in a sealed envelope, plainly marked with the Subject Matter and Opening Date. The City of Duluth reserves the right to split award where there is substantial savings to the City, waive informalities and to reject any and all bids. Bidder shall state in proposal if Bid price is based on acceptance of total order. All applicable sales and/or use tax are to be included in the bid pricing. Bid will not be the only consideration for award of Bid. All pages shall be signed or initialed by authorized bidder's representative as indicated at the bottom of the page(s) of the request for bid forms. City Project Contact: Tari Rayala, City of Duluth Architect, (218)730-4434 & trayala@duluthmn.gov. The City of Duluth is an Equal Opportunity Employer.

RETURN BID IN DUPLICATE WITH DUPLICATE DESCRIPTIVE LITERATURE

BID DEPOSIT REQUIREMENTS: 5% of Bid Amount
Deposit shall mean cash, cashier's check, or corporate surety bond payable to or in favor of City of Duluth.

PERFORMANCE and PAYMENT BONDS: Shall be required of the successful bidder. Bonds shall BOTH be in the full amount of the Contract amount.

INSURANCE CERTIFICATE: Shall be required per specified requirements per the attached requirements.

Designated F.O.B. Point:

City Architect

Jobsite(s)

Tax: Federal Excise Exemption

Account Number: 41-74-0056 K

NAME _____

ADDR1 _____

ADDR2 _____

ADDR3 _____

BY: _____

(Print)

Title

(SIGNATURE)

Telephone #

Email

Initial: _____

Date: July 28, 2014

Project #: P14-08-EB

Bid #: 14-23DS

**Wade Stadium Improvements – Phase I: Field and Lighting
Duluth, MN**

The undersigned, having become familiar with the existing conditions on the project affecting the cost of the work, and with the Contract Documents which include the Invitation to Bid, the Contract Agreement Form, the Non-Collusion Affidavit, any/all Addenda, General Conditions (parts I & II), the Special Conditions, Technical Specifications, Drawings (as listed in the schedule of drawings), EEO Affirmative Action Policy Statement & Compliance Certificate, and Form of Surety Bond or Bond as prepared by the City of Duluth and on file in the office of the City Architect and City Purchasing Agent, and hereby proposes to furnish all supervision, technical personnel, labor, materials, machinery, tools, appurtenances, equipment & services, including utilities and transportation services required to complete the Wade Stadium Improvements – Phase I: Field and Lighting by April 1, 2015.

Can you complete this project, including turf installation, by April 1, 2015? Yes_____No_____

LUMP SUM BASE BID: \$_____

Bidder agrees to perform work as describe in the Specification and/or shown on the plans for a Sumof:

(In words - See Additional Page(s) as required)

The Contractor is requested to furnish the information listed below:

PLUMBING SUBCONTRACTOR:

List the name of the proposed plumbing sub-contractor and amount.

HVAC SUBCONTRACTOR:

List the name of the proposed HVAC sub-contractor and amount.

ELECTRICAL SUBCONTRACTOR:

List the name of the proposed electrical sub-contractor and amount.

Initial: _____

Completion Time:

The undersigned hereby affirms & agrees, if awarded a contract, to begin work immediately upon receipt of Notice to Proceed and to substantially complete the work within the time schedule indicated in the Special Conditions, 220 Calendar Days.

Security in the sum of \$ _____ in the form of _____ is submitted herewith in accordance with the Instructions to Bidders, payable without condition to the City of Duluth which is agreed shall be retained as liquidated damages for the delay and extra expense caused the Owner if the undersigned fails to execute the contract and furnish bonds required by the contract documents.

Signed: _____ for

a partnership (or)

a corporation incorporated under the laws of the State of

_____.

President: _____ Vice President: _____

Secretary: _____ Treasurer: _____

Address(es): _____

_____, being duly sworn, deposes and says that there are no other persons comprising above company or firm than the above names, and that there are no persons or corporations interested in the forgoing proposals, either as principal or subcontractor, other than the above names; also that the proposals are made without any connection with any person or persons acting in any official capacity whatever for the City of Duluth is directly or indirectly interested therein, or any portion of the profit thereof.

Subscribed and Sworn to before me this _____ day of _____ A.D., _____,

_____. Notary Public.

Stamp/Seal

Addendum Receipt Acknowledgments:

Addendum #: _____	Dated: _____	_____ (initial)
Addendum #: _____	Dated: _____	_____ (initial)
Addendum #: _____	Dated: _____	_____ (initial)
Addendum #: _____	Dated: _____	_____ (initial)
Addendum #: _____	Dated: _____	_____ (initial)

Initial: _____

PURCHASE ORDER TERMS AND CONDITIONS

1. **ACCEPTANCE.** ACCEPTANCE OF THIS ORDER BY SELLER IS EXPRESSLY LIMITED TO THE TERMS AND CONDITIONS CONTAINED IN THIS ORDER. ANY TERM OR CONDITION STATED BY THE SELLER IN ANY PRIOR PROPOSAL, ON SELLER'S ACKNOWLEDGEMENT FORM, OR IN OTHERWISE ACKNOWLEDGING OR ACCEPTING THIS ORDER IS DEEMED BY BUYER TO BE A MATERIAL ALTERATION OF THIS ORDER AND IS HEREBY OBJECTED TO BY BUYER. ANY SUCH TERM OR CONDITION SHALL BE TOTALLY INAPPLICABLE TO THIS ORDER UNLESS SPECIFICALLY AGREED TO IN A WRITING SIGNED BY AN AUTHORIZED REPRESENTATIVE OF BUYER. ACCEPTANCE OF THE GOODS OR SERVICES COVERED BY THIS ORDER WILL NOT CONSTITUTE ACCEPTANCE BY BUYER OF SELLER'S TERMS AND CONDITIONS. ANY OF THE FOLLOWING ACTS BY SELLER SHALL CONSTITUTE ACCEPTANCE OF THIS ORDER AND ALL OF ITS TERMS AND CONDITIONS: SIGNING AND RETURNING A COPY OF THIS ORDER; DELIVERY OF ANY OF THE GOODS ORDERED; INFORMING THE BUYER IN ANY MANNER OF COMMENCEMENT OF PERFORMANCE; OR RETURNING SELLER'S OWN FORM OF ACKNOWLEDGEMENT.
2. **PRICE.** If price (either fixed price or hourly rate(s) in case of a time and material order) and/or delivery is not specified by Buyer on the face of this order, Seller shall immediately submit its best price, delivery date and/or schedule which shall be subject to Buyer's approval and acceptance. Seller warrants that the prices and other terms for the articles sold to Buyer under this order are not less favorable than those extended to all other customers for the same or like articles in equal or less quantities. In the event Seller reduces its price for such articles during the term of this order, Seller agrees to reduce the prices hereof accordingly. If this order is on a time and material basis, the following shall apply: price shall be (a) material at Seller's cost, less scrap, without any charge for handling or otherwise, plus (b) time at agreed hourly rate(s). If both engineering work and manufacturing work are involved, separate hourly rates shall be specified for each thereof. No overtime shall be employed in the performance of this order without Buyer's prior consent and unless separate overtime hourly rate(s) have been specified and agreed upon. No substantial portion of the order shall be subcontracted by Seller without Buyer's written consent. Seller shall maintain adequate accounting records in accordance with generally accepted accounting practice to substantiate all costs, which records shall be open to examination by Buyer at all reasonable times.
3. **PACKING AND SHIPPING.** If Goods are to be delivered under this order, the cost and fee negotiated for this order are deemed to include all packaging and/or storage cost. All Goods shall be packaged, marked, and otherwise prepared in accordance with good commercial practices to obtain lowest shipping rates. On containers, Seller shall mark handling and loading instructions, shipping information, order number, item and account number, shipment date, and names and addresses of Seller and Buyer. An itemized packing list shall accompany each shipment. Overshipments shall be returned to Seller at Seller's risk and expense. Early shipments may, at option of Buyer, be returned to Seller at Seller's risk and expense or may be retained by Buyer and Buyer shall not be liable for payment until the time originally scheduled hereon.
4. **F.O.B. AND RISK OF LOSS.** Unless otherwise specified on the face of this order, the F.O.B. point shall be Buyer's location designated on the face of this order. If transportation is F.O.B. Seller's location, Seller shall bear all risk of loss or damage to the Goods until delivery of the Goods to the carrier. If transportation is F.O.B. Buyer's location, Seller shall bear all risk of loss or damage to the Goods until delivery of the Goods to Buyer's location.
5. **INVOICING.** All invoices shall be rendered in duplicate unless otherwise specified and shall be rendered within 24 hours after each shipment. Taxes, freight and similar charges shall be shown separately. Each invoice shall be accompanied by bill of lading or express receipt. Payments shall be subject to adjustment for errors, shortages, rejections and other causes. Discount period, if any, shall commence on the date invoice is received or goods are received, whichever is later. Buyer secures blanket coverage on all inbound freight. Invoice charges for additional insurance will not be honored unless otherwise specified.
6. **INSPECTION.** All material and workmanship shall be subject to inspection and test by Buyer, both at plant of Seller and of Buyer. Payment shall be subject to final inspection at Buyer's plant. Buyer shall have the right to reject all goods not conforming to specifications or containing defective material or workmanship. Rejected goods shall be returned at Seller's expense and risk, including transportation both ways, promptly after notification of rejection. Buyer may elect to retain defective goods and to remedy defects and deduct cost of remedying same from amount due Seller. Seller warrants that goods shall be produced under a quality control system that provides at a minimum for the prevention and ready detection of discrepancies and for timely and positive corrective action. Seller warrants that he has or is able to obtain the best facilities necessary to meet the technical and regulatory requirements specified. Seller warrants that quality control records are maintained on file for a minimum of one year from date of shipment or as otherwise specified by contract. Buyer reserves the right, upon 72 hours notice, to audit the Seller's facilities and inspection records in connection with this order.
7. **WARRANTY.** In addition and without prejudice to all other warranties expressed or implied by law, Seller warrants that all material or goods covered by this order shall conform to drawings, specifications and other defects. All warranties, both expressed and implied, also constitute conditions and shall survive inspection, acceptance and payment and shall inure to the benefit of Buyer and its customers. Without limitation of any rights by reason of any breach of warranty or otherwise, material or goods which are not as warranted may at any time be returned to Seller at Seller's expense for credit, correction or replacement as Buyer may direct.
8. **COMPLIANCE WITH LAWS.** Seller shall comply with all federal, state, and local laws, ordinances, rules and regulations in the manufacture and sale of the Goods and performance of the Services, including but not limited to the Occupational Safety and Health Act, the Truth in Negotiation Act, the Resources Conservation and Recovery Act and all applicable requirements of the Fair Labor Standards Act. Seller will defend and hold Buyer harmless from any loss, damages, or costs arising from or caused in any way by any actual or alleged violation of any federal, state, or local law, condition, rule, or regulation, or failure by the Seller to (i) have any chemical substances sold hereunder included in the list of approved chemical substances published by the Environmental Protection Agency pursuant to the Toxic Substances Control Act or (ii) provide a completed Material Safety Data Sheet (OSHA Form 20 equivalent) for any chemical substances sold hereunder as required by any federal, state or local law, ordinance, rule or regulation.
9. **CHANGES.** Buyer may, at any time by written order, make changes in drawings, designs, specifications, method of shipment or packing, time or place of delivery, require additional work, or direct the omission of work covered by this order. If any such change causes an increase or decrease in the price under this order, or in the time required for performance, an equitable adjustment shall be made and this order shall be modified in writing accordingly. Any claim for adjustment under this provision must be asserted within 10 days from date this change is ordered and the amount of such claim must be stated in writing within 30 days thereafter.
10. **BUYER'S PROPERTY, MATERIALS, AND EQUIPMENT.** If Buyer furnishes Seller material or "equipment" ("Equipment" is defined as special dies, molds, jigs, tools, gages, test equipment, masks, etc), or pays for such material or "equipment", title thereto shall remain or vest in Buyer, and Seller shall identify, maintain and preserve such material and "equipment" and shall dispose of it (including scrap) in accordance with Buyer's direction. Such material and "equipment", and whenever practical such individual item thereof shall be plainly marked or otherwise adequately identified by Seller as "property of the City of Duluth" and shall be safely stored separate and apart from Seller's property. Seller shall not substitute any property for Buyer's property. Unless otherwise authorized in writing by Buyer, Seller shall use such material or "equipment" only in the performance of purchase orders for Buyer. Seller shall be responsible for any loss, damage, or destruction to such material or "equipment" but Seller shall not include any insurance costs therefore in the cost charged under this order. Also, the "equipment" required to produce the supplies under this order is for the exclusive use of the City of Duluth and is subject to recall upon written notice.
11. **ASSIGNMENT.** Seller shall not assign this order or any rights under this order without the prior written consent of Buyer, and no purported assignment by Seller shall be binding on Buyer without such written consent.
12. **NOTICE OF LABOR DISPUTES.** Whenever an actual or potential labor dispute delays, or threatens to delay, the timely performance of this order, Seller shall immediately notify Buyer in writing of all relevant information with respect to such dispute.
13. **TERMINATION.** (a) Termination Without Cause. Buyer shall have the right, without cause, at any time to terminate all or any part of the undelivered portion of this order by written notice. If Seller has and desires to assert any claim on account of any such termination, Seller shall submit its termination claims to Buyer, in form and with evidence satisfactory to Buyer, promptly, but no later than 90 days after the effective date of the termination. If Seller fails to submit a termination claim within that time, Buyer shall have no liability to Seller on account of the termination. If Seller's termination claim is not acceptable to Buyer and cannot be settled by negotiation, the claim shall be submitted to arbitration. (b) Termination With Cause. If Seller fails to make any delivery in accordance with the agreed delivery date or schedule or terms or conditions applicable to this order, Buyer shall have the right (in addition to any other right or remedy at law or under this agreement) by written notice to terminate all or any part of the undelivered portion of this order without any liability to Seller on account thereof, in the articles elsewhere on such terms and in such manner as Buyer may deem appropriate and Seller shall be liable to Buyer for all excess costs occasioned Buyer thereby.
14. **PATENTS AND COPYRIGHTS.** Seller shall defend, at its own expense, any suit or claim that may be instituted against Buyer or any customer of Buyer for alleged infringement of patents or copyrights relating to the maintenance, sale, or use of the Goods, except for any such infringement resulting from Seller's compliance with detailed designs provided by Buyer, and Seller shall indemnify Buyer and its customers for all costs and damages arising out of such alleged infringement. Buyer shall have the right, at no additional charge, to use and/or reproduce the Seller's applicable literature, such as operating and maintenance manuals, technical publications, prints, drawings, training manuals, and other similar supporting documentation and sales literature. Seller shall advise Buyer of any updated information relative to the foregoing literature and documentation with timely notification in writing.
15. **PUBLIC LIABILITY INSURANCE.** Seller shall hold Buyer and its customer harmless from all injuries, damages and claims arising from performance of work or services covered by this order. Seller shall maintain such insurance as will protect the Seller, the Buyer and his customer from claims under Worker's Compensation Acts and from all other claims for damages, personal injury, or death to employees of the Seller, the Buyer or his Customer, or any other persons which may arise from performance of work or services covered by this order whether performed by the Seller or any Subcontractor or any one directly or indirectly employed by either of them. Certificates of such insurance shall be filed with the Buyer and shall be subject to Buyer's approval for adequacy of protection.
16. **DELAYS.** Time is of the essence. All actual or potential delays of whatever nature must be reported to the Buyer when and as they occur if the event can be expected to result in a delivery later than that shown on the face of this order. Seller agrees to indemnify Buyer for all losses, costs and damages resulting from Seller's delay or failure to deliver.
17. **GENERAL.** This order is formed under and shall be interpreted according to, and governed by, Minnesota law. No waiver by Buyer of any of its rights or remedies hereunder shall be construed as a waiver of any other rights or remedies.

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)

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

TO: City of Duluth, MN **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.

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Withholding Affidavit for Contractors

IC-134

This affidavit must be approved by the Minnesota Department of Revenue before the state of Minnesota or any of its subdivisions can make final payment to contractors.

Please type or print clearly. This will be your mailing label for returning the completed form.

Company Name			Daytime phone	Minnesota tax ID number
Address			[]	
City			Total contract amount	Month/year work began
State			\$	
Zip			Amount still due	Month/year work ended
			\$	

Project number	Project location		
Project owner	Address	City	State

Did you have employees work on this project: ☐ Yes ☐ No If no, who did the work?

Check the box that describes your involvement in the project and fill in all information requested.

☐ **Sole contractor**

☐ **Subcontractor**

Name of contractor who hired you:

Address:

☐ **Prime contractor**- If you subcontracted out any work on this project, all of your subcontractors must file their own IC-134 affidavits and have them certified by the Department of Revenue before you can file your affidavit. For each subcontractor you had, fill in the information below and attach a copy of each subcontractor's certified IC-134. If you need more space, attach a separate sheet.

Business name	Address	Owner/Officer

I declare that all information I have filled in on this form is true and complete to the best of my knowledge and belief. I authorize the Department of Revenue to disclose pertinent information relating to this project, including sending copies of this form, to the prime contractor if I am a subcontractor, and to any subcontractors if I am a prime contractor, and to the contracting agency.

Contractor's signature

Title

Date

Mail to: MN Dept. of Revenue, Withholding Division, Mail Station 6610, St. Paul, MN 55146-6610

Certificate of Compliance

Based on records of the Minnesota Department of Revenue, I certify that the contractor who has signed this certificate has fulfilled all the requirements of Minnesota Statutes 290.92 and 290.97 concerning the withholding of Minnesota income tax from wages paid to employees relating to contract services with the state of Minnesota and/or its subdivisions.

Department of Revenue approval:

Date:

Instructions for Form IC-134

Who must file

If you are a prime contractor, a contractor of a subcontractor who did work on a project for the state of Minnesota of any of its local government subdivisions—such as a county, city, or school district—you must file Form IC-134 with the Minnesota Department of Revenue.

This affidavit must be certified and returned before the state of any of its subdivisions can make final payment for your work.

If you're a prime contractor and a subcontractor on the same project

If you were hired as a subcontractor to do work on a project and you subcontracted all or a part of your portion of the project to another contractor, you are a prime contractor as well. Fill out both the subcontractor and prime contractor areas on a single form.

When to file

The IC-134 cannot be processed until you finish the work. If you submit the form before the project is completed, it will be returned to you unprocessed.

If you are a subcontractor or sole contractor, send in the form when you have completed your part of the project.

If you are a prime contractor, send in the form when the entire project is completed and you have received certified affidavits from all of your subcontractors.

How to file

If you have fulfilled the requirements of Minnesota withholding tax laws, the Department of Revenue will sign your affidavit and return it to you.

If any withholding payments are due to the state, Minnesota law requires certified payments before we approve the IC-134.

Submit the certified affidavit to the government unit for which the work was done to receive your final payment. If you are a subcontractor, submit the certified affidavit to your prime contractor to receive your final payment.

Where to file

Mail to:

MN Dept. of Revenue
Withholding Tax Division
Mail Station 6610
St. Paul, MN 55416-6610

Minnesota tax ID number

You must fill in your Minnesota tax ID number on the form. You must have a Minnesota tax ID number if you have employees who work in Minnesota.

If you don't have a Minnesota ID number, you must apply for one. Call (651) 282-5225 or 1-800-657-3605.

If you prefer, you can get an application (Form ABR) from our web site or by calling or writing us.

If you have no employees and did all the work yourself, you do not need a Minnesota tax ID number. If this is the case, fill in your Social Security number in the space for Minnesota tax ID number and explain who did the work.

The Department of Revenue needs all the information to determine if you have met all state income tax withholding requirements. If all required information is not provided, the IC-134 will be returned to you for completion.

All information on this affidavit is private by state law. It cannot be given to others without your permission, except to the Internal Revenue Service, other states that guarantee the same privacy, and certain government agencies as provided by law.

Information and assistance

If you need help or more information to complete this form, call (651) 282-9999 or 1-800-657-3594.

Additional forms are available on our website at www.taxes.state.mn.us or by calling (651) 296-4444 OR 1-800-657-3676. You can also write for forms at the following address:

Minnesota Tax Forms
Mail Station 1421
St. Paul, MN 55146-1421

TTY users may contact the department through the Minnesota Relay Service at 1-800-627-3529.

We'll provide information in an alternative format upon request to persons with disabilities.

Use of information



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)) 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

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City of Duluth

Indemnification & Insurance Requirements

(Updated February 16, 2011)

(Please Be Sure These Requirements Can Be Met Before Submitting Your Response)

INDEMNIFICATION CLAUSE

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 matter 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.

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 **\$1,500,00** 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.

**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.

Procedure verified by:

_____ Date _____
Don Douglas, Claims Adjuster
Duluth City Attorney’s Office

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

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GENERAL CONDITIONS 4-15-11

PART I

101. DEFINITIONS

Wherever used in any of the Contract Documents, the following meanings shall be given to the terms herein defined:

- a. The term "Contract" means the Contract executed by the City of Duluth in its capacity as agent for the City of Duluth and the Contractor, of which these GENERAL CONDITIONS form a part.
- b. The term "City" means the City of Duluth, Minnesota, which is authorized to undertake this Contract and within which the Project Area is situated or any employee of the City of Duluth designated by the City of Duluth for the purpose of inspecting, directing, or having in charge the work embraced in this Contract.
- c. The term "Contractor" means the person, firm, or corporation entering into the Contract with the City to construct and install the Improvements embraced in this Contract.
- d. The term "Project Area" means site within which is specified Contract limits of the Improvements contemplated to be constructed in whole or in part under this Contract.
- e. The term "Architect" means the architect or engineer licensed to practice architecture or engineering and serving the City with architectural or engineering services, or his authorized representative or successor.
- f. The term "Change Order" means a written order to the Contractor, signed by the City, issued after execution of the Contract, authorizing and directing a change in the Work or an adjustment in the contract sum or the contract time. The contract sum and the contract time may be changed only by Change Order.
- g. The term "Contract Documents" means and shall include the following: Executed Agreement, Addenda (if any), Invitation for Bids, Instructions to Bidders, Signed Copy of Bid, General Conditions, Special Conditions, Technical Specifications, and Drawings (as listed in the Schedule of Drawings), and all requested submittals such as Certificate of Insurance, performance and payment bonds, EEO Affirmative Action Policy Statement & Compliance Certificate, Certificate of Non-Collusion.
- h. The term "Drawings" means the drawings listed in the Schedule of Drawings.
- i. The term "Field Order" means a written interpretation necessary for the proper execution of the Work, in the form of drawings or otherwise issued to the Contractor by the City or the Architect.
- j. The term "Technical Specifications" means that part of the Contract Documents which describes, outlines and stipulates the quality of the materials to be furnished, the quality of workmanship required, and the methods to be used in carrying out the construction work to be performed under this Contract.
- k. The term "Addenda" or "Addendum" means any changes, revisions or clarifications of the Contract Documents which have been duly issued by the City to prospective Bidders prior to time of receiving Bids.
- l. The term "Work" means all labor necessary to produce the construction required by the Contract Documents, and all materials and equipment incorporated in such construction.

102. SUPERINTENDENCE BY CONTRACTOR

- a. Except where the Contractor is an individual and gives his personal superintendence to the work, the Contractor shall provide a competent superintendent, satisfactory to the City and the Architect, on the work at all times during working hours with full authority to act for him. The Contractor shall also provide an adequate staff for the proper coordination and expediting of his work.
- b. The Contractor shall lay out his own work and he shall be responsible for all work executed by him under the Contract. He shall verify all figures and elevations before proceeding with the work and will be held responsible for any error resulting from his failure to do so.

103. SUBCONTRACTS

- a. The Contractor shall not execute an agreement with any subcontractor, or permit any subcontractor to perform any work included in this contract until he has submitted a noncollusion affidavit from the subcontractor in substantially the form attached and has received written approval of such subcontractor from the City.
- b. No proposed subcontractor shall be disapproved by the City except for cause.
- c. The Contractor shall be as fully responsible to the Owner for the acts and omissions of his subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.
- d. The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to require compliance by each subcontractor with the applicable provisions of this Contract.
- e. Nothing contained in this Contract shall create any contractual relationship between the subcontractor and the City.

104. OTHER CONTRACTS

The City may award, or may have awarded, other contracts for additional work, and the Contractor shall cooperate fully with such other Contractors, by scheduling his own work with that to be performed under other Contracts as may be directed by the City. The Contractor shall not commit or permit any act which will interfere with the performance of work by any other Contractor as scheduled.

105. FITTING AND COORDINATION OF THE WORK

The Contractor shall be responsible for the proper fitting of all work and for the coordination of the operations of all trades, subcontractors, or materialmen engaged upon this Contract. He shall be prepared to guarantee to each of his subcontractors the locations and measurements which they may require for the fitting of their work to all surrounding work.

106. MUTUAL RESPONSIBILITY OF CONTRACTORS

If, through acts or neglect on the part of the Contractor, any other Contractor or any subcontractor shall suffer loss or damage on the work, the Contractor shall settle with such other Contractor or subcontractor by agreement or arbitration, if such other Contractor or subcontractor will so settle. If such other Contractor or subcontractor shall assert any claim against the City on account of damage alleged to have been so sustained, the City shall notify this Contractor, who shall defend at his own expense any suit based upon such claim, and, if any judgment or claims against the City shall be allowed, the Contractor shall pay or satisfy such judgment or claim and pay all costs and expenses in connection therewith.

107. PROGRESS SCHEDULE

The Contractor shall submit for approval immediately after execution of the Agreement, a carefully prepared Progress Schedule, showing the proposed dates of starting and of completing each of the various sections of the work, the anticipated monthly payments to become due the Contractor and the accumulated percent of progress each month.

108. PAYMENTS

1) Partial Payments.

- a. The Contractor shall prepare his requisition of partial payment as of the last day of the month and submit it, with the required number of copies, to the City contracting officer for his approval. The amount of the payment due the Contractor shall be determined by adding to the total value of work completed to date, the value of materials properly stored on the site and deducting (1) five percent (5%) of the total amount, this sum

to be retained until final payment and (2) the amount of all previous payments. The total value of the work completed to date shall be based on the estimated quantities of work completed and on the unit prices contained in the agreement. The value of materials properly stored on site shall be based upon the estimated quantities of such materials and the invoice prices. Copies of all invoices shall be available for the inspection of the Architect and the City.

b. Monthly or partial payments made by the City to the Contractor are moneys advanced for the purpose of assisting the Contractor to expedite the work of construction. The Contractor shall be responsible for the care and protection of all materials and work upon which payments have been made until final acceptance of such work and materials by the City. Such payments shall not constitute a waiver of the right of the City to require the fulfillment of all terms of the Contract and the delivery of all improvements embraced in this Contract complete and satisfactory to the City in all details.

2) Final Payment.

a. After final inspection and acceptance by the Architect and the City of all work under the Contract, the Contractor shall prepare his requisition for final payment which shall be based upon the carefully measured and computed quantity of each item of work at the applicable unit prices stipulated in the Agreement. The total amount of the final payment due the Contractor under this Contract shall be the amount computed as described above less all previous payments. Final payment to the Contractor shall be made subject to his furnishing the City with a release in satisfactory form of all claims against the City arising under and by virtue of his contract, other than such claims, if any, as may be specifically excepted by the Contractor from the operation of the release as provided under Section 113 hereof.

b. The City, before paying the final estimate, may require the Contractor to furnish releases or receipts from all subcontractors having performed any work and all persons having supplied materials, equipment (installed on the Project) and services to the Contractor, if the City deems the same necessary in order to protect its interest. The City, however, may if it deems such action advisable make payment in part or in full to the Contractor without requiring the furnishing of such releases or receipts and any payments so made shall in no way impair the obligations of any surety or sureties furnished under this Contract.

c. Withholding of any amount due the City under Section 403, entitled "Liquidated Damages," under SPECIAL CONDITIONS, shall be deducted from the final payment due the Contractor.

3) Withholding Payments

The City may withhold from any payment otherwise due the Contractor so much as may be necessary to protect the City and, if it so elects, may also withhold any amounts due from the Contractor to any subcontractors or material dealers for work performed or material furnished by them. The foregoing provisions shall be construed solely for the benefit of the City and will not require the City to determine or adjust any claims or disputes between the Contractor and his subcontractors or material dealers, or to withhold any moneys for their protection unless the City elects to do so. The failure or refusal of the City to withhold any moneys from the Contractor shall in no wise impair the obligations of any surety or sureties under any bond or bonds furnished under this Contract.

4) Payments Subject to Submission of Certificates.

Each payment to the Contractor by the City shall be made subject to submissions by the Contractor of all written certifications required of him and his subcontractors by Section II, Part II Supplementary General Conditions for Federally, State of Minnesota, and/or City Assisted Activities.

109. CHANGES IN THE WORK

a. The City may make changes in the scope of work required to be performed by the Contractor under the Contract by making additions thereto, or by omitting work therefrom, without invalidating the Contract, and

without relieving the Contractor from any of his obligations under the Contract or any guarantee given by him pursuant to the Contract provisions, and without affecting the validity of the guaranty bonds, and without relieving or releasing the surety or sureties of said bonds. All such work shall be executed under the terms of the original Contract unless is expressly provided otherwise.

b. Except for the purpose of affording protection against any emergency endangering health, life, or property, the Contractor shall make no change in the materials used or in the specified manner of constructing and/or installing the Improvements or supply additional labor, services, or materials beyond that actually required for the execution of the Contract, unless in pursuance of a written order from the City authorizing the Contractor to proceed with the change. No claim for an adjustment of the Contract Price will be valid unless so ordered.

c. If applicable unit prices are contained in the Agreement (established as a result of either a unit price bid or a Supplement Schedule of Unit Prices), the City shall order the Contractor to proceed with desired changes in the work, the value of such changes to be determined by the measured quantities involved and the applicable unit prices specified in the Contract; provided that, in case of a unit price contract the net value of all changes does not increase or decrease the original total amount shown in the Agreement by more than twenty-five percent (25%) in accordance with Section entitled Unit Prices, under INSTRUCTIONS TO BIDDERS.

d. If applicable unit prices are not contained in the Agreement or if the total net change increases or decreases the total Contract Price more than twenty-five (25%), the City shall, before ordering the Contractor to proceed with desired changes, request an itemized proposal from him covering the work involved in the change after which the procedure shall be as follows:

(1) If the proposal is acceptable, the City will prepare the change order in accordance therewith for acceptance by the Contractor.

(2) If the proposal is not acceptable and prompt agreement between the two parties cannot be reached, the City may order the Contractor to proceed with the work on a cost-plus limited basis; provided that this basis shall not apply to costs incurred by Contractor for any work done by any subcontractor, which work may proceed under the basis set forth in sub-subparagraph (3) below. A cost-plus-limited basis is defined as the net cost of the Contractor's labor, materials, and insurance plus fifteen percent (15%) of said net cost to cover overhead and profit, the total cost not to exceed a specified limit.

(3) If the proposal of the Contractor is not acceptable in whole or part because of the proposals of one or more of the subcontractors and prompt agreement between the two parties cannot be reached, the City may order the Contractor to proceed with the work and reimburse Contractor for work done by any subcontractor on the basis of that subcontractor's net cost of labor, materials, and insurance plus twenty percent (20%) of said net cost to cover overhead and profit, the total cost not to exceed a specified limit. Contractor shall supply all data to City which is necessary to determine any such subcontractor's net costs.

e. Each change order shall include in its final form:

(1) A detailed description of the change in the work.

(2) The Contractor's proposal (if any) of a confirmed copy thereof.

(3) A definite statement as to the resulting change in the Contract price and/or time.

(4) The statement that all work involved in the change shall be performed in accordance with the Contract requirements except as modified by the change order.

110. CLAIMS FOR EXTRA COST

a. If the Contractor claims that any instructions by Drawings or otherwise involve extra cost or extension of time, he shall, within ten (10) days after the receipt of such instructions, and in any event, before proceeding to execute the work, submit his protest thereto in writing to the City, stating clearly and in detail the basis of his objections. No such claim will be considered unless so made.

b. Claims for additional compensation for extra work, due to alleged errors in ground elevations, contour lines, or bench marks, will not be recognized unless accompanied by certified survey data, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling

more material, or performing more work, than would be reasonably estimated from the Drawings and maps issued.

c. Any discrepancies which may be discovered between actual conditions and those represented by the documents shall at once be reported to the City and work shall not proceed, except at the Contractor's risk, until written instructions have been received by him from the City.

d. If, on the basis of the available evidence, the City determines that an adjustment of the Contract Price and/or time is justifiable, the procedure shall then be as provided in Section 109 hereof.

111. TERMINATION, DELAYS, AND LIQUIDATED DAMAGES

a. Termination of Contract.

If the Contractor refuses or fails to execute the work with such diligence as will insure its completion within the time specified in these Contract Documents, or as modified as provided in these Contract Documents, the City, by written notice to the Contractor, may terminate the Contractor's right to proceed with the work. Upon such termination, the City may take over the work and prosecute the same to completion, by contract or otherwise, and the Contractor and his sureties shall be liable to the City for any additional cost incurred by the City in its completion of the work and they shall also be liable to the City for liquidated damages for any delay in the completion of the work as provided below. If the Contractor's right to proceed is terminated, the City may take possession of and utilize in completing the work such materials, tools, equipment, and plant as may be on the site of the work and necessary therefore.

b. Liquidated Damages for Delays.

If the work is not completed within the time stipulated in Section 7 (Special Conditions) hereof, including any extensions of time for excusable delays as herein provided, the Contractor shall pay to the City as fixed, agreed, and liquidated damages (it being impossible to determine the actual damages occasioned by the delay) for each calendar day of delay, until the work is completed, the amount as set forth in Section 7 (Special Conditions) hereof and the Contractor and his sureties shall be liable to the City for the amount thereof.

c. Excusable Delays.

The right of the Contractor to proceed shall not be terminated nor shall the Contractor be charged with liquidated damages for any delays in the completion of the work due: (1) To any acts of the Government, including controls or restrictions upon or requisitioning of materials, equipment, tools, or labor by reason of war, National Defense, or any other national emergency;

(2) To any acts of the City;

(3) To causes not reasonably foreseeable by the parties to this Contract at the time of the execution of the Contract which are beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God or of the public enemy, acts of another Contractor in their performance of some other contract with the City, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and weather of unusual severity such as hurricanes, tornadoes, cyclones, and other extreme weather conditions; and

(4) To any delay of any subcontractor occasioned by any of the causes specified in subparagraphs (1), (2) and (3) of this paragraph "c". Provided, however, that the Contractor promptly notify the City in writing within ten (10) days the cause of the delay. Upon receipt of such notification, the City shall ascertain the facts and the cause of the delay. If, upon the basis of facts and the terms of the Contract, the delay is properly excusable, the City shall extend the time for completing the work for a period of time commensurate with the period of excusable delay.

112. ASSIGNMENT OR NOVATION

The Contractor shall not assign or transfer, whether by an assignment or novation, any of its rights, duties, benefits, obligations, liabilities, or responsibilities under this Contract without the written consent of the City; provided, however, that assignments to banks, trust companies, or other financial institutions may be made

without the consent of the City. No assignment or novation expressly provides that the assignment of any of the Contractor's rights or benefits under the Contract is subject to a prior lien for labor performed, services rendered, and materials, tools, and equipment supplied for the performance of the work under this Contract in favor of all persons, firms, or corporations rendering such labor or services or supplying such materials, tools, or equipment.

113. DISPUTES

a. All disputes arising under this Contract or its interpretation, whether involving law or fact or both, or extra work, and all claims for alleged breach of contract shall, within ten (10) days of the first event giving rise to the dispute, be presented by the Contractor to the City for decision. All papers pertaining to claims shall be filed in quadruplicate. Such notice need not detail the amount of the claim but shall state the facts surrounding the claim in sufficient detail to identify the claim together with its character and scope. In the meantime, the Contractor shall proceed with the work as directed by the City. Any claim not presented within the time limit specified within this paragraph shall be deemed to have been waived, except that if the claim is of a continuing character and notice of the claim is not given within ten (10) days of the first event giving rise to it, the claim will be considered only for a period commencing ten (10) days prior to the receipt by the City of notice thereof.

b. The Contractor shall submit in detail his claim and his proof thereof. Each decision by the City will be in writing and will be mailed to the Contractor by registered or certified mail, return receipt requested, directed to his last known address or actually delivered to Contractor or its managing agent. All interpretations or decisions of the City shall be consistent with the Contract and its intent.

c. If the Contractor does not agree with any decision of the City, he shall in no case allow the dispute to delay the work but shall notify the City promptly that he is proceeding with the work under protest and he may then accept the matter in question from the final release. If the Contractor does not agree with any decision of the City, he may submit the matter to arbitration no later than thirty (30) days after the date on which the Contractor received the City's decision; provided, however, that the City shall not be required to submit to arbitration without its prior written consent; and if the City does consent to arbitration, then the Contractor shall pay all costs of such arbitration.

114. TECHNICAL SPECIFICATIONS AND DRAWINGS

Anything mentioned in the Technical Specifications and not shown on the Drawings or shown on the Drawings and not mentioned in the Technical Specifications, shall be of like effect as if shown on or mentioned in both. In case of difference between Drawings and Technical Specifications, the Technical Specifications shall govern. In case of any discrepancy on Drawings or Technical Specifications, the matter shall be immediately submitted to the City, without whose decision, said discrepancy shall not be adjusted by the Contractor, save only at his own risk and expense.

115. SHOP DRAWINGS

a. All required shop drawings, machinery details, layout drawings, etc. shall be submitted to the Architect or the City, as directed by the City, in two copies for approval sufficiently in advance of requirements to afford ample time for checking, including time for correcting, resubmitting and rechecking if necessary. The Contractor may proceed, only at his own risk, with manufacture or installation of any equipment or work covered by said shop drawings, etc. until they are approved and no claim, by the Contractor, for extension of the Contract time will be granted by reason of his failure in this respect.

b. Any drawing submitted without the Contractor's stamp of approval will not be considered and will be returned to him for proper resubmission. If any drawings show variations from the requirements of the Contract because of standard shop practice or other reason, the Contractor shall make specific mention of such variation in his letter of transmittal in order that, if acceptable, suitable action may be taken for proper

adjustment of contract price and/or time, otherwise the Contractor will not be relieved of the responsibility for executing the work in accordance with the Contract even though the drawings have been approved.

c. If a shop drawing with the Contractor involves only a minor adjustment in the interest of the City not involving a change in Contract price or time, the Architect may approve the drawing. The approval shall be general, shall not relieve the Contractor from his responsibility for adherence to the Contract or for any error in the drawing and shall contain in substance the following: "The modification shown on the attached drawing is approved in the interest of the City to effect an improvement for the Project and is ordered with the understanding that it does not involve any change in the Contract price or time; that it is subject generally to all Contract stipulation and covenants; and that it is without prejudice to any and all rights of the City under the Contract and surety bond or bonds."

116. REQUEST FOR SUPPLEMENTARY INFORMATION

It shall be the responsibility of the Contractor to make timely requests of the City for any additional information not already in his possession which should be furnished by the City under the terms of this Contract, and which he will require in the planning and execution of the work. Such requests may be submitted in writing from time to time as the need is approached, but each shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay. Each request shall be in writing, and list the various items and the latest date by which each will be required by the Contractor. The first list shall be submitted within two (2) weeks after Contract award and shall be as complete as possible at that time. The Contractor shall, if requested, furnish promptly any assistance and information the City may require in responding to these requests of the Contractor. The Contractor shall be fully responsible for any delay in his work or to others arising from his failure to comply fully with the provisions of this Section.

117. MATERIALS AND WORKMANSHIP

a. Unless otherwise specifically provided for in the Technical Specifications, all workmanship, equipment, materials and articles incorporated in the work shall be new and the best grade of the respective kinds for the purpose. Where equipment, materials, articles or workmanship are referred to in the Technical Specifications as an equal to any particular standard, the City shall decide the question of equality.

b. The Contractor shall furnish to the City for approval the manufacturer's detailed specifications for all machinery, mechanical and other special equipment, which he contemplates installing together with full information as to type, performance characteristics, and all other pertinent information as required, and shall likewise submit for approval as required full information concerning all other materials or articles which he proposes to incorporate in the work. (See Section 118 hereof)

c. Machinery, mechanical and other equipment, materials or articles installed or used without such prior approval shall be at the risk of subsequent rejection.

d. Materials specified by reference to the number or symbol of a specific standard, such as A.S.T.M. Standard, a Federal Specification or other similar standard, shall comply with requirements in the latest revision thereof and any amendment or supplement thereto in effect on the date of the Invitation for Bids, except as limited to type, class or grade, or modified in such reference. The Standards referred to, except as modified in the Technical Specifications shall have full force and effect as though printed therein.

e. The City may require the Contractor to dismiss from the work such employee or employees as the City may deem incompetent, or careless, or insubordinate.

118. SAMPLES, CERTIFICATES AND TESTS

a. The Contractor shall submit all material or equipment samples, certificates, affidavits, etc. as called for in the Contract Documents or required by the Architect, promptly after award of the Contract and acceptance of the Contractor's Bond. No such material or equipment shall be manufactured or delivered to the site, except at the Contractor's own risk, until the required samples or certificates have been approved in writing by the

City or the Architect. Any delay in the work caused by late or improper submission of samples or certificates for approval shall not be considered just cause for an extension of the contract time. Each sample submitted by the Contractor shall carry a label giving the name of the Contractor, the project for which it is intended, and the name of the producer. The accompanying certificate or letter from the Contractor shall state that the sample complies with Contract requirements, shall give the name and brand of the product, its place of origin, the name and address of the producer and all specifications or other detailed information which will assist the Architect or the City in passing upon the acceptability of the sample promptly. It shall also include the statement that all materials or equipment furnished for use in the project will comply with the samples and/or certified statements.

b. Approval of any materials shall be general only and shall not constitute a waiver of the City's right to demand full compliance with Contract requirements. After actual deliveries, the City or the Architect will have such check tests made as they deem necessary in each instance and may reject materials and equipment and accessories for cause, even though such materials and equipment have been given general approval. If materials, equipment or accessories which fail to meet check tests have been incorporated in the work, the City or the Architect will have the right to cause their removal and replacement by proper materials or to demand and secure such reparation by the Contractor as is equitable.

c. Except as otherwise specifically stated in the Contract, the costs of sampling and testing will be divided as follows:

(1) The Contractor shall furnish without extra cost, including packing and delivery charges, all samples required for testing purposes, except those samples taken on the project by the City or the Architect; (2) The Contractor shall assume all costs of retesting materials which fail to meet Contract requirements;

(3) The Contractor shall assume all costs of testing materials offered in substitution for those found deficient; and

(4) The City will pay for all other testing expenses.

119. CARE OF WORK

a. The Contractor shall be responsible for all damages to persons or property that occur as a result of his fault or negligence in connection with the prosecution of the work and shall be responsible for the proper care and protection of all work performed until completion and final acceptance, whether or not the same has been covered in whole or in part by payments made by the City.

b. In an emergency affecting the safety of life, limb or property, including adjoining property, the Contractor, without special instructions or authorization from the City is authorized to act at his own discretion to prevent such threatened loss or injury, and he shall so act. He shall likewise act if instructed to do so by the City. Any compensation claimed by the Contractor on account of such emergency work will be determined by the City as provided in Section 109 hereof.

c. The Contractor shall avoid damage as a result of his operations to existing sidewalks, streets, curbs, pavements, utilities (except those which are to be replaced or removed), adjoining property, etc., and he shall at his own expense completely repair any damage thereto caused by his operations.

d. The Contractor shall shore up, brace, underpin, secure and protect as may be necessary all foundations and other parts of existing structures adjacent to, adjoining, and in the vicinity of the site, which may be in any way affected by the excavations or other operations connected with the construction of the Improvements embraced in this Contract. The Contractor shall be responsible for the giving of any and all required notices to any adjacent or adjoining property owner or other party before the commencement of any work. The Contractor shall indemnify and save harmless the City from any damages on account of settlements or the loss of lateral support of adjoining property and from all loss or expense and all damages for which the City may become liable in consequence of such injury or damage to adjoining structures and their premises.

120. ACCIDENT PREVENTION

- a. The Contractor shall exercise proper precaution at all times for the protection of persons and property and shall be responsible for all damages to persons or property, either on or off the site, which occur as a result of his fault or negligence in connection with the prosecution of the work. The safety provisions of applicable Federal, State and local laws and ordinances and building and construction codes shall be observed and the Contractor shall take or cause to be taken such additional safety and health measures as the City may determine to be reasonably necessary. Machinery, equipment, and all hazards shall be guarded in accordance with the safety provisions of the A Manual of Accident Prevention in Construction published by the Associated General Contractors of America, Inc., to the extent that such provisions are not in conflict with applicable local laws.
- b. The Contractor shall maintain an accurate record of all cases of death, occupational disease, and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment on work under the Contract. The Contractor shall promptly furnish the Owner with reports concerning these matters.

121. SANITARY FACILITIES

The Contractor shall furnish, install, and maintain ample sanitary facilities for the workmen. As the needs arise a sufficient number of enclosed temporary toilets shall be conveniently placed as required by the sanitary codes of the State and Local Government. Drinking water shall be provided from an approved source, so piped or transported as to keep it safe and fresh and served from single service containers or satisfactory types of sanitary drinking stands or fountains. All such facilities and services shall be furnished in strict accordance with existing and governing health regulations.

122. USE OF PREMISES

- a. The Contractor shall confine his equipment, storage of materials, and construction operations to the Contract limits as shown on the Drawings and as prescribed by ordinances or permits, or as may be directed by the City, and shall not unreasonably encumber the site or public rights of way with his materials and construction equipment.
- b. The Contractor shall comply with all reasonable instructions of the City and the ordinances and codes of the Local Government regarding signs, advertising, traffic, fires, explosives, danger signals, barricades.

123. REMOVAL OF DEBRIS, CLEANING, ETC.

The Contractor shall, periodically or as directed during the progress of the work, remove and legally dispose of all surplus excavated material and debris, and keep the Project Area and public rights of way reasonably clear. Upon completion of the work, he shall remove all temporary construction facilities, debris and unused materials provided for the work, and put the whole site of the work and public rights of way in a neat and clean condition. Trash burning on the site of the work will be subject to prior approval of the City and existing State and local regulations.

124. INSPECTION

- a. All materials and workmanship shall be subject to inspection, examination or test by the City or the Architect at any and all times during manufacture or construction and at any and all places where such manufacture or construction is carried on. The City shall have the right to reject defective or substandard material and workmanship or require its correction. Unacceptable workmanship shall be satisfactorily corrected. Rejected material shall be promptly segregated and removed from the Project Area and replaced with material of specified quality without charge therefor. If the Contractor fails to proceed at once with the correction of rejected workmanship or defective material, the City may contract or otherwise have the defects remedied or rejected materials removed from the Project Area and charge the cost of the same against any moneys which may be due the Contractor, without prejudice to any other rights or remedies of the City.

- b. The Contractor shall furnish promptly all materials reasonably necessary for any tests which may be required. (See Section 118 hereof). All tests by the City will be performed in such a manner as not to delay the work unnecessarily and will be made in accordance with the provisions of the Technical Specifications.
- c. The Contractor shall notify the City sufficiently in advance of back-filling or concealing any facilities to permit proper inspection. If any facilities are concealed without approval or consent by the City, the Contractor shall uncover for inspection and recover such facilities all at his own expense, when so requested by the City. Should it be considered necessary or advisable by the City at any time before final acceptance of the entire work to make an examination of work already completed by uncovering the same, the Contractor shall on request promptly furnish all necessary facilities, labor, and material. If such work is found to be defective in any important or essential respect, due to fault of the Contractor or his subcontractors the Contractor shall defray all the expenses of such examination and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the actual cost of labor and material necessarily involved in the examination and replacement, plus 15 percent of such costs to cover superintendence, general expenses and profit, shall be allowed the Contractor and he shall, in addition, if completion of the work of the entire Contract has been delayed thereby, be granted a suitable extension of time on account of the additional work involved.
- d. Inspection of materials and appurtenances to be incorporated in the Improvements embraced in this Contract may be made at the place of production, manufacture or shipment, whenever the quantity justifies it, and such inspection and acceptance, unless otherwise stated in the Technical Specifications, shall be final, except as regards (1) latent defects, (2) departures from specific requirements of the Contract, (3) damage or loss in transit, or (4) fraud or such gross mistakes as amount to fraud. Subject to the requirements contained in the preceding sentence, the inspection of materials as a whole or in part will be made at the Project Site.
- e. Neither inspection, testing, approval nor acceptance of the work in whole or in part, by the City or its agents shall relieve the Contractor or his sureties of full responsibility for materials furnished or work performed not in strict accordance with the Contract.

125. REVIEW BY THE CITY

The City, its authorized representatives and agents, and the Architect, shall, at all times have access to and be permitted to observe and review all work, materials, equipment, payrolls, personnel records, employment conditions, and other relevant data and records pertaining to this Contract; provided, however, that all instructions and approvals with respect to work will be given to the Contractor only by the City through its authorized representative or agents.

126. FINAL INSPECTION

When the work embraced in this Contract is substantially completed, the Contractor shall notify the City in writing that the work will be ready for final inspection on a definite date which shall be stated in such notice. The notice shall bear the signed concurrence of the representative of the City having charge of inspection. If the City determines that the status of the Improvements is as represented, it will make the arrangements necessary to have final inspection commenced on the date stated in such notice, or as soon thereafter as is practicable.

127. DEDUCTION FOR UNCORRECTED WORK

If the City deems it not expedient to require the Contractor to correct work not done in accordance with the Contract Documents, an equitable deduction from the Contract Price will be made by agreement between the Contractor and the City and subject to settlement, in case of dispute, as herein provided.

128. TIME

- a. The Contract Time is the period of time allotted in the Contract for completion of the Work. The date of commencement of the Work is the date established in a notice to proceed issued by the City to the Contractor. The Contractor shall begin the Work upon receipt of the notice to proceed.
- b. The term "day" as used herein shall mean calendar day.
- c. If a date of completion is included in the Contract, it shall be the Date of Substantial Completion of the Work, including authorized extensions thereto. The "Date of Substantial Completion of the Work" is the date certified by the City when construction is sufficiently complete, in accordance with the Contract, so the City may occupy the Work for the use for which it is intended.

129. INSURANCE

The Contractor shall carry the following insurance, at his expense and no direct payment for premiums shall be made by the City. Carriage of such insurance shall in no way alleviate the Contractor of his responsibilities under the contract.

- a. The Contractor will be required to carry insurance of the kinds and in the amounts hereinafter specified. The Contractor shall not commence work under the contract until he has obtained all the insurance required by these specifications and until such insurance has been approved by the City Attorney, nor shall the Contractor allow any subcontractor to commence work on his subcontract until all similar insurance required of the subcontractor shall have been so obtained and approved.

- b. Insurance

The Contractor shall provide Commercial General Liability in an amount not less than \$1,500,000.00 combined single limit and Automobile Liability Insurance in an amount not less than \$1,500,000.00 combined single limit shall be in a company licensed to do business in Minnesota; and shall provide for the following: Liability for Premises, Operations, Completed Operations, Independent Contractors, and Contractual Liability. Property damage coverage for explosion, collapse, and underground Axcu to be included. City of Duluth shall be named as Additional Insured under the Commercial General Liability policy. Contractor shall also provide evidence of Statutory Worker's Compensation Insurance. Contractor to provide Certificate of Insurance evidencing such coverage with 30-day notice of cancellation, non-renewal, or material change provision included.

- c. Subcontractor's Insurance

In the event any work contemplated by the contract is sublet, the Contractor shall have the duty to assure that the subcontractors provide insurance in accord with the minimum requirements hereinabove imposed on the Contractor.

- d. Proof of Insurance

The Contractor shall not proceed with the work contemplated in this contract until he has furnished the City Attorney of the City of Duluth with satisfactory proof of the existence and carriage of insurance of the kinds and in the amounts specified.

- e. Indemnification

The Contractor shall defend, indemnify and save harmless the City and all of its officers, agents and employees from all suits, actions or claims of any character, name and description brought for on account of any injuries or damages received or sustained by any person, persons or property, by or from the act or acts of said Contractor, or by or in consequence of any negligence in safeguarding the work, or through the use of unacceptable materials in constructing the work, or by or on account of any act or omission, neglect or misconduct of said Contractor, or from any claims or amount arising or recovered under the Workmen's Compensation Law or any other law, by-law, ordinance, order or decree, and so much of the money due the said Contractor under and by virtue of his contract, as shall be considered necessary by the City may be retained for the use of the City or in case no money is due, his surety shall be held until such suit or suits, action or actions, claim or claims, for injuries or damages as aforesaid, shall have been settled and suitable evidence to that effect furnished to the City. The Contractor shall indemnify and save harmless the City from any and all losses caused by or on account of any claims or amounts recovered for any infringement of patent,

trademark, or copyright. The unauthorized use by the Contractor of public or private property for any purpose may be considered an injury or damage to the property so used.

130. PATENTS

The Contractor shall hold and save the City, its officers, employees, representatives and agents, and the Architect, harmless from liability of any nature or kind, including costs and expenses, for, or on account of, any patented or unpatented invention, process, article, or appliance manufactured or used in the performance of the Contract, including its use by the City, unless otherwise specifically stipulated in the Technical Specifications.

131. WARRANTY

No material, supplies, or equipment to be installed or furnished under this Contract shall be purchased subject to any chattel mortgage or under a conditional sale, lease-purchase or other agreement by which an interest therein or in any part thereof is retained by the seller or supplier. The Contractor shall warrant good title to all materials, supplies, and equipment installed or incorporated in the work and upon completion of all work, shall deliver the same together with all improvements and appurtenances constructed or placed thereon by him to the City free from any claims, liens, or charges. Neither the Contractor nor any person, firm or corporation furnishing any material or labor for any work covered by this Contract shall have any right to a lien upon any improvement or appurtenance thereon. Nothing contained in this paragraph, however, shall defeat or impair the right of persons furnishing materials or labor to recover under any bond given by the Contractor for their protection or any rights under any law permitting such persons to look to funds due the Contractor in the hands of the City. The provisions of this paragraph shall be inserted in all subcontracts and material contracts and notices for the work when no formal contract is entered into for such materials.

132. GENERAL GUARANTY

- a. Neither the final certificate of payment nor any provisions in the Contract nor partial or entire use of the improvements embraced in this Contract by the City or the public shall constitute an acceptance of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting therefrom which subsequently appears. The City will give notice of defective materials and work with reasonable promptness.
- b. If, within one year after the Date of Substantial Completion or within such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract, any of the Work is found to be defective or not in accordance with the specifications of the Contract, the Contractor shall correct it promptly upon receipt of a written notice from the City to do so, unless the City has previously given the Contractor a written acceptance of such condition or work.

133. ENVIRONMENTAL CONDITIONS

Waste Disposal: The SUBRECIPIENT shall comply with the most recent Minnesota Pollution Control Agency (MPCA) waste disposal requirements and include said disposal requirements in the project's base bid specifications. Waste material, including but not limited to: construction/demolition debris, asbestos-containing material, residential lead paint waste, hazardous waste, and above- and under-ground tanks, shall be disposed of at MPCA-permitted landfill sites only. Copies of all notification, shipment, and landfill receipt records shall be maintained in the subrecipient's project file.

Minnesota Pollution Control Agency
520 Lafayette Rd., St. Paul, MN 55155
(800) 657-3864

- a. Construction/Demolition Waste.

Construction/demolition debris will be disposed of at a Minnesota Pollution Control Agency (MPCA) permitted landfill site only, with copies of all landfill receipts for said debris maintained in the subrecipient's project file.

(Solid Waste Management Rules, Chapter 7001 & 7035)

b. Asbestos-Containing Waste.

All asbestos removal and disposal shall be in strict accordance with all applicable permits. The contract bidder shall include the price of all permits, testing, removal, and disposal in the project base bid.

- Project asbestos-containing material removal pursuant to USEPA 40 CFR 61.145 Standard for Demolition and Renovation.

- All asbestos-containing waste material shall be disposed of pursuant to USEPA 40 CFR 61.150 at a MPCA permitted landfill site only, in accordance with the provisions of USEPA 40 CFR 61.154.

- For all asbestos-containing material, a copy of the MPCA Notification of Demolition and Renovation record and all Waste Shipment records shall be maintained in the subrecipient's project file.

c. Hazardous Waste Material.

The MPCA shall be contacted for instructions on handling and disposing of materials containing Polychlorinated Biphenyls (PCBs) or any other identified/encountered hazardous materials. A copy of all correspondence and disposal records shall be maintained in the subrecipient's project file.

- MPCA Hazardous Waste Compliance Guide -- October 1989, Revised January 1991

- MPCA Hazardous Waste Fact Sheet Checklist -- August 1993

d. Above and Below Ground Storage Tanks.

The MPCA Tanks and Spills Section shall be contacted for instructions on handling or removal of all above- and underground tanks identified/encountered. A copy of all correspondence and disposal records shall be maintained in the subrecipient's project file.

e. Residential Lead Paint Waste.

Projects whose activities produce residential lead paint waste are responsible for the management and proper disposal of the waste at an MPCA permitted landfill site only, pursuant to Minn. Stat. sections 116.87, 116.875, 116.88. A copy of the Residential Lead Abatement Notification and Shipping forms shall be maintained in the subrecipient's project file.

134. CONTRACTOR'S RECORDS

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 three years from the date of execution of this contract.

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CITY OF DULUTH - PART II -
SUPPLEMENTARY GENERAL CONDITIONS FOR FEDERALLY AND/OR CITY ASSISTED ACTIVITIES
(revised 9/2/09)

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

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 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 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 are, 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**

Refer to Section 10, Page 9

Housing and Urban Development (HUD) form-4010 (07/2003) 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, 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 page 22 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.

(e) 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 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. All hours exceeding 40 per week are subject to overtime in addition to the daily overtime requirements.

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, the City 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*).

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 hourly rate and higher fringe benefit rate--to a bona fide plan--than stated in the wage decision providing the total of the two rates is equal to or greater than the total in the wage decision.

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 contract's wage decision.

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 for a specific classification are totaled to arrive at the hourly rate. *Overtime is calculated (1.5 x) the base rate with the fringe benefit amount added to that rate: base rate x 1.5 + fringe benefit rate = overtime rate.*

(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.
- **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.
- **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.

(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) 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 present on all project job sites and shall either be posted on the site or be on the person of any supervisor in charge of the job site.

(j) 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 become delinquent with any fringe benefit plan administrator's requirements for monthly payment, an estimated amount due that plan plus penalties will be withheld from the monthly estimate(s). This also pertains to subcontractors; their fringe plan payment delinquency will affect the monthly estimate(s) in the same manner. See MnDOT Specification 1906 on page eight.

See Statement of Compliance and Certified Payroll Report requirements in Section 10, HUD 4010 and web sites in Section 14, Forms.

(k) 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).

(l) 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.

(m) 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.

(n) 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.

(5) **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

(i) Apprentices are not permitted to work alone under any circumstances.

(ii) 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.

(6) **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. Prime contractors are not allowed to place a poster board at an off-site facility location.

(7) **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:**

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.

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.

(8) **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 (Mn/DOT TP-90550 7-05) and Minnesota Department of Transportation Month End Trucking Report Statement of Compliance (Mn/DOT TP-90551 7-05) 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/truckinginfo.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/contract.

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

These rules are incorporated into this supplementary general conditions by reference and are found on this web site:

www.revisor.leg.state.mn.us/rules/?id=5200

(13) **Truck Axles**

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.

(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/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)

(17) **Supporting documentation.**

At his/her discretion, the City of Duluth Labor Standards representative 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 it's 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.
- 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".
- 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 with 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

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 therefor 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 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 1(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 1(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/esa/whd/forms/wh347instr.htm> 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;

(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 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 therefor 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.

(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/OFCCP, 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:
 - (iii) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - (iv) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
 - (v) 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
 - (vi) 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 actions 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 therefor, 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**

- Statement of Compliance Form
www.dot.state.mn.us/const/labor/lcuforms.html
- Certified Payroll Form
www.dol.gov/esa/forms/whd/WH347.pdf

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

- Statement of Compliance Form & Certified Payroll Forms
www.dol.gov/esa/forms/whd/WH347.pdf
- Fringe Benefit Form - use the second page of the MnDOT Statement of Compliance (form 21658 3/01)
www.dot.state.mn.us/const/labor/lcuforms.html

Minnesota Department of Transportation Trucking Requirements

- Month End Trucking Report
- Month End Trucking Report Statement of Compliance
- Definitions and instructions: www.dot.state.mn.us/const/labor/lcuforms.html

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**MINNESOTA DEPARTMENT OF LABOR AND INDUSTRY PREVAILING WAGES FOR STATE
FUNDED CONSTRUCTION PROJECTS**



THIS NOTICE MUST BE POSTED ON THE JOBSITE IN A CONSPICUOUS PLACE

Construction Type: Commercial

County Number: 69

County Name: ST. LOUIS

Effective: 2013-11-18 Revised: 2013-12-06

This project is covered by Minnesota prevailing wage statutes. Wage rates listed below are the minimum hourly rates to be paid on this project.

All hours worked in excess of eight (8) hours per day or forty (40) hours per week shall be paid at a rate of one and one half (1 1/2) times the basic hourly rate.

Violations should be reported to:

Department of Labor and Industry
Prevailing Wage Section
443 Lafayette Road N
St Paul, MN 55155
(651) 284-5091
DLI.PrevWage@state.mn.us

* Indicates that adjacent county rates were used for the labor class listed.

County: ST. LOUIS (69)

LABOR CODE AND CLASS		EFFECT DATE	BASIC RATE	FRINGE RATE	TOTAL RATE
<i>LABORERS (101 - 112) (SPECIAL CRAFTS 701 - 730)</i>					
101	LABORER, COMMON (GENERAL LABOR WORK)	2013-11-18	22.17	15.36	37.53
102	LABORER, SKILLED (ASSISTING SKILLED CRAFT JOURNEYMAN)	2013-11-18	22.17	15.36	37.53

103	LABORER, LANDSCAPING (GARDENER, SOD LAYER AND NURSERY OPERATOR)	2013-11-18	18.00	12.43	30.43
104*	FLAG PERSON	2013-11-18	22.17	15.36	37.53
105*	WATCH PERSON	2013-11-18	19.82	15.36	35.18
106	BLASTER	2013-11-18	22.87	15.36	38.23
107	PIPELAYER (WATER, SEWER AND GAS)	2013-11-18	28.11	15.61	43.72
		2014-05-01	28.61	16.09	44.70
108	TUNNEL MINER	FOR RATE CALL 651-284-5091 OR EMAIL DLI.PREVIEWAGE@STATE.MN.US			
109	UNDERGROUND AND OPEN DITCH LABORER (EIGHT FEET BELOW STARTING GRADE LEVEL)	2013-11-18	26.81	15.61	42.42
		2014-05-01	27.31	16.09	43.40
110	SURVEY FIELD TECHNICIAN (OPERATE TOTAL STATION, GPS RECEIVER, LEVEL, ROD OR RANGE POLES, STEEL TAPE MEASUREMENT; MARK AND DRIVE STAKES; HAND OR POWER DIGGING FOR AND IDENTIFICATION OF MARKERS OR MONUMENTS; PERFORM AND CHECK CALCULATIONS; REVIEW AND UNDERSTAND CONSTRUCTION PLANS AND LAND SURVEY MATERIALS). THIS CLASSIFICATION DOES NOT APPLY TO THE WORK PERFORMED ON A PREVAILING WAGE PROJECT BY A LAND SURVEYOR WHO IS LICENSED PURSUANT TO MINNESOTA STATUTES, SECTIONS 326.02 TO 326.15.	2013-11-18	22.17	15.36	37.53
111	TRAFFIC CONTROL PERSON (TEMPORARY SIGNAGE)	2013-11-18	22.17	15.36	37.53

SPECIAL EQUIPMENT (201 - 204)

201*	ARTICULATED HAULER	2013-11-18	31.37	16.70	48.07
		2014-05-01	31.77	17.20	48.97

202	BOOM TRUCK	2013-11-18	33.83	15.95	49.78
		2014-05-01	34.68	16.45	51.13
203*	LANDSCAPING EQUIPMENT, INCLUDES HYDRO SEEDER OR MULCHER, SOD ROLLER, FARM TRACTOR WITH ATTACHMENT SPECIFICALLY SEEDING, SODDING, OR PLANT, AND TWO-FRAMED FORKLIFT (EXCLUDING FRONT, POSIT-TRACK, AND SKID STEER LOADERS), NO EARTHWORK OR GRADING FOR ELEVATIONS	2013-11-18	18.00	12.43	30.43
204	OFF-ROAD TRUCK	2013-11-18	31.37	16.70	48.07
		2014-05-01	31.77	17.20	48.97
205	PAVEMENT MARKING OR MARKING REMOVAL EQUIPMENT (ONE OR TWO PERSON OPERATORS); SELF-PROPELLED TRUCK OR TRAILER MOUNTED UNITS.	2013-11-18	26.29	14.65	40.94

HIGHWAY/HEAVY POWER EQUIPMENT OPERATOR

GROUP 2 *		2013-11-18	32.22	16.70	48.92
		2014-05-01	32.62	17.20	49.82
306	GRADER OR MOTOR PATROL				
308	TUGBOAT 100 H.P. AND OVER WHEN LICENSE REQUIRED (HIGHWAY AND HEAVY ONLY)				
GROUP 3		2013-11-18	31.67	16.70	48.37
		2014-05-01	32.07	17.20	49.27
309	ASPHALT BITUMINOUS STABILIZER PLANT				
310	CABLEWAY				
312	DERRICK (GUY OR STIFFLEG)(POWER)(SKIDS OR STATIONARY) (HIGHWAY AND HEAVY ONLY)				
314	DREDGE OR ENGINEERS, DREDGE (POWER) AND ENGINEER				
316	LOCOMOTIVE CRANE OPERATOR				
320	TANDEM SCRAPER				
322	TUGBOAT 100 H.P AND OVER (HIGHWAY AND HEAVY ONLY)				

GROUP 4		2013-11-18	31.37	16.70	48.07
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- 323 AIR TRACK ROCK DRILL
- 324 AUTOMATIC ROAD MACHINE (CMI OR SIMILAR) (HIGHWAY AND HEAVY ONLY)
- 327 BITUMINOUS ROLLERS, RUBBER TIRED OR STEEL DRUMMED (EIGHT TONS AND OVER)
- 328 BITUMINOUS SPREADER AND FINISHING MACHINES (POWER), INCLUDING PAVERS, MACRO SURFACING AND MICRO SURFACING, OR SIMILAR TYPES (OPERATOR AND SCREED PERSON)
- 329 BROKK OR R.T.C. REMOTE CONTROL OR SIMILAR TYPE WITH ALL ATTACHMENTS
- 330 CAT CHALLENGER TRACTORS OR SIMILAR TYPES PULLING ROCK WAGONS, BULLDOZERS AND SCRAPERS
- 331 CHIP HARVESTER AND TREE CUTTER
- 332 CONCRETE DISTRIBUTOR AND SPREADER FINISHING MACHINE, LONGITUDINAL FLOAT, JOINT MACHINE, AND SPRAY MACHINE
- 334 CONCRETE MOBIL (HIGHWAY AND HEAVY ONLY)
- 335 CRUSHING PLANT (GRAVEL AND STONE) OR GRAVEL WASHING, CRUSHING AND SCREENING PLANT
- 336 CURB MACHINE
- 337 DIRECTIONAL BORING MACHINE
- 338 DOPE MACHINE (PIPELINE)
- 340 DUAL TRACTOR
- 341 ELEVATING GRADER
- 345 GPS REMOTE OPERATING OF EQUIPMENT
- 347 HYDRAULIC TREE PLANTER
- 348 LAUNCHER PERSON (TANKER PERSON OR PILOT LICENSE)
- 349 LOCOMOTIVE (HIGHWAY AND HEAVY ONLY)
- 350 MILLING, GRINDING, PLANING, FINE GRADE, OR TRIMMER MACHINE
- 352 PAVEMENT BREAKER OR TAMPING MACHINE (POWER DRIVEN) MIGHTY MITE OR SIMILAR TYPE
- 354 PIPELINE WRAPPING, CLEANING OR BENDING MACHINE
- 356 POWER ACTUATED HORIZONTAL BORING MACHINE, OVER SIX INCHES
- 357 PUGMILL
- 359 RUBBER-TIRED FARM TRACTOR WITH BACKHOE INCLUDING ATTACHMENTS (HIGHWAY AND HEAVY ONLY)
- 360 SCRAPER
- 361 SELF-PROPELLED SOIL STABILIZER
- 362 SLIP FORM (POWER DRIVEN) (PAVING)
- 363 TIE TAMPER AND BALLAST MACHINE
- 367 TUB GRINDER, MORBARK, OR SIMILAR TYPE

GROUP 5 *	2013-11-18	18.77	8.18	26.95
370 BITUMINOUS ROLLER (UNDER EIGHT TONS)				
371 CONCRETE SAW (MULTIPLE BLADE) (POWER OPERATED)				
372 FORM TRENCH DIGGER (POWER)				
375 HYDRAULIC LOG SPLITTER				
376 LOADER (BARBER GREENE OR SIMILAR TYPE)				
377 POST HOLE DRIVING MACHINE/POST HOLE AUGER				
379 POWER ACTUATED JACK				
381 SELF-PROPELLED CHIP SPREADER (FLAHERTY OR SIMILAR)				
382 SHEEP FOOT COMPACTOR WITH BLADE . 200 H.P. AND OVER				
383 SHOULDERING MACHINE (POWER) APSCO OR SIMILAR TYPE INCLUDING SELF-PROPELLED SAND AND CHIP SPREADER				
384 STUMP CHIPPER AND TREE CHIPPER				
385 TREE FARMER (MACHINE)				

GROUP 6	2013-11-18	27.12	16.70	43.82
	2014-05-01	27.52	17.20	44.72
387 CAT, CHALLENGER, OR SIMILAR TYPE OF TRACTORS, WHEN PULLING DISK OR ROLLER				
389 DREDGE DECK HAND				
391 GRAVEL SCREENING PLANT (PORTABLE NOT CRUSHING OR WASHING)				
393 LEVER PERSON				
395 POWER SWEEPER				
396 SHEEP FOOT ROLLER AND ROLLERS ON GRAVEL COMPACTION, INCLUDING VIBRATING ROLLERS				

COMMERCIAL POWER EQUIPMENT OPERATOR

GROUP 1	2013-11-18	36.09	15.95	52.04
	2014-05-01	36.94	16.45	53.39
501 HELICOPTER PILOT (COMMERCIAL CONSTRUCTION ONLY)				
502 TOWER CRANE 250 FEET AND OVER (COMMERCIAL CONSTRUCTION ONLY)				
503 TRUCK CRAWLER CRANE WITH 200 FEET OF BOOM AND OVER, INCLUDING JIB (COMMERCIAL CONSTRUCTION ONLY)				

GROUP 2 *	2013-11-18	35.75	15.95	51.70
	2014-05-01	36.60	16.45	53.05

504	CONCRETE PUMP WITH 50 METERS/164 FEET OF BOOM AND OVER (COMMERCIAL CONSTRUCTION ONLY)				
505	PILE DRIVING WHEN THREE DRUMS IN USE (COMMERCIAL CONSTRUCTION ONLY)				
506	TOWER CRANE 200 FEET AND OVER (COMMERCIAL CONSTRUCTION ONLY)				
507	TRUCK OR CRAWLER CRANE WITH 150 FEET OF BOOM UP TO AND NOT INCLUDING 200 FEET, INCLUDING JIB (COMMERCIAL CONSTRUCTION ONLY)				
GROUP 3		2013-11-18	34.34	15.95	50.29
		2014-05-01	35.19	16.45	51.64
508	ALL-TERRAIN VEHICLE CRANES (COMMERCIAL CONSTRUCTION ONLY)				
509	CONCRETE PUMP 32-49 METERS/102-164 FEET (COMMERCIAL CONSTRUCTION ONLY)				
510	DERRICK (GUY & STIFFLEG) (COMMERCIAL CONSTRUCTION ONLY)				
511	STATIONARY TOWER CRANE UP TO 200 FEET				
512	SELF-ERECTING TOWER CRANE 100 FEET AND OVER MEASURED FROM BOOM FOOT PIN (COMMERCIAL CONSTRUCTION ONLY)				
513	TRAVELING TOWER CRANE (COMMERCIAL CONSTRUCTION ONLY)				
514	TRUCK OR CRAWLER CRANE UP TO AND NOT INCLUDING 150 FEET OF BOOM, INCLUDING JIB (COMMERCIAL CONSTRUCTION ONLY)				
GROUP 4		2013-11-18	34.00	15.95	49.95
		2014-05-01	34.85	16.45	51.30
515	CRAWLER BACKHOE INCLUDING ATTACHMENTS (COMMERCIAL CONSTRUCTION ONLY)				
516	FIREPERSON, CHIEF BOILER LICENSE (COMMERCIAL CONSTRUCTION ONLY)				
517	HOIST ENGINEER (THREE DRUMS OR MORE) (COMMERCIAL CONSTRUCTION ONLY)				
518	LOCOMOTIVE (COMMERCIAL CONSTRUCTION ONLY)				
519	OVERHEAD CRANE (INSIDE BUILDING PERIMETER) (COMMERCIAL CONSTRUCTION ONLY)				
520	TRACTOR . BOOM TYPE (COMMERCIAL CONSTRUCTION ONLY)				
GROUP 5		2013-11-18	33.83	15.95	49.78
		2014-05-01	34.68	16.45	51.13
521	AIR COMPRESSOR 450 CFM OR OVER (TWO OR MORE MACHINES) (COMMERCIAL CONSTRUCTION ONLY)				
522	CONCRETE MIXER (COMMERCIAL CONSTRUCTION ONLY)				
523	CONCRETE PUMP UP TO 31 METERS/101 FEET OF BOOM				
524	DRILL RIGS, HEAVY ROTARY OR CHURN OR CABLE DRILL WHEN USED FOR CAISSON FOR ELEVATOR OR BUILDING CONSTRUCTION (COMMERCIAL CONSTRUCTION ONLY)				
525	FORKLIFT (COMMERCIAL CONSTRUCTION ONLY)				
526	FRONT END, SKID STEER 1 C YD AND OVER				

527	HOIST ENGINEER (ONE OR TWO DRUMS) (COMMERCIAL CONSTRUCTION ONLY)				
528	MECHANIC-WELDER (ON POWER EQUIPMENT) (COMMERCIAL CONSTRUCTION ONLY)				
529	POWER PLANT (100 KW AND OVER OR MULTIPLES EQUAL TO 100KW AND OVER) (COMMERCIAL CONSTRUCTION ONLY)				
530	PUMP OPERATOR AND/OR CONVEYOR (TWO OR MORE MACHINES) (COMMERCIAL CONSTRUCTION ONLY)				
531	SELF-ERECTING TOWER CRANE UNDER 100 FEET MEASURED FROM BOOM FOOT PIN (COMMERCIAL CONSTRUCTION ONLY)				
532	STRADDLE CARRIER (COMMERCIAL CONSTRUCTION ONLY)				
533	TRACTOR OVER D2 (COMMERCIAL CONSTRUCTION ONLY)				
534	WELL POINT PUMP (COMMERCIAL CONSTRUCTION ONLY)				
GROUP 6		2013-11-18	32.32	15.95	48.27
		2014-05-01	33.17	16.45	49.62
535	CONCRETE BATCH PLANT (COMMERCIAL CONSTRUCTION ONLY)				
536	FIREPERSON, FIRST CLASS BOILER LICENSE (COMMERCIAL CONSTRUCTION ONLY)				
537	FRONT END, SKID STEER UP TO 1 C YD				
538	GUNITE MACHINE (COMMERCIAL CONSTRUCTION ONLY)				
539	TRACTOR OPERATOR D2 OR SIMILAR SIZE (COMMERCIAL CONSTRUCTION ONLY)				
540	TRENCHING MACHINE (SEWER, WATER, GAS) EXCLUDES WALK BEHIND TRENCHER				
GROUP 7		2013-11-18	31.20	15.95	47.15
		2014-05-01	32.05	16.45	48.50
541	AIR COMPRESSOR 600 CFM OR OVER (COMMERCIAL CONSTRUCTION ONLY)				
542	BRAKEPERSON (COMMERCIAL CONSTRUCTION ONLY)				
543	CONCRETE PUMP/PUMPCRETE OR COMPLACO TYPE (COMMERCIAL CONSTRUCTION ONLY)				
544	FIREPERSON, TEMPORARY HEAT SECOND CLASS BOILER LICENSE (COMMERCIAL CONSTRUCTION ONLY)				
545	OILER (POWER SHOVEL, CRANE, TRUCK CRANE, DRAGLINE, CRUSHERS AND MILLING MACHINES, OR OTHER SIMILAR POWER EQUIPMENT) (COMMERCIAL CONSTRUCTION ONLY)				
546	PICK UP SWEEPER (ONE CUBIC YARD HOPPER CAPACITY) (COMMERCIAL CONSTRUCTION ONLY)				
547	PUMP AND/OR CONVEYOR (COMMERCIAL CONSTRUCTION ONLY)				
GROUP 8 *		2013-11-18	29.19	15.95	45.14
		2014-05-01	30.04	16.45	46.49
548	ELEVATOR OPERATOR (COMMERCIAL CONSTRUCTION ONLY)				
549	GREASER (COMMERCIAL CONSTRUCTION ONLY)				

550 MECHANICAL SPACE HEATER (TEMPORARY HEAT NO BOILER LICENSE REQUIRED)
(COMMERCIAL CONSTRUCTION ONLY)

TRUCK DRIVERS

GROUP 1 2013-11-18 26.85 14.40 41.25

601 MECHANIC . WELDER

602 TRACTOR TRAILER DRIVER

603 TRUCK DRIVER (HAULING MACHINERY INCLUDING OPERATION OF HAND AND POWER
OPERATED WINCHES)

GROUP 2 2013-11-18 26.30 14.40 40.70

604 FOUR OR MORE AXLE UNIT, STRAIGHT BODY TRUCK

GROUP 3 2013-11-18 26.20 14.40 40.60

605 BITUMINOUS DISTRIBUTOR DRIVER

606 BITUMINOUS DISTRIBUTOR (ONE PERSON OPERATION)

607 THREE AXLE UNITS

GROUP 4 * 2013-11-18 25.95 14.40 40.35

608 BITUMINOUS DISTRIBUTOR SPRAY OPERATOR (REAR AND OILER)

609 DUMP PERSON

610 GREASER

611 PILOT CAR DRIVER

612 RUBBER-TIRED, SELF-PROPELLED PACKER UNDER 8 TONS

613 TWO AXLE UNIT

614 SLURRY OPERATOR

615 TANK TRUCK HELPER (GAS, OIL, ROAD OIL, AND WATER)

616 TRACTOR OPERATOR, UNDER 50 H.P.

SPECIAL CRAFTS

701 HEATING AND FROST INSULATORS 2013-11-18 29.91 22.70 52.61

702 BOILERMAKERS 2013-11-18 32.40 25.37 57.77

703 BRICKLAYERS 2013-11-18 28.85 22.71 51.56

704	CARPENTERS	2013-11-18	27.07	15.98	43.05
705*	CARPET LAYERS (LINOLEUM)	2013-11-18	29.01	14.74	43.75
		2014-06-01	30.07	14.74	44.81
706	CEMENT MASONS	2013-11-18	30.19	16.30	46.49
		2014-05-01	30.69	16.30	46.99
707	ELECTRICIANS	2013-11-18	32.04	23.14	55.18
		2014-06-01	32.54	23.73	56.27
708	ELEVATOR CONSTRUCTORS	2013-11-18	43.57	30.01	73.58
709	GLAZIERS	2013-11-18	26.28	15.42	41.70
710	LATHERS	2013-11-18	27.07	15.98	43.05
712	IRONWORKERS	2013-11-18	29.24	21.20	50.44
714	MILLWRIGHT	2013-11-18	29.32	16.38	45.70
715	PAINTERS (INCLUDING HAND BRUSHED, HAND SPRAYED, AND THE TAPING OF PAVEMENT MARKINGS)	2013-11-18	28.11	14.97	43.08
716	PILEDRIIVER (INCLUDING VIBRATORY DRIVER OR EXTRACTOR FOR PILING AND SHEETING OPERATIONS)	2013-11-18	30.79	17.08	47.87
717	PIPEFITTERS . STEAMFITTERS	2013-11-18	38.41	16.56	54.97
718*	PLASTERERS	2013-11-18	30.82	17.05	47.87
		2014-05-01	31.32	17.05	48.37
719	PLUMBERS	2013-11-18	38.41	16.56	54.97

720	ROOFER	2013-11-18	31.15	14.05	45.20
		2014-07-01	31.95	14.05	46.00
721	SHEET METAL WORKERS	2013-11-18	29.23	20.39	49.62
722	SPRINKLER FITTERS	2013-11-18	32.52	16.87	49.39
		2014-04-01	33.17	17.22	50.39
723	TERRAZZO WORKERS	2013-11-18	29.86	18.20	48.06
724	TILE SETTERS	2013-11-18	23.34	20.13	43.47
725	TILE FINISHERS	2013-11-18	16.15	16.45	32.60
726	DRYWALL TAPER	2013-11-18	28.71	14.87	43.58
727	WIRING SYSTEM TECHNICIAN	2013-11-18	34.16	12.31	46.47
		2014-07-01	35.24	12.31	47.55
728	WIRING SYSTEMS INSTALLER	2013-11-18	23.91	10.27	34.18
		2014-07-01	24.67	10.27	34.94
729	ASBESTOS ABATEMENT WORKER	2013-11-18	27.59	16.01	43.60
		2014-01-01	27.69	16.51	44.20
730	SIGN ERECTOR	2013-11-18	25.44	11.13	36.57

PROJECT LABOR AGREEMENT

NO STRIKE, NO LOCKOUT

PUBLIC SECTOR

CITY OF DULUTH

&

(Name of Contractor)

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AGREEMENT

This Project Labor Agreement (hereinafter, the “Agreement”), is entered into effective the _____ day of _____, 2014, 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 the _____ day of _____, 2008, 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

By: _____

Its _____
(Printed Name/Title)

Date: _____

CONTRACTOR

By: _____

Its _____
(Printed Name/Title)

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

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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 Name**), _____ (**Contractor Address, City, State, Zip Code**), 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. The project labor agreement, if applicable.
 - f. All provisions of law applicable to a contract of this nature.
2. The Contractor agrees to furnish and deliver to the City Department of _____ all labor, supervision, material, equipment, supplies, insurance, performance bond, payment bond and everything else necessary for general construction of _____ (Project Description) at _____ (Location of Project), all in strict accordance with plans and specifications prepared by _____ (City Architect/Engineer or City's Designated Consultant), your bid of _____ \$ (Vendor Bid Amount) and Council Resolution No. _____, passed _____ (Month/Day & Year of Resolution Passage). 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 _____ (Sum in words) _____ (Sum in dollars) unless the contract is modified by formal amendment or change order. Payments under this Agreement shall be made from the following accounts _____, Vendor Code _____, Requisition No. _____.
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 Director of _____ (Department Name), 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.

CITY OF DULUTH

CONTRACTOR

Mayor

Attest:

City Clerk

Date:_____

Countersigned:

City Auditor

Approved as to form:

City Attorney

Department Director

Purchasing Agent

By_____
Its_____

And By_____
Its_____

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SECTION 01 40 00

TESTING

PART 1 - GENERAL

- 1.01 **TESTING.** To assist the Contractor, the following summary of testing requirements is given. This list is not necessarily complete and tests specified elsewhere shall be performed as required even though not listed hereinafter.

If not otherwise stated in the referenced specification or paragraph or article, or not otherwise directed, signed copies of all test reports from independent testing services shall be sent at once to the Owner and Engineer.

Test samples, frequency, and locations shall be selected or approved by the Engineer. Test samples shall be delivered to the testing laboratory as soon as is practicable. Should any of the specified tests fail to meet the requirements of the specifications, the Contractor shall take such additional tests as may be required to satisfy the Engineer that the specified test requirements have been obtained.

Test	Reference	Requirements
Subgrade Compaction	Section 02203 - 3.01	100% Standard Proctor Density in Upper 3'
		Test roll - no yielding when driven over with fully loaded aggregate truck
Type "B" Backfill	Section 02220 - 3.01 Trench Excavation and Backfilling	95% Standard Proctor Density from pipe encasement zone to 3 feet below surface
		100% Standard Proctor Density in upper 3 feet
Type "D" Backfill	Section 02220 - 3.01 Trench Excavation and Backfilling	95% Standard Proctor Density above pipe encasement zone
Subgrade Compaction	Section 02221 - 3.02 Excavation and Embankment	95% Standard Proctor Density below the upper 3'
		100% Standard Proctor Density in the upper 3'
		Test roll - no yielding when driven over with fully loaded aggregate truck
Subgrade Compaction	Section 02510 - 3.01 Street Grading, Gravel Base and Bituminous Surface Construction	100% Standard Proctor Density in upper 3 feet

Test	Reference	Requirements
		Test roll - no yielding when driven over with fully loaded aggregate truck
Aggregate Gradation	Section 02510 - 3.01 Street Grading, Gravel Base and Bituminous Surface Construction	Mn/DOT Gradation Requirements
Aggregate Base Compaction	Section 02510 - 3.01 Street Grading, Gravel Base and Bituminous Surface Construction	100% Standard Proctor Density
		Test roll - no yielding when driven over with fully loaded aggregate truck
Bituminous Mixture	Section 02510 - 3.01 Street Grading, Gravel Base and Bituminous Surface Construction	Asphalt Content and Aggregate Gradation
Bituminous Paving Sample	Section 02510 - 3.01 Street Grading, Gravel Base and Bituminous Surface Construction	Marshall Compaction ASTM D-2726
Concrete Test	Section 02520 - 3.04 Concrete Curb & Gutter and Driveways	Mn/DOT 2531
Deflection Test	Section 02731 - 3.05 Sanitary Sewer Construction and CEAM Standard Sanitary Specifications	5% Maximum

END OF SECTION

SECTION 02 41 19

SELECTIVE DEMOLITION AND ALTERATIONS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes demolition and removal of existing work as shown and as required for the new work. Also include alterations not specified elsewhere.
- B. Related Sections. See the Bid Form and Article 3.02 of this Section for instructions regarding the sale of removed materials not specified, indicated, or directed to be salvaged for the Owner's benefit, which have residual value. See Section 31 20 10 and Section 31 20 20 for earth work, and fill materials. Also see all other Sections and coordinate with mechanical and electrical requirements.

- 1.02 PROJECT/SITE CONDITIONS. For Asbestos and PCB Hazards, if the Contractor encounters materials to be removed and handled that are suspected of containing asbestos or polychlorinated biphenyls (PCBs), and/or have not been rendered harmless, the Contractor shall not proceed further, but shall consult with the Owner for further directions.

PART 2 - PRODUCTS

- 2.01 MATERIALS shall match existing or new adjoining work, as applicable.

PART 3 - EXECUTION

- 3.01 PROTECTION. Protect all work which is to remain, including also buildings, pavements, curbs, turf, plantings, and the like, on the site and adjacent.

3.02 DEMOLITION

- A. General. Unless indicated, scheduled or directed otherwise, materials resulting from demolitions shall become the Contractor's property. See Article 3.04 of this Section for materials which shall be salvaged. It shall be the Contractor's option to salvage any of the demolition materials provided that all work and operations are conducted in a lawful manner and the Work is not delayed beyond the completion date specified. Removed materials that are not indicated or directed to be salvaged and which have commercial value, may be sold; the Contractor shall verify procedures with the Owner prior to conducting such transactions.

The method used for demolition shall be that deemed most practicable by the Contractor, considering all applicable factors. The Contractor shall be responsible for determining the exact restrictions imposed by law, codes, ordinances, and similar, and shall do the work so as to comply with these. Also note Minnesota Pollution Control Regulation No. APC 17 and conform to all applicable requirements therein.

- B. Minor/Selective Demolition Work. Remove existing work as shown and as required. Coordinate with requirements under mechanical and electrical Work. Do the work so as to maintain the structural stability of the building, maintain security in the building, and maintain the building weathertight. Provide means to prevent the spread of dust beyond the immediate work areas and/or through the building. Prevent damage to work which is to remain and patch any damaged work so as to match new or old work, as applicable.

Demolition work shall include but is not all inclusive to include removal of "Kennel Club" building along the third base line, storage building along the first base line, batting cages, backstop fencing, chain-link fences, wood ramps and platforms, plywood located on the outfield wall and other materials as noted on project documents.

- 3.03 ALTERATIONS. Cutting and patching shall be done as required by the drawings and as necessary for the proper execution of the work shown and/or specified. Where old work is removed or altered, all work affected shall be properly modified to match existing or new work as the case may require.
- A. Exterior Stadium Wall Openings. Where the work requires cutting and removing brick openings in the exterior stadium wall, the work shall be done only during favorable weather. Remove brick in a careful manner so as to not create additional damage to the structure. Prepare opening by cutting brick and replacing brick with those removed and salvaged from the vestibule areas. Repair joints and prepare for installation of steel jamb member.
 - B. Exterior Stadium Wall Vestibules. Remove brick walls and concrete roof slabs. Take extra care when removing brick. Brick shall be salvaged and cleaned of all mortar material and to be used in patching other areas of the stadium. After removal, repair areas of damaged brick and tuckpoint mortar joints to match the remaining stadium wall.
 - C. Stadium Light Poles and Foundations. Remove light poles and lighting structures as shown on electrical drawings. Remove concrete foundations to the extent shown and restore grading to match existing.
- 3.04 SALVAGE. Where indicated on the drawings, remove and salvage existing work for re-use elsewhere on the project. Salvaged materials shall be removed with care to prevent damage. Store, as may be necessary, to prevent damage.
- A. Face Brick. Salvage sufficient face brick to complete the work indicated, on the drawings, to be done with salvaged brick. Salvaged brick shall be without cracks or chips, shall have all mortar removed and shall be clean and suitable for re-use.
- 3.05 DEBRIS. All removed work not otherwise indicated, shall become the Contractor's property and shall be removed from the site and disposed of in a lawful manner.

END OF SECTION

SECTION 03 10 00
CONCRETE FORMWORK

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes furnishing labor and materials for formwork for cast-in-place concrete.
- B. Related Sections.
 - 1. See Section 03 20 00 for reinforcing steel.
 - 2. See Section 03 30 00 for required finishes of cast-in-place concrete.
 - 3. Coordinate with all other Sections and Division 26, for items to be embedded in concrete. Avoid omissions and duplications.

1.02 QUALITY CONTROL. The formwork shall be constructed, maintained, and adjusted during concrete placement to provide concrete surfaces with the following dimensional tolerances:

- A. Variation from the Plumb
 - 1. In columns, piers, walls, and arises:
 - a. 1/4" per 10'
 - b. But not more than 1"
 - 2. In exposed control-joint grooves, and other conspicuous lines:
 - a. In any bay or 20' maximum 1/4"
 - b. In 40' or more 1/2"
- B. Variation from the Level, grade, or elevation indicated:
 - 1. In slab soffits and in arises:
 - a. In 10' 1/4"
 - b. In any bay or 20' maximum 3/8"
 - c. In 40' or more 3/4"
 - 2. In exposed horizontal grooves, and other conspicuous lines:
 - a. In any bay or 20' maximum 1/4"
 - b. In 40' or more 1/2"
- C. Variation from Position in plan, of the established building lines, for columns, walls, and partitions:
 - 1. In any bay or 20' maximum 1/2"
 - 2. In 40' or more 1"
- D. Variation in the Size and Location of sleeves, floor openings, and wall openings: 1/4"

E. Variation in Cross-Sectional Dimensions of slabs and walls:

- | | |
|----------|------|
| 1. Minus | 1/4" |
| 2. Plus | 1/2" |

F. Footings

1. Variation from dimensions in plan:

a. Minus	1/2"
b. Plus	2"
2. Misplacement or eccentricity:
 - a. In the direction of misplacement (2 percent of the footing width)
 - b. But not more than 2"
3. Reduction in thickness: 5 percent of specified thickness

G. Variation in Stairs

1. In a flight of stairs:

a. Rise	1/8"
b. Tread	1/4"
2. In consecutive steps:

a. Rise	1/16"
b. Tread	1/8"

PART 2 - PRODUCTS

2.01 MATERIALS used for form construction shall be optional with the Contractor, except as otherwise specified elsewhere in this Section and where special appearances of the finished concrete surfaces are specified in Section 03 30 00. The materials used shall provide the appearances required. The forming materials and system used shall provide the required structural strength and shall provide the required adjustability so that the final concrete surfaces will be within the allowed dimensional tolerances.

- A. Form Hardware shall be suitable for the purpose and shall allow for the removal of all metal parts within 1 inch of the finished concrete surface.
- B. Form Coating shall be "Cast-Off" or "Nox-Crete" or equal. Containers shall have the manufacturer's instructions for use printed thereon.

PART 3 - EXECUTION

3.01 CONSTRUCTION of concrete formwork shall be sufficient to hold the fluid concrete to the required lines. Forms shall be grout tight. Surfaces which contact concrete shall be coated with form coating for easy release; keep coating material off reinforcing steel and other embedded work. Apply coatings in accordance with the manufacturer's instructions. Provide chamfer strips for exposed corners unless otherwise shown.

Construct formwork to be readily removable without damage to the concrete. Coordinate with mechanical and electrical work. All embedded items shall be securely anchored in place.

Provide bulkheads for the construction of contraction joints in curbs or curbs and gutters, or provide greased steel plates to pull out of the concrete for the formation of contraction joints. Locate joints as indicated; if not shown, provide contraction joints at 10-foot maximum centers. Provide for expansion joints where new work abuts existing, and at 40-foot maximum centers.

- 3.02 DETAILS AND DIMENSIONS. The drawings show the design requirements and dimensions for structural strength, but do not show detail dimensions to fit intricate architectural, mechanical, equipment, and electrical details. The concrete work shall be so constructed that it will conform to the clearances required by the architectural, electrical, mechanical, and equipment designs and shall include all provisions required for all approved items, and the contractor shall, at his own expense, do all cutting and patching necessary to insure proper installation of all required approved items called for by the Plans and Specifications.
- 3.03 DEFECTS. Forms for concrete, which will be exposed in the final work, shall have tight joints and smooth faces, and there shall not be any surface irregularities, dents, bumps, irregular joints, and the like which will produce corresponding irregularities in the concrete surfaces up to and including the specified dimensional tolerances within 2 feet or less.
- 3.04 REMOVAL. The Contractor shall remove all formwork and shall be responsible for damage which may occur due to the removal of the formwork. Coordinate formwork removal with concrete curing and required finish; see Section 03 30 00. Forms for walls, columns, sides of footings, and the like, may be removed at anytime that such removal work will not damage the concrete, considering also all applicable factors, but in no case less than 24 hours after the concrete was placed. After form removal, apply no loads to walls, columns, and the like, until adequate concrete strength has been confirmed by testing site-cured cylinders. The Contractor shall be responsible for any damage to the work during the course of the construction.

END OF SECTION

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SECTION 03 20 00

REINFORCING STEEL

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes the furnishing and placing of steel reinforcement for cast-in-place concrete construction and accessories for reinforcement.
- B. Related Sections.
 - 1. See Section 03 10 00 for formwork
 - 2. See Section 03 30 00 for cast-in-place concrete work.

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM) Newest versions.
 - 1. A82 Specification for Steel Wire, Plain, for Concrete Reinforcement
 - 2. A615/A615M Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
 - 3. A706/A706M Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
- B. Concrete Reinforcing Steel Institute (CRSI)
 - 1. Manual Manual of Standard Practice

1.03 SUBMITTALS

- A. Shop Drawings and setting diagrams shall be submitted for approval. Shop drawings shall show lengths, complete bending details, and locations of bars. Approval shall be obtained before proceeding with the work.
- B. Certifications. Submit Certifications of Conformance for each of the materials being furnished, from the producing mill, and also a Certificate from the immediate supplier that the steel shipped to the project is the steel that the mill certified.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Reinforcing Steel Bars shall be deformed bars rolled from new billet stock and shall conform to ASTM A615, Grade 60, including also the Supplementary Requirements amended thereto, or ASTM A706, Grade 60.

- B. Reinforcement Supports and spacers shall be of steel, concrete brick, and/or heavy-duty plastic and of suitable design and strength to hold the reinforcement accurately in place before and during the placing of concrete. Accessories shall conform to the requirements in the CRSI Manual of Standard Practice. Supports, spacers, and chairs that come in contact with earth or with forms for exposed concrete, interior or exterior, shall be galvanized or plastic coated or solid, heavy-duty plastic.
- 2.02 FABRICATION shall be in accordance with the CRSI Manual. Bars shall be bent cold to the dimensions required before placing. Bars containing kinks or short bends shall not be used. Bars shall be tagged and marked as to location to facilitate placing the steel in the field. Tags and marking shall be weather resistant.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. General. Reinforcing steel, when placed, and immediately before concrete placement, shall be clean and shall be free from paint, oil, grease, form coating, mortar, dirt, mill scale, rust, etc. A thin film of rust may be permitted at the discretion of the Engineer, provided the rust does not exceed that allowed by ASTM A615.

Place reinforcing within tolerances established in ACI-117 "Standard Tolerances for Concrete Construction and Materials" except that all vertical column reinforcing shall be placed within 1/4 inch of the location indicated on the drawings. Reinforcement shall be accurately placed to the dimensions shown on the drawings and shall be secured in place by bar supports, spacers, chairs, wiring, and nails. Bars shall be located so as to have the thicknesses of concrete covering shown on the drawings and, if not shown, coverage shall be not less than 3 inches for footings and 2 inches for foundation walls, and 1 inch elsewhere. Coverage shall not exceed that shown or specified except as follows; where 3 inches is required, 3-1/2 inches will be allowed; where 2 inches is required, 2-3/8 inches will be allowed; where 1 inch is required, 1-3/16 inches will be allowed.

Exposed reinforcing steel shall be sufficient cause for the rejection of concrete in which the exposed bar occurs. Bars shall be secured to supports and spacers and shall be wired to cross bars as may be required to keep bars in proper positions. Bars shall be free from dry or partially-set mortar and other foreign matter.

- B. Support. Footing reinforcement shall be supported on hychairs on concrete blocks whose top surface is flush with the subgrade, or hung from supports above the forms with a sufficiency of steel hangers. Steel mats in slabs on the ground shall be supported on hychairs or concrete blocks to insure its proper position in the slab. Hychairs shall be set on concrete bricks or concrete blocks whose top surface is flush with the subgrade surface.
- C. Lap for Bars shall be as shown on the drawings. If not shown, bars in slabs and vertical wall bars shall be lapped 48-inch diameters and horizontal wall bars in compression 64-inch diameters, but not less than 12 inches in either case. Comply with ACI 318 requirements.
- D. Control. No concrete shall be placed in any section until the steel in that section has been checked by the Contractor. The Contractor shall be responsible for the placement of the steel relative to location, amount, sizes, and proper positioning. Before placement of concrete in any section, the Contractor shall give notification to the Engineer sufficiently in advance to allow the Engineer's confirmation of the proper placing of the steel, but such confirmation shall not transfer any of the responsibility for the steel's proper placement away from the Contractor.

The placing of concrete in any section before the steel for the entire section has been placed is prohibited. Where there is delay in placing concrete, a neat square joint shall be made and the reinforcing steel shall be cleaned of cement, dry and partially set mortar, and other foreign material, before proceeding.

END OF SECTION

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SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

- 1.01 RELATED DOCUMENTS. Drawings and General Provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- 1.02 SUMMARY
- A. Section Includes furnishing and installing cast-in-place concrete and cement work including all labor, materials, and incidentals.
 - B. Related Sections. See Section 03 10 00 for concrete formwork. See Section 03 20 00 for reinforcement.
- 1.03 REFERENCES
- A. American Society for Testing and Materials (ASTM)
 - 1. C33-02a Specification for Concrete Aggregates
 - 2. C94/C94M-00e2 Specification for Ready-Mixed Concrete
 - 3. C150-05 Specification for Portland Cement
 - 4. C309-03 Specification for Liquid Membrane - Forming Compounds for Curing Concrete
 - 5. C494/494M-05a Specification for Chemical Admixtures for Concrete
 - 6. C595-05 Specification for Blended Hydraulic Cements
 - 7. C618-02 Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete
 - 8. C989-05 Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars
 - 9. C1017/C1017M-03 Specification for Chemical Admixtures for Use in Producing Flowing Concrete
 - 10. C1077-05b Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation
 - 11. D1751-04 Specification for Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types)
 - 12. D3406-95 (2006) Specification for Joint Sealant, Hot-Applied, Elastomeric-Type, for Portland Cement Concrete Pavements

1.04 SUBMITTALS

- A. Statistical History. Submit field or laboratory test records used to document that proposed mixture will achieve the required average compressive strength and other specified requirements in Article 2.02 for each class of concrete. Field test records must be from concrete supplied from the same production facilities proposed for the work. Test data shall be from concrete mixtures containing similar materials proposed for the work.
- B. Mix Designs. Submit properties of mix design for each class of concrete including:
 - 1. Specified compressive strength, f'_c
 - 2. Documentation of strength test results of similar concrete mixtures indicating the standard deviation in accordance with ACI 318.
 - 3. Required average compressive strength, f'_{cr}
 - 4. Average compressive strength of proposed mixtures
 - 5. Placement method
 - 6. Slump or slump flow
 - 7. Air content
 - 8. Density
 - 9. w/cm ratio
 - 10. Maximum aggregate size
 - 11. Sources and designations of ingredient materials proposed for use including:
 - a. Cementitious Materials
 - b. Aggregates, including combined aggregate gradation per 2.01B
 - c. Admixtures
 - d. Water
- C. Certifications
 - 1. Each applicable supplier shall provide a signed certification that delivered materials conform to the applicable ASTM Specification/s.
 - 2. Submit documentation indicating installer, manufacturer and testing agency meet the qualifications in Section 1.05 of ASTM Specifications.

1.05 PROJECT/SITE CONDITIONS

- A. Cold Weather. When daily low temperatures are below freezing and/or when it is likely that temperatures will be below freezing within seven days of the concrete placement, provide protection, heat, and/or heated materials so as to maintain the concrete at 45°F to 65°F for the complete seven day curing period. Provide sufficient thermometers, controls, and

supervision to assure that these requirements are being met. Maintain the protection so that concrete does not cool at more than 20°F per 24 hours.

Heating devices used shall not blow or radiate intense heat directly at concrete or formwork. Heating devices used shall not discharge products of combustion into enclosures. Maintain the required curing as specified elsewhere in this Section.

- B. Hot Weather. When weather conditions are such that excessive drying and/or premature set is liable to occur, provide wind screens, shading, and/or cooled materials so as to prevent these and to provide good finishing conditions, as applicable. If crushed ice is used, it must be 100% melted before discharge of the materials from the mixer.

1.06 QUALITY ASSURANCE

- A. Installer Qualifications. Installer shall employ and on-site supervisor of the finishing crew who is qualified as an ACI Certified Concrete Flatwork Technician for flatwork placing and finishing.
- B. Testing Agency Qualifications. Independent testing agency shall meet the requirements of ASTM C1077. The Owner shall be responsible for engaging the Independent Testing Agency for all testing requirements on this project.
 - 1. Personnel conducting field tests for acceptance shall be certified as ACI Concrete Field Testing Technician Grade I
 - 2. Personnel conducting laboratory tests for acceptance shall be certified as ACI Concrete Strength Testing Technician or ACI Concrete Laboratory Testing Technician – Grade I
 - 3. Test results for the purpose of acceptance shall be certified by a Professional Engineer licensed in the state of the Project and employed by the Testing Agency.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Cementitious Materials. Use materials meeting the following requirements with limitations specified in Article 2.02.
 - 1. Hydraulic Cement. ASTM C150 and/or ASTM C595
 - 2. Fly Ash. ASTM C618
 - 3. Slag. ASTM C989
 - 4. Silica Fume. ASTM C1240
- B. Normal Weight Aggregate. ASTM C33. Combined aggregate gradation shall be optimized to be well graded so that each standard sieve size within the gradation range (except the first and last size in the range) retains between 8% and 18% of the total mass of aggregate.
- C. Water. ASTM C1602
- D. Chemical Admixtures
 - 1. Air Entraining. ASTM C260

2. Water Reducing, accelerating and retarding. ASTM C494.
 3. Admixtures for flowing concrete. ASTM C1017
 4. Admixtures with no standard designation shall be used only with the permission of the Structural Engineer when its use for specific properties is required.
 5. Chloride based admixtures are prohibited from use in concrete that is in contact with steel or concrete that is visually exposed.
- E. Expansion Joint Filler, for interior use, shall be Homex 300, as made by the Homosote Company, Trenton, NJ, or Sonoflex F as made by Sonneborn Building Products, or equal. If not shown, provide 1/2-inch thick filler.
 - F. Expansion Joint Filler, for exterior use where elastomeric type sealer is not required, shall be bituminous fiber type conforming to ASTM D1751, thickness as shown. If not shown, provide 1/2-inch thick filler. Where elastomeric type sealer is required, use same filler as specified for interior use.
 - G. Elastomeric Type Joint Sealant shall be one-part, polyurethane type, gray color, "Sonolastic NP 1" as made by Sonneborn Building Products Division, "Sikaflex-1a" as made by Sika Chemical Corp., or "Dynatrol I" as made by Pecora Corp., or equal. Furnish the manufacturer's usage instructions with the shipment of the joint sealant.
 - H. Joint Sealant Back-Up for elastomeric type sealant shall be Ethafoam, Sonofoam, or equal, diameter slightly larger than the joint. Joint sealant back-up for hot applied sealant shall be W.R. Meadows "Sealtight" Backer Rope, or equal, diameter slightly larger than the joint.
 - I. Curing Compound, where permitted, shall conform to ASTM C309, Type I. Provide 'MB-429' by Master Builders, Cleveland, OH; or 'Rez Seal 800' by Euclid Chemical Co., Cleveland, OH; or 'Dress & Seal #18' by L & M Construction Chemicals, Omaha, NE; 'Kure-N-Seal 0800' by Sonneborn Building Products, ChemRex Inc., Minneapolis, MN; or equal. If curing compound is to be used on surfaces to receive further finish that is applied by adhesive, the Contractor shall determine suitability and shall obtain written confirmation from the adhesive manufacturer that the proposed curing compound will not interfere with the adhesive bond. Do not use curing compounds on concrete areas that are to be painted, or that will have a concrete sealer applied; those areas must be water cured. Furnish the manufacturer's usage instructions with the curing compound.
 - J. Sealer (Exterior Use) for prevention of freeze-thaw damage shall be water based EnviroSeal 40 by Hydrozo/ Degussa, or equal. Provide the manufacturer's usage instructions with the material to be used.

2.02 CONCRETE MIXTURES

- A. Prepare Design Mixtures for each class of concrete on the basis of laboratory trial mixtures or field test data, or both according to ACI 318, Chapter 5. Design mixtures shall meet all requirements listed in Table 2.02.
- B. The Installer and Manufacturer shall coordinate to establish properties of the fresh concrete to facilitate placement and finishing with minimal segregation and bleeding. Factors shall include but are not limited to slump or slump flow, set time, method of placement, rate of placement, hot and cold weather placement, curing, and concrete temperature.

Table 2.02 – Concrete Mixtures

Mix	Application	Exposure	f' _c	Nominal Maximum Aggregate Size ¹	Air Content	Maximum water/ cementitious materials ratio by weight	Cementitious Materials	Admixtures
1	Sidewalks, exterior slabs and Stoops	Freeze/thaw, Deicing chemicals (severe)	4500 psi	3/4 inch	6% ³	0.45	Limits on Supplementary Cementitious Materials ⁴	See Article 2.01 D. No Calcium Chloride admixtures
2	Foundation Walls	Freeze/thaw (moderate)	4000 psi	3/4 inch	4.5% ³	0.50	See Section 2.01 A	See Article 2.01 D. No calcium chloride admixtures.
3	Footings	None	4000 psi	3/4 inch	N/A ²	N/A	See Section 2.01 A	See Article 2.01 D. No calcium chloride admixtures.

Concrete Mixture Footnotes

1. A smaller nominal maximum aggregate size may be used at the discretion of the contractor, installer and manufacturer. Notify the engineer of the change.
2. No air entrainment is required. Contractor, installer and manufacturer may choose to include air entrainment to improve placement and finishing characteristics. Air content of concrete for slabs with hard trowel finish shall not exceed 3%.
3. Air content indicated in the table is for concrete with matching nominal maximum aggregate size indicated. If smaller maximum aggregate size is selected air content shall be adjusted upwards in accordance with ACI 318 Table 4.2.1

PART 3 - EXECUTION

3.01 PREPARATORY WORK. Spaces to be filled with concrete shall be cleaned free of debris and foreign materials. Forms shall be treated with suitable release agent. Subgrades shall be dampened to retain the moisture in the mix. Construction joints shall be cleaned, dampened, and slushed with neat cement grout. Provide expansion joint material as shown.

3.02 FIELD QUALITY ASSURANCE

A. Testing. Owner shall engage a qualified testing agency to perform concrete field tests and prepare test reports.

B. Concrete Field Tests

1. Concrete Test Samples. Samples for concrete tests shall be taken in accordance with ASTM C172.
2. Compressive Strength Tests on concrete:
 - a. Samples for concrete compressive strength tests of each class of concrete placed each day shall be taken not less than once per day, nor less than once for the first 20 cubic yards of concrete placed on each 8 hour shift and every 30 cubic yards of concrete, nor less than once for each 2000 square foot surface area for slabs and walls. If the total volume of concrete for a class is such that the frequency of testing required is less than five tests, then samples shall be made from at least five randomly selected batches or from each batch if fewer than five batches are used.

- b. Acceptance of concrete shall be based on strength test results of standard cured cylinders in accordance with ASTM C31 and tested at 28 days in accordance with ASTM C39. Strength test results are the average of two specimens.
 - c. When strength cylinders are made, tests of slump or slump flow, air content, temperature and density shall be made and recorded with the strength results.
 - d. Strength of each concrete class shall be deemed satisfactory when both of the following criteria are met:
 - 1) The average of three consecutive compressive strength tests equals or exceeds specified compressive strength.
 - 2) Any individual compressive strength test result does not fall below specified compressive strength by more than 500 psi.
 - e. When compressive strength tests indicate low strength, follow procedure in ACI 318 chapter 5.6.4 Investigation of low-strength test results.
 - f. In situations where the Contractor needs to verify strength of concrete prior to removal of shoring or formwork, additional cylinders shall be cast and identified as field cured cylinders to monitor early age strength of the concrete. The strength results of field cured cylinders are not recognized for determining the acceptability of the concrete furnished for the work. Contractor is responsible for coordinating field cured cylinders, and as such these cylinders may be cast by Contractor's personnel provided they are certified as an ACI Concrete Field Testing Technician Grade I.
3. Air Content. Testing for air content shall be done according to ASTM C231 each time a set of cylinders is cast for strength testing.
- a. Air content of air-entrained concrete when sampled from the transportation unit at the point of discharge shall be within a tolerance of plus or minus 1.5 of the specified value.
 - b. One jobsite adjustment of air entrainment is permitted under the provisions of ASTM C94 if air content is below the specified value.
 - c. In cases where the placement method can cause significant differences in fresh concrete characteristics from the point of discharge to the point of placement (i.e. pumping) the requirements for the concrete at the point of discharge from the transportation unit should be established between the manufacturer and the installer. Notify the Engineer of any changes in concrete requirements in these cases.
4. Slump or Slump Flow. ASTM C143 (Slump) or ASTM C 1611 and ASTM C1622 (Slump flow and J-ring); one test required each time a strength sample is made. Use Slump test for standard concrete and Slump Flow tests for self consolidating concrete.
5. Temperature. Testing for concrete temperature shall be done according to ASTM C1064 each time a set of cylinders is cast for strength testing.
6. Density. Testing for density shall be done according to ASTM C138 each time a set of cylinders is cast for strength testing.
7. Test results shall be reported to the Architect, Structural Engineer, Concrete Producer and Installer within 48 hours of testing.

3.03 PLACING CONCRETE. Measure, batch, deliver, and provide delivery ticket for each batch of concrete in accordance with ASTM C94.

No concrete which has commenced to set and no retempered concrete shall be used. Coordinate this work with the mechanical and electrical work. Work to be embedded shall be securely fastened in place. Place concrete only during suitable weather conditions or with suitable protection. Concrete shall not be placed on frozen soil.

Concrete shall be placed as soon as practicable after mixing. It shall be deposited in such manner as to cause no separation or segregation of the ingredients. Concrete shall not be dropped any considerable distance (not over 4 feet) through space. It shall not be deposited in large quantities at one place and permitted to run or be worked any considerable distance, but shall be deposited in its final position as nearly as practicable. Concrete shall be rammed, spaded, and agitated by suitable tools so as to produce a thoroughly compacted concrete of maximum density; and so that the concrete will present a smooth, finished, unbroken mortar surface without exposed stone or honeycombing when the forms are removed. Use power vibrators wherever applicable and provide a spare vibrator at the site when starting each concrete placement operation.

3.04 FINISHES

- A. Troweled Concrete shall be screeded, floated, and troweled. The finished surface shall be free from trowel marks, uniform in texture and appearance, and shall be a true plane within 3/16 inch in 10 feet.
 - 1. Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, note more than 1/8 inch over any 10-foot floor dimension. All floors shall be measured immediately after placing of concrete and after concrete cures. Surfaces not complying shall be diamond ground to meet these strict tolerances.
- B. Broom Finish shall be finished as specified for troweled concrete except that final finishing shall be with broomed, as directed, to produce non-slip surfaces. Direction of final floating or brooming shall be at right angles to the pedestrian traffic unless otherwise directed. Provide broom finish at exterior surfaces where shown.
- C. Tactile Warning Surface. Concrete paving surfaces indicated to have "tactile warning surface" finish, shall be finished as specified for troweled concrete except that after initial set, the paste surface shall be patterned with a steel die, to create a pattern of raised discs. The discs shall have nominal dimensions as follows, 0.90 inches in diameter, and 0.20 inches high, and be 2.35 inches on center each way. While the steel die is still in place the top surface of the discs shall be colored and hardened with a shake on, non-ferrous, metallic hardener, L&M Emery Top, or equal. The finished discs shall have a noticeable, dark on light or light on dark color contrast with the adjacent walk.
- D. Exposed Aggregate Finish. Concrete paving surfaces indicated to have "exposed aggregate" finish, shall be finished as specified for troweled concrete except that after initial set, the surface paste shall be removed to a depth of approximately 3/16", by a wash and scrub method. If chemical retarder or acid wash are used, manufacturer's use instructions shall be carefully followed.
- E. Formed Surfaces that will be concealed in the final work shall have tie holes and defects patched. Chip off any fins exceeding 1/4 inch in height. Concrete surfaces which indicate that forms have bulged 1/2 inch or more shall be cut back and repaired to the approval of the Architect/Engineer.

- F. Formed Surfaces that will be exposed to view in the final work shall receive a smooth rubbed finish produced on the freshly hardened concrete. Patch form holes and defects as soon as forms are removed, which shall be as soon as practicable. Correct any formed surfaces which are out of the design plane by more than the tolerances specified in Section 03 10 00. The day following the patching, surfaces shall be wetted and rubbed with Carborundum brick or other abrasive until a uniform color and texture are produced. No cement, grout, or slush shall be used other than the cement paste drawn from the green concrete itself by the rubbing process.
- 3.05 CURING. Newly placed concrete shall be kept damp on all surfaces for seven full days following the completion of each concrete placement. Curing operations shall commence as soon as it is practical without damaging the concrete surface. Curing methods used shall be appropriate to each situation. Curing compound shall not be used on surfaces to receive additional concrete and/or cement mortar applied finishes, or areas to receive paint or a concrete sealer; these areas shall be water cured. Conform to requirements specified elsewhere in this Section under "MATERIALS, Curing Compound," if using curing compound on surfaces to receive adhesive applied finishes, and/or similar. Curing shall not stain the concrete. Curing methods and maintenance thereof shall be subject to the Architect/Engineer's approval.
- 3.06 JOINTS. Provide construction and/or control joints as shown or as approved. For slabs-on-grade, if not otherwise shown, provide joints not to exceed 12 feet in each direction. The joints shall form rectangles with a length to width ratio of no more than 1.5. Joints in structural members shall be at or near mid-span. Control joints may be formed or sawed unless otherwise shown. Take special care to maintain uniform elevation on both sides of floor construction joints; correct by grinding if necessary. Sawing joints shall be properly timed so that shrinkage cracking has not yet occurred, but the concrete has set sufficiently so that the sawing cuts a straight, clean groove.
- A. Joint Sealing. Seal over expansion joint filler, as shown. Seal sawed or formed contraction joints. Use hot-applied and/or epoxy sealer where shown and/or specified, otherwise use elastomeric type. At expansion joints cut back the joint filler so that the sealer will be approximately square in cross section. At control joints insert back-up to a depth approximately equal to the width of the joint; use back-up material suitable for the sealer (hot or cold) to be used. Fill the joints with sealer; hold the hot-applied sealer slightly below the concrete surface. Elastomeric sealers shall be flush with the surrounding surface; tool smooth. Avoid misplacement of any sealer, and clean off any misplaced sealer.
- 3.07 FREEZE-THAW PROTECTION (EXTERIOR) SEALER shall be applied to all exterior concrete surfaces exposed to the weather and that are not vertical or approximately vertical. All areas to receive concrete sealer are to be water cured. Apply in accordance with the manufacturer's instructions, including number of coats and coverage per coat. Avoid misplacement of material.
- 3.08 PROTECTION OF CONCRETE. Freshly placed concrete shall be protected from damage from other construction activities such as soil compacting and pile driving. Soil within 100 feet of freshly poured concrete shall not be compacted until after the concrete has been cured a minimum of 48 hours. Do not drive piles within 100 feet of concrete that has been placed within 48 hours.

END OF SECTION

SECTION 04 01 20

MASONRY RESTORATION AND TUCKPOINTING

PART 1 - GENERAL

- 1.01 SUMMARY. Section includes furnishing all labor and material for repair and restoration of existing exterior masonry walls including tuckpointing and cleaning. Restoration and tuckpointing will be limited to areas of the project where demolition of exterior brick will occur, for example, at locations of vestibule demolition along the first and third base line stadium walls and also at expanded wall openings along the third base line.
- 1.02 RELATED SECTIONS. Also refer to the General Conditions, the Supplementary General Conditions, and Division One specifications. See Section 04 20 00 for new masonry work.

PART 2 - PRODUCTS

- 2.01 FACE BRICK shall be salvaged from areas of demolition. Care shall be taken so as to not damage the brick so that it may be reused in areas that may need repair. Only the quantity of brick that will be needed for patching and repair shall be taken from the areas of demolition and cleaned of excess mortar and prepared for restoration requirements.
- 2.02 MORTAR is specified in Section 04 20 00.
- 2.03 CLEANING AGENT for face brick shall be "Sure-Klean Heavy Duty Restoration Cleaner" as made by ProSoCo, or equal.

Furnish the complete manufacturer's instructions with the materials, and maintain these at the job site while the work is in progress.

PART 3 - EXECUTION

- 3.01 GENERAL. The work under this heading shall be done by workmen who are trained, experienced, and qualified for this work.
- The scaffolding shall be ground supported and shall not hang from or be otherwise supported from the roof-eave construction.
- 3.02 SEQUENCE AND COORDINATION. At any area of exterior wall, the required cleaning shall be done before the tuckpointing and other repair work. Coordinate this work with the required new masonry work and other work.
- 3.03 MASONRY REPAIR WORK. Cut out and replace broken and spalled bricks. Set the new replacement bricks in solid bedding of standard mortar; voids all around each brick shall be filled completely. Tool joints concave. Clean mortar smears from the face of the brick as the work proceeds. If the replacement bricks vary slightly in size, center each in position, and make joints slightly wider or narrower as may be required. All bidders shall inspect the building to determine for themselves the full extent of the required work.

3.04 TUCKPOINTING

Extent: Restoration and tuckpointing will be limited to areas of the project where demolition of exterior brick will occur, for example, at locations of vestibule demolition along the first and third base line stadium walls and also at expanded wall openings along the third base line.

- A. Joint Preparation. Joints shall have the mortar cut back by power tools to where the sound mortar is encountered, but in any event to a depth of not less than 1/2 inch. The cutting shall be done so that both the top and bottom of the brick shall be clean of old mortar in the cut out portion. All joints shall be blown free of dust, dirt, loose particles, and other foreign matter. Compressed air shall be oil-free.
- B. Filling Joints. If so directed, allow inspection by the Engineer and fill joints only after inspection. Provide suitable access for inspection.

Masonry shall be kept damp before filling to prevent excessive absorption of moisture from the mortar; however, there shall be no free water in the joints when mortar is applied.

Fill all joints, prepared as specified, with mortar. Use a pointing tool, smaller than the joint to pack full. After the joint has been completely filled and the mortar has hardened sufficiently, tool joints slightly concave. Use a tool larger than the joint, and compact mortar against the edges of the brick and/or stone, and make smooth, uniform, and slightly joints. Clean off any misplaced mortar and smears as the work proceeds, leaving the work neat and slightly.

New mortar shall be cured by wetting with a fine fog spray at the end of the working day during which it was placed.

END OF SECTION

SECTION 04 20 00

UNIT MASONRY

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes furnishing materials and labor required for the erection of all masonry work. Furnish and install masonry units, mortar, pointing mortar, grout for filling cells and bond beams of masonry units, non-shrink grout for setting bearing plates, and the like, truss-type reinforcing, and wire reinforcing. Set work required to be built into the masonry work. Furnish and install steel reinforcing.
- B. Related Sections.
 - 1. See Section 03 20 00 for Reinforcing Steel.
 - 2. See Section 04 01 20 for Masonry Restoration and Tuckpointing. Coordinate the work. Avoid duplications and/or omissions.
- C. Installed, But Furnished Under Other Sections.
 - 1. Reinforcing for bond beams and lintels and vertical rod type reinforcing is specified to be furnished under Section 03 20 00.
 - 2. See Section 05 50 00 for steel shapes required for lintels, shelf angles, and the like required to be built into the structure.

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - 1. A123 Specification for Zinc (Hot-Dip Galvanized Coatings on Iron and Steel Products
 - 2. A153/A153M Specification for Zinc Coating Iron and Steel Hardware
 - 3. A615/A615M Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
 - 4. C55 Specification for Concrete Building Brick
 - 5. C62 Specification for Bldg. Brick (Solid Masonry Units Made from Clay or Shale)
 - 6. C90 Specification for Hollow Load-Bearing Concrete Masonry Units
 - 7. C91 Specification for Masonry Cement
 - 8. C126 Specification for Ceramic Glazed Structural Clay Facing Tile, Facing Brick and Solid Masonry Units
 - 9. C144 Specification for Aggregate for Masonry Mortar

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| 10. | 1C150 | Specification for Portland Cement |
| 11. | 1C207 | Specification for Hydrated Lime for Masonry Purposes |
| 12. | C216 | Specification for Facing Brick (Solid Masonry Units made from Clay or Shale) |
| 13. | 1C270 | Specification for Mortar for Unit Masonry |
| 14. | 1C404 | Specification for Aggregates for Masonry Grout |
| 15. | C476 | Specification for Grout for Reinforced and Non-reinforced Masonry |
| 16. | C744 | Specification for Prefaced and Calcium Silicate Masonry Units |
| 17. | C1107 | Specification for Packaged Dry, Hydraulic-Cement Grout (Non-shrink) |
| 18. | A615/A615M | Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement |
| 19. | E119 | Method for Fire Tests of Building Construction and Materials |

B. Corps of Engineers

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| 1. | CDR C621 | Specification for Non-Shrink Grout |
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1.03 SUBMITTALS

- A. Test Reports. Submit test results and Certification of Conformance for face brick, concrete block, and cavity wall insulation. The testing intervals shall be as required by the applicable ASTM Standards, or specific samples and testing shall be made for this project.
- B. ASTM C270. Provide a copy of C270 at the job site while work is in progress.
- C. Manufacturer's Data for wire and truss type reinforcing and flashing materials shall be submitted for approval.
- D. Job Site Mock-Up Panel. Prior to installation of masonry work, erect mock-up panel using materials, bond, and joint tooling required by the documents. Build mock-up panel as indicated on the drawings; if not indicated on the drawings provide a panel not less than 2'-0"x2'-0". The panel must show the typical range of color and texture of the masonry and mortar that will be provided and the workmanship to be expected in the completed work. Obtain acceptance of the visual qualities of the mock-up panel by the Architect before starting masonry work. Retain mock-up panel during construction as a standard for judging completed masonry work. Do not alter, move, or destroy the mock-up panel unless directed to do so by the Architect.
- E. Design Mix. Provide the dry weights of cement and saturated surface-dry weights of sand and pea gravel and quantities, types, and name of admixtures (if any) and of water per cubic yard of grout that will be used in the manufacture of each type of grout. Also furnish evidence satisfactory to the Architect/Engineer that the materials to be used and proportions selected will produce grout of the quality specified. When grout for cores is specified, verify masonry absorption characteristics and design grout for absorption rates to be encountered, to provide optimum strength of the grouted cores.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Masonry Units shall be stored off the ground and protected from the weather.
- B. Mortar Materials shall be packaged such as to prevent deterioration or intrusion of foreign materials, including also water. Store cementitious materials off the ground and covered. Any material that has become unsuitable for good construction shall not be used.
- C. Reinforcement, anchors, ties, etc., shall be stored so as to prevent contamination and rusting.

1.05 PROJECT/SITE CONDITIONS

- A. Protection of Work. Masonry work shall be covered and protected from the elements at the end of each day's work or whenever necessary due to weather conditions or job site conditions. Protection shall be designed and installed to prevent the entry or accumulation of water, precipitation, or other contaminants from entering the cores of the masonry units. The cover used to protect the masonry must extend a minimum of 24 inches down both sides of the masonry and the cover must be held securely in place.
- B. Loading. Do not apply uniform floor loading or roof loading for at least 12 hours after building masonry walls or columns. Do not apply concentrated loads for at least three days after building masonry walls or columns.
- C. Staining. Prevent grout or mortar or soil from staining the face of masonry to be left exposed or painted. Remove immediately grout or mortar in contact with such masonry. Protect base of walls from rain-splashed mud and mortar splatter by means of coverings spread on ground and over wall surfaces. Protect sills, ledges, projections, and other masonry from droppings or mortar.
- D. Cold Weather
 - 1. Masonry shall be kept at a temperature above freezing until the mortar has attained sufficient strength and set so that it will not be damaged by freezing. Requirements elsewhere in this Section are minimum. Provide enclosures and heating. Materials shall be heated to not less than 50°F and not more than 80°F before laying and the work shall be protected as necessary to prevent damage after laying. Air temperature of not less than 50°F shall be maintained on all sides of the masonry for a period of at least 72 hours immediately after placing the masonry. In cold weather, if the covering has been removed or heating discontinued, and work is to be resumed, the masonry shall be enclosed and heated so that the complete work is at least at 50°F before additional work is built thereon.
 - 2. Mortar materials shall be heated so that the resulting mortar, after mixing, will be between 50° and 80°F. Mixing water temperature shall not exceed 160°F. Sand must be free of frozen lumps before being put into the mixer or mixing box.

Non-shrink mortar and grout shall be mixed and used during cold weather conditions in accordance with the manufacturer's recommendations.

- 1.06 WARRANTY. The Contractor shall build the exterior walls so that they will be weather-tight. Any leaks evidenced by moisture appearing on the inside within the correction period shall be repaired by the Contractor without expense to the Owner.

PART 2 - PRODUCTS

2.01 MATERIALS FOR MORTARS AND GROUTS shall comply with the requirements of the respective ASTM mortar specification referenced elsewhere in this Section, except that Type I Portland cement conforming to ASTM C150 shall be used, and cements conforming to C595 shall not be used. Use hydrated lime conforming to ASTM C207, Type S. Mortar throughout shall be made with Portland cement and lime and shall not be made with masonry cement. Aggregate for mortar shall conform to the requirements of ASTM C144, except for joints less than 1/4" use aggregate graded with 100% passing the No. 16 sieve. Use natural color or white cement as required to produce required mortar color.

A. Mortar for use throughout the work shall be a type as specified herein and in accordance with ASTM C270. Mortar for exterior walls shall have Sonneborn "Hydrocide Powder" or equal, added to the mortar in strict accordance with the manufacturer's directions. Calcium chloride shall not be used in mortars.

1. Mortar types and areas of usage. Unless noted otherwise in specific applications, the mortar types noted here shall be used for the entire project for the area of usage noted:

- a. Type N Mortar: Use at all above grade "veneer" facing of walls.
- b. Type S Mortar: Use at all exterior and interior walls including foundations.
- c. Type M Mortar: For Contractor's option on below grade walls/ foundations.

B. Tuckpointing Mortar, for repair of existing face brick shall be composed of one part Portland cement, one part ASTM C207 Type S hydrated lime, five parts sand, and one pound of admixture per sack of cement; all proportions by volume, except for admixture. Admixture shall be Sonneborn "Hydrocide Powder" or equal. Sand shall be measured damp and loose. Measure in suitable measuring boxes and not by counting shovelfuls. Mortar shall match existing mortar color; make trial mixes, using pigments, as necessary, cure, and obtain approval before proceeding.

C. Non-Shrink Grout shall be prepackaged, non-metallic, non-gaseous. It shall be non-shrink when tested in accordance with Corps of Engineers CDR C621 and ASTM C1107 at a fluid (flow cone) consistency of 20-30 seconds. Provide the manufacturer's usage instructions with the material, and keep at the job site while this work is being done. Grout shall bleed free and attain 7000 psi compressive strength in 28 days when tested at fluid consistency, and results shall be certified by independent test data. Provide 'Masterflow 713' by Master Builders, Cleveland, OH; or 'N-S Grout' by Euclid Chemical Co., Cleveland, OH; or 'Duragrout' by L&M Construction Chemicals, Omaha, NE; or equal.

D. Grout for filling cells/cores and other voids in reinforced and non-reinforced masonry shall conform to ASTM C476, Coarse Type with aggregate size conforming to ASTM C404, size 8 or 89. Use grout of consistency indicated or, if not otherwise indicated, of consistency (fine or coarse) at time of placement which will completely fill all spaces intended to receive grout.

E. Reinforcing Steel Bars shall be deformed bars rolled from new billet stock and shall conform to ASTM A615, Grade 60, including also the Supplementary Requirements amended thereto, or ASTM A706, Grade 60.

2.02 MASONRY UNITS

A. Face Brick shall be existing brick salvaged from Wade Stadium selective demolition areas. The brick shall be undamaged, cleaned and reused in areas of required patching.

- B. Concrete Block shall conform to ASTM C90, Grade N. Typically provide standard weight type concrete blocks made with sand and gravel aggregate. Provide blocks suitable for construction of rated fire walls as shown and/or as required.
1. Blocks shall be stored on the site for at least 28 days prior to being used, except that the Architect/Engineer will approve the use of autoclaved blocks cured at a minimum of 350°, and a minimum pressure of 125 psi, without an on-site curing period. Storage at the block manufacturing plant for the 28-day period may be approved by the Architect/Engineer if protection from weather and moisture, method of identification and records, certification and facilities for inspection are satisfactory in the opinion of the Architect/Engineer.
 2. Blocks shall be uniform in color and texture, regular in size and shape, whole, sound, and unbroken. Provide special shapes and special blocks as required including header blocks, bond beam blocks, lintel blocks, solid blocks, special pattern blocks, scored blocks, "break-off" blocks, and all other specials required. Corner blocks and other standard shapes shall be used as necessary so that walls will be smooth and free of voids and depressions. Provide bullnose blocks for vertical corners on interior work unless otherwise shown on the drawings.

2.03 ACCESSORIES

- A. Reinforcement. Provide welded wire units prefabricated in straight lengths in not less than 10 feet, with matching corner ("L") and intersecting ("T") units. Fabricate from wire complying with ASTM A2, with deformed continuous side rods and plain cross rods. The truss should be sized to position side rods for full embedment in mortar with mortar coverage of not less than 5/8 inch on joint faces exposed to exterior and not less than 1/2 inch elsewhere.
1. For non-cavity type walls and partitions, reinforcement shall be "Dur-O-Wal Truss" by Dur-O-Wal, Arlington Heights, IL; or "Blok-Trus AA600" by AA Wire Products Company, Chicago, IL; or equal, welded reinforcement made of two parallel No. 9 gauge high tensile strength wires with No. 9 gauge truss wires. Galvanizing shall conform to ASTM A123, Grade 65 or ASTM A153, Class B-2 on wall reinforcement installed below grade; and galvanizing on other reinforcement shall conform to ASTM A153, Class D or ASTM A123, Grade 35.
 2. Rod type reinforcement is specified under Section 03 20 00 and shall conform to ASTM A615, Grade 60.
- B. Ties. Ties specified are by Dur-O-Wal, Arlington Heights, IL. Equal and equivalent products by AA Wire Products Company, Chicago, IL, may be used. All ties shall be hot dipped galvanized (1.50 oz. psf), and conform to ASTM A123.
1. At locations that have non-masonry back-up walls use ties noted as 'Veneer Anchor Ties.' The Veneer Anchor Ties shall be Dur-O-Wal veneer anchor 'D/A 213;' use corrosion-resistant screws Type 'D/A 807.'
- C. Anchors for anchoring to steel and poured concrete backup. Anchors specified are by Dur-O-Wal, Arlington Heights, IL. Equal and equivalent products by AA Wire Products Company, Chicago, IL may be used. All anchors shall be hot dipped galvanized (1.50 oz. psf), and conform to ASTM A123.
1. Non-masonry (steel/wood) back-up wall anchors. Use anchors noted as 'Veneer Anchors.' The Veneer Anchor shall be Dur-O-Wal veneer anchor 'D/A 213;' use corrosion-resistant screws Type 'D/A 807.'

- D. Joint Filler for tops of masonry partitions, at members subject to deflection, shall be "Shok Pak," Dur-O-Wal "Rapid Soft Joint," or equal. Joint filler for cut stone work shall be Sonneborn Vinylfoam Soft Type, or Rescor Expansion Joint, or equal. Joint filler for vertical joints to accommodate horizontal expansion shall be Dur-O-Wal "Rapid Expansion Joint," or equal. Filler to form voids between masonry and structural steel shall be "Box Board Column Wrap," or equal.
- E. Exterior Block Sealer shall be Siloxane PD by PROSOCO, Inc.
- F. Weep Hole Material. Provide 1/4 inch diameter 100% cotton sash cord.
- G. Bond Breaker Strips. Provide 15 lb. asphalt felt complying with ASTM D226.
- H. Mortar Catch Material shall be "Mortar Net" by Mortar Net USA Ltd. or others.

PART 3 - EXECUTION

3.01 GENERAL

- A. Provisions Applicable to All Masonry Unit Types. Concrete and masonry on which brick, block, or tile are to be laid shall be cleaned and moistened just before starting this work to prevent excessive absorption of water from the mortar and to provide good bond. All masonry shall be covered and protected from the elements. Walls shall be anchored at ends and intersections. Walls shall be braced as may be necessary. Partitions shall be built up to the underside of work overhead unless otherwise shown and/or directed. Where shown, and where walls and partitions build up to members subject to deflection, provide compressible filler at tops of walls and partitions, using foam strips as specified. Use special shapes, bricks, etc., and construct lintels and the like as required to fit work above the ceiling lines to the structural and mechanical work. Build around structural steel columns and beams, as shown. Cut masonry units as may be necessary to fit to structural steel columns and/or beams. Build in filler between masonry and structural steel as shown. Where masonry units require cutting and the cut edges will be exposed to view, use a power masonry saw for cuts. Do not chip.

Masonry surfaces shall be true planes with a tolerance of not more than 3/8 inch in 10 feet. Corners, jambs, and the like shall be plumb with an allowed tolerance of 1/8 inch in 10 feet, and accumulative out-of-plumb shall not exceed 3/8 inch for any structure.

Fill cores in masonry units where necessary for securing bolts, anchors, and other fastenings, where necessary for good bearing, or as shown on the drawings; coordinate with other trades.

At bond beams provide grout fill specified in this Section (2000 psi minimum); and reinforcing as specified in Section 03 20 00, and as noted on the drawings.

At masonry cores to be filled, fill with grout (ASTM C476) 2000 psi minimum, and as noted on the drawings. For grout provide a slump of 8 inches to 10 inches (8 inches in masonry with low absorption and 10 inches in masonry with high absorption).

Cut or patch masonry at recesses for electrical boxes, and the like, so that voids will be concealed when trim or cover plates are installed.

Collar joints in multiple wythe, non-cavity construction shall be filled solidly with mortar.

Take special care to protect sills during construction.

- B. Bond. The masonry work shall be laid level, plumb, and to lines indicated, in all stretcher, Running Bond unless otherwise shown or specified; see Article 3.02 of this Section. Face brick and concrete block bond shall be laid out dry and adjusted before starting work. Adjusting bond, after one or more courses have been laid, will not be permitted. Bond of masonry work shall be arranged for maximum strength at embedded work. Masonry, including partitions, shall be properly bonded together at corners and intersections.
- C. Chases. The Contractor shall coordinate with the parties doing the heating, ventilating, plumbing and electrical work with reference to recesses that may be required for their work, and shall leave same accordingly. No chases shall be built in load bearing walls and piers except as directed by the Architect/Engineer.
- D. Hollow Metal Frames shall be set accurately in place, plumbed and braced, and then the masonry and other work shall be built around them; coordinate placement of borrowed light frames with masonry construction. Extra care shall be taken to assure that the jambs are parallel with each other and vertical, and square to the head. Check setting each frame before building around it and see that jambs are parallel and plumb, that head is level and at correct elevation, and that frame as a whole is in proper position and alignment. Fill frames with mortar as masonry work progresses. Provide temporary spreaders for door frames as necessary to keep jambs straight during laying of masonry.

3.02 MASONRY CONSTRUCTION

- A. Face Brick bond shall be Running Bond. Wet brick as may be necessary to reduce suction and to prevent excessive absorption of moisture from the mortar. Where 8-inch (nominal) square units are being used, lay with the cores vertical. Fit neatly to obstructions.

All joints in brick shall be completely filled with mortar. Slushing (i.e., throwing mortar into a joint with the edge of a trowel) shall not be done. Before laying a brick or part thereof to close the space between two other bricks already laid, place mortar on ends of each of the brick in the wall and on the brick to be placed, and then shove the closure into place. All brick shall be laid in uniform beds of mortar, with ends of bricks buttered with mortar, shoving the bricks into place so as to get full head joints. Cut off mortar squeezed out of joints to prevent staining the wall, and as required to maintain the cavity clear of obstruction. Non-cavity, exterior brick-faced walls shall have the space between the face brick and the back-up masonry filled solidly with mortar. Where practicable, first build up several face brick courses and parge coat the back with mortar, and then lay the backing, filling solidly. Do not parge at cavity walls.

- B. Concrete Block moisture content shall be the minimum consistent with mortar strength, bond, and shrinkage of blocks. Face shell joints shall be completely filled with mortar. Use concrete bricks to fill in where work will be concealed or as may be shown and/or directed. Construct bond beams, lintels and pilasters in concrete block work as shown, filling voids in standard bond beam blocks with concrete and reinforcing steel. Unless otherwise shown, vertical corners for interior work shall be bullnosed. Also see provisions elsewhere in this Section on reinforcement and on lintels. Fill as the work proceeds so as to completely fill all voids.
- C. Reinforcement
 - 1. Non-cavity type construction. Interior and exterior non-cavity walls and concrete block partitions shall have reinforcement in every alternate block course joint (every 16 inches in height). Also provide additional wall reinforcement in the first or second joints above and below openings, whichever does not otherwise have reinforcement, extending two feet beyond the jambs of the openings. Also provide an additional line of wall reinforcing at approximate grade line for masonry foundation walls. Coordinate the placement of reinforcing and required through-wall flashings so that these do not occur in the same joint; adjust reinforcing up or down a course if necessary.

Lap wall reinforcement shall be at least six inches at necessary joints. Reinforcement shall be continuous through control joints. Cut reinforcement at expansion joints. Cut one longitudinal rod and bend around corners. Lap for wall thickness at intersections. Embed longitudinal wire completely in mortar.

Place vertical reinforcing in walls and/or partitions as shown. Place reinforcement for bond beams and lintels. Note that rod type reinforcement is specified to be furnished under Section 03 20 00. Place and lap steel rods as shown. If not shown, bars in tension shall be lapped 36 diameters and bars in compression 24 diameters, but not less than 12 inches in either case. Embed all rod type reinforcing solidly and continuously in grout as specified in this Section. Verify with Structural Department. Where applicable, provide suitable material to prevent grout from flowing into cells where not required. Grouting shall be done in accordance with IBC Section 2104.

- D. Mortar Joints. Where not otherwise shown and/or specified, joints in exposed masonry work and masonry work to be waterproofed shall be tooled slightly concave. Tool joints when the mortar is "thumbprint" hard. Special care shall be taken with the striking joints so that the joints are completely filled, leaving a smooth, hard, compact surface. To obtain this, a striking tool shall be used and the mortar shoved with force so as to pack the mortar tightly against the masonry unit. Use a tool slightly larger than the joint. Strike up to, but not over, sash cord wicks where these occur. Provide 3/8-inch joints, unless noted otherwise. Maintain joint widths, except for minor variations required to maintain bond alignment.
- E. Control Joints (in Concrete Masonry). Bond beams fill and reinforcement and wall reinforcement shall be continuous through control joints unless otherwise shown. Build in filler in control joints. Build in metal parts specified in Section 05 50 00. Control Joints (in Concrete Masonry) shall be constructed as shown. If control joints in the concrete masonry are not shown, provide 3/8" wide vertical soft joints, to provide for shrinkage and crack control, in concrete masonry walls at horizontal intervals of not more than three times the wall height and in no case more than 30 feet, unless noted otherwise.
- F. Lintels shall be constructed as shown, using standard lintel blocks or tile, as applicable, filled with grout and reinforced with reinforcing steel. Grout shall conform with this Section. Build in steel lintels furnished under Section 05 50 00. Bearings for lintels shall be not less than 8 inches.
- G. Common or Concrete Brick at the Contractor's option may be used for back up where the work will be concealed and may be used to fill in odd spaces and shapes for concealed work in partitions, such as above the ceiling lines, etc. Lay in solid bedding mortar.

3.03 MIXING MORTAR, except for pointing mortars, shall be as follows. Mixing shall be done with a suitable motor driven batch mixing machine of design and capacity approved by the Architect/Engineer. Measurement of materials shall be such that the required proportions of materials are controlled and accurately maintained. Review method with the Architect/Engineer before starting this work, and obtain the Architect/Engineer's approval. Mix a minimum of three minutes or longer, if necessary, until thoroughly blended and of uniform consistency. Mortar shall be used within one and one half hours after mixing. Retempering mortar will be permitted only to the extent of replacing water lost by evaporation and also provided that the mortar does not contain coloring pigment. Clean mixer and/or mixing tools at least daily and dispose of materials cleaned from these.

- A. Tuckpointing Mortar. Mix all of the dry material, thoroughly blending the ingredients. Mix in about half the water or enough water to produce a damp mix which will retain its shape when formed into a ball by hand. Mix the mortar for 3 to 7 minutes, with a mechanical mixer. Allow the mortar to stand for 45 minutes to one hour for prehydration of the cementitious materials to reduce shrinkage. Add the remaining water and mix for 3 to 5 minutes.

3.04 NON-SHRINK GROUTING, structural steel, and similar items shall be done as shown and as required. Use non-shrink grout, as specified in this Section, under structural steel. Place grout so as to get solid material without voids. Finish off edges neatly.

3.05 GROUTING for filling cells and other voids in reinforced and non-reinforced masonry shall be 2000 psi grout made in accordance with Chapter 21 of the International Building Code 2000 (and Minnesota State Building Code Amendments). Note that cleanouts are required for all lifts of more than 5'-0". Slump tests shall be made as necessary to maintain uniform consistency and also when directed by the Architect/Engineer. Equipment for slump tests shall be on the job at all times grout is being placed. Slump tests may be made by properly trained Contractor's personnel. Strength tests shall be made representing each 5 cubic yards of grout placed with not less than one set of two grout samples made and tested for the entire project. Two samples of the grout shall be taken at its place of manufacture. One grout sample shall be tested at seven days and the remaining grout sample shall be tested at 28 days. The test results shall be forwarded to the Architect/Engineer immediately after each test for review.

At masonry cores to be filled with grout (ASTM C476), provide a slump of 8 inches to 10 inches, (8 inches in masonry with low absorption and 10 inches in masonry with high absorption). Verify the masonry absorption characteristics before any cores are grouted.

3.06 CLEANING AND POINTING. The Contractor shall, at a time approved by the Architect/Engineer near the completion of the work, clean down the new interior and exterior masonry work. Concrete blockwork shall have misplaced mortar removed and defective joints repaired. Defective joints shall be raked out and pointed and all holes in mortar joints shall be filled.

Brick shall be cleaned as follows. Cleaning shall be done with soap powder boiled in clean water, applied vigorously with stiff fiber brushes. Diluted acid and water may be used for exterior brickwork if all other work is protected and if the use of acid is approved by the brick supplier. Provide written evidence of such approval. Dilute acid shall be a 1:10 solution (one part commercial grade muriatic acid and ten parts water). Where use of acid is not suitable for the bricks furnished, use a commercial cleaning compound approved by the brick supplier. No metal brushes or containers shall be used for any of this work. All traces of cleaning mixtures shall be removed by rinsing with clean water.

3.07 EXTERIOR SEALER. If Autoclaved block is used, after cleaning of all exterior masonry, apply siloxane block sealer as recommended by the manufacturer. If blocks are CO₂ cured, no sealer is required.

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SECTION 05 50 00
METAL FABRICATIONS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes the furnishing and installing of miscellaneous steel and iron work. The items and descriptions in this Section may not cover all the work required by the drawings. Work that is custom fabricated from metal but is not described elsewhere shall be included under this Section, even if not described. Such work shall be good and suitable for the purpose intended.
- B. Furnished, But Not Installed. Work that is to be embedded in concrete or built into masonry shall be delivered to the site, but installed under Section 03 10 00 or 04 20 00, as applicable.

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - 1. A36/A36M-94 Specification for Carbon Structural Steel
 - 2. A48-94a Specification for Gray Iron Castings
 - 3. A53-95 Specification for Pipe, Steel, Black, and Hot-Dipped, Zinc-Coated, Welded and Seamless
 - 4. A123-97a Specification for Zinc (Hot-Dipped Galvanized) Coating on Iron and Steel Products
 - 5. A780-93a Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
 - 6. D 6386-99 Preparation of Zinc (Hot Dipped Galvanized) coated iron and steel products and hardware surfaces for painting
- B. The Society for Protective Coatings (SSPC)
 - 1. SSPC-SP1 Solvent Cleaning
 - 2. SSPC-SP2 Hand Tool Cleaning
 - 3. SSPC-SP3 Power Tool Cleaning
 - 4. SSPC-SP6 Commercial Blast Cleaning

- 1.03 SUBMITTALS.** Shop Drawings for construction and erection of miscellaneous metal fabrications shall be submitted for approval. Shop drawings shall include plans, elevations, and details, including anchorage and accessory items. Provide templates for anchor and bolt installation by others. The Contractor shall be responsible for all dimensions and relations to other work.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Stainless Steel shall be Type 304 unless otherwise noted.
- B. Steel Shapes shall conform to ASTM A36.
- C. Steel Pipe shall conform to ASTM A53, Type S, Grade B. Also, pipe shall not have surface defects which impair its appearance.
- D. Paint for shop coat, shall be:
 - 1. For Exterior Steel. Clean per SSPC-SP6 and provide 2.5 DTM, Tnemec 394 Urethane Primer, or Zinc Clad by Sherwin Williams Co., or equal.
 - 2. If Galvanized, abrasive blast and provide 2.5 DTM Tnemec Series 66, or Corothane I Mastic by Sherwin Williams, or equal.
- E. Primer shall be a gray metal primer, No. 10-1009 by Tnemec, B-50 Series by Sherwin Williams, Rustgard 4140-6120 by ICI/Devroe Coatings, or equal.
- F. Galvanizing Repair Paint shall be ZRC Cold Galvanizing Bituminous/Coal Tar Compound by ZRC Products Co., Quincy, MA; or Corothane I Galvapac by Sherwin Williams Co.; or equal.

2.02 COMPONENTS. Also see Article 1.01 of this Section.

- A. Steel Lintels shall be provided, as shown and as required, using beams, angles, plates, and other required shapes. Unless indicated otherwise, provide steel angle lintels, one 4"x3-1/2"x5/16" for each nominal 4-inch width of wall. Lintels shall bear at least 8 inches on masonry at each end, unless otherwise shown. All steel lintels that occur in an exterior wall cavity or exterior wall construction shall be hot dipped galvanized per ASTM A123 after fabrication.
- B. Steel Pipe Railing and Handrails for stairs, and guardrails, shall be provided as shown on the drawings. Where not otherwise shown, pipe for railings and handrails shall be:
 - 1. Bottom Railings. 1-1/2 inches nominal, ASTM A53, Schedule 40 pipe (od: 1.90 inches, wall: 0.145 inch, wt: 2.72 lbs/ft).
 - 2. Top Railing. 1-1/2 inches Schedule 40 pipe.
 - 3. Posts. 1-1/2 inches O.D. Schedule 80 pipe.

All exterior pipe shall be hot-dip galvanized.

Railings and handrails shall be neatly fabricated as indicated. Railings and handrails shall be smooth, with all projections and corners ground smooth. Welds shall be flush. Members shall be neatly coped and continuously welded at all junctions. Top rails shall run continuously over posts. All welding shall be done neatly and substantially, with fillets dressed to uniform radius, with all excess metal removed and welds ground smooth.

As applicable, coordinate with steel stair construction and construct railing posts for attachment thereto. As applicable, provide baseplates and expansion anchors to attach to concrete to receive railing posts, as shown and as required.

- C. Stair Tread Nosings for cast-in-place concrete stairs shall be provided. Nosings at exterior applications shall be Wooster No. 101 Series (provide for steel pan or concrete stairs) x 3" width, Alumogrit, or American Abrasive Metals, Style A x 3", Aluminum with grit, or equal. Nosings shall be 6 inches shorter than the stair tread. Nosings shall have bolted-on anchors.
- D. Plates and/or Angles to be built into masonry shall be provided as shown or as required. Include chemical anchors at noted on the plans.

2.03 FABRICATION

- A. Workmanship shall be good throughout and consistent with the purpose of the work in each case. Bolts and rivets shall be countersunk and flush where exposed to view, except as otherwise shown or specified. Welds exposed to view shall be ground smooth and flush. All joints shall be tight and neat.
- B. Cleaning and Painting. Thoroughly clean all steel in strict accordance with SSPC-SP6. All steel work shall be cleaned and painted one coat in the shop.
- C. Galvanizing Repair. All galvanized items shall have galvanizing repaired that is damaged by cutting, welding, rough handling, and other means of damage. Galvanizing repair shall be by a high zinc dust content compound for regalvanizing welds and other damage in galvanized steel, complying with ASTM A780-93a and Federal Specification DOD-P-21035A (Galvanizing Repair Spec.). At all repair areas, provide a 2-3 mil dry film thickness of cold galvanizing compound and extend the coating at least 2 inches beyond all edges of the damaged galvanized area.

PART 3 - EXECUTION

- 3.01 ERECTION/INSTALLATION. All of this work shall be set accurately in place and permanently fastened in a neat and workmanlike manner. The work shall be plumb, level, or to the slopes shown, as the case may be. Railing posts shall be plumb with a tolerance of 1/8 inch allowed. Furnish all sleeves, bolts, screws, anchors, and expansion shields, etc., and do all drilling, tapping, cutting, etc., as necessary for the installation to be complete.
 - A. Galvanizing Repair. Clean surfaces as required by anticipated service application as recommended by the manufacturer, and as stated herein. The surface preparation noted here is a minimum, and provide the required higher level of surface preparation noted in ASTM A780-93a, Federal Specification DOD-P-21035A, and manufacturer's recommendations, if the application so warrants. For weld repairs, remove all spatter by power tool cleaning (preferred) per SSPC-SP3; or if unable to use power tools due to clearances, do hand tool cleaning per SSPC-SP2; allow to dry and clean surface with solvent per SSPC-SP1. For other damaged areas, clean per SSPC-SP10, or if field service will include immersion clean per SSPC-SP5.

END OF SECTION

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SECTION 11 63 33

BASEBALL FIELD EQUIPMENT

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes furnishing and installing baseball field equipment, as specified herein including installation at locations as shown on the Drawings or as standard with the NCAA. All equipment shall meet the NCAA Baseball Rules Committee requirements.
- B. Work of Related Sections
 - 1. See Section 13 34 16 for metal bleachers and pre-fabricated press box.
 - 2. See Division 32 for construction of playing field.

1.02 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For equipment. Include plans, elevations, sections, details, and attachments to other work.
- C. Samples: For Initial Color Selection.

1.03 QUALITY ASSURANCE

- A. Installer Qualifications: Installing workers shall be trained and approved by manufacturer. Such approval shall be in writing and submitted to the Architect at time of shop drawing review.

1.04 WARRANTY

- A. Manufacturer shall warrant the products and their installation for a 1 year period, from Date of Substantial Completion, from flaws in both product and installation.

PART 2 - PRODUCTS

2.01 BASEBALL EQUIPMENT MANUFACTURERS.

- A. Sportsfield Specialties, Delhi, NY 1-888-875-3343 or equals by one of the following:
 - 1. Baseball Field Equipment USA, Pembroke Pines, FL; 1-800-380-5056;
www.baseballfieldequipmentusa.com
 - 2. Mid America Sports Advantage, Jasper, IN; 1-800-264-4579;
www.sportsadvantage.com
- OR
- 3. Pre-bid approved equal for all components specified.

2.02 BACKSTOP NET

- A. Provide 30-foot high nylon backstop net and 6" diameter aluminum pole structure and ground sleeves (4 such), as required.
 - 1. Sportsfield Specialties # TFBSS630-AP, with 3' standard arc offset; or equal. Subtract 8'-6" for elevated bleacher and guardrail wire mesh fencing. Provide nylon rope to integrate net into top of wire mesh fencing.
 - 2. Or equal.

2.03 FOUL BALL POLES

- A. Provide two bolt-on 30-foot high yellow poles and flags, with separate concrete footings.
 - 1. Sportsfield Specialties # LGFPW630-PL with hot dip galvanized nuts and lock washers.
 - 2. Or equal.

2.04 BATTING TUNNELS

- A. Provide a double, netted batting tunnel at location per drawings:
 - 1. Sportsfield # LG0BT-BD complete with powder coated option, 7020 nets (2).
 - 2. Or equal.

2.05 PITCHING MOUND ACCESSORIES

- A. Four-sided buried pitching rubber blocks. Provide five (5) pitching rubber blocks, one for main field and two each for each bullpen area.
 - 1. Sportsfield # BBPB
 - 2. Or equal.

2.06 PROTECTIVE PVC FOR TOP OF FENCE/ GUARDRAIL

- A. Yellow cap for top of fence around entire playing field, including guard rail at backstop:
 - 1. Sportsfield # PC-250+ in length required.
 - 2. Or equal.

2.07 BATTER'S EYE SCREEN & OUTFIELD WIND SCREEN

- A. In addition to the yellow cap specified above, provide a Wind-screen/batters-eye screen along entire outfield fence, 6 feet high, over wire mesh fencing, by Sportsfield or others. Wire mesh fencing is specified and provided under work of another Section.

2.08 BASEBALL PLATES

- A. Provide anchored plates and plugs for all bases.
 - 1. Three bases shall be: Sportsfield "BBPL" set; or equal. (One set for main field.)
 - 2. Home plate shall be: Sportsfield "Hollywood MLB Pro Style, SHP-UM"; or equal. Provide one at main field and two each additional for each bullpen area and one each at each batting tunnels. (Seven total.)

PART 3 - EXECUTION

3.01 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions and Drawings. Complete equipment field assembly, where required.
- B. Placed Equipment and Components: Rigid, level, plumb, square, and true; anchored securely; positioned at locations indicated or approved on Shop Drawings.

3.02 CLEANING

- A. After completing equipment installation, inspect components. Remove spots, dirt, and debris and touch up damaged shop-applied finishes according to manufacturer's written instructions.
- B. Replace equipment and finishes that cannot be cleaned and repaired, in a manner approved by Architect, before time of Final Completion.

END OF SECTION

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SECTION 26 05 19

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Building wires and cables rated 600 V and less.
2. Connectors, splices, and terminations rated 600 V and less.

1.02 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.03 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

PART 2 - PRODUCTS

2.01 CONDUCTORS AND CABLES

- A. Copper Conductors: Comply with NEMA WC 70/ICEA S-95-658.
- B. Conductor Insulation: Comply with NEMA WC 70/ICEA S-95-658 for Type XHHW-2.

2.02 CONNECTORS AND SPLICES

- A. Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

2.03 SYSTEM DESCRIPTION

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

PART 3 - EXECUTION

3.01 CONDUCTOR MATERIAL APPLICATIONS

- A. Feeders: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.
- B. Branch Circuits: Copper. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

3.02 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

- A. Service Entrance: Type XHHW-2, single conductors in raceway.
- B. Exposed Feeders: Type THHN/THWN-2, single conductors in raceway or Type XHHW-2, single conductors in raceway.
- C. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspace: Type THHN/THWN-2, single conductors in raceway.
- D. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Type XHHW-2, single conductors in raceway.
- E. Exposed Branch Circuits, Including in Crawlspace: Type THHN/THWN-2, single conductors in raceway.
- F. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: Type XHHW-2, single conductors in raceway.

3.03 INSTALLATION OF CONDUCTORS AND CABLES

- A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.
- B. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.
- C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.
- E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

3.04 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.
- B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
- C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches of slack.

3.05 IDENTIFICATION

- A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."
- B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

3.06 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.07 FIRESTOPPING

- A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Section 078413 "Penetration Firestopping."

3.08 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
 - 1. After installing conductors and cables and before electrical circuitry has been energized, test service entrance and feeder conductors for compliance with requirements.
 - 2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
 - 3. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each splice in conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner. Correct deficiencies determined during the scan.
 - a. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each splice 11 months after date of Substantial Completion.
 - b. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
 - c. Record of Infrared Scanning: Prepare a certified report that identifies splices checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.
- B. Test and Inspection Reports: Prepare a written report to record the following:
 - 1. Procedures used.
 - 2. Results that comply with requirements.
 - 3. Results that do not comply with requirements and corrective action taken to achieve compliance with requirements.
- C. Cables will be considered defective if they do not pass tests and inspections.

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SECTION 26 05 26

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes grounding and bonding systems and equipment.

1.02 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Burndy; Part of Hubbell Electrical Systems.
 - 2. Dossert; AFL Telecommunications LLC.
 - 3. ERICO International Corporation.
 - 4. Fushi Copperweld Inc.
 - 5. Galvan Industries, Inc.; Electrical Products Division, LLC.
 - 6. Harger Lightning & Grounding.
 - 7. ILSCO.
 - 8. O-Z/Gedney; a brand of Emerson Industrial Automation.
 - 9. Robbins Lightning, Inc.
 - 10. Siemens Power Transmission & Distribution, Inc.

2.02 SYSTEM DESCRIPTION

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with UL 467 for grounding and bonding materials and equipment.

2.03 CONDUCTORS

- A. Insulated Conductors: Copper or tinned-copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

B. Bare Copper Conductors:

1. Solid Conductors: ASTM B 3.
2. Stranded Conductors: ASTM B 8.
3. Tinned Conductors: ASTM B 33.
4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch in diameter.
5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
6. Bonding Jumper: Copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.
7. Tinned Bonding Jumper: Tinned-copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches wide and 1/16 inch thick.

2.04 CONNECTORS

- A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.
- B. Bolted Connectors for Conductors and Pipes: Copper or copper alloy.
- C. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.
- D. Bus-Bar Connectors: Mechanical type, cast silicon bronze, solderless compression-type wire terminals, and long-barrel, two-bolt connection to ground bus bar.

2.05 GROUNDING ELECTRODES

- A. Ground Rods: Copper-clad steel; 3/4 inch by 10 feet.

PART 3 - EXECUTION

3.01 APPLICATIONS

- A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.
- B. Underground Grounding Conductors: Install bare tinned-copper conductor, No. 2/0 AWG minimum.
 1. Bury at least 24 inches below grade.
- C. Conductor Terminations and Connections:
 1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
 2. Underground Connections: Welded connectors except at test wells and as otherwise indicated.

3. Connections to Ground Rods at Test Wells: Bolted connectors.
4. Connections to Structural Steel: Welded connectors.

3.02 GROUNDING AT THE SERVICE

- A. Equipment grounding conductors and grounding electrode conductors shall be connected to the ground bus. Install a main bonding jumper between the neutral and ground buses.

3.03 GROUNDING UNDERGROUND DISTRIBUTION SYSTEM COMPONENTS

- A. Comply with IEEE C2 grounding requirements.
- B. Pad-Mounted Transformers and Switches: Install two ground rods around the pad. Ground pad-mounted equipment and noncurrent-carrying metal items associated with substations by connecting them to underground cable and grounding electrodes. Install tinned-copper conductor not less than No. 2 AWG for taps to equipment grounding terminals.

3.04 EQUIPMENT GROUNDING

- A. Install insulated equipment grounding conductors with all feeders and branch circuits.
- B. Install insulated equipment grounding conductors with the following items, in addition to those required by NFPA 70:
 1. Feeders and branch circuits.
 2. Lighting circuits.
 3. Receptacle circuits.
 4. Single-phase motor and appliance branch circuits.
 5. Three-phase motor and appliance branch circuits.
 6. Flexible raceway runs.
 7. Armored and metal-clad cable runs.
- C. Water Heater, Heat-Tracing, and Antifrost Heating Cables: Install a separate insulated equipment grounding conductor to each electric water heater and heat-tracing cable. Bond conductor to heater units, piping, connected equipment, and components.
- D. Poles Supporting Outdoor Lighting Fixtures: Install grounding electrode and a separate insulated equipment grounding conductor in addition to grounding conductor installed with branch-circuit conductors.
- E. Metallic Fences: Comply with requirements of IEEE C2.
 1. Grounding Conductor: Bare, tinned copper, not less than No. 8 AWG.
 2. Gates: Shall be bonded to the grounding conductor with a flexible bonding jumper.

3.05 INSTALLATION

- A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- B. Ground Bonding Common with Lightning Protection System: Comply with NFPA 780 and UL 96 when interconnecting with lightning protection system. Bond electrical power system ground directly to lightning protection system grounding conductor at closest point to electrical service grounding electrode. Use bonding conductor sized same as system grounding electrode conductor, and install in conduit.
- C. Ground Rods: Drive rods until tops are 2 inches below finished floor or final grade unless otherwise indicated.
 - 1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.
- D. Grounding and Bonding for Piping:
 - 1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes; use a bolted clamp connector or bolt a lug-type connector to a pipe flange by using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.
 - 2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
 - 3. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.

3.06 FIELD QUALITY CONTROL

- A. Perform tests and inspections. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.

END OF SECTION

SECTION 26 05 29

HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Hangers and supports for electrical equipment and systems.

1.02 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Signed and sealed by a qualified professional engineer. For fabrication and installation details for electrical hangers and support systems.

C. Delegated-Design Submittal: For hangers and supports for electrical systems.

1. Include design calculations and details of trapeze hangers.

1.03 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Reflected ceiling plan(s) and other details, drawn to scale, and coordinated with each other, using input from installers of the items involved:

B. Welding certificates.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 40 00 "Quality Requirements," to design hanger and support system.

2.02 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

A. Steel Slotted Support Systems: Comply with MFMA-4 factory-fabricated components for field assembly.

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

- a. Allied Tube & Conduit; a brand of Atkore International.

- b. Cooper B-Line, Inc.; a division of Cooper Industries.

- c. ERICO International Corporation.

- d. Flex-Strut Inc.

- e. GS Metals Corp.
 - f. G-Strut.
 - g. Haydon Corporation.
 - h. Metal Ties Innovation.
 - i. Thomas & Betts Corporation, A Member of the ABB Group.
 - j. Unistrut; an Atkore International company.
 - k. Wesanco, Inc.
2. Material: Pre-galvanized steel.
 3. Channel Width: 1-5/8 inches.
 4. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
 5. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane, or polyester coating applied according to MFMA-4.
 6. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
 7. Protect finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
 8. Channel Dimensions: Selected for applicable load criteria.
- B. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
 - C. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be made of malleable iron.
 - D. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M steel plates, shapes, and bars; black and galvanized.
 - E. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
 1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) Hilti, Inc.

- 2) ITW Ramset/Red Head; Illinois Tool Works, Inc.
 - 3) MKT Fastening, LLC.
 - 4) Simpson Strong-Tie Co., Inc.
2. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel, for use in hardened portland cement concrete, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
 - a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1) Cooper B-Line, Inc.; a division of Cooper Industries.
 - 2) Empire Tool and Manufacturing Co., Inc.
 - 3) Hilti, Inc.
 - 4) ITW Ramset/Red Head; Illinois Tool Works, Inc.
 - 5) MKT Fastening, LLC.
 3. Concrete Inserts: Steel or malleable-iron, slotted support system units are similar to MSS Type 18 units and comply with MFMA-4 or MSS SP-58.
 4. Clamps for Attachment to Steel Structural Elements: MSS SP-58 units are suitable for attached structural element.
 5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
 6. Hanger Rods: Threaded steel.

2.03 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

- A. Description: Welded or bolted structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.
- B. Materials: Comply with requirements in Section 055000 "Metal Fabrications" for steel shapes and plates.

PART 3 - EXECUTION

3.01 APPLICATION

- A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems unless requirements in this Section are stricter.
- B. Comply with requirements for raceways and boxes specified in Section 260533 "Raceways and Boxes for Electrical Systems."
- C. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMTs, IMCs, and RMCs as required by NFPA 70. Minimum rod size shall be 1/4 inch in diameter.

- D. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.
 - 1. Secure raceways and cables to these supports with single-bolt conduit clamps using spring friction action for retention in support channel.
- E. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

3.02 SUPPORT INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this article.
- B. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.
- C. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements.
- D. Drill holes for expansion anchors in concrete at locations and to depths that avoid the need for reinforcing bars.

3.03 INSTALLATION OF FABRICATED METAL SUPPORTS

- A. Comply with installation requirements in Section 055000 "Metal Fabrications" for site-fabricated metal supports.
- B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.
- C. Field Welding: Comply with AWS D1.1/D1.1M.

3.04 PAINTING

- A. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION

SECTION 26 05 33

RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Metal conduits, tubing, and fittings.
2. Nonmetal conduits, tubing, and fittings.
3. Metal wireways and auxiliary gutters.
4. Nonmetal wireways and auxiliary gutters.
5. Surface raceways.
6. Boxes, enclosures, and cabinets.
7. Handholes and boxes for exterior underground cabling.

B. Related Requirements:

1. Section 260543 "Underground Ducts and Raceways for Electrical Systems" for exterior ductbanks, manholes, and underground utility construction.

1.02 ACTION SUBMITTALS

A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.

B. LEED Submittals:

1. Product Data for Credit IEQ 4.1: For solvent cements and adhesive primers, documentation including printed statement of VOC content.
2. Laboratory Test Reports for Credit IEQ 4: For solvent cements and adhesive primers, documentation indicating that products comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

C. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, and attachment details.

1.03 INFORMATIONAL SUBMITTALS

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

1. Structural members in paths of conduit groups with common supports.

2. HVAC and plumbing items and architectural features in paths of conduit groups with common supports.

PART 2 - PRODUCTS

2.01 METAL CONDUITS, TUBING, AND FITTINGS

- A. Listing and Labeling: Metal conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. GRC: Comply with ANSI C80.1 and UL 6.
- C. ARC: Comply with ANSI C80.5 and UL 6A.
- D. IMC: Comply with ANSI C80.6 and UL 1242.
- E. EMT: Comply with ANSI C80.3 and UL 797.
- F. FMC: Comply with UL 1; aluminum.
- G. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.
- H. Fittings for Metal Conduit: Comply with NEMA FB 1 and UL 514B.
 1. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 886 and NFPA 70.
 2. Fittings for EMT:
 - a. Material: Steel.
 - b. Type: Setscrew or compression.
 3. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.
- I. Joint Compound for IMC, GRC, or ARC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

2.02 NONMETALLIC CONDUITS, TUBING, AND FITTINGS

- A. Listing and Labeling: Nonmetallic conduits, tubing, and fittings shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. ENT: Comply with NEMA TC 13 and UL 1653.
- C. LFNC: Comply with UL 1660.
- D. Continuous HDPE: Comply with UL 651B.
- E. Coilable HDPE: Preassembled with conductors or cables, and complying with ASTM D 3485.

- F. Fittings for ENT and RNC: Comply with NEMA TC 3; match to conduit or tubing type and material.
- G. Fittings for LFNC: Comply with UL 514B.
- H. Solvent cements and adhesive primers shall have a VOC content of 510 and 550 g/L or less, respectively, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- I. Solvent cements and adhesive primers shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

2.03 METAL WIREWAYS AND AUXILIARY GUTTERS

- A. Description: Sheet metal, complying with UL 870 and NEMA 250, Type 1 or Type 3R unless otherwise indicated, and sized according to NFPA 70.
 - 1. Metal wireways installed outdoors shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.

2.04 NONMETALLIC WIREWAYS AND AUXILIARY GUTTERS

- A. Listing and Labeling: Nonmetallic wireways and auxiliary gutters shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Description: Fiberglass polyester, extruded and fabricated to required size and shape, without holes or knockouts. Cover shall be gasketed with oil-resistant gasket material and fastened with captive screws treated for corrosion resistance. Connections shall be flanged and have stainless-steel screws and oil-resistant gaskets.
- C. Description: PVC, extruded and fabricated to required size and shape, and having snap-on cover, mechanically coupled connections, and plastic fasteners.
- D. Fittings and Accessories: Couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings shall match and mate with wireways as required for complete system.
- E. Solvent cements and adhesive primers shall have a VOC content of 510 and 550 g/L or less, respectively, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- F. Solvent cements and adhesive primers shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

2.05 BOXES, ENCLOSURES, AND CABINETS

- A. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.

- B. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.
- C. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, ferrous alloy or aluminum, Type FD, with gasketed cover.
- D. Nonmetallic Outlet and Device Boxes: Comply with NEMA OS 2 and UL 514C.
- E. Luminaire Outlet Boxes: Nonadjustable, designed for attachment of luminaire weighing 50 lb. Outlet boxes designed for attachment of luminaires weighing more than 50 lbs shall be listed and marked for the maximum allowable weight.
- F. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.
- G. Cast-Metal Access, Pull, and Junction Boxes: Comply with NEMA FB 1 and UL 1773, cast aluminum with gasketed cover.
- H. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 3R with continuous-hinge cover with flush latch unless otherwise indicated.
 - 1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
 - 2. Nonmetallic Enclosures: Fiberglass.
 - 3. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.
- I. Cabinets:
 - 1. NEMA 250, Type 3R galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
 - 2. Hinged door in front cover with flush latch and concealed hinge.
 - 3. Key latch to match panelboards.
 - 4. Metal barriers to separate wiring of different systems and voltage.
 - 5. Accessory feet where required for freestanding equipment.
 - 6. Nonmetallic cabinets shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.06 HANDHOLES AND BOXES FOR EXTERIOR UNDERGROUND WIRING

- A. General Requirements for Handholes and Boxes:
 - 1. Boxes and handholes for use in underground systems shall be designed and identified as defined in NFPA 70, for intended location and application.
 - 2. Boxes installed in wet areas shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Polymer-Concrete Handholes and Boxes with Polymer-Concrete Cover: Molded of sand and aggregate, bound together with polymer resin, and reinforced with steel, fiberglass, or a combination of the two.
 - 1. Standard: Comply with SCTE 77.

2. Configuration: Designed for flush burial with open bottom unless otherwise indicated.
3. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure and handhole location.
4. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
5. Cover Legend: Molded lettering, "ELECTRIC."

PART 3 - EXECUTION

3.01 RACEWAY APPLICATION

- A. Outdoors: Apply raceway products as specified below unless otherwise indicated:
 1. Exposed Conduit: GRC.
 2. Concealed Conduit, Aboveground: GRC or RNC, Type EPC-40-PVC.
 3. Underground Conduit: RNC, Type EPC-40-PVC, Type EPC-80-PVC, or HDPE.
 4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC or LFNC.
 5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.
- B. Indoors: Apply raceway products as specified below unless otherwise indicated.
 1. Exposed, Not Subject to Physical Damage: EMT or RNC.
 2. Exposed, Not Subject to Severe Physical Damage: EMT.
 3. Exposed and Subject to Severe Physical Damage: GRC. Raceway locations include the following:
 - a. Garages.
 - b. Corridors used for traffic of mechanized carts, forklifts, and pallet-handling units.
 - c. Mechanical rooms.
 4. Concealed in Ceilings and Interior Walls and Partitions: EMT.
 5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
 6. Damp or Wet Locations: GRC.
 7. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4 stainless steel in institutional and commercial kitchens and damp or wet locations.
- C. Minimum Raceway Size: 3/4-inch trade size.
- D. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
 2. PVC Externally Coated, Rigid Steel Conduits: Use only fittings listed for use with this type of conduit. Patch and seal all joints, nicks, and scrapes in PVC coating after installing conduits and fittings. Use sealant recommended by fitting manufacturer and apply in thickness and number of coats recommended by manufacturer.
 3. EMT: Use setscrew or compression, steel fittings. Comply with NEMA FB 2.10.
 4. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.
- E. Do not install aluminum conduits, boxes, or fittings in contact with concrete or earth.
- F. Install surface raceways only where indicated on Drawings.
- G. Do not install nonmetallic conduit where ambient temperature exceeds 120 deg F.

3.02 INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.
- B. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
- C. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for hangers and supports.
- D. Arrange stub-ups so curved portions of bends are not visible above finished slab.
- E. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches of changes in direction.
- F. Conceal conduit and EMT within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.
- G. Support conduit within 12 inches of enclosures to which attached.
- H. Raceways Embedded in Slabs:
1. Run conduit larger than 1-inch trade size, parallel or at right angles to main reinforcement. Where at right angles to reinforcement, place conduit close to slab support. Secure raceways to reinforcement at maximum 10-foot intervals.
 2. Arrange raceways to cross building expansion joints at right angles with expansion fittings.
 3. Arrange raceways to keep a minimum of 2 inches of concrete cover in all directions.
 4. Do not embed threadless fittings in concrete unless specifically approved by Architect for each specific location.

5. Change from ENT to GRC before rising above floor.
- I. Stub-ups to Above Recessed Ceilings:
 1. Use EMT, IMC, or RMC for raceways.
 2. Use a conduit bushing or insulated fitting to terminate stub-ups not terminated in hubs or in an enclosure.
 - J. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.
 - K. Coat field-cut threads on PVC-coated raceway with a corrosion-preventing conductive compound prior to assembly.
 - L. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.
 - M. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch trade size and insulated throat metal bushings on 1-1/2-inch trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.
 - N. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 48 inches of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.
 - O. Surface Raceways:
 1. Install surface raceway with a minimum 2-inch radius control at bend points.
 2. Secure surface raceway with screws or other anchor-type devices at intervals not exceeding 48 inches and with no less than two supports per straight raceway section. Support surface raceway according to manufacturer's written instructions. Tape and glue are not acceptable support methods.
 - P. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces.
 - Q. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:
 1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
 2. Where an underground service raceway enters a building or structure.
 3. Where otherwise required by NFPA 70.
 - R. Expansion-Joint Fittings:
 1. Install in each run of aboveground RNC that is located where environmental temperature change may exceed 30 deg F and that has straight-run length that exceeds 25 feet.

2. Install type and quantity of fittings that accommodate temperature change listed for each of the following locations:
 - a. Outdoor Locations Not Exposed to Direct Sunlight: 125 deg F temperature change.
 - b. Outdoor Locations Exposed to Direct Sunlight: 155 deg F temperature change.
 - c. Indoor Spaces Connected with Outdoors without Physical Separation: 125 deg F temperature change.
 - d. Attics: 135 deg F temperature change.
3. Install fitting(s) that provide expansion and contraction for at least 0.00041 inch per foot of length of straight run per degree F of temperature change for PVC conduits.
4. Install expansion fittings at all locations where conduits cross building or structure expansion joints.
5. Install each expansion-joint fitting with position, mounting, and piston setting selected according to manufacturer's written instructions for conditions at specific location at time of installation. Install conduit supports to allow for expansion movement.
- S. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches of flexible conduit for equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
 1. Use LFMC in damp or wet locations subject to severe physical damage.
 2. Use LFMC or LFNC in damp or wet locations not subject to severe physical damage.
- T. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a rain-tight connection between the box and cover plate or the supported equipment and box.
- U. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.
- V. Locate boxes so that cover or plate will not span different building finishes.
- W. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.
- X. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.

3.03 INSTALLATION OF UNDERGROUND CONDUIT

- A. Direct-Buried Conduit:
 1. Excavate trench bottom to provide firm and uniform support for conduit.

2. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction.
3. Install manufactured duct elbows for stub-up at poles and equipment and at building entrances through floor unless otherwise indicated. Encase elbows for stub-up ducts throughout length of elbow.
4. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through floor.
 - a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete for a minimum of 12 inches on each side of the coupling.
 - b. For stub-ups at equipment mounted on outdoor concrete bases and where conduits penetrate building foundations, extend steel conduit horizontally a minimum of 60 inches from edge of foundation or equipment base. Install insulated grounding bushings on terminations at equipment.
5. Underground Warning Tape: Comply with requirements in Section 260553 "Identification for Electrical Systems."

3.04 INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES

- A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting conduits to minimize bends and deflections required for proper entrances.
- B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.
- C. Elevation: Set so cover surface will be flush with finished grade.
- D. Field-cut openings for conduits according to enclosure manufacturer's written instructions. Cut wall of enclosure with a tool designed for material to be cut. Size holes for terminating fittings to be used, and seal around penetrations after fittings are installed.

3.05 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.06 PROTECTION

- A. Protect coatings, finishes, and cabinets from damage and deterioration.
 1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
 2. Repair damage to PVC coatings or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION

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SECTION 26 05 43

UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Direct-buried conduit, ducts, and duct accessories.
2. Concrete-encased conduit, ducts, and duct accessories.
3. Handholes and boxes.

1.02 ACTION SUBMITTALS

A. Product Data: For ducts and conduits, handholes, and boxes, and their accessories.

B. Shop Drawings:

1. Precast or Factory-Fabricated Underground Utility Structures:

- a. Include plans, elevations, sections, details, attachments to other work, and accessories.
- b. Include duct entry provisions, including locations and duct sizes.
- c. Include reinforcement and joint details, frame and cover design, and manhole frame support rings.

2. Factory-Fabricated Handholes and Boxes Other Than Precast Concrete:

- a. Include dimensioned plans, sections, elevations, accessory locations, and fabrication and installation details.
- b. Include duct entry provisions, including locations and duct sizes.

1.03 INFORMATIONAL SUBMITTALS

A. Product Certificates: For concrete and steel used in precast concrete handholes, as required by ASTM C 858.

B. Qualification Data: For professional engineer and testing agency responsible for testing nonconcrete handholes and boxes.

C. Source quality-control reports.

D. Field quality-control reports.

1.04 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.

1.05 FIELD CONDITIONS

- A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Owner or others unless permitted by Owner, and then only after arranging to provide temporary electrical service.

PART 2 - PRODUCTS

2.01 GENERAL REQUIREMENTS FOR DUCTS AND RACEWAYS

- A. Comply with ANSI C2.

2.02 CONDUIT

- A. Rigid Steel Conduit: Galvanized. Comply with ANSI C80.1.
- B. RNC: NEMA TC 2, Type EPC-40-PVC and Type EPC-80-PVC, UL 651, with matching fittings by same manufacturer as the conduit, complying with NEMA TC 3 and UL 514B.

2.03 NONMETALLIC DUCTS AND DUCT ACCESSORIES

- A. Underground Plastic Utilities Duct: NEMA TC 2, UL 651, ASTM F 512, Type EPC-80 and Type EPC-40, with matching fittings complying with NEMA TC 3 by same manufacturer as the duct.
- B. Duct Accessories:
 - 1. Duct Separators: Factory-fabricated rigid PVC interlocking spacers.
 - 2. Warning Tape: Underground-line warning tape specified in Section 260553 "Identification for Electrical Systems."

2.04 PRECAST CONCRETE HANDHOLES AND BOXES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Christy Concrete Products.
 - 2. Elmhurst-Chicago Stone Co.
 - 3. Oldcastle Precast, Inc.
 - 4. Rinker Group, Ltd.
 - 5. Riverton Concrete Products.
 - 6. Utility Concrete Products, LLC.
 - 7. Utility Vault Co.
 - 8. Wausau Tile Inc.
- B. Comply with ASTM C 858 for design and manufacturing processes.

- C. Description: Factory-fabricated, reinforced-concrete, monolithically poured walls and bottom unless open-bottom enclosures are indicated. Frame and cover shall form top of enclosure and shall have load rating consistent with that of handhole or box.
1. Frame and Cover: Weatherproof cast-iron frame, with cast-iron cover with recessed cover hook eyes and tamper-resistant, captive, cover-securing bolts.
 2. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
 3. Cover Legend: Molded lettering, "ELECTRIC."
 4. Configuration: Units shall be designed for flush burial and have open bottom unless otherwise indicated.
 5. Extensions and Slabs: Designed to mate with bottom of enclosure. Same material as enclosure.
 - a. Extension shall provide increased depth of 12 inches.
 - b. Slab: Same dimensions as bottom of enclosure, and arranged to provide closure.
 6. Joint Sealant: Asphaltic-butyl material with adhesion, cohesion, flexibility, and durability properties necessary to withstand maximum hydrostatic pressures at the installation location with the ground-water level at grade.
 7. Windows: Precast, reinforced openings in walls, arranged to match dimensions and elevations of approaching ducts and duct banks, plus an additional 12 inches vertically and horizontally to accommodate alignment variations.
 8. Duct Entrances in Handhole Walls: Cast end-bell or duct-terminating fitting in wall for each entering duct.
 9. Handholes 12 inches wide by 24 inches long and larger shall have inserts for cable racks and pulling-in irons installed before concrete is poured.

2.05 HANDHOLES AND BOXES OTHER THAN PRECAST CONCRETE

- A. General Requirements for Handholes and Boxes: Comply with SCTE 77. Comply with tier requirements in "Underground Enclosure Application" Article.
1. Color: Gray.
 2. Configuration: Units shall be designed for flush burial and have open bottom unless otherwise indicated.
 3. Cover: Weatherproof, secured by tamper-resistant locking devices and having structural load rating consistent with enclosure.
 4. Cover Finish: Nonskid finish shall have a minimum coefficient of friction of 0.50.
 5. Cover Legend: Molded lettering, "ELECTRIC."
 6. Handholes 12 inches wide by 24 inches long and larger shall have factory-installed inserts for cable racks and pulling-in irons.

- B. Fiberglass Handholes and Boxes: Molded of fiberglass-reinforced polyester resin, with covers made of polymer concrete or reinforced concrete.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Carson Industries LLC.
 - b. Armorcast
 - c. Nordic Fiberglass, Inc.
 - d. Quazite: Hubbell Power Systems, Inc.
- C. High-Density Plastic Boxes: Injection molded of high-density polyethylene or copolymer-polypropylene. Cover shall be made of polymer concrete.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Carson Industries LLC.
 - b. Nordic Fiberglass, Inc.
 - c. PenCell Plastics.
 - d. Quazite: Hubbell Power Systems, Inc.

PART 3 - EXECUTION

3.01 UNDERGROUND DUCT APPLICATION

- A. Ducts for Electrical Feeders 600 V and Less: RNC, NEMA Type EPC-40-PVC, in direct-buried duct bank unless otherwise indicated.
- B. Ducts for Electrical Branch Circuits: RNC, NEMA Type EPC-40-PVC, in direct-buried duct bank unless otherwise indicated.
- C. Underground Ducts Crossing Paved Paths, Walks, Driveways, and Roadways: RNC, NEMA Type EPC-40-PVC.

3.02 UNDERGROUND ENCLOSURE APPLICATION

- A. Handholes and Boxes for 600 V and Less:
 - 1. Units in Roadways and Other Deliberate Traffic Paths: Precast concrete. AASHTO HB 17, H-20 structural load rating.
 - 2. Units in Driveway, Parking Lot, and Off-Roadway Locations, Subject to Occasional, Nondeliberate Loading by Heavy Vehicles: H-20 structural load rating.
 - 3. Units in Sidewalk and Similar Applications with a Safety Factor for Nondeliberate Loading by Vehicles: Polymer concrete units, SCTE 77, Tier 8 structural load rating.

4. Units Subject to Light-Duty Pedestrian Traffic Only: Fiberglass-reinforced polyester resin, structurally tested according to SCTE 77 with 3000-lbf vertical loading.
5. Cover design load shall not exceed the design load of the handhole or box.

3.03 EARTHWORK

- A. Restore areas disturbed by trenching, storing of dirt, cable laying, and other work. Restore vegetation and include necessary topsoiling, fertilizing, liming, seeding, sodding, sprigging, and mulching.
- B. Cut and patch existing pavement in the path of underground ducts and utility structures.

3.04 DUCT INSTALLATION

- A. Install ducts according to NEMA TCB 2.
- B. Slope: Pitch ducts a minimum slope of 1:300 down toward handholes and away from buildings and equipment. Slope ducts from a high point in runs between two handholes, to drain in both directions.
- C. Curves and Bends: Use 5-degree angle couplings for small changes in direction. Use manufactured long sweep bends with a minimum radius of 48 inches, both horizontally and vertically, at other locations unless otherwise indicated.
- D. Joints: Use solvent-cemented joints in ducts and fittings and make watertight according to manufacturer's written instructions. Stagger couplings so those of adjacent ducts do not lie in same plane.
- E. Building Wall Penetrations: Make a transition from underground duct to rigid steel conduit at least 10 feet outside the building wall, without reducing duct line slope away from the building, and without forming a trap in the line. Use fittings manufactured for duct-to-conduit transition. Install conduit penetrations of building walls as specified in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."
- F. Sealing: Provide temporary closure at terminations of ducts that have cables pulled. Seal spare ducts at terminations. Use sealing compound and plugs to withstand at least 15-psig hydrostatic pressure.
- G. Pulling Cord: Install 100-lbf-test nylon cord in empty ducts.
- H. Direct-Buried Duct Banks:
 1. Excavate trench bottom to provide firm and uniform support for duct bank.
 2. Support ducts on duct separators coordinated with duct size, duct spacing, and outdoor temperature.
 3. Space separators close enough to prevent sagging and deforming of ducts, with not less than four spacers per 20 feet of duct. Secure separators to earth and to ducts to prevent displacement during backfill and yet permit linear duct movement due to expansion and contraction as temperature changes. Stagger spacers approximately 6 inches between tiers.
 4. Depth: Install top of duct bank at least 24 inches below finished grade unless otherwise indicated.

5. Install ducts with a minimum of 3 inches between ducts.
6. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment, at building entrances through floor, and at changes of direction in duct run.
 - a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches of concrete.
 - b. For equipment mounted on outdoor concrete bases, extend steel conduit horizontally a minimum of 60 inches from edge of equipment pad or foundation. Install insulated grounding bushings on terminations at equipment.
7. After installing first tier of ducts, backfill and compact. Start at tie-in point and work toward end of duct run, leaving ducts at end of run free to move with expansion and contraction as temperature changes during this process. Repeat procedure after placing each tier. After placing last tier, hand place backfill to 4 inches over ducts and hand tamp. Firmly tamp backfill around ducts to provide maximum supporting strength. Use hand tamper only. After placing controlled backfill over final tier, make final duct connections at end of run and complete backfilling with normal compaction
 - a. Place minimum 3 inches of sand as a bed for duct bank. Place sand to a minimum of 6 inches above top level of duct bank.
- I. Warning Tape: Bury warning tape approximately 12 inches above all duct banks. Align tape parallel to and within 3 inches of centerline of duct bank. Provide an additional warning tape for each 12-inch increment of duct-bank width over a nominal 18 inches. Space additional tapes 12 inches apart, horizontally.

3.05 INSTALLATION OF CONCRETE HANDHOLES AND BOXES

A. Precast Concrete Handhole Installation:

1. Comply with ASTM C 891 unless otherwise indicated.
2. Install units level and plumb and with orientation and depth coordinated with connecting ducts, to minimize bends and deflections required for proper entrances.
3. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.

B. Elevations:

1. Handhole Covers: Set surface flush with finished grade.
2. Where indicated, cast handhole cover frame integrally with handhole structure.

3.06 INSTALLATION OF HANDHOLES AND BOXES OTHER THAN PRECAST CONCRETE

- A. Install handholes and boxes level and plumb and with orientation and depth coordinated with connecting ducts, to minimize bends and deflections required for proper entrances. Use box extension if required to match depths of ducts, and seal joint between box and extension as recommended by manufacturer.
- B. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1/2-inch sieve to No. 4 sieve and compacted to same density as adjacent undisturbed earth.

C. Elevation: Set cover flush with finished grade.

3.07 GROUNDING

A. Ground underground ducts and utility structures according to Section 260526 "Grounding and Bonding for Electrical Systems."

3.08 FIELD QUALITY CONTROL

A. Perform the following tests and inspections and prepare test reports:

1. Demonstrate capability and compliance with requirements on completion of installation of underground ducts and utility structures.
2. Pull solid aluminum or wood test mandrel through duct to prove joint integrity and adequate bend radii, and test for out-of-round duct. Provide a minimum 6-inch-long mandrel equal to 80 percent fill of duct. If obstructions are indicated, remove obstructions and retest.

B. Correct deficiencies and retest as specified above to demonstrate compliance.

3.09 CLEANING

A. Pull leather-washer-type duct cleaner, with graduated washer sizes, through full length of ducts. Follow with rubber duct swab for final cleaning and to assist in spreading lubricant throughout ducts.

END OF SECTION

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SECTION 26 05 44

SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Sleeves for raceway and cable penetration of non-fire-rated construction walls and floors.
2. Sleeve-seal systems.
3. Sleeve-seal fittings.
4. Grout.
5. Silicone sealants.

1.02 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. LEED Submittals:

1. Product Data for Credit EQ 4.1: For sealants, documentation including printed statement of VOC content.
2. Laboratory Test Reports for Credit EQ 4: For sealants, documentation indicating that products comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

PART 2 - PRODUCTS

2.01 SLEEVES

A. Wall Sleeves:

1. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, zinc coated, plain ends.
2. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop unless otherwise indicated.

B. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies: Galvanized-steel sheet; 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint, with tabs for screw-fastening the sleeve to the board.

C. Sleeves for Rectangular Openings:

1. Material: Galvanized sheet steel.

2. Minimum Metal Thickness:

- a. For sleeve cross-section rectangle perimeter less than 50 inches and with no side larger than 16 inches, thickness shall be 0.052 inch.
- b. For sleeve cross-section rectangle perimeter 50 inches or more and one or more sides larger than 16 inches, thickness shall be 0.138 inch.

2.02 SLEEVE-SEAL SYSTEMS

A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Advance Products & Systems, Inc.
 - b. CALPICO, Inc.
 - c. Metraflex Company (The).
 - d. Pipeline Seal and Insulator, Inc.
 - e. Proco Products, Inc.
2. Sealing Elements: EPDM rubber interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
3. Pressure Plates: Plastic.
4. Connecting Bolts and Nuts: Stainless steel of length required to secure pressure plates to sealing elements.

2.03 SLEEVE-SEAL FITTINGS

A. Description: Manufactured plastic, sleeve-type, waterstop assembly made for embedding in concrete slab or wall. Unit shall have plastic or rubber waterstop collar with center opening to match piping OD.

1. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - a. HOLDRITE.

2.04 GROUT

- A. Description: Nonshrink; recommended for interior and exterior sealing openings in non-fire-rated walls or floors.
- B. Standard: ASTM C 1107/C 1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.
- C. Design Mix: 5000-psi, 28-day compressive strength.
- D. Packaging: Premixed and factory packaged.

2.05 SILICONE SEALANTS

- A. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below.
 - 1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces that are not fire rated.
 - 2. Sealant shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- B. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.

PART 3 - EXECUTION

3.01 SLEEVE INSTALLATION FOR NON-FIRE-RATED ELECTRICAL PENETRATIONS

- A. Comply with NECA 1.
- B. Comply with NEMA VE 2 for cable tray and cable penetrations.
- C. Sleeves for Conduits Penetrating Above-Grade Non-Fire-Rated Concrete and Masonry-Unit Floors and Walls:
 - 1. Interior Penetrations of Non-Fire-Rated Walls and Floors:
 - a. Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint.
 - b. Seal space outside of sleeves with mortar or grout. Pack sealing material solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect material while curing.
 - 2. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
 - 3. Size pipe sleeves to provide 1/4-inch annular clear space between sleeve and raceway or cable unless sleeve seal is to be installed.
 - 4. Install sleeves for wall penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of walls. Cut sleeves to length for mounting flush with both surfaces of walls. Deburr after cutting.
- D. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies:
 - 1. Use circular metal sleeves unless penetration arrangement requires rectangular sleeved opening.
 - 2. Seal space outside of sleeves with approved joint compound for gypsum board assemblies.
- E. Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work.

- F. Aboveground, Exterior-Wall Penetrations: Seal penetrations using steel pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch annular clear space between pipe and sleeve for installing mechanical sleeve seals.
- G. Underground, Exterior-Wall and Floor Penetrations: Install cast-iron pipe sleeves. Size sleeves to allow for 1-inch annular clear space between raceway or cable and sleeve for installing sleeve-seal system.

3.02 SLEEVE-SEAL-SYSTEM INSTALLATION

- A. Install sleeve-seal systems in sleeves in exterior concrete walls and slabs-on-grade at raceway entries into building.
- B. Install type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.03 SLEEVE-SEAL-FITTING INSTALLATION

- A. Install sleeve-seal fittings in new walls and slabs as they are constructed.
- B. Assemble fitting components of length to be flush with both surfaces of concrete slabs and walls. Position waterstop flange to be centered in concrete slab or wall.
- C. Secure nailing flanges to concrete forms.
- D. Using grout, seal the space around outside of sleeve-seal fittings.

END OF SECTION

SECTION 26 05 53

IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Identification for raceways.
2. Identification of power and control cables.
3. Identification for conductors.
4. Underground-line warning tape.
5. Warning labels and signs.
6. Instruction signs.
7. Equipment identification labels, including arc-flash warning labels.
8. Miscellaneous identification products.

1.02 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Delegated-Design Submittal: For arc-flash hazard study.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. Comply with ASME A13.1 and IEEE C2.
- B. Comply with NFPA 70.
- C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.
- D. Comply with ANSI Z535.4 for safety signs and labels.
- E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

2.02 COLOR AND LEGEND REQUIREMENTS

- A. Raceways and Cables Carrying Circuits at 600 V or Less:
 1. Black letters on an orange field.

2. Legend: Indicate voltage.

B. Warning labels and signs shall include, but are not limited to, the following legends:

1. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES."

2.03 LABELS

A. Vinyl Labels for Raceways Carrying Circuits at 600 V or Less: Preprinted, flexible labels laminated with a clear, weather- and chemical-resistant coating and matching wraparound clear adhesive tape for securing label ends.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Brady Corporation.
 - b. Champion America.
 - c. emedco.
 - d. Grafoplast Wire Markers.
 - e. LEM Products Inc.
 - f. Marking Services, Inc.
 - g. Panduit Corp.
 - h. Seton Identification Products.

B. Self-Adhesive Labels:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. A'n D Cable Products.
 - b. Brady Corporation.
 - c. Brother International Corporation.
 - d. emedco.
 - e. Grafoplast Wire Markers.
 - f. Ideal Industries, Inc.
 - g. LEM Products Inc.
 - h. Marking Services, Inc.
 - i. Panduit Corp.
 - j. Seton Identification Products.

2. Preprinted, 3-mil-thick, vinyl flexible label with acrylic pressure-sensitive adhesive.
3. Vinyl, thermal, transfer-printed, 3-mil-thick, multicolor, weather- and UV-resistant, pressure-sensitive adhesive labels, configured for display on front cover, door, or other access to equipment unless otherwise indicated.
 - a. Nominal Size: 3.5-by-5-inch.

2.04 TAPES AND STENCILS:

- A. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Carlton Industries, LP.
 - b. Champion America.
 - c. Ideal Industries, Inc.
 - d. Marking Services, Inc.
 - e. Panduit Corp.
- B. Self-Adhesive Vinyl Tape: Colored, heavy duty, waterproof, fade resistant; not less than 3 mils thick by 1 to 2 inches wide; compounded for outdoor use.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Brady Corporation.
 - b. Carlton Industries, LP.
 - c. emedco.
 - d. Marking Services, Inc.
- C. Underground-Line Warning Tape
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Brady Corporation.
 - b. Ideal Industries, Inc.
 - c. LEM Products Inc.
 - d. Marking Services, Inc.
 - e. Reef Industries, Inc.
 - f. Seton Identification Products.

2. Tape:
 - a. Recommended by manufacturer for the method of installation and suitable to identify and locate underground electrical and communications utility lines.
 - b. Printing on tape shall be permanent and shall not be damaged by burial operations.
 - c. Tape material and ink shall be chemically inert and not subject to degradation when exposed to acids, alkalis, and other destructive substances commonly found in soils.
3. Color and Printing:
 - a. Comply with ANSI Z535.1, ANSI Z535.2, ANSI Z535.3, ANSI Z535.4, and ANSI Z535.5.
 - b. Inscriptions for Red-Colored Tapes: "ELECTRIC LINE, HIGH VOLTAGE".
 - c. Inscriptions for Orange-Colored Tapes: "COMMUNICATIONS CABLE."

2.05 CABLE TIES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Ideal Industries, Inc.
 2. Marking Services, Inc.
 3. Panduit Corp.
- B. General-Purpose Cable Ties: Fungus inert, self-extinguishing, one piece, self-locking, Type 6/6 nylon.
 1. Minimum Width: 3/16 inch.
 2. Tensile Strength at 73 deg F according to ASTM D 638: 12,000 psi.
 3. Temperature Range: Minus 40 to plus 185 deg F.
 4. Color: Black, except where used for color-coding.
- C. UV-Stabilized Cable Ties: Fungus inert, designed for continuous exposure to exterior sunlight, self-extinguishing, one piece, self-locking, Type 6/6 nylon.
 1. Minimum Width: 3/16 inch.
 2. Tensile Strength at 73 deg F according to ASTM D 638: 12,000 psi.
 3. Temperature Range: Minus 40 to plus 185 deg F.
 4. Color: Black.

2.06 MISCELLANEOUS IDENTIFICATION PRODUCTS

- A. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.
- B. Apply identification devices to surfaces that require finish after completing finish work.
- C. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.
- D. Attach plastic raceway and cable labels that are not self-adhesive type with clear vinyl tape, with adhesive appropriate to the location and substrate.
- E. Cable Ties: For attaching tags. Use general-purpose type, except as listed below:
 - 1. Outdoors: UV-stabilized nylon.
- F. During backfilling of trenches, install continuous underground-line warning tape directly above cable or raceway at 6 to 8 inches below finished grade. Use multiple tapes where width of multiple lines installed in a common trench exceeds 18 inches overall.

3.02 IDENTIFICATION SCHEDULE

- A. Accessible Raceways and Metal-Clad Cables, 600 V or Less, for Service, Feeder, and Branch Circuits, More Than 30 A and 120 V to Ground: Identify with self-adhesive vinyl label. Install labels at 30-foot maximum intervals.
- B. Accessible Raceways and Cables within Buildings: Identify the covers of each junction and pull box of the following systems with self-adhesive vinyl labels containing the wiring system legend and system voltage. System legends shall be as follows:
 - 1. "POWER."
- C. Power-Circuit Conductor Identification, 600 V or Less: For conductors in pull and junction boxes, and handholes, use color-coding conductor tape to identify the phase.
 - 1. Color-Coding for Phase- Identification, 600 V or Less: Use industry standard colors for ungrounded service feeder and branch-circuit conductors.
 - a. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.
- D. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, communication, and control wiring and optical-fiber cable.

1. Install underground-line warning tape for direct-buried cables and cables in raceways.
- E. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Self-adhesive warning labels.
1. Comply with 29 CFR 1910.145.
 2. Identify system voltage with black letters on an orange background.
 3. Apply to exterior of door, cover, or other access.
- F. Arc Flash Warning Labeling: Self-adhesive thermal transfer vinyl labels.
1. Comply with NFPA 70E and ANSI Z535.4.
- G. Operating Instruction Signs: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.
- H. Equipment Identification Labels: On each unit of equipment, install unique designation label that is consistent with wiring diagrams, schedules, and operation and maintenance manual.
1. Labeling Instructions:
 - a. Indoor Equipment: Self-adhesive label, Self-adhesive, self-laminating label, or Self-adhesive, engraved, laminated acrylic or melamine plastic label. Unless otherwise indicated, provide a single line of text with 1/2-inch-high letters on 1-1/2-inch-high label; where two lines of text are required, use labels 2 inches high.
 - b. Outdoor Equipment: Engraved, laminated acrylic or melamine label.
 - c. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.
 - d. Unless labels are provided with self-adhesive means of attachment, fasten them with appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.

END OF SECTION

SECTION 26 22 00
LOW-VOLTAGE TRANSFORMERS

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes: Distribution, dry-type transformers rated 600 V and less, with capacities up to 1500 kVA.

1.02 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings:
 - 1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 2. Vibration Isolation Base Details: Detail fabrication including anchorages and attachments to structure and to supported equipment.
 - 3. Include diagrams for power, signal, and control wiring.

1.03 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For testing agency.
- B. Source quality-control reports.
- C. Field quality-control reports.

1.04 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

1.05 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Member company of NETA or an NRTL.
 - 1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Temporary Heating: Apply temporary heat according to manufacturer's written instructions.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Acme Electric Corporation.
 2. Controlled Power Company; an Emerson company.
 3. Dongan Electric Manufacturing Company.
 4. Eaton Electrical Sector; Eaton Corporation.
 5. Federal Pacific.
 6. General Electric Company.
 7. Hammond Power Solutions Inc.
 8. Jefferson Electric, Inc.
 9. Lincoln Electric Products Co., Inc.
 10. Mag-Tran; a division of Quality Transformer & Electronics.
 11. Marcus Transformer LTD.
 12. MGM Transformer Company.
 13. Micron Industries Corporation.
 14. Mirus International Inc.
 15. Powersmiths International Corp.
 16. Rex Power Magnetics.
 17. Siemens Power Transmission & Distribution, Inc.
 18. Sola/Hevi-Duty; a brand of Emerson Electric Co.
 19. Square D; by Schneider Electric.
 20. TEMCo Transformers.

2.02 GENERAL TRANSFORMER REQUIREMENTS

- A. Description: Factory-assembled and -tested, air-cooled units for 60-Hz service.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. Transformers Rated 15 kVA and Larger: Comply with NEMA TP 1 energy-efficiency levels as verified by testing according to NEMA TP 2.

1. Coil Material: Copper.

2.03 DISTRIBUTION TRANSFORMERS

- A. Comply with NFPA 70, and list and label as complying with UL 1561.
- B. Cores: One leg per phase.
- C. Enclosure: Ventilated.
- D. Transformer Enclosure Finish: Comply with NEMA 250.
 1. Finish Color: Gray.
- E. Taps for Transformers 25 kVA and Larger: Two 2.5 percent taps above and two 2.5 percent taps below normal full capacity.
- F. Insulation Class, 30 kVA and Larger: 220 deg C, UL-component-recognized insulation system with a maximum of 150-deg C rise above 40-deg C ambient temperature.
- G. Electrostatic Shielding: Each winding shall have an independent, single, full-width copper electrostatic shield arranged to minimize interwinding capacitance.
 1. Arrange coil leads and terminal strips to minimize capacitive coupling between input and output terminals.
 2. Include special terminal for grounding the shield.
- H. Wall Brackets: Manufacturer's standard brackets.

2.04 IDENTIFICATION DEVICES

- A. Nameplates: Engraved, laminated-plastic or metal nameplate for each distribution transformer, mounted with corrosion-resistant screws. Nameplates and label products are specified in Section 260553 "Identification for Electrical Systems."

2.05 SOURCE QUALITY CONTROL

- A. Test and inspect transformers according to IEEE C57.12.01 and IEEE C57.12.91.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Verify that ground connections are in place and requirements in Section 260526 "Grounding and Bonding for Electrical Systems" have been met. Maximum ground resistance shall be 5 ohms at location of transformer.
- B. Environment: Enclosures shall be rated for the environment in which they are located. Covers for NEMA 250, Type 4X enclosures shall not cause accessibility problems.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.
- D. Install wall-mounted transformers level and plumb with wall brackets fabricated by transformer manufacturer.

1. Coordinate installation of wall-mounted and structure-hanging supports with actual transformer provided.
- E. Install transformers level and plumb on a concrete base with vibration-dampening supports. Locate transformers away from corners and not parallel to adjacent wall surface.
- F. Construct concrete bases and anchor floor-mounted transformers according to manufacturer's written instructions and requirements in Section 260529 "Hangers and Supports for Electrical Systems."
 1. Coordinate size and location of concrete bases with actual transformer provided. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified with concrete.
- G. Secure transformer to concrete base according to manufacturer's written instructions.
- H. Secure covers to enclosure and tighten all bolts to manufacturer-recommended torques to reduce noise generation.
- I. Remove shipping bolts, blocking, and wedges.

3.02 CONNECTIONS

- A. Ground equipment according to Section 26 05 26 "Grounding and Bonding for Electrical Systems."
- B. Connect wiring according to Section 26 05 19 "Low-Voltage Electrical Power Conductors and Cables."
- C. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.
- D. Provide flexible connections at all conduit and conductor terminations and supports to eliminate sound and vibration transmission to the building structure.

3.03 FIELD QUALITY CONTROL

- A. Perform tests and inspections and prepare test reports.
 1. Perform each visual and mechanical inspection and electrical test stated in NETA ATS for dry-type, air-cooled, low-voltage transformers. Certify compliance with test parameters.
- B. Remove and replace units that do not pass tests or inspections and retest as specified above.
- C. Infrared Scanning: Two months after Substantial Completion, perform an infrared scan of transformer connections.
 1. Use an infrared-scanning device designed to measure temperature or detect significant deviations from normal values. Provide documentation of device calibration.
 2. Perform two follow-up infrared scans of transformers, one at four months and the other at 11 months after Substantial Completion.
 3. Prepare a certified report identifying transformer checked and describing results of scanning. Include notation of deficiencies detected, remedial action taken, and scanning observations after remedial action.

3.04 ADJUSTING

- A. Record transformer secondary voltage at each unit for at least 48 hours of typical occupancy period. Adjust transformer taps to provide optimum voltage conditions at secondary terminals. Optimum is defined as not exceeding nameplate voltage plus 5 percent and not being lower than nameplate voltage minus 3 percent at maximum load conditions. Submit recording and tap settings as test results.
- B. Output Settings Report: Prepare a written report recording output voltages and tap settings.

END OF SECTION

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SECTION 26 24 16

PANELBOARDS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Distribution panelboards.
2. Lighting and appliance branch-circuit panelboards.

1.02 DEFINITIONS

A. MCCB: Molded-case circuit breaker.

B. SPD: Surge protective device.

1.03 ACTION SUBMITTALS

A. Product Data: For each type of panelboard.

B. Shop Drawings: For each panelboard and related equipment.

1. Include dimensioned plans, elevations, sections, and details.
2. Detail enclosure types including mounting and anchorage, environmental protection, knockouts, corner treatments, covers and doors, gaskets, hinges, and locks.
3. Detail bus configuration, current, and voltage ratings.
4. Short-circuit current rating of panelboards and overcurrent protective devices.
5. Include evidence of NRTL listing for series rating of installed devices.
6. Include evidence of NRTL listing for SPD as installed in panelboard.
7. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
8. Include wiring diagrams for power, signal, and control wiring.
9. Key interlock scheme drawing and sequence of operations.
10. Include time-current coordination curves for each type and rating of overcurrent protective device included in panelboards.

1.04 INFORMATIONAL SUBMITTALS

A. Panelboard schedules for installation in panelboards.

1.05 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

1.06 FIELD CONDITIONS

- A. Service Conditions: NEMA PB 1, usual service conditions, as follows:

1. Ambient temperatures within limits specified.
2. Altitude not exceeding 6600 feet.

1.07 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace panelboards that fail in materials or workmanship within specified warranty period.

1. Panelboard Warranty Period: 12 months from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 PANELBOARDS COMMON REQUIREMENTS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with NEMA PB 1.
- C. Comply with NFPA 70.
- D. Enclosures: Surface-mounted, dead-front cabinets.
 1. Rated for environmental conditions at installed location.
 - a. Indoor Dry and Clean Locations: NEMA 250, Type 1.
 - b. Outdoor Locations: NEMA 250, Type 3R.
 - c. Other Wet or Damp Indoor Locations: NEMA 250, Type 4.
 2. Height: 84 inches maximum.
 3. Front: Secured to box with concealed trim clamps. For surface-mounted fronts, match box dimensions; for flush-mounted fronts, overlap box. Trims shall cover all live parts and shall have no exposed hardware.
 4. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover. Trims shall cover all live parts and shall have no exposed hardware.
- E. Incoming Mains Location: Convertible between top and bottom.
- F. Phase, Neutral, and Ground Buses: Hard-drawn copper, 98 percent conductivity.
- G. Conductor Connectors: Suitable for use with conductor material and sizes.
 1. Material: Hard-drawn copper, 98 percent conductivity.

2. Main and Neutral Lugs: Mechanical type, with a lug on the neutral bar for each pole in the panelboard.
 3. Ground Lugs and Bus-Configured Terminators: Mechanical type, with a lug on the bar for each pole in the panelboard.
- H. NRTL Label: Panelboards shall be labeled by an NRTL acceptable to authority having jurisdiction for use as service equipment with one or more main service disconnecting and overcurrent protective devices.
- I. Future Devices: Panelboards shall have mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.
- J. Panelboard Short-Circuit Current Rating: Rated for series-connected system with integral or remote upstream overcurrent protective devices and labeled by an NRTL. Include label or manual with size and type of allowable upstream and branch devices listed and labeled by an NRTL for series-connected short-circuit rating.
- K. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals. Assembly listed by an NRTL for 100 percent interrupting capacity.

2.02 PERFORMANCE REQUIREMENTS

- A. Surge Suppression: Factory installed as an integral part of indicated panelboards, complying with UL 1449 SPD Type 1.

2.03 POWER PANELBOARDS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Eaton Electrical Sector; Eaton Corporation.
 2. ESL Power Systems, Inc.
 3. General Electric Company; GE Energy Management - Electrical Distribution.
 4. Siemens Energy.
 5. Square D; by Schneider Electric.
- B. Panelboards: NEMA PB 1, distribution type.
- C. Doors: Secured with vault-type latch with tumbler lock; keyed alike.
1. For doors more than 36 inches high, provide two latches, keyed alike.
- D. Mains: Circuit breaker.
- E. Branch Overcurrent Protective Devices for Circuit-Breaker Frame Sizes 125 A and Smaller: Bolt-on circuit breakers.
- F. Branch Overcurrent Protective Devices for Circuit-Breaker Frame Sizes Larger Than 125 A: Bolt-on circuit breakers.

2.04 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Eaton Electrical Sector; Eaton Corporation.
 - 2. General Electric Company; GE Energy Management - Electrical Distribution.
 - 3. Siemens Energy.
 - 4. Square D; by Schneider Electric.
- B. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.
- C. Mains: Circuit breaker.
- D. Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.
- E. Doors: Concealed hinges; secured with flush latch with tumbler lock; keyed alike.

2.05 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Eaton Electrical Sector; Eaton Corporation.
 - 2. General Electric Company; GE Energy Management - Electrical Distribution.
 - 3. Siemens Energy.
 - 4. Square D; by Schneider Electric.
- B. MCCB: Comply with UL 489, with interrupting capacity to meet available fault currents.
 - 1. Thermal-Magnetic Circuit Breakers:
 - a. Inverse time-current element for low-level overloads.
 - b. Instantaneous magnetic trip element for short circuits.
 - c. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
 - 2. Adjustable Instantaneous-Trip Circuit Breakers: Magnetic trip element with front-mounted, field-adjustable trip setting.
 - 3. Electronic Trip Circuit Breakers:
 - a. RMS sensing.
 - b. Field-replaceable rating plug or electronic trip.
 - c. Digital display of settings, trip targets, and indicated metering displays.
 - d. Multi-button keypad to access programmable functions and monitored data.

- e. Ten-event, trip-history log. Each trip event shall be recorded with type, phase, and magnitude of fault that caused the trip.
- f. Integral test jack for connection to portable test set or laptop computer.
- g. Field-Adjustable Settings:
 - 1) Instantaneous trip.
 - 2) Long- and short-time pickup levels.
 - 3) Long and short time adjustments.
 - 4) Ground-fault pickup level, time delay, and I squared T response.
- 4. Current-Limiting Circuit Breakers: Frame sizes 400 A and smaller; let-through ratings less than NEMA FU 1, RK-5.
- 5. GFCI Circuit Breakers: Single- and double-pole configurations with Class A ground-fault protection (6-mA trip).
- 6. GFEP Circuit Breakers: Class B ground-fault protection (30-mA trip).
- 7. Arc-Fault Circuit Interrupter Circuit Breakers: Comply with UL 1699; 120/240-V, single-pole configuration.
- 8. Subfeed Circuit Breakers: Vertically mounted.
- 9. MCCB Features and Accessories:
 - a. Standard frame sizes, trip ratings, and number of poles.
 - b. Breaker handle indicates tripped status.
 - c. UL listed for reverse connection without restrictive line or load ratings.
 - d. Lugs: Mechanical style, suitable for number, size, trip ratings, and conductor materials.

2.06 IDENTIFICATION

- A. Panelboard Label: Manufacturer's name and trademark, voltage, amperage, number of phases, and number of poles shall be located on the interior of the panelboard door.
- B. Breaker Labels: Faceplate shall list current rating, UL and IEC certification standards, and AIC rating.
- C. Circuit Directory: Directory card inside panelboard door, mounted in transparent card holder.

2.07 ACCESSORY COMPONENTS AND FEATURES

- A. Portable Test Set: For testing functions of solid-state trip devices without removing from panelboard. Include relay and meter test plugs suitable for testing panelboard meters and switchboard class relays.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Comply with NECA 1.
- B. Install panelboards and accessories according to NECA 407 and NEMA PB 1.1.
- C. Mount top of trim 90 inches above finished floor unless otherwise indicated.
- D. Mount panelboard cabinet plumb and rigid without distortion of box.
- E. Install overcurrent protective devices and controllers not already factory installed.
 - 1. Set field-adjustable, circuit-breaker trip ranges.
- F. Make grounding connections and bond neutral for services and separately derived systems to ground. Make connections to grounding electrodes, separate grounds for isolated ground bars, and connections to separate ground bars.
- G. Install filler plates in unused spaces.

3.02 IDENTIFICATION

- A. Identify field-installed conductors, interconnecting wiring, and components; install warning signs complying with requirements in Section 260553 "Identification for Electrical Systems."
- B. Create a directory to indicate installed circuit loads; incorporate Owner's final room designations. Obtain approval before installing. Handwritten directories are not acceptable. Install directory inside panelboard door.
- C. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems."
- D. Device Nameplates: Label each branch circuit device in power panelboards with a nameplate complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

3.03 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Acceptance Testing Preparation:
 - 1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
 - 2. Test continuity of each circuit.
- C. Tests and Inspections:
 - 1. Perform each visual and mechanical inspection and electrical test for low-voltage air circuit breakers stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.

2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
- D. Panelboards will be considered defective if they do not pass tests and inspections.
 - E. Prepare test and inspection reports, including a certified report that identifies panelboards included and that describes scanning results, with comparisons of the two scans. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

END OF SECTION

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SECTION 26 27 26

WIRING DEVICES

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Receptacles, receptacles with integral GFCI, and associated device plates.
2. Weather-resistant receptacles.
3. Snap switches and wall-box dimmers.
4. Solid-state fan speed controls.
5. Wall-switch and exterior occupancy sensors.

1.02 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Receptacles for Owner-Furnished Equipment: Match plug configurations.

1.03 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: List of legends and description of materials and process used for premarking wall plates.

1.04 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.05 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

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

1. Cooper Wiring Devices, Inc.; Division of Cooper Industries, Inc.
2. Hubbell Incorporated; Wiring Device-Kellems.
3. Leviton Manufacturing Co., Inc.

- 4. Pass & Seymour/Legrand (Pass & Seymour).
- B. Source Limitations: Obtain each type of wiring device and associated wall plate from single source from single manufacturer.

2.02 GENERAL WIRING-DEVICE REQUIREMENTS

- A. Wiring Devices, Components, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with NFPA 70.
- C. Devices that are manufactured for use with modular plug-in connectors may be substituted under the following conditions:
 - 1. Connectors shall comply with UL 2459 and shall be made with stranding building wire.
 - 2. Devices shall comply with the requirements in this Section.

2.03 STRAIGHT-BLADE RECEPTACLES

- A. Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498, and FS W-C-596.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Cooper Wiring Devices, Inc.; Division of Cooper Industries, Inc.
 - b. Hubbell Incorporated; Wiring Device-Kellems.
 - c. Leviton Manufacturing Co., Inc.
 - d. Pass & Seymour/Legrand (Pass & Seymour).

2.04 GFCI RECEPTACLES

- A. General Description:
 - 1. Straight blade, feed-through type.
 - 2. Comply with NEMA WD 1, NEMA WD 6, UL 498, UL 943 Class A, and FS W-C-596.
 - 3. Include indicator light that shows when the GFCI has malfunctioned and no longer provides proper GFCI protection.
- B. Duplex GFCI Convenience Receptacles, 125 V, 20 A:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Cooper Wiring Devices, Inc.; Division of Cooper Industries, Inc.
 - b. Hubbell Incorporated; Wiring Device-Kellems.
 - c. Leviton Manufacturing Co., Inc.

- d. Pass & Seymour/Legrand (Pass & Seymour).

2.05 TOGGLE SWITCHES

A. Comply with NEMA WD 1, UL 20, and FS W-S-896.

B. Switches, 120/277 V, 20 A:

1. Single Pole:

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

- 1) Cooper Wiring Devices, Inc.; Division of Cooper Industries, Inc.
- 2) Hubbell Incorporated; Wiring Device-Kellems.
- 3) Leviton Manufacturing Co., Inc.
- 4) Pass & Seymour/Legrand (Pass & Seymour).

2. Two Pole:

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

- 1) Cooper Wiring Devices, Inc.; Division of Cooper Industries, Inc.
- 2) Hubbell Incorporated; Wiring Device-Kellems.
- 3) Leviton Manufacturing Co., Inc.
- 4) Pass & Seymour/Legrand (Pass & Seymour).

3. Three Way:

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

- 1) Cooper Wiring Devices, Inc.; Division of Cooper Industries, Inc.
- 2) Hubbell Incorporated; Wiring Device-Kellems.
- 3) Leviton Manufacturing Co., Inc.
- 4) Pass & Seymour/Legrand (Pass & Seymour).

2.06 WALL PLATES

A. Single and combination types shall match corresponding wiring devices.

- 1. Plate-Securing Screws: Metal with head color to match plate finish.
- 2. Material for Finished Spaces: 0.035-inch-thick, satin-finished, Type 302 stainless steel.
- 3. Material for Unfinished Spaces: Galvanized steel.

4. Material for Damp Locations: Cast aluminum with spring-loaded lift cover, and listed and labeled for use in wet and damp locations.
- B. Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with Type 3R, weather-resistant, die-cast aluminum with lockable cover.

2.07 FINISHES

- A. Device Color:
 1. Wiring Devices Connected to Normal Power System: Gray unless otherwise indicated or required by NFPA 70 or device listing.
- B. Wall Plate Color: For plastic covers, match device color.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Comply with NECA 1, including mounting heights listed in that standard, unless otherwise indicated.
- B. Coordination with Other Trades:
 1. Protect installed devices and their boxes. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of boxes.
 2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
 3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
 4. Install wiring devices after all wall preparation, including painting, is complete.
- C. Conductors:
 1. Do not strip insulation from conductors until right before they are spliced or terminated on devices.
 2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
 3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.
 4. Existing Conductors:
 - a. Cut back and pigtail, or replace all damaged conductors.
 - b. Straighten conductors that remain and remove corrosion and foreign matter.
 - c. Pigtailling existing conductors is permitted, provided the outlet box is large enough.

D. Device Installation:

1. Replace devices that have been in temporary use during construction and that were installed before building finishing operations were complete.
2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.
4. Connect devices to branch circuits using pigtails that are not less than 6 inches in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, two-thirds to three-fourths of the way around terminal screw.
6. Use a torque screwdriver when a torque is recommended or required by manufacturer.
7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.
9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device-mounting screws in yokes, allowing metal-to-metal contact.

E. Receptacle Orientation:

1. Install ground pin of vertically mounted receptacles down, and on horizontally mounted receptacles to the right.

F. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

G. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical and with grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.

H. Adjust locations of service poles to suit arrangement of partitions and furnishings.

3.02 GFCI RECEPTACLES

- A. Install non-feed-through-type GFCI receptacles where protection of downstream receptacles is not required.

3.03 FIELD QUALITY CONTROL

A. Perform the following tests and inspections:

1. Test Instruments: Use instruments that comply with UL 1436.
2. Test Instrument for Convenience Receptacles: Digital wiring analyzer with digital readout or illuminated digital-display indicators of measurement.

B. Tests for Convenience Receptacles:

1. Line Voltage: Acceptable range is 105 to 132 V.
2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is unacceptable.
3. Ground Impedance: Values of up to 2 ohms are acceptable.
4. GFCI Trip: Test for tripping values specified in UL 1436 and UL 943.
5. Using the test plug, verify that the device and its outlet box are securely mounted.
6. Tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new ones, and retest as specified above.

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

D. Prepare test and inspection reports.

END OF SECTION

SECTION 26 56 68

EXTERIOR ATHLETIC LIGHTING

PART 1 - GENERAL

1.01 SCOPE

- A. Work covered by this section of the specifications shall conform to the contract documents, engineering plans as well as state and local codes.
- B. The purpose of these specifications is to define the performance and design standards for the Wade Baseball Stadium Duluth, Minnesota. The manufacturer / contractor shall supply lighting equipment to meet or exceed the standards set forth by the criteria set forth in these specifications.
- C. The sports lighting will be for the following fields:
 - 1. Baseball Stadium
- D. The primary goals of this sports lighting project are:
 - 1. **Guaranteed Light Levels:** Selection of appropriate light levels impact the safety of the players and the enjoyment of spectators. Therefore the lighting system shall be designed such that the light levels are guaranteed for a period of 25 years.
 - 2. **Environmental Light Spill:** It is one of the primary goals of this project to reduce spill and glare light on the surrounding property of the field.
 - 3. **Life Cycle Cost:** In order to reduce the operating budget, the preferred lighting system shall be energy efficient and cost effective to operate. All maintenance costs shall be eliminated, and the field(s) should be proactively monitored to detect fixture outages over a 25 year life cycle. To allow for optimized use of labor resources and avoid unneeded operation of the facility, customer requires a remote on/off control system for the lighting system.

1.02 LIGHTING PERFORMANCE

- A. **Performance Requirements:** Playing surfaces shall be lit to an average constant light level and uniformity as specified in the chart below. Light levels shall be held constant for 25 years. Lighting calculations shall be developed and field measurements taken on the grid spacing with the minimum number of grid points specified below. Average illumination level shall be measured in accordance with the IESNA LM-5-04. Light levels shall be guaranteed from the first 100 hours of operation for the maximum warranty period. Light levels shall not drop below the following targeted light levels and uniformity ratios at any time during the 25 year warranty period. The lighting manufacturer shall use automated timed power adjustments to achieve a lumen maintenance control strategy as described in IESNA Lighting Handbook 10th Edition, or shall meet initial and maintained light levels as described in section 107.B.

Area of Lighting	Average Target/Maintained Levels	Maximum to Minimum Uniformity Ratio	Grid Points	Grid Spacing
Baseball Infield	70 footcandles	2.0:1.0	25	20' x 20'
Baseball Outfield	50 footcandles	2.5:1.0	75	20' x 20'
Left Field bullpen	28 footcandles			
Right Field bullpen	32 footcandles			

- B. Mounting Heights: To ensure proper aiming angles for reduced glare and to provide better playability, the pole mounting heights from the playing field surface shall be 100' for A and B poles, and 80' for C and D poles.
- C. Spill Light Control: Light levels may not exceed 2.0 footcandles at residential property line, 45 feet from wall of stadium along first base/ right field line of stadium.
- D. LED fixtures: Lighting manufacturer shall provide LED fixtures that are specifically manufactured to control spill and glare, including elimination of glare light in the eyes of the players and elimination of shadow caused by roof. LED fixtures shall be factory aimed and warranted to ensure correct lighting on the field. LED fixtures shall have external visors for glare control and shall be 394 watt full cut-off fixtures. Fixtures shall provide 80 lumens per watt and shall have a 10 year warranty parts and labor.

1.03 LIFE CYCLE COSTS

- A. Energy Consumption: The average kWh consumption for the field lighting system shall be 142 or less.
- B. Complete Lamp Replacement: Manufacturer shall include all group lamp replacements required to provide 25 years of operation based upon 150 usage hours per year.
- C. Preventative and Spot Maintenance: Manufacturer shall provide all preventative and spot maintenance, including parts and labor for 25 years from the date of equipment shipment. Individual lamp outages shall be repaired when the usage of any field is materially impacted. Owner agrees to check fuses in the event of a luminaire outage.
- D. Remote Monitoring System: System shall monitor lighting performance and notify manufacturer if individual luminaire outage is detected so that appropriate maintenance can be scheduled. The manufacturer shall notify the owner of outages within 24 hours, or the next business day. The controller shall determine switch position (Manual or Auto) and contactor status (open or closed).
- E. Remote Lighting Control System: System shall allow owner and users with a security code to schedule on/off system operation via a web site, phone, fax or email up to ten years in advance. Manufacturer shall provide and maintain a two-way TCP/IP communication link. Trained staff shall be available 24/7 to provide scheduling support and assist with reporting needs.

The owner may assign various security levels to schedulers by function and/or fields. This function must be flexible to allow a range of privileges such as full scheduling capabilities for all fields, to only having permission to execute "early off" commands by phone.

Controller shall accept and store 7-day schedules, be protected against memory loss during power outages, and shall reboot once power is regained and execute any commands that would have occurred during outage.

- F. Management Tools: Manufacturer shall provide a web-based database of actual field usage and provide reports by facility and user group.
- G. Communication Costs: Manufacturer shall include communication costs for operating the controls and monitoring system for a period of 25 years.
- H. 25-Year Life Cycle Cost: Manufacturer shall submit 25-year life cycle cost calculations as follows. Equipment price and total life cycle cost shall be entered separately on bid form.

1.	Luminaire energy consumption # luminaires x __kW demand per luminaire x .08 kWh rate x 150 annual usage hours x 25 years		_____
2.	Cost for spot relamping and maintenance over 25 years Assume 7.5 repairs at \$ 500 each if not included with the bid	+	_____
3.	Cost to relamp all luminaires during 25 years 150 annual usage hours x 25 years / <u>lamp replacement hours</u> x \$125 lamp & labor x # fixtures if not included with the bid	+	_____
4.	Extra energy used without base bid automated control system \$ Energy consumption in item a. x 10% if control system not included with the bid	+	_____
	TOTAL 25-Year Life Cycle Operating Cost	=	_____

1.04 WARRANTY AND GUARANTEE

- A. 25-Year Warranty: Each manufacturer shall supply a signed warranty covering the entire system for 25 years and LED fixtures for 10 years. Warranty shall guarantee light levels; lamp replacements; system energy consumption; monitoring, maintenance and control services, spill light control, and structural integrity. Manufacturer shall maintain specifically-funded financial reserves to assure fulfillment of the warranty for the full term. Warranty may exclude fuses, storm damage, vandalism, abuse and unauthorized repairs or alterations.

1.05 DELIVERY TIMING

- A. Equipment On-Site: The equipment must be on-site 4-6 weeks from receipt of approved submittals and receipt of complete order information.

1.06 PRE-BID SUBMITTAL REQUIREMENTS

- A. Design Approval: The owner / engineer will review pre-bid shop drawings from the manufacturers 5 days prior to bid to ensure compliance to the specification. If the design meets the design requirements of the specifications, a letter will be issued to the manufacturer indicating approval for the specific design submitted. The design standard shall be the Musco Light Structure Green™ system. Alternate lighting and structural systems may be approved but shall meet the requirements of the specifications. The project engineer shall notify by addendum any approved alternates.

1.07 ALTERNATE SYSTEM REQUIREMENTS

- A. Compliance to Specifications: Acceptance of a bid alternate does not negate the contractor and lighting manufacturer's responsibility to comply fully with the requirements of these specifications. Any exceptions to the specifications must be clearly stated in the prior approval submittal documents.
- B. Light Level Requirements: Manufacturer shall provide computer models guaranteeing light levels on the field over 25 years. If automated timed power adjustments to the lighting cannot be provided, a maximum Recoverable Light Loss Factor of 0.65 shall be applied to the initial light level design to achieve the following Initial and target/maintained light levels. For alternate systems, scans for both initial and maintained light levels shall be submitted.

Area of Lighting	Average Initial Light Levels	Average Target/Maintained Light Levels	Maximum to Minimum Uniformity Ratio	Grid Points	Grid Spacing
Baseball Infield	108 footcandles	70 footcandles	2.0:1.0	25	20' x 20'
Baseball Outfield	77 footcandles	50 footcandles	2.5:1.0	75	20' x 20'
Left field bullpen	43 footcandles	28 footcandles			
Right field bullpen	49 footcandles	32 footcandles			

- C. If average KW exceeds 142 KW, lighting manufacturer shall be required to have new electrical drawings completed by electrical engineer certified in Minnesota and submitted for approval to owners electrical engineer.
- D. References: Any alternate bid request shall be accompanied by a minimum of 5 similar baseball fields in Minnesota lit within the past 5 years.

PART 2 - PRODUCT

2.01 LIGHTING SYSTEM CONSTRUCTION

- A. System Description: Lighting system shall consist of the following:
- Galvanized steel poles and crossarm assembly
 - Pre-stressed concrete base embedded in concrete backfill allowed to cure for 12-24 hours before pole stress is applied. Alternate may be an anchor bolt foundation designed such that the steel pole and any exposed steel portion of the foundation is located a minimum of 18 inches above final grade. The concrete for anchor bolt foundations shall be allowed to cure for a minimum of 28 days before the pole stress is applied.
 - All luminaires shall be constructed with a die-cast aluminum housing or external hail shroud to protect the luminaire reflector system.
 - Manufacturer will remote all ballasts and supporting electrical equipment in aluminum enclosures mounted approximately 10' above grade. The enclosures shall include ballast, capacitor and touch-safe fusing to indicate when a fuse is to be replaced for each luminaire. Safety disconnect per circuit for each pole structure will be located in the enclosure.
 - Wire harness complete with an abrasion protection sleeve, strain relief and plug-in connections for fast, trouble-free installation.
 - Controls and Monitoring Cabinet to provide on-off control and monitoring of the lighting system, constructed of NEMA Type 4 aluminum. Communication method shall be provided by manufacturer. Cabinet shall contain custom configured contactor modules for 30, 60, and 100 amps, labeled to match field diagrams and electrical design. Manual Off-On-Auto selector switches shall be provided. The controls shall be capable of providing automated monitoring of the lighting system for any outages which will be reported by the lighting manufacturer to the owner within 24 hours. The manufacturer will arrange for all repairs to be made on a timely basis.
- B. Manufacturing Requirements: All components shall be designed and manufactured as a system. All luminaires, wire harnesses, ballast and other enclosures shall be factory assembled, aimed, wired and tested.
- C. Durability: All exposed components shall be constructed of corrosion resistant material and/or coated to help prevent corrosion. All exposed carbon steel shall be hot dip galvanized per ASTM A123. All exposed aluminum shall be powder coated with high performance polyester or anodized. All exterior reflective inserts shall be anodized, coated, and protected from direct environmental

exposure to prevent reflective degradation or corrosion. All exposed hardware and fasteners shall be stainless steel of 18-8 grade or better, passivated and coated with aluminum-based thermosetting epoxy resin for protection against corrosion and stress corrosion cracking. Structural fasteners may be carbon steel and galvanized meeting ASTM A153 and ISO/EN 1461 (for hot dipped galvanizing), or ASTM B695 (for mechanical galvanizing). All wiring shall be enclosed within the crossarms, pole, or electrical components enclosure.

- D. Lightning Protection: Manufacturer shall provide integrated lightning grounding via concrete encased electrode grounding system as defined by NFPA 780 and be UL Listed per UL 96 and UL 96A.

If grounding is not integrated into the structure, the Manufacturer shall supply grounding electrodes, copper down conductors and exothermic weld kits. Electrodes and conductors shall be sized as required by NFPA 780. The grounding electrode shall be not less than 5/8 inch diameter and 8 feet long, with a minimum of 10 feet embedment. Grounding electrode shall be connected to the structure by a grounding electrode conductor with a minimum size of 2 AWG for poles with 75 feet mounting height or less, and 2/0 AWG for poles with more than 75 feet mounting height.

- E. Safety: All system components shall be UL Listed for the appropriate application.

2.02 STRUCTURAL PARAMETERS

- A. Support Structure Wind Load Strength: Poles and other support structures, brackets, arms, bases, anchorages and foundations shall be determined based on the 2009 IBC Building Code, wind speed of 90 MPH exposure category C and an importance factor of 1. Luminaire, visor, and crossarm shall withstand 150 mph winds and maintain luminaire aiming alignment.
- B. Structural Design: The stress analysis and safety factor of the poles shall conform to AASHTO 2001 (LTS-4) Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals.
- C. Soil Conditions: The design criteria for these specifications are based on standard soils that meet or exceed those of a Class 5 material as defined by 2009 IBC. A certified foundation design by a registered structural engineer in the state of Minnesota shall be submitted 5 days prior to bid as part of the prebid documents.

PART 3 - EXECUTION

3.01 FIELD QUALITY CONTROL

- A. Illumination Measurements: Upon substantial completion of the project and in the presence of the Contractor, Project Engineer, Owner's Representative, and Manufacturer's Representative, illumination measurements shall be taken and verified. The illumination measurements shall be conducted in accordance with IESNA LM-5-04.
- B. Correcting Non-Conformance: If, in the opinion of the Owner or his appointed Representative, the actual performance levels including footcandles, uniformity ratios, and maximum kilowatt consumptions are not in conformance with the requirements of the performance specifications and submitted information, the Manufacturer or Contractor shall be liable to any or all of the following:
1. Contractor shall at his expense provide and install any necessary additional fixtures to meet the minimum lighting standards. Contractor shall also either replace the existing poles to meet the new wind load (EPA) requirements or verify by certification by a licensed structural engineer that the existing poles will withstand the additional wind load.
 2. Contractor shall minimize the Owner's additional long term fixture maintenance and energy consumption costs created by the additional fixtures by reimbursing the Owner the amount of \$1,000.00 (one thousand dollars) for each additional fixture required.

END OF SECTION

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SUBMITTAL CHECKLIST

Design Submittal Data Checklist and Certification

All items listed below are mandatory, shall comply with the specification, and be submitted 5 days prior to bid.

Tab	Item	Description
A	Checklist	Listing of all information being submitted must be included on the table of contents. List the name of the manufacturer's local representative and his/her phone number. Signed submittal checklist to be included.
B	Equipment Layout	Drawing(s) showing field layouts with pole locations.
C	On Field Lighting Design	Lighting design drawing(s) showing: a. Field Name, date, file number, prepared by, and other pertinent data b. Outline of field(s) being lighted, as well as pole locations referenced to the center of the field (x & y). Illuminance levels at grid spacing specified c. Pole height, number of fixtures per pole, as well as luminaire information including wattage, lumens and optics d. Height of light level test meter above field surface e. Summary table showing the number and spacing of grid points; average, minimum and maximum illuminance levels in foot candles (fc); uniformity including maximum to minimum ratio, coefficient of variance and uniformity gradient; number of luminaires, total kilowatts, average tilt factor; light loss factor. f. Alternate manufacturers shall provide both initial and maintained light scans using a maximum 0.65 Light Loss Factor to calculate maintained values.
D	Life Cycle Cost Calculation	Document life cycle cost calculations as defined in the specification. Identify energy costs for operating the luminaires, maintenance cost for the system including spot lamp replacement, and group relamping costs. All costs should be based on 25 years.
E	Structural Calculations	Pole structural calculations and foundation design showing foundation shape, depth backfill requirements, rebar and anchor bolts (if required). Pole base reaction forces shall be shown on the foundation drawing along with soil bearing pressures. Design must be stamped by a structural engineer in the state of Minnesota.
F	Electrical Distribution Plans	If bidding an alternate system, manufacturer must include a revised electrical distribution plan including changes to service entrance, panels and wire sizing if loads exceed specified kW.
G	Performance Guarantee	Provide performance guarantee including a written commitment to undertake all corrections required to meet the performance requirements noted in these specifications at no expense to the owner. Light levels must be guaranteed per specification for 25 years.
H	Control & Monitoring System	Manufacturer shall provide written definition and schematics for automated control system to include monitoring. They will also provide examples of system reporting and access for numbers for personal contact to operate the system.
I	Warranty	Provide written warranty information including all terms and conditions.
J	Project References	Manufacturer shall provide a list of a minimum of 5 references of similar baseball projects completed within the past five years in Minnesota.
K	Product Information	Complete set of product brochures for all components, including a complete parts list, UL Listings, and Manufacturers Certificate of Corrosion Protection.
L	Delivery	Manufacturer shall supply an expected delivery timeframe from receipt of approved submittals and complete order information.
M	Non-Compliance	Manufacturer shall list all items that do not comply with the specifications. If in full compliance, tab may be omitted.

I understand that the information supplied herein shall be used for the purpose of complying with the specifications for Duluth Wade Stadium Baseball Field signing below I agree that all requirements of the specifications have been met and that the manufacturer will be responsible for any future costs incurred to bring their equipment into compliance for all items not meeting specifications and not listed in the Non-Compliance section.

Manufacturer: _____

Signature: _____

Contact Name: _____

Date: ____/____/____

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SECTION 31 10 10

EROSION, SEDIMENTATION, AND POLLUTION CONTROL

PART 1 - GENERAL

- 1.01 SCOPE. Under this Section of the Specifications shall be included the furnishing and installation of all temporary erosion, sedimentation, and pollution control measures and Work incidental in connection therewith as shown on the Plans.

The Contractor, in executing the Work, shall maintain the Work areas and areas adjacent to the site free from environmental pollution that would in any way violate Federal, State, or Local regulations.

1.02 SUBMITTALS

- A. Permits. Submit copies of executed permits required by State, County, Watershed, and Local Authorities.
- B. SWPPP. Submit copies of the Project Storm Water Pollution Prevention Plan as required by NPDES/SDS Stormwater Construction permit.

PART 2 - PRODUCTS

- 2.01 SEDIMENT CONTROL LOGS shall conform to Mn/DOT 3897, Type Wood Fiber or Type Rock, as specified in the Erosion Control plan.
- 2.02 STORM SEWER INLET PROTECTION shall be WIMCO road drain inlet protection system or approved equal when installation will remain in place until adequate permanent erosion control is in place.

PART 3 - EXECUTION

- 3.01 EROSION, SEDIMENTATION CONTROL MEASURES. The Contractor shall conduct operations and implement Minnesota Pollution Control Agency Best Management Practices (BMP) to control site siltation and erosion into drainage ways. The Contractor shall comply with all conditions and completion dates relative to all permits issued for the Work to be completed. The Engineer may issue a stop Work order for all Work for noncompliance with these measures.
- A. Sequencing. All sediment control logs and other erosion control measures shall be in place and approved by Engineer prior to any removals, excavation or construction and shall be maintained until viable turf or ground cover has been established and approved by Engineer.
 - B. Erosion Control Logs. The Contractor shall install sediment control logs at the locations shown on the Plans and as directed by the City Engineer in accordance with the City Standard Details. Sediment control log dams and interim sumps shall be placed to intercept silt from concentrated runoff from open graded areas. Additional sediment control logs shall be required as directed by the Engineer.
 - C. Stockpiles. All stockpile areas shall have sediment control logs or sediment trapping systems placed around the entire perimeter.

- D. Inlet Protection. The Contractor shall install inlet protection on all existing storm sewer inlets in accordance with the City Standard Details. Inlet protection shall also be provided on all proposed storm sewer inlets immediately following construction of the inlet.
- E. Positive Drainage and Protection. The Contractor shall maintain positive drainage throughout the site at all times. Low points within and along roadways are expressly prohibited. The Contractor shall be responsible for temporary ditches, piping or other means to facilitate proper drainage during construction. To protect previously graded areas from erosion, wood fiber blanket shall be placed immediately on steep slopes and embankments, permanent and temporary ponds, and outlets and overflows to protect the completed grade and minimize silt in the runoff.
- F. Turf Establishment. All exposed soils must be stabilized within seven calendar days from completion of the rough grading work for areas where additional work is not scheduled for 45 days. Turf establishment shall be in accordance with Section 2931 of these specifications.
- G. Maintenance and Inspection. Erosion control measures shall be maintained throughout the construction and until satisfactory establishment of permanent ground cover is obtained. Sediment control logs shall be inspected weekly with repairs made on the same day or following day of the inspection. Unsatisfactory conditions not repaired or cleaned up within 48 hours of notification shall result in a stop Work order, and/or said Work shall be completed at Contractor's expense.
- H. Removal. The Contractor shall remove and dispose of all temporary erosion control measures, structures and devices only after receiving Engineer approval. All debris, stakes, and silts along silt fences shall be removed and disposed off site. The Contractor shall hand rake silted areas along the sediment control log locations to provide a smooth final grade and shall restore the ground surface with seed or sod, as required, to match the finished grade to the adjacent area.
- I. Final Storm Sewer System. At the completion of the Work and before the final walk through, the Contractor shall remove storm sewer inlet protection measures and thoroughly flush the storm sewer system. Sediment and debris shall be completely removed and cleaned at the inlets, outlets and downstream of each outlet. Riprap and geotextile fabric may require replacement as directed by the Engineer to obtain a sediment free storm outlet installation acceptable to the City.

3.02 POLLUTION CONTROL MEASURES. The Contractor shall conduct operations and implement Minnesota Pollution Control Agency Best Management Practices (BMP) to minimize or prevent noise, dust, spillage, air emissions and other pollutants generated from the construction activities related to the Project, and shall schedule operations whenever possible to cause the least disturbance to neighboring residents and businesses. The Engineer may issue a stop Work order for all Work for noncompliance with these measures.

- A. Noise Control and Working Hours. Work site operations are restricted to the days and times specified in Section 01060 of these Specifications. No Work is allowed outside of these working hours except with prior written approval by the Engineer. This restriction applies to the loading, delivery and routing of equipment and materials on site and on public streets. Working hours may be further restricted during winter months unless City approval is granted for use of artificial lighting for construction operations for outdoor use.
- B. Dust Control. The Contractor shall take special care in providing and maintaining dust control operations appropriate for the proximity and geographic location of the site to residential homes and other nearby developed and active facilities. The Engineer may require Contractor to take additional dust control measures if considered inadequate.

- C. Disposal of Waste Materials. Excess excavated materials not suitable for backfill, and other waste materials shall be disposed of in accordance with local regulatory requirements. Watertight conveyance shall be provided for liquid, semi-liquid or saturated materials to prevent liquid loss or bleeding along transport routes.
 - D. Protection of Air Quality. The Contractor shall conduct operations to minimize air pollution by requiring the use of properly operating combustion emission control devices on construction equipment and encourage the shut-down of motorized equipment not in use. No burning operations are allowed on site without permit from the Fire Marshal.
 - E. Chemicals, Fuels, and Lubricants. The Contractor shall comply with all Federal, State, and Local regulations concerning the transportation, storage and handling of chemicals, fuels and lubricants. No dumping of waste materials is permitted on the Project site. Leaks and spills must be immediately reported to the Engineer and appropriate government agency.
- 3.03 MAINTENANCE AND RECORD KEEPING. The Contractor shall maintain erosion, sedimentation and pollution control measures throughout the duration of the Work being completed and until City final acceptance of the improvements and an established turf over all disturbed areas. The Contractor shall also maintain all weather logs and daily inspection reports required by applicable permitting authorities. Said records and logs shall be maintained at the site, readily accessible for inspection by the Engineer.

END OF SECTION

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SECTION 31 20 10

SUBGRADE CORRECTION

PART 1 - GENERAL

- 1.01 SCOPE. Under this section of the specification shall be included the furnishing of all labor and equipment necessary for the excavation and disposal of excess unsuitable organic materials in the playing field as indicated on the plans and in the soil boring report. Such material shall be replaced with excess native clay excavation from within the playing field

PART 2 - PRODUCTS

- 2.01 MATERIALS. The granular backfill material shall be MnDOT 3149 - Granular Borrow, unless otherwise stated in the BID PROPOSAL. In the playing field area only, all backfill material shall be excess removal material (native clay) excavated from within the playing field area and approved by the engineer.

PART 3 - EXECUTION

- 3.01 SUBGRADE EXCAVATION. The excavation shall be made to the grade and cross sections shown on the Plans or as directed by the Engineer. The Engineer shall provide construction staking under the provisions of MNDOT 1508 and modified as follows:

“Necessary staking for construction and inspection purposes” will be provided by the Engineer to the following extent: The survey points shown on the Staking Layout sheet which shall be set one time only. The Contractor shall maintain these points and will be responsible to provide his own intermediate and offset stakes.

All materials which the Engineer considers unsuitable for backfill shall be used for other embankment construction on site, with any surplus material to be disposed of at designated disposal sites on the Project, or, if none is designated, outside of the Project limits in accordance with a satisfactory Disposal Plan. The Disposal Plan shall constitute the Contractor's proposal for acceptable disposition of surplus materials outside of the Project limits in compliance with applicable environmental regulations, permit requirements, and any requirements or limitations imposed by the Contract. A satisfactory Disposal Plan shall be submitted to the Engineer prior to starting the disposal operations. The Contractor shall provide verification of locations and grades of these 14 points during construction to the Engineer for quality control purposes.

- 3.02 DRAINAGE. If so indicated on the Plans or directed by the Engineer, seepage trenches shall be excavated to provide drainage, and those trench excavations shall be backfilled with the same kind of material as that used for backfilling the subgrade excavations.

- 3.03 BACKFILLING OPERATIONS IN THE PLAYING SURFACE. All materials used for backfill shall be placed in layers not more than 6 inches thick, except that if the depth of the excavation is more than 18 inches, and the bottom of the excavation is, in the opinion of the Engineer, so unstable that there would be intrusion or displacement of the underlying material into the lower layer of backfill constructed 6 inches in thickness, the bottom layer may be increased to 12 inches in thickness.

Backfill and compaction shall be so done that there will be no displacement of any in-place drainage pipe.

The top layer shall be shaped to the elevations shown on the plans.

END OF SECTION

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SECTION 31 20 20
SUBGRADE PREPARATION

PART 1 - GENERAL

- 1.01 SCOPE. Under this section shall be included the furnishing of all equipment, labor and skill necessary for shaping and compacting the subgrade prior to placing of the aggregate base course in accordance with MnDOT Section 2112.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION

- 3.01 CONSTRUCTION. This work shall be done after any unstable sections of the subgrade have been repaired and after any existing base or surface courses required to be removed have been removed.
- 3.02 SUBGRADE COMPACTION AND STABILITY TESTS. This contractor will be required to conduct a proof roll of the subgrade prior to approval. Testing requirements are detailed in the turf manufacturer's specifications, Part III, Section B, Item 6.

END OF SECTION

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SECTION 31 20 30

GEOTEXTILE CONSTRUCTION – PLAYING SURFACE

PART 1 - GENERAL

- 1.01 SCOPE. Under this section shall be included the installation of Geotextile for separating materials in construction.

PART 2 - PRODUCTS

- 2.01 GEOTEXTILE. See turf manufacturer's specifications, Part II, Section A for product requirements.

PART 3 - EXECUTION

- 3.01 FABRIC PLACEMENT. See turf manufacturer's specifications, Part III, Section C for placement details. At no time shall equipment be driven directly on the fabric.

END OF SECTION

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SECTION 31 20 40

GEOTEXTILE CONSTRUCTION - EROSION CONTROL

PART 1 - GENERAL

- 1.01 SCOPE. Under this section shall be included the installation of Geotextile for rip rap erosion control applications.

PART 2 - PRODUCTS

- 2.01 GEOTEXTILE. Geotextile for use in rip rap construction shall be MnDOT Type IV and shall be furnished in accordance with all requirements of MnDOT Specification 3733. A Certificate of Compliance shall be furnished by the supplier in accordance with MnDOT Specification 1603 and shall be delivered to the Engineer prior to any rip rap construction.

END OF SECTION

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SECTION 31 23 33

TRENCH EXCAVATION AND BACKFILLING

PART 1 - GENERAL

- 1.01 SCOPE. This section of the specifications shall include the excavation, trenching and backfill required for the underground utility systems and for the playing field drainage.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION

3.01 CONSTRUCTION REQUIREMENTS

- A. Trench Preparation. The sewer excavation and trench preparation shall be in accordance with City of Duluth Construction Standards. The typical sections, as shown in Detail Drawings, shall be used for all pipe installation where groundwater or unstable material does not create a problem. Where, in the opinion of the Engineer, unstable material prevents use of this bedding method, then the Contractor shall install Granular Bedding or Trench Stabilization Rock. The 15" perforated PVC excavation and trench preparation, as shown in the Detail Drawings, shall be used for all 15" perforated PVC installed within the stadium walls.
- B. Backfilling. Backfill of the utility trenches shall be in accordance with the following methods. Utilize Type "B" backfilling methods within any street or roadway and shoulders and also within all driveways. Utilize Type "D" backfilling methods in the ditches or open areas where roadways or proposed housepads will not be affected. Backfill of the 15" perforated PVC shall be in accordance with the turf manufacturer's specification, Part II, Section F, Aggregate Base Course, to ensure adequate drainage.

Mixtures of gravel meeting the Granular Material Gradation Classifications for those zones as outlined in the Standard Utility Specification shall be spread in 3-inch layers and hand tamped or compacted by approved mechanical methods to a density of 95% of Standard Proctor Density by the MnDOT "Specified Density Method." Care shall be taken to deposit the material simultaneously on both sides of the pipe for the full width of the trench. At the top of the encasement zone, the backfill shall be well compacted by using mechanical tamping equipment in such manner so as not to damage the pipe joints or shift the pipe alignment. The Contractor may not use water to obtain compaction at the pipe zone.

All surplus and unusable or waste material shall be disposed of in conformance with MnDOT 2105. Backfilling shall not be done in freezing weather except by permission of the Engineer, and it shall not be made with frozen material nor where the material already in the trench is frozen. After backfilling has been accomplished, the Contractor shall be responsible for furnishing backfill or surfacing material as necessary and filling settlement depressions resulting from inadequate compaction or any other construction defect until the acceptance of the work.

1. Type "B" Backfilling. Type B backfilling consists of placing suitable materials excavated from the trench in succeeding 12" thick layers from a point 12" from the top of the pipe. Each 12" thick layer shall be compacted before additional backfill material is placed in the excavation.

The top 12" of this backfill shall be compacted with the use of a sheepsfoot roller or approved similar compaction equipment. Only approved mechanical tamping or compacting will be allowed. Use of bucket compaction or wheel rolling will not be permitted.

The density of the backfilled material after compaction shall be 95% of Standard Proctor Density from the encasement zone to 3 feet below the surface and 100% of Standard Proctor Density in the upper 3 feet. One test for each 500 feet is required. The testing shall be repeated for each 3 foot vertical lift.

Suitable backfill material may contain any mixture of loam, clay, sand or coarse gravel, but shall be free of stones, boulders, chunks, or lumps with any dimension greater than 8 inches and shall contain no ashes, refuse, rubbish, roots, frozen material or vegetation or organic material that would cause settlement. In any case, where rocks are present in the backfill material, adequate sand shall also be present and mixed in to fill all voids.

2. Type "D" Backfilling. The backfill material shall be free from boulders, rock, concrete and bituminous chunks and clay lumps more than one foot in any dimension and shall contain no stumps, rubbish, decayed vegetation or frozen materials and other similar articles where presence in the backfill would cause excessive settlement. The backfill may be placed in 3' layers and compacted by wheel type equipment weighing not less than 6 tons.

If the compaction of the backfill material is specifically authorized by the Engineer to be done by flooding the trench, the Contractor shall exercise due precautions so as not to float the pipe or permit water to enter the pipe, causing mud to be deposited in the pipe. The Contractor shall be wholly responsible for neglect of his workmen in carrying out the proper precautions.

END OF SECTION

SECTION 32 31 15

CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes the furnishing and installation of chain link fence and gates, including excavation and concrete work in connection therewith.

1.02 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - 1. A53-95 Specification for Pipe, Steel, Black and Hot-Dipped, Zinc- Coated Welded and Seamless
 - 2. A121-92a Specification for Zinc-Coated (Galvanized) Steel Barbed Wire
 - 3. A123-89a Specification for Zinc (Hot-Galvanized) Coatings on Iron and Steel Products
 - 4. A153-95) Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
 - 5. A392-91b Specification for Zinc-Coated Steel Chain Link Fence Fabric
 - 6. A585-92 Specification for Aluminum-Coated Steel Barbed Wire
 - 7. C94-96 Specification for Ready-Mixed Concrete
- B. Chain Link Fence Manufacturer's Institute (CLFMI). The reference in the Product Manual to ASTM F567 "Installation of Chain Link Fence" shall not be applicable.
 - 1. CLF 2445 Product Manual - Latest Edition

1.03 SUBMITTALS

- A. Shop Drawings shall be submitted and show full details of layout and shall identify all materials. Also provide a copy of the CLFMI Product Manual with the shop drawings.
- B. Manufacturer's Data. Submit manufacturer's data certifying that coatings and materials meet the requirements of the specification. The data shall refer to the specific ASTM or CLFMI specification and class and/or other requirements applicable.
- C. Certifications. Submit certification that concrete being provided meets the requirements of ASTM C94 and requirements of these specifications.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Chain Link Fabric shall be 2-inch mesh, 9 gauge steel wire fabric. Fabric shall be knuckled at bottom selvage and at top. Fabric shall be .40 oz/s.f. aluminum coated and shall comply with the CLFMI Product Manual for Metallic-Coated Steel Chain Link Fabric. Fabric shall be in one piece, full-height.
- B. Posts, Rails and Braces. All structural and roll-formed shapes shall conform to provisions of ASTM A123 for galvanized coating. Pipe indicated as nominal Schedule 40 pipe shall conform to ASTM A53. All tubular members shall comply with provisions of ASTM A53 for weight and coating. All posts, rails, and braces shall conform to the requirements of the CLFMI Product Manual except as otherwise specified herein.
 - 1. End, Corner and Pull Posts shall be 3-1/2-inch outside diameter, nominal Schedule 40 (or SS40) pipe weighing 5.14 pounds per foot.
 - 2. Line Posts (10'-0" maximum spacing) shall be 3-inch outside diameter nominal Schedule 40 pipe weighing 4.64 pounds per foot.
 - 3. Top, Mid and Bottom Rails shall be 1-5/8-inch outside diameter pipe weighing 1.836 pounds per foot. Provide in accordance with the CLFMI Product Manual.
 - 4. Gate Posts from which the gates are hung shall be 4 inches o.d., 9.11 lbs/ft.
 - 5. Gate Latch shall be heavy duty, hot dip galvanized. Hinges shall be pressed steel or malleable iron and shall be suitable for the gate size, non-lift off type, and offset to permit 180 degree gate operation. Latches shall be operable from either side of gate and shall be lockable with padlocks. Padlocks will be furnished by the Owner. Provide keepers to hold all gates in open position.
 - 6. Tension Wire for use at top and bottom of fabric shall be 7 gauge galvanized or aluminum coated coil spring wire.
 - 7. Post Bracing Assembly shall be 1-1/4 inches nominal schedule 40 pipe weighing 2.27 pounds per foot, and shall include 3/8-inch diameter rod and adjustable take-up. Post bracing shall be provided in accordance with the CLFMI Product Manual.
- C. Accessories, except tie wires, shall be galvanized to comply with ASTM A153. Accessories shall be provided in accordance with the CLFMI Product Manual.
 - 1. Post Tops shall be pressed steel or malleable iron.
 - 2. Stretcher Bars shall be in one piece lengths, full height of fabric, 3/16"x3/4" minimum size. Stretcher bar bands shall be heavy pressed steel.
- D. Gates shall be as shown on the drawings. Fabricate gate perimeter frames of 1.90 inch O.D. tubular members galvanized, ASTM A53. Provide additional horizontal and vertical members to ensure proper gate operation and for attachment of fabric, hardware and accessories. Gates shall conform to the requirements in the CLFMI Product Manual. Provide keepers to hold all gates in open position. Provide stops for all double leaf gates, set in concrete.

1. Assemble Gate Frames by welding or fittings and rivets for rigid connections. If welded, work shall be galvanized after welding. Use same fabric as for fence, unless otherwise indicated. Install fabric with stretcher bars at vertical edges, and tie at top and bottom edges. Attach stretcher bars to gate frame at not more than 15 inches o.c. Attach hardware with rivets or by other means that will provide security against removal or breakage.
 2. Provide Diagonal Cross-Bracing consisting of 3/8-inch diameter adjustable length truss rods on gates where necessary to provide frame rigidity without sag or twist. Provide diagonal or mid-rail horizontal bracing at all corners.
 3. Gate Hardware shall be heavy duty, hot dip galvanized. Hinges shall be pressed steel or malleable iron and shall be suitable for the gate size, non-lift-off type, and offset to permit 180 degree gate operation. Latches shall be operable from either side of gate and shall be lockable with padlocks. Padlocks will be furnished by the Owners. Provide keepers to hold all gates in open position.
- E. Wire Ties for tying fabric to line posts shall be 9 gauge steel wire, spaced 14 inches O.C. For tying fabric to tension wire, use 11 gauge hog rings spaced 24 inches O.C.
- F. Concrete shall conform to the requirements of ASTM C94, with 3/4-inch maximum sized aggregate and 4000 psi compressive strength at 28 days. Concrete shall contain 6%, plus or minus 1%, entrained air.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. General. Posts shall be drive set through sleeves in concrete pavements to depth necessary to provide proper structural stability and protection from frost heave. At top of dugout walls and bleacher platform walls, provide bracket and anchor plate assembly to receive fence posts, and quick bolt anchor assembly to top of wall. Posts shall be set at 10'-0" maximum on center spacing unless otherwise shown.

Check each post for vertical and top alignment. Set keepers, stops, sleeves, and other accessories as required.

- B. Brace Assemblies. Install braces so posts are plumb when diagonal rod is under proper tension.
- C. Fabric. Pull fabric taut and tie to posts, rails and tension wires. Install fabric on security side of fence and anchor to framework so that fabric remains in tension after pulling force is released.
- D. Stretcher Bars. Thread through fabric and secure to posts with metal bands spaced not over 15 inches o.c.
- E. Gates. Install gates plumb, level, and secure for full opening without interference. Install ground-set items in concrete for anchorage as recommended by the fence manufacturer. Adjust hardware for smooth operation.
- F. Completed Work shall be neat, plumb, and sightly. Bottom of fabric shall be not more than two inches from the ground at any location unless otherwise shown.

END OF SECTION

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SECTION 32 90 10

LANDSCAPING

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes furnishing and installing sod, seeded turf, and plantings as shown and as specified. Include incidental work in connection therewith.

1.02 REFERENCES

- A. American National Standards Institute (ANSI)
 - 1. Z60.1-1986 American Standard for Nursery Stock
- B. American Society for Testing and Materials (ASTM)
 - 1. C33-90 Specification for Concrete Aggregates
- C. American Wood Preservers Bureau (AWPB)
 - 1. Standard LP-22 Standard for Softwood Lumber, Timber and Plywood Pressure Treated with Water-Borne Preservatives for Ground Contact Use, Rev. March, 1980
- D. Minnesota Department of Transportation (MnDOT) Standard Specifications for Highway Construction, 2014 Edition.
 - 1. 3876 Seed
 - 2. 3882 Mulch Material

1.03 SUBMITTALS

- A. Certification of plant materials for conformance with inspection requirements of State County, and Local Authorities, and of seeds for purity and germination rates specified in this Section, shall be submitted.
- B. Permits. Submit copies of executed permits required by state, county and local authorities approving transportation, handling and use of plant materials and chemicals.

1.04 QUALITY ASSURANCE. Contractor shall be responsible for all inspection of plant material required by the Public Authorities having jurisdiction, and shall secure required permits.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Fertilizer shall be delivered to the job in manufacturer's original, unopened containers, with labels intact and legible.
- B. Seed shall be delivered in suitable sealed containers labeled in accordance with applicable laws and regulations and including name and location of the producer.

1.06 MAINTENANCE

A. Seeded Turf

1. Lawn/Rough Seeded Turf, shall be moist when seeded and shall be kept moist by sprinkling until a good stand of grass is obtained and until the work is accepted by the Owner. Mowing required will be by the Owners. At the Contractor's option, newly seeded areas may be mulched, and if so, mulch materials shall be as specified elsewhere in this Section, type at the Contractor's option. Apply mulch uniformly at a rate which will provide adequate cover to protect seeds and prevent washing but will not hinder the growth of the grass.

- B. Sod, shall be watered and maintained by the Contractor [for a period of six weeks/until acceptance by the Owner], except that no maintenance will be required between November 15 or freeze-up, whichever is earlier, and April 15. The Owner will mow the new sod during the maintenance period, as may be needed. The Contractor, at a time before the first mowing and as directed by the Owner, shall remove pegs.

- 1.07 WARRANTY. Turf and plantings shall be subject to a full one year warranty beginning upon acceptance of the total project by the Owner. Defective workmanship or materials as identified by the following procedures shall be repaired as directed, at no additional cost to the Owner.

Materials evidencing satisfactory growth at the applicable inspection tour will be accepted. The Contractor shall not be responsible for damage or poor growth due to lack of maintenance after the specified maintenance period.

- A. Seeded Turf. At the conclusion of the first growing season after planting, an inspection of turf will be made to determine its condition. Bare patches in excess of one square foot, and other defects, as determined by the Architect/Owner, will be noted. Overseeding, during the next available planting season, shall be done by the Contractor at his own expense as may be necessary to obtain a satisfactory stand of grass.
- B. Sod. Displaced or dead sod, from any cause, which shall appear within the first year after acceptance, shall be considered defective. Defective sodding shall be replaced promptly by good work.

PART 2 - PRODUCTS

- 2.01 FERTILIZER shall be of such composition that when uniformly applied it will furnish not less than the following quantities of available plant food per 1000 square feet:

Nitrogen 2.0 pounds

Phosphoric Acid 1.2 pounds

Potash 0.8 pounds

This is equivalent to a commercial 10-6-4 fertilizer applied uniformly at 20 pounds per 1000 square feet. Commercial fertilizer blends which will give fractions exceeding these will be accepted provided that no fraction exceeds the specified quantity by more than 150%.

2.02 SOD shall be densely rooted blue grass, free from noxious weeds and substantially free of other weeds and objectionable grasses. At least 2/3 of the grasses, as determined by the initial planting mix, shall be improved type Kentucky Bluegrasses, such as Adelphi, America, Aspen, Baron, Columbus, Glade, Touchdown, Victa, or Equal. Before cutting, the sod shall be raked free of all debris, and the grass cut to a length of about two inches. The thickness of the sod shall be uniform and such as to contain practically all of the dense root system of the grasses, and not less than 3/4". Sod shall be cut in uniform strips not less than 12" wide and not less than 24" in length, and shall be placed within 48 hours of cutting. Sod strips shall not have dry or dead edges.

2.03 SEED. The pure live grass seed mixture/s shall be as follows:

A. Lawn Area Mixture indicated as, shall be as follows. Note this is the same as MnDOT 3876.2 Mixture No. 400.

Seed Variety:	% by Weight:
Park Kentucky Bluegrass	28.6
Dawson Red Fescue	28.6
Alkali Grass	28.6
Perennial Ryegrass	14.2
	100.0 %

B. Rough Seeded Area Mixture indicated as, shall be as follows. Note this is the same as MnDOT 3876.2 Mixture No. 1000.

Seed Variety:	% by Weight:
Crown Vetch	52.6
Creeping Alfalfa	18.4
Birdsfoot Trefoil	7.9
Perennial Ryegrass	21.1
	100.0 %

2.04 PLANTING SOIL shall be topsoil in conformance with the requirements of Section 02200 with fertilizer added. This soil shall be friable loam, containing a liberal amount of humus, free of heavy clay, light peat, coarse sand, stones, roots or other foreign materials. Mix in about 3% (by weight) fertilizer.

2.05 WATER shall be potable (or as otherwise approved) and shall be suitable for plant growth.

2.06 MULCH

A. Gravel Mulch shall conform to ASTM C33, size No. 4 (1 1/2" to 3/4") except that 50% (by weight) of the material shall be crushed (particles shall have at least one fractured surface).

B. Bark Mulch shall conform to the requirements of MnDOT 3882, Type 6; except that source material shall be hardwood bark.

C. Mulch for Seeding shall conform to the requirements of MnDOT 3882, Types 1, 2, 3 or 4, at the Contractor's option. Mulch materials shall not contain weed seeds.

2.07 PLASTIC EROSION CONTROL FABRIC shall be Miramat 1800 as manufactured by 3M for Mirafi, Inc., or equal. Fabric shall be green, highly flexible polymeric net, non-woven, three dimensional, web-like, and recommended by its manufacturer to maintain and hold loose soil particles. Fabric shall be 0.12 inch thick minimum and shall weigh at least 18 ounces per square yard. Provide the manufacturer's installation instructions with the material.

- 2.08 LANDSCAPE FABRIC shall be spunbonded, non-woven polyester fabric recommended by its manufacturer for use as a separation between mulches and subsoils; "Mirascape" as made by Mirafi, Inc., or equal. Fabric shall weigh at least 3.0 ounces per square yard. Provide the

PART 3 - EXECUTION

- 3.01 PREPARATION FOR SEEDING AND SODDING. Finished grades shall slope uniformly between elevations shown and to meet walks and pavement, as applicable. Allow for the thickness of sod, as applicable. The finished work shall be true, smooth and sightly. Spread smooth but do not compact.]

The topsoil shall be loosened and thoroughly pulverized by discing, harrowing or hand raking. Sticks, stones, and trash over one inch, shall be removed. The surface shall be finished to the designated slope and contour. Spread the fertilizer and work in during preparation. Apply fertilizer in two passes at approximately right angles to each other, each pass placing approximately half of the fertilizer. Application rate shall provide the plant food quantities specified in Article 2.01 of this Section.

- 3.02 SODDING. Immediately before the sod is laid, the prepared bed shall be sprinkled until all of the loose material is moist. Sodding shall be done only when soil and weather conditions are favorable. The sod strips shall be carefully placed by hand beginning at the toes of the slopes and progressing upwards, the length of the strips as nearly as practical at right angles to the direction of the flow of the surface water. All joints shall be tightly butted and the end joints shall be staggered at least 12 inches. After sod has been placed, the sod shall be pressed into the underlying soil by rolling or tamping. The sod shall be pegged with suitable wood stakes as necessary to keep it in place.

- 3.03 LAWN/ROUGH AREA SEEDING. Seeding shall be done between April 1 and May 15 or between August 1 and September 15, except as otherwise may be allowed by the Engineer. In any case reseeding shall be done as may be necessary to obtain a satisfactory stand of grass. Sow seed (for lawn areas) uniformly at 100 (up to 200 pounds for City Park requirements) pounds per acre, adjusting for the certified purity and germination. Sow seed (for rough-seeded areas) uniformly at 50 pounds per acre, adjusting for the certified purity and germination.

Seeds are to be sown by hand operated or machine operated mechanical seeder, which shall continuously mix the seeds to prevent segregation. Seeding shall be performed in two passes at approximately right angles, each pass placing approximately half of the seed.

Immediately before seeding, the soil shall have been properly prepared for seeding. Immediately after the seed has been sown, the entire area shall be raked lightly and rolled lightly to pack the soil firmly around the seed.

Where indicated, and at ditches, provide erosion control fabric over newly seeded areas to prevent erosion. Install in accordance with the manufacturer's instructions, including also types and spacing anchors.

END OF SECTION

SECTION 32 90 20

PROTECTION AND RESTORATION OF PROPERTY

PART 1 - GENERAL

- 1.01 SCOPE. Under this Section of the Specifications shall be included the general clean-up of street right-of-way and grading of areas disturbed by construction.
- 1.02 BASIS OF PAYMENT. Refer to Section 01025, Measurement and Payment.

PART 2 - PRODUCTS

- 2.01 GENERAL. Materials for use in turf establishment are specified in this section.
- 2.02 FERTILIZER. Commercial fertilizer, analysis 10-10-10, Mn/DOT Specification 3881, shall be spread at the rate of 500 pounds per acre.
- 2.03 SEED. The grass seed shall be Mn/DOT Specification 3876, Seed Mixture No. 600, Mn/DOT Specification 3876, applied at a rate of 75 pounds per acre, or Seed Mixture No. 900 applied at a rate of 45 pounds per acre. Seed mixture used shall be as included in the BID PROPOSAL and at locations as directed by the Engineer.
- 2.04 MULCH
- A. Type 1 mulch meeting the requirements of Mn/DOT Specification 3882 shall be applied to seeded areas at the rate of 2 tons per acre, and anchored by disking, except where plastic netting for stabilization is specified. The mulch will not be disked for yard seeding unless directed by the Engineer.
 - B. Wood Fiber Blanket meeting the requirements of Mn/DOT Specification 3885 shall be used to cover seeded area and anchored with staples with minimum length of 6".
- 2.05 SOD. The sod shall meet the requirements of Mn/DOT Specification 3878 for the following types:
- | Sod Type | Application |
|--------------------|--|
| Lawn and Boulevard | A premium quality sod for use in high maintained areas, such as lawns. |
| Erosion Control | An average to high density sod with low maintenance requirements such as ditch bottoms and pipe inlets or outlets. |

PART 3 - EXECUTION

- 3.01 PROTECTION AND RESTORATION OF PROPERTY. The Contractor's operations shall be confined to the areas covered in right-of-way and easements granted to the Owner. Any procedures by the Contractor of any sort beyond the limits indicated shall be the sole responsibility of the Contractor who shall save the Owner harmless from any claim for damages due to trespassing. It is the intent of the Owner to have all easements secured prior to commencement of the work; however, if the easements have not been finally secured, the Contractor shall amend the construction sequence accordingly until such time as it is possible to work within easements.

All property owners whose fences, mail boxes, or similar private property extend in the area where the construction work occurs, shall be notified one week in advance of the commencement of the Contractor's construction work. The notification shall be made by the Contractor. The Contractor will be required to remove the fence and/or mail boxes and will relocate the mail boxes temporarily at a location agreed to by the Engineer and the U.S. Post Office. The mail boxes shall be replaced to their original location as soon as is practicable.

The Contractor will be required to replace any private fence which he may have to remove from public property, providing it interferes with his construction operations. The fence shall be replaced at the property line or as directed by the Engineer. Any removal, relocation and replacement shall be considered incidental to the contract unless so allowed in the Proposal.

Trees not designated for removal shall be protected and saved from damage during construction. Temporary easements shall be used only for storage of material and equipment or the maneuvering of equipment, and all trees shall be protected by placing brightly colored high density polyethylene safety fence around or along the trees. Should any damage happen to occur to the trunks or branches of trees along the project, the damage shall be treated in accordance with nursery approved methods. Any broken branches shall be trimmed as per Engineer's direction. All bruise and cut wounds shall be treated with asphalt base tree paint.

If the project requires cutting through a sidewalk, railway, street or private property, the Contractor will be required to restore these areas within five (5) working days after completion of the utility installation.

3.02 TURF ESTABLISHMENT. The requirement for sod, seed and fertilizer and the placing or applying thereof shall be in accordance with Mn/DOT Specification 2575 as modified below.

The Contractor shall carry on his operation in such fashion that only the minimum amount of sod is disturbed or removed. The Engineer shall determine if the disturbed area should be replaced with seed or sod. It is anticipated that the only areas requiring sodding will be those work areas which are presently well-established lawns, and for erosion control. Payment for furnishing and replacing sod within the approved limits of construction shall be made under the bid item for Sodding in the Proposal. The cost of replacing any sod disturbed in areas outside of the approved limits of construction shall be considered incidental.

Existing topsoil within the utility and/or drainage easements shall be salvaged and stockpiled by the contractor. The stockpiled topsoil shall be used to cover those areas of easements disturbed by utility construction. The cost of salvaging, stockpiling and resspreading shall be considered incidental to the construction. If topsoil does not exist in sufficient quantity to allow replacement to 4 inch depth, the deficiency in topsoil will be paid at the topsoil borrow item price. The topsoil cover shall be seeded with Mixture No. 600, fertilized and mulched with wood fiber blanket.

Boulevards shall be graded upon completion of curb work and graded to allow for placement of 4 inches of topsoil and sod. Topsoiling of boulevard is not required under this contract within this development. Seeding of boulevards shall be completed after the installation of the private utilities and seeding shall be with Mn/DOT Mixture No. 900, including fertilizer and Type I mulch. If, in the event the boulevards are not replaced after private utility construction, the contractor will be paid to reshape boulevards is agreed by the Engineer prior to commencement of work. No payment will be made if contractor and Engineer do not agree prior to commencement of regrading.

The Contractor shall give at least one watering to the areas which are seeded or sodded immediately upon completion of covering the seed or laying the sod. If ordered by the Engineer to do so, the Contractor shall apply additional water to insure grass growth. The water will be furnished by the Owner if the Owner has a municipal water system, but watering shall be at the Contractor's expense and method. Yard seeding shall be applied as noted under Turf Establishment, Mn/DOT Specification 2575, except that the topsoil shall be raked free of lumps and rocks to provide a smooth, mowable surface.

After seeding, the seeded area shall be hand raked to cover the seed. Mulch shall be blown on and should not be disk anchored unless the Engineer determines that the area has the potential for erosion problems.

- 3.03 HAY OR STRAW BALES. The Contractor shall furnish and install bales in the form of dikes or ditch blocks to control erosion, reduce velocity, or trap sediments at locations, warranted as construction progresses, as directed by the Engineer. The lower three inches of each bale shall be embedded in soil and staked with suitable steel fence posts to prevent displacement. The bales shall remain in place for the duration of the project.
- 3.04 EROSION CONTROL LOGS. The Contractor shall furnish and install bales in the form of dikes or ditch blocks to control erosion, or trap sediments at locations, as shown on the plans and as directed by the Engineer. The logs shall remain in place for the duration of the project and shall be removed upon satisfactory grow-in of permanent erosion control.

END OF SECTION

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SECTION 33 40 00

STORM SEWER CONSTRUCTION

PART 1 - GENERAL

- 1.01 SCOPE. Under this section shall be included the complete construction of a storm sewer extension within the street right-of-way or easement. The sewer extension shall be laid as shown on the plans, including manholes and all necessary excavation, backfilling, as required.
- 1.02 MATERIALS TO BE FURNISHED. All material required for the construction shall be furnished by the Contractor and all materials shall be new, of first grade and shall be products reputable manufacturers known to the trade.

Prior to ordering precast manhole or catch basin components, Contractor shall submit for review manhole and catch basin detail books in order that verification can be made that the materials to be supplied are in conformance with the design concept of the Project and in compliance with the information given in the Contract Documents.

PART 2 - PRODUCTS

- 2.01 CONCRETE STORM SEWER PIPE. Reinforced Concrete Pipe shall conform to ASTM Specification C76 with Bureau of Reclamation R-4 joint.
- 2.02 HDPE STORM SEWER PIPE. High Density Polyethylene storm sewer pipe shall conform to ASTM Specification D3261.
- 2.03 CORRUGATED METAL PIPE CULVERT. shall have 2-2/3 inch by 1/2 inch corrugations and shall conform to the applicable requirements of AASHTO M36, as shown on the MnDOT Standard Plate No. 3040F.

Coupling bands shall be the same base metal and coating as the pipe. Bands shall have the same thickness as the pipe. Bands shall be 10-1/2 inch minimum width.

Corrugated metal aprons shall conform to the requirements shown on MnDOT Standard Plate No. 3123J.

- 2.04 MANHOLE AND CATCH BASIN STRUCTURES. The Contractor shall use precast sections whenever possible, except where noted on the drawings.

Inside the stadium walls, Nyloplast type drainage structures 2830AG (30" dia), or equivalent, shall be installed.

If the Contractor must construct the manholes and catch basins using segmental block, the following shall apply:

Block work shall be laid up in good workmanlike manner to the dimensions shown. All block shall be wetted thoroughly with water just before laying, and headers and vertical joints shall be broken from course to course. Each horizontal course shall be completed before starting the next course above. Horizontal joints shall be not more than 1/2" thick and vertical joints on inside face not more than 3/8" thick. All joints shall be complete filled with mortar. All joints on inside shall be plastered smooth with mortar, thickness to be not less than 1/4" at any point.

All work shall be covered when not being worked upon. Masonry shall be kept at a temperature above freezing until mortar has attained sufficient strength and set so that it will not be damaged by freezing. In freezing weather, all materials shall be heated before laying and shall be protected as necessary to prevent damage after laying. No work shall be done in unsuitable weather, unless suitable protection is provided.

The blocks shall be radial blocks and shall conform to the radius of the manhole as detailed. The blocks shall have a vertical groove with one inch radius on both ends. The batter blocks for the tapered tops shall be a minimum of five inches in thickness and the blocks used in the four-foot diameter manhole section shall be a minimum of six inches in thickness.

The manhole depth to which the six inch thickness blocks may be used shall not exceed twelve feet. Below this point, the block thickness shall be increased to ten inches for manholes up to twenty feet in depth, and for manholes deeper than twenty feet, the block thickness shall be not less than twelve inches. A flat slab top may be required instead of a tapered top. Precast adjusting rings shall be used to form the upper eight inches of the structure.

- 2.05 TRENCH DRAINS. Trench drains shall be Neenah Catalog No. R-4996-A trench frame and R-4996-A end piece frame, or equivalent.
- 2.06 MANHOLE/CATCH BASIN STEPS. Manholes and catch basins shall be furnished with aluminum steps, polypropylene plastic reinforced, or approved equal, and shall be in accordance with MnDOT Standard Plate No. 4180. Steps shall be located over the downstream pipe.
- 2.07 MANHOLE CASTINGS. Manhole casting shall be Neenah Catalog No. R-1723 vented cover, or equal.
- 2.08 CATCH BASIN CASTINGS. Catch basin casting and grate shall be as follows:

Neenah Catalog No. R-4859-Q (pedestrian safe)

Neenah Catalog No. R-4353-Q (beehive for grass swale)

Grates on Nyloplast structures shall be pedestrian grate 3099CGP, or equivalent.

PART 3 - EXECUTION

- 3.01 ALIGNMENT AND GRADE. All pipe shall be laid and maintained to the required lines and grades, with manholes, catch basins and special structures at the required locations. No deviation from line or grade shall be made without the written consent of the Engineer. The Engineer shall provide construction staking under the provisions of MNDOT 1508 and modified as follows:

"Necessary staking for construction and inspection purposes" will be provided by the Engineer to the following extent: Line and grade stakes for pipe culverts will be placed at the pipe ends, at each structure, and break in flow line grade or alignment, and appropriate intervals along the pipe.

- 3.02 PIPELAYING. The alignment of pipe between manholes shall be such as to permit the entire inside circumference being seen from any manhole to the next adjacent manhole. Piping that does not conform to line and grade shall be relaid at the Contractor's expense.

Pipe shall be laid against the grade of the sewer. The spigot end of the pipe shall be inserted full depth into the bell, and when completed, each line of pipe shall have a uniform and smooth invert.

Joints for all sewers shall be made watertight. As soon as the joint is made, the bell depression shall be filled with granular bedding material which shall be pressured under and around the joint, by hand, in such a way as to protect it from sagging or being disturbed.

Joint ties shall be installed on the last three joints at all end section locations.

The interior of all pipe shall, as the work progresses, be cleaned of all dirt and superfluous materials. The exposed end of the pipe shall be protected with suitable temporary covers. Pipe laid in place shall be protected from injury and disturbance.

- 3.03 MANHOLE AND CATCH BASIN INSTALLATION. Manholes and catch basins shall be constructed as detailed.

The adjusting rings and the castings shall be set in a bed of mortar, and the exterior of the adjusting rings shall be given a 1/2" mortar covering. The joints of the adjusting rings shall be completely filled with mortar and the interior joints struck smooth.

All rows of steps shall be set vertical through the height of the manholes.

Precast manholes over 7' deep shall have a 1'-0" or 1'-4" manhole section installed under the cone section to allow for height adjustment.

- 3.04 MANHOLES AND CATCH BASINS. Payment for adjustment of existing manhole and catch basin frames will be made only when the adjustment necessitates the addition or removal of concrete adjustment rings or masonry or when the adjustment rings of a catch basin must be shifted laterally to meet a proposed curb. No compensation will be allowed for removal or castings when such removal is for the convenience of workmen.

The Contractor shall be responsible for keeping all new and existing manholes and catch basins clean and free of dirt at all times.

The manhole casting shall be adjusted prior to surfacing. The manhole casting shall be adjusted to 1/2" - 3/4" below a 4' straightedge laid across the bituminous wearing course. Castings which measure outside these tolerances shall be readjusted at no additional cost to the Owner.

- 3.05 RIP RAP. Rip Rap shall be hand placed and conform to MnDOT 3601, Class II. The Contractor shall hand place Class II rip rap at the locations as shown on the plans and as directed by the Engineer. Payment shall be based on the cubic yards of rip rap placed.

- 3.06 GEOTEXTILE FILTER. Contractor shall place MnDOT Type IV (Specification 3733) geotextile filter under all rip rap and extend 3 feet under the culvert apron.

END OF SECTION

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SECTION 33 40 20

DRAIN TILE CONSTRUCTION

PART 1 - GENERAL

- 1.01 SCOPE. Under this section shall be included the installation of perforated pipe, coarse filter aggregate and geotextile for subsurface drainage systems.
- 1.02 MEASUREMENT AND PAYMENT. Drain tile systems shall be measured by the linear foot of pipe installed and paid at the price quoted in the BID PROPOSAL.

Geotextile pipe wrap, coarse aggregate filter, and geotextile wrap for coarse filter aggregate as specified and/or detailed shall be incidental to pipe construction.

PART 2 - PRODUCTS

- 2.01 PIPE. Pipe size and type shall be as indicated in the BID PROPOSAL and shall meet the requirements of the turf manufacturer. Collector piping shall meet ASTM D3350 and AASHTO M252. Acceptable manufacturers are included in the turf manufacturer's specifications Part II, Sections C & D.
- 2.02 COARSE FILTER AGGREGATE. Coarse filter aggregate shall be washed aggregate consisting of crushed stone that must be placed and compacted in a uniform manor. Aggregate base course requirements are detailed in the turf manufacturer's specifications, Part II, Section F.
- 2.03 GEOTEXTILE. Geotextile pipe wrap or coarse aggregate filter wrap, as specified or detailed, furnished in accordance with all requirements of the turf manufacturer's specifications, Part II, Section A. A Certificate of Compliance shall be furnished by the supplier in accordance with MnDOT Specification 1603 and shall be delivered to the Engineer prior to any drain tile installation.

PART 3 - EXECUTION

- 3.01 PIPE. Pipe size and type shall be as indicated in the BID PROPOSAL and shall meet the requirements of the turf manufacturer. Collector piping shall meet ASTM D3350 and AASHTO M252. Acceptable manufacturers are included in the turf manufacturer's specifications Part II, Sections C & D.

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WADE STADIUM IMPROVEMENTS
PHASE 1
CITY OF DULUTH, MINNESOTA

APPENDIX A

Astro Turf Dynamic Base Course Design and Construction

Nyoplast Engineered Surface Drainage Products



www.AstroTurfUSA.com

AstroTurf® Dynamic Aggregate Base Course Design and Construction

Part I – General

- A. This information is to be used as a guideline in construction a dynamic aggregate base and drainage system. Project conditions may vary based on overall scope of work and location. Any variations shall be approved by Architect and/or Engineer of Record prior to execution.
- B. This section includes the following:
 - 1. Excavation
 - 2. Aggregate Base Course
 - 3. Drainage
 - 4. Testing
- C. Scope Narrative - The work inclusive of this section is to be completed per the Contract Documents and is to include all labor, materials, equipment, supervision and all other incidentals necessary for a complete professional finished product. All local guidelines and applicable laws must be adhered to throughout the duration of the project. Remove and legally dispose of all unnecessary materials to achieve subgrade. Place aggregate, drainage and geotextile material as directed to achieve final grade. (**Note: Geotechnical evaluation to be provided by Owner**)
- D. Submittals The following submittals are required for approval prior to installation:
 - 1. Permeable geotextile fabric product data and/or Non-Permeable Liner
 - 2. Collector piping and accessories product data
 - 3. Flat drain product data
 - 4. Collector drain backfill material sieve analysis
 - 5. Aggregate base course sieve analysis
 - 6. Aggregate finish course sieve analysis

Part II – Products

A. Geotextile Fabric:

1. Description The proposed fabric must consist of woven long-chain polymeric yarns. The yarns must be fabricated of 95% propylene or ester polymers.
2. Acceptable Manufacturers
 - a. Mirafi -140N
 - b. Amoco
 - c. Approved equal
3. Required Test Criteria The fabric must meet the following test parameters

<i>Description</i>	<i>Minimum Requirement</i>	<i>Unit of Measurement</i>	<i>Test Reference</i>
Grab Tensile Strength	315	lbs.	ASTM D-4632
Grab Tensile Elongation	15	percent (%)	ASTM D-4632
Trapezoid Tear Strength	120	lbs.	ASTM D-4533
Mullen Burst Strength	600	psi	ASTM D-3786
Puncture Strength	145	lbs.	ASTM D-4833
Percent Open Area	1	percent (%)	COE-02215-86
Apparent Opening Size	0.425	Mm	ASTM D-4751
Permittivity	0.05	sec ⁻¹	ASTM D-4491
Flow Rate	163	gal/min/ft ²	ASTM D-4491
UV Resistance (at 500 hours)	70	% strength retained	ASTM D-4355

B. Non-Permeable Liner:

3. Description The proposed material is a non-permeable plastic liners sealed joints. Over the entire subgrade with a minimum welded when applicable.
4. Acceptable Manufacturers
 - a. In-Line Plastic
 - b. Colorado Liner
 - c. Approved equal
5. Required Test Criteria The fabric must meet the following test parameters:

Properties	Test Method	Average Roll Values			
Color		<i>Black</i>	<i>Black</i>	<i>Black</i>	<i>Black</i>
Thickness, mils	ASTM D5199	12	20	30	40
Density, gram/cm	ASTM D1505	.92	.92	.92	.92
Tensile Properties Each Direction					
Tensile Strength at Break, lbs/in width (N/mm)	ASTM D638	43 (7)	76 (13)	114 (20)	152
Elongation at Break, %	ASTM D638	(27)	850	850	850
Tear Resistance, lbs (N)	ASTM D1004	6 (26)	11 (49)	16 (71)	22
		(98)			
Puncture Resistance, lbs (N)	ASTM D4833	18 (80)	31 (137)	46 (205)	62
		(276)			
Carbon Black, %	ASTM D1603	2	2	2	2
Carbon Black Dispersion	ASTM D5596	Note (1)	Note (1)	Note (1)	Note (1)

Note 1: 9 of 10 views shall be category 1 or 2. Not more than 1 view from category

3. This data is provided for informational purposes only. In-Line Plastics, LC makes no warranties as to the suitability or the fitness for a specific use or merchantability of products referred to, no guarantee of satisfactory results from reliance upon contained information or recommendations and disclaims all liability from resulting loss or damage. This information is subject to change without notice, please check with In-Line Plastics for current updates.

C. Collector Piping

1. Description HDPE (High Density Polyethylene) corrugated piping. Perforated smooth wall tubular style and required fittings. Size requirements are to be indicated in Contract Documents. Pipe to meet ASTM D3350 and AASHTO M252.
2. Acceptable Manufacturers
 - a. ADS N-12®
 - b. Hancor
 - c. Approved equal

D. Flat Drain Piping

1. Description Perforated plastic core pipe with a 12 inch wide 1.5 inch tall profile. Flat drain to be wrapped in geotextile fabric.
2. Acceptable Manufacturers
 - a. ADS AdvanEDGE
 - b. Approved equal

E. Trench Backfill Aggregate

1. Description Angular, washed free draining stone with a uniform mixture as the base course layer of the dynamic base. Product specific native to region may be utilized in this application only.

F. Aggregate Base Course

1. Description Angular, washed aggregate consisting of crushed stone that must be placed and compacted in a uniform manner. Rounded stone is not permitted for this application. Aggregate must be tested by an independent party prior to delivery to site and must meet and/or exceed the specifications as provided herein contingent upon stone availability in specified region. Please see Part III for correct application. Other products of similar consistency native to region of project may be considered and approved by Architect and/or Engineer of Record.

2. Design Criteria

a. Sieve Analysis

Sieve Dimension	% Passing by Weight
1.5"	100
1.0"	80-95
¾"	60-80
½"	35-65
#8	10-25
#30	5-18

- b. Permeability - > 50 in./hr.
- c. Sulfate Soundness (C-88) - < 12% loss
- d. LA Abrasion (ASTM C131) - < 40
- e. Compaction 92 - 95% of maximum density as determined by ASTM D-1557
- f. Optimum moisture content - > 90%

G. Aggregate Finish Course

1. Description Angular, unwashed aggregate consisting of crushed stone that must be placed and compacted in a uniform manner. Rounded stone is not permitted for this application. **Depth of finished course not to exceed 2"**. Aggregate must be tested by an independent party prior to delivery to site and must meet and/or exceed the specifications as provided herein. Please see Part III for correct application. Other products of similar consistency native to region of project may be considered and approved by Architect and/or Engineer of Record

2. Design Criteria

a. Sieve Analysis

Sieve Dimension	% Passing by Weight
1/4"	75-100
#8	35-75
#16	10-55
#30	5-20
#60	0-10

b. Permeability - > 12 in./hr.

c. Sulfate Soundness (C-88) - < 12% loss

d. LA Abrasion (ASTM C131) - < 40

e. Compaction 92 - 95% of maximum density as determined by ASTM D-1557

f. Optimum moisture content - > 90%

Part III – Execution

A. General All activities are to be sequenced properly and completed in a timely fashion. All measures must be taken to ensure a safe jobsite per all applicable guidelines. All existing conditions and/or new work in place within the job limits must be maintained at all times. Any damage to said materials will be the sole responsibility of the site work contractor.

B. Excavation

1. Survey Surveyor to establish grade and control points necessary to complete the scope of work. Maintain such markings throughout the duration of the project. (Note: This may be provided by Owner. Please reference Contract Documents for verification)
2. Identify and mark all underground utilities prior to commencement or work. Utilize the services of a utility locating company if available.
3. Track Bridging If an existing track is in place proper track bridging must be in place prior to removal.
4. Removal
 - a. Saw cut edge of existing track, if applicable, to achieve a uniform perimeter.
 - b. Remove soils to a depth as indicated in the Contract Documents and legally dispose of or spoils. ~~Grade and shape subgrade to a 0.5% slope from the centerline of the field (longitudinal) to the proposed edge of the excavation.~~ Subgrade must be free of all roots, debris, etc.
 - c. Any additional excavation, without the written direction of the Owner, will be the sole responsibility of this contractor. Do not proceed with additional excavation unless authorized. If additional excavation is approved, engineered fill will be required in place of unsuitable soils.
 - d. Any necessary dewatering will be the responsibility of this contractor.

- e. If contaminated soils, or potentially contaminated soils, are exposed during the excavation all work is to stop immediately and the condition is to be communicated to the Owner.
- 5. Laser Grading Laser guided machinery will be required to achieve the subgrade elevation as indicated on the Contract Documents. Subgrade must be achieved by laser grading to a ½" tolerance over a twenty-five foot continuous span. The subgrade must be compacted to achieve 95% of the maximum density as determined by ASTM D 698. Subgrade must have the required planarity to mirror that of the finished aggregate.
- 6. Testing
 - a. This contractor will be required to conduct a proof roll of the subgrade prior to approval. This is to be witnessed by an independent soils engineer (by Owner) and the Architect. If an area is determined to be unsuitable, at the direction of the Owner, remove the unsuitable soil to a depth determined acceptable by the soils engineer. Engineered fill will be required in place of the unsuitable soil. Proof roll area again in the presence of the soils engineer and architect once engineered fill has been installed.
 - b. Proof Roll is required with a minimum thirteen cubic yard tandem axel dump truck with a process directed by the hired geotechnical engineer.
 - c. Soils Engineer is to test for compaction prior to proceeding.

C. Geotextile Fabric

- a. Geotextile fabric must be delivered to site in manufacturer's wrapping and must stay wrapped until placement.
- b. Do not commence installation unless subgrade has been approved
- c. Geotextile fabric must be overlapped per the manufacturer's recommendations.
- d. If geotextile fabric becomes damaged during installation remove, replace and/or patch per manufacturer's recommendations.
- e. Do not leave geotextile fabric exposed to the elements for more time that is recommended by the approved manufacturer.

D. Drainage

- a. Collector Drain
 - 1. Collector drains are to be minimum of 8 inches, or as indicated on the Contract Documents.
 - 2. Pipe to be installed at 0.5% to allow for drainage. The width of the trench should be one foot more than the diameter of the pipe. Location of outlet structure must be determined prior to installation. The point closest to the outlet structure will be the low point of the pipe within the excavation perimeter.

3. The trench for the collector drain must be lined independently with geotextile fabric and/ or non-permeable liner allowing on overlap from the field.
4. Free draining stone must be placed and compacted properly around the collector pipe to the elevation of the subgrade.
5. All connections are to be made with the manufacturer's recommendations
6. Damaged piping is not be utilized and will be removed from site.
7. Photo documentation of this process will be required.

b. Flat Drain

1. Flat drains are to be placed flat at a 45 degree angle at 20' O.C. over geotextile fabric and/or non-permeable liner. This is a "herringbone" layout.
2. In order to protect the flat drains, cover with aggregate as soon as possible.
3. Mechanical connection to collector drain is not required. Flat drains must be placed adjacent to collector drain per detail.

E. Aggregate Base Course

- a. Place only approved aggregate to a depth as indicated in the Contract Documents.
- b. Do not drive equipment over geotextile fabric and/or non-permeable liner in place.
- c. Do not stockpile material in a central location and move to perimeter. Material shall not be moved more than 50 feet from final location. Failure to do so will result in a separation of the gradations and a general lack of uniformity in the base.
- d. Laser guided machinery will be required to achieve the base course elevation as indicated on the Contract Documents. Laser grade to a 1/2" tolerance over a twenty five foot continuous span. A 0.5% slope from centerline of field to nailer must be maintained. The subgrade must be compacted to achieve 95% of the maximum density as determined by ASTM D 698. Base Course must have the required planarity to mirror that of the finish course.
- e. Compaction is to be achieved by using a roller. Aggregate may be wetted during the compaction process if needed.

F. Aggregate Finish Course

- a.
- b. Compaction is to be achieved by using a roller. Aggregate shall be wetted during the compaction process. The finished course shall be free of all impressions, roller marks, etc.

- c. Laser grade to achieve the desired elevation to a tolerance of 1/4" over
nts will
result in re-grading the unacceptable areas of the base.
 - d. If contract documents require a licensed surveyor, solicit services as
need to verify field elevations and planarity.
 - e. Prior to synthetic turf installation, **GeneralSports Venue D/B/A
AstroTurf** must approve the planarity of the finish course. Site
contractor may leave no more than 1/2 yard of finish course aggregate
for repairs.
 - f. Finished base is under the responsibility of the site contractor until the
turf installation commences.
-

SECTION 2721

NYOPLAST ENGINEERED SURFACE DRAINAGE PRODUCTS 8 INCH – 30 INCH DRAIN BASIN SPECIFICATIONS

PART 1 - GENERAL

1.01 SUMMARY

PVC surface drainage inlets shall include the drain basin type as indicated on the contract drawing and referenced within the contract specifications. The ductile iron grates for each of these fittings are to be considered an integral part of the surface drainage inlet and shall be furnished by the same manufacturer. The surface drainage inlets shall be as manufactured by Nyloplast, a division of Advanced Drainage Systems, Inc., or prior approved equal.

PART 2 - PRODUCTS

2.01 MATERIALS

The drain basins required for this contract shall be manufactured from PVC pipe stock, utilizing a thermo-molding process to reform the pipe stock to the specified configuration. The drainage pipe connection stubs shall be manufactured from PVC pipe stock and formed to provide a watertight connection with the specified pipe system. This joint tightness shall conform to ASTM D3212 for joints for drain and sewer plastic pipe using flexible elastomeric seals. The flexible elastomeric seals shall conform to ASTM F477. The pipe bell spigot shall be joined to the main body of the drain basin or catch basin. The raw material used to manufacture the pipe stock that is used to manufacture the main body and pipe stubs of the surface drainage inlets shall conform to ASTM D1784 cell class 12454.

The grates and frames furnished for all surface drainage inlets shall be ductile iron for sizes 8", 10", 12", 15", 18", 24", and 30" and shall be made specifically for each basin so as to provide a round bottom flange that closely matches the diameter of the surface drainage inlet. Grates for drain basins shall be capable of supporting H-20 wheel loading for traffic areas of H-10 loading for pedestrian areas. 12" and 15" square grates will be hinged to the frame using pins. Metal used in the manufacture of the castings shall conform to ASTM A536 grade 70-50-05 for ductile iron. Grates shall be provided painted black.

PART 3 - EXECUTION

3.01 INSTALLATION

The specified PVC surface drainage inlet shall be installed using conventional flexible pipe backfill materials and procedures. The backfill material shall be crushed stone or other granular material meeting the requirements of class 2 material as defined in ASTM D2321. Bedding and backfill for surface drainage inlets shall be placed and compacted uniformly in accordance with ASTM D2321. The drain basin body will be cut at the time of the final grade. No brick, stone or concrete block will be required to set the grate to the final grade height. For H-20 load rated installations, a concrete ring will be poured under and around the grate and frame. The concrete slab must be designed taking into consideration local soil conditions, traffic loading, and other applicable design factors. For other installation considerations such as migration of fines, ground water, and soft foundations refer to ASTM D2321 guidelines.

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WADE STADIUM IMPROVEMENTS
PHASE 1
CITY OF DULUTH, MINNESOTA

APPENDIX B

Application for General Stormwater Permit
for Construction Activity

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**Minnesota Pollution
Control Agency**

520 Lafayette Road North
St. Paul, MN 55155-4194

Application for General Stormwater Permit for Construction Activity

(NPDES/SDS Permit: MN R100001)
Construction Stormwater Permit Program

Doc Type: Permit Application

Instructions on Page 4

To obtain a Submittal Number, please contact the Construction Stormwater Program staff at 651-757-2119 or 800-657-3804 or by e-mail at csw.pca@state.mn.us. **Note:** this form will be returned to sender without a Submittal Number granted by the Minnesota Pollution Control Agency (MPCA).

Submittal No.: _____

Please read: All permits must be applied for online unless granted a Submittal Number from the MPCA. Sites that disturb 50 acres or more and have a discharge point within one mile of, and flows to, a Special or Impaired Water listed in Appendix A of the Construction Stormwater General Permit must apply using this form with the MPCA-granted Submittal Number, 30 days before the anticipated start date. Mail, fax, or deliver this Permit Application, Stormwater Pollution Prevention Plan (SWPPP), and the required attachments (if applicable) to the MPCA. SWPPPs may be submitted electronically to: csw.pca@state.mn.us or you may request other electronic means of submittal.

This form is for new permit applications only. Use the *Notice of Termination/Permit Modification* form to transfer permit coverage for a project or a portion of a project to a new owner/contractor. Forms are available at the MPCA's Construction Stormwater website: <http://www.pca.state.mn.us/water/stormwater/stormwater-c.html>.

Please refer to the application instructions and the National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) General Stormwater Permit for Construction Activity (MN R100001) as you complete this form. Brackets '[']' refer to specific parts of the permit.

**Submit form and
check to:** Fiscal Services – 6th floor
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

Questions: Call the Construction Stormwater Program at
651-757-2119 or toll-free at 800-657-3804.

Application Checklist (check to determine if ready to apply)

1. Stormwater Pollution Prevention Plan (SWPPP):

- a. Has a SWPPP been developed for this project and incorporated into the project's plans and specifications as required in the General Stormwater Permit [Part III.A]? ☒ Yes ☐ No
- b. If an environmental review was required for this project or any part of a common plan of development or sale that includes this project, has this review been completed and all Stormwater related mitigation measures contained in it incorporated into the SWPPP [Part III.A.6]? ☐ Yes ☐ No ☒ N/A

2. Discharges to special or impaired waters:

- a. If any portion of the project has a discharge point within one mile (aerial radius measurement) of a special water or a water that is impaired for sediment or a sediment related parameter [Appendix A, Part B.10], does the SWPPP contain the additional requirements found in Appendix A, Part A-C? If the project does not have a discharge point within one mile of a special water or a water that is impaired for sediment or a sediment related parameter of the permit indicate 'NA'. ☒ Yes ☐ No ☐ N/A

Stop if you responded 'No' to any question above.
A SWPPP must be developed prior to submitting a permit application.
Complete the above requirements and check 'Yes' before submitting this application.
Continue if you responded 'Yes' or 'N/A' to all questions above.

3. Additional application review:

- a. Will the project disturb 50 acres or more **and** is there a discharge point within one mile of an impaired or special water whose discharge may reach an impaired or special water listed in Appendix A of the permit? [Part II.B.1.b] If yes, this application and the SWPPP must be submitted a minimum of 30 days before construction starts. ☐ Yes ☒ No
- b. If 'Yes,' is the SWPPP (including a map of the project) included with this application or has it been submitted to the MPCA? ☐ Yes ☐ No

4. Application fee:

- a. Is the required \$400 Application Fee (payable to the MPCA) enclosed? ☐ Yes

Construction Activity Information

5. Project name:

Wade Stadium Renovation

6. Project location:

- a. Briefly describe where the construction activity occurs (For example: "Intersection of 45th St. and Irving Ave.") Include address if available:

Wade Stadium, 1 block south of 35 Ave W & Grand Ave

- b. List all of the cities where the project will occur:

Duluth

- c. List all of the counties where the project will occur:

St. Louis

- d. List all of the townships where the project will occur:

- e. Project zip code: 55811

- f. Latitude and longitude of approximate centroid of project:

Latitude: 46.04516 ° N (decimal) Preferred

Longitude: 92.00838 ° W (decimal) Preferred

46 ° 45' 16" N (degrees, minutes, seconds)

92 ° 00' 38" W (degrees, minutes, seconds)

- g. Method used to collect latitude and longitude:

☒ GPS ☐ USGS topographic map – map scale: _____ ☐ Other: _____

7. Project size:

Number of acres to be disturbed to the nearest tenth acre: 5.6

8. Project type:

- | | |
|---|---|
| <input type="checkbox"/> Residential | <input type="checkbox"/> Residential/Road construction |
| <input checked="" type="checkbox"/> Commercial/Industrial | <input type="checkbox"/> Commercial/Road construction |
| <input type="checkbox"/> Road construction | <input type="checkbox"/> Commercial/Residential/Road construction |
| <input type="checkbox"/> Other: _____ | |

9. Cumulative impervious surface:

- a. Existing area of impervious surface in acres: 1.1
- b. Post-construction area of impervious surface in acres (If additional new impervious surface created by the project is less than one acre, skip to Question 11): 1.1
-

10. Permanent stormwater management:

Check the type (**check all that apply**) of permanent stormwater management that will be used if one or more acres of new impervious surface area is created by this project [Part III.D].

- ☐ Infiltration
☐ Stormwater harvest and reuse
☐ Filtration
☐ Wet sedimentation basin
☐ Regional ponding
☐ Other (e.g., payment in lieu of onsite treatment, green roofs or other technologies)

11. Receiving waters:

Identify surface waters within one mile of project boundary that will receive stormwater from the site or discharge from permanent stormwater management system. Include waters shown on USGS 7.5 minute quad or equivalent, and all Special Waters and Impaired waters identified in Appendix A of the permit (To find Special or Impaired Waters, use the [Special and Impaired Waters Search tool](http://www.pca.state.mn.us/water/stormwater/stormwater-c.html) at <http://www.pca.state.mn.us/water/stormwater/stormwater-c.html>). The Impaired Waters* list, also known as the Section 303(d) list can be found at <http://www.pca.state.mn.us/water/tmdl/index.html>. Attach additional paper if necessary.

* Impaired waters for the purpose of this permit are those identified as impaired for the following pollutant(s) or stressor(s): phosphorus, turbidity, dissolved oxygen, or biotic impairment.

Name of water body	Type of water body (Ditch, pond, wetland, stream, river, calcareous fen)	Special Water? (See Stormwater Permit, Appendix A)	Impaired Water? (See Stormwater Permit, Appendix A)
Merritt Creek	stream	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
		<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

12. Dates of construction:

Note: For the purposes of this permit, the construction start date is defined as the day land disturbing activity is expected to commence.

a. Start date (mm/dd/yyyy): 8/1/2014 b. Estimated completing date (mm/dd/yyyy): 6/1/2015

13. Applicant type:

Select the title below that best describes you as the person completing this application for this Permit.

- ☐ Owner of project or site (company)
☒ Operator/General contractor
☐ 3rd party agent of behalf of permittee

Both parties must sign

This form will not be accepted if the owner and contractor contact information sections are not completed and signed. Note: If the owner is also the contractor, or a contractor has not yet been selected, the owner must also fill out the contractor information section and sign again.

Certification

Owner

Name of firm or organization: _____

Mailing address: _____

City: _____ State: _____ Zip code: _____

Contact name: _____ Title: _____

Contact phone: _____ E-mail: _____

Alternate contact: _____ Phone: _____ E-mail: _____

Operator/General Contractor

Name of firm or organization: _____

Mailing address: _____

City: _____ State: _____ Zip code: _____

Contact name: _____ Title: _____

Contact phone: _____ E-mail: _____

Alternate contact: _____ Phone: _____ E-mail: _____

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage this system, or the persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I also certify under penalty of law that I have read, understood, and accepted all terms and conditions of the NPDES/SDS General Stormwater Permit Construction Activity (MN R100001) that authorizes stormwater discharges associated with the construction site identified on this form.

Authorized signatures

This application must be signed by:

- **Corporation:** a principal executive officer of at least the level of vice-president or the duly authorized representative or agent of the executive officer if the representative or agent is responsible for the overall operation of the facility that is the subject of the permit application.
- **Partnership or Sole Proprietorship:** a general partner or the proprietor.
- **Municipality, State, Federal, or Other Public Agency:** principal executive officer or ranking elected official.

Owner:

Print name: _____

Title: _____ Date: _____

Signature: _____

Operator/General Contractor

Print name: _____

Title: _____ Date: _____

Signature: _____

Instructions

Submission of an application is notice that the owner and general contractor identified on the application intend to be authorized by an NPDES/SDS permit issued for Stormwater discharges associated with a construction activity in the State of Minnesota.

All permits must be applied for online unless granted a Submittal Number from the Minnesota Pollution Control Agency (MPCA). Sites that disturb 50 acres or more and have a discharge point within one mile of a Special or Impaired Water listed in Appendix A of the Construction Stormwater General Permit must apply using this form with the MPCA granted Submittal Number, 30 days before the anticipated start date. Mail, fax, or deliver this Permit Application, Stormwater Pollution Prevention Plan (SWPPP), and the required attachments (if applicable) to the MPCA. SWPPPs may be submitted electronically to: csw.pca@state.mn.us or you may request other electronic means of submittal.

To obtain a Submittal Number, please contact the Construction Stormwater Program staff at 651-757-2119 or 800-657-3804 or by e-mail at csw.pca@state.mn.us. Note: this form will be returned to sender without a Submittal Number granted by the Minnesota Pollution Control Agency (MPCA).

Application Checklist (check to determine if ready to apply)

1. Indicate if a **Stormwater Pollution Prevention Plan** (SWPPP) has been prepared and the appropriate sections (a. and b. of this question) have been addressed by answering “**Yes**” or “**No**.” A SWPPP is a plan for Stormwater discharge that includes erosion prevention measures and sediment controls that, when implemented, will decrease soil erosion on a parcel of land and decrease pollution in receiving waters. This plan must be developed prior to submitting a permit application. A sample plan and development tools are available from the U.S. Environmental Protection Agency (EPA) Stormwater Pollution Prevention Plans for Construction Activities website at <http://cfpub1.epa.gov/npdes/stormwater/swppp.cfm> and from the MPCA “[Stormwater Compliance Tool Kit for Small Construction Operators](#)”.

For section “b” indicate if an **Environmental Review** has been completed if required, by answering “**Yes**” or “**No**” or “**N/A**” (not applicable). Environmental review looks at how a proposed project could potentially affect the environment and looks at ways to avoid or minimize impacts before the project is permitted and built. Examples of categories that may need an environmental review include residential development; industrial, commercial, and institutional facilities; and also highway projects. For certain projects, environmental review is mandatory. For more details see the [Guide to Minnesota Environmental Review Rules, Chapter 6](#) found on the Department of Administration website at <http://www.mnplan.state.mn.us/>.

2. Discharges to Special or Impaired Waters
 - a. Special waters have qualities that warrant extra protection. There are several categories of special waters and the requirements are different for each. A list of these special water categories can be found in Appendix A of the permit. The additional requirements apply only to those portions of a project that drain to a discharge point on the project that is within one mile of and flows to the special water. Refer to Appendix A of the permit for the list of special waters and what additional requirements apply to each. The information is also available using the [Special and Impaired Waters Search Tool](#) found on the MPCA Stormwater Program for Construction Activity webpage at <http://www.pca.state.mn.us/wfhy5b>.

Impaired waters are bodies of water that do not meet the water quality standards set up for their designated use as determined by the State. Projects discharging to impaired waters also have additional requirements. The additional requirements apply only to those portions of a project that drain to a discharge point on the project that is within 1 mile of and flows to the impaired water. The specific requirements can be found in Appendix A of the permit. Impaired waters for the purpose of this permit are limited to those identified as impaired pursuant to section 303(d) of the Clean Water Act where the pollutant(s) or stressor(s) are phosphorus (nutrient eutrophication biological indicators), turbidity, dissolved oxygen, or biotic impairment (fish bioassessment, aquatic plant bioassessment and aquatic macroinvertebrate bioassessment). Use the interactive [Special and Impaired Waters Search Tool](http://www.pca.state.mn.us/wfhya5b) (found on the MPCA Stormwater Program for Construction Activity webpage at <http://www.pca.state.mn.us/wfhya5b>) to determine if your project is required to follow the additional requirements. On the application, indicate if the SWPPP for the project incorporates the additional requirements, if applicable. Consult the MPCA's Minnesota Impaired Waters and TMDLs webpage at <http://www.pca.state.mn.us/xgqx950> for additional information including a list of impaired waters.

3. Additional Application Review

- a. If the project disturbs **50 acres or more** and has a discharge point (including sheet flow) that is within one mile of and flows to an impaired or special water listed in Appendix A, the application and SWPPP need to be submitted to the MPCA a minimum of **30** days prior to the start of construction.
- b. Include the SWPPP with the application or submit it to the MPCA electronically. SWPPPs may be submitted electronically to: csw.pca@state.mn.us or you may request other electronic means of submittal.
4. The application requires a \$400 application **fee**. Indicate that the application fee has been enclosed by answering “**Yes.**” Please make checks payable to: **Minnesota Pollution Control Agency** and submit the check with the completed application to: Fiscal Services- 6th Floor, Minnesota Pollution Control Agency, 520 Lafayette Road North, St. Paul, MN 55155-4194. Applications received without the required fee will be returned to the sender.

Construction Activity Information

5. List the construction project's **name**. Be specific. Examples: “Driveway at 123 Main St, Hudson,” “Highway 169 bridge replacement (#79605) at the Rum River.”
6. Project Location
 - a. Provide an **address** (if available) and **brief description** of the construction activity's location (*for example, “North West Corner of the Intersection of 45th Street and Irving Avenue, Minneapolis, MN”*). Use any type of description that accurately portrays the project location.
 - b-e. Provide the names of all cities, counties, zip codes, and townships the construction activity takes place in (*for example, a roadway may cross county, city, or township boundaries*).
 - f. Give the latitude and longitude of the centroid of the site. If the centroid of the site is not within the site, give the latitude and longitude of a point within the site that is closest to the centroid of the site. Give these values in degrees and decimal of degrees (preferred) alternatively in degrees, minutes and seconds. To obtain the decimals of a degree, divide the minutes by 60 and the seconds by 360 and add this to the degrees.
 - g. State how the information was gathered, if by GPS, by using a USGS topographic map (give the scale), or an online tool, such as the Toxics Release Inventory Facility Siting Tool found on the EPA's website at <http://www2.epa.gov/toxics-release-inventory-tri-program>. To use this tool, type either the zip code or the city/township and the state. Zoom in to obtain the latitude and longitude.
7. List, in acres, the **amount** of area that will be **disturbed** for this project. This is not the size of the property; do not include areas of the project that will not be disturbed.
8. Indicate the type of construction activity by **checking the appropriate box**. Check “Residential and Road Construction” if the road is part of a common plan of development and is developed in association with residential development. If you check “Other”, describe the project.
9. Indicate to the nearest quarter acre, the existing and resulting **areas of impervious surfaces**. Impervious surface means a constructed hard surface that either prevents or retards the entry of water into the soil and causes water to run off the surface in greater quantities and at an increased rate of flow than prior to development. **Examples** include rooftops, sidewalks, patios, driveways, parking lots, storage areas, and concrete, asphalt, or gravel roads. (a.) “Existing” area means the area of impervious surface that is present prior to the start of this construction project. (b.) “Post construction” means the entire area of impervious surface after construction is completed. Subtract (a.) from (b.) to determine the area of new impervious surface.
10. For projects creating one or more acres of cumulative new impervious surfaces, **check the appropriate box** to indicate which type(s) of **permanent stormwater management practices** will be used. The “Other” box is limited to those situations (such as proximity to bedrock) that are described in Part III.D of the permit. See the permit for a further description. If the “Other” box is checked, describe which situation outlined in Part III. D fits the project and what other permanent treatment (such as grassed swales, smaller ponds and/or grit chambers) will be used on the project.

11. **Briefly** describe which **water body(s)** will receive stormwater runoff from the construction site or from the discharge from permanent Stormwater management systems by **completing the table**. To determine which water body(s) will receive stormwater runoff discharges, make a brief survey of the project's surrounding area. Include the waters identified on a USGS 7.5-minute quad or equivalent map. See Appendix A [Special Waters List](#) of this permit to determine if a water body is a special water found on the MPCA Stormwater Program for Construction Activity website at <http://www.pca.state.mn.us/wfhy5b>. Impaired waters for the purpose of this permit are those identified as impaired for the following pollutant(s) or stressor(s) phosphorus (nutrient eutrophication biological indicators), turbidity, dissolved oxygen, or biotic impairment (fish bioassessment, aquatic plant bioassessment and aquatic macroinvertebrate bioassessment). The easiest way to find special or impaired waters in addition to all waterbodies is to use the interactive map tool, [Special and Impaired Waters Search tool](#) (found on the MPCA Stormwater Program for Construction Activity webpage at <http://www.pca.state.mn.us/wfhy5b>).
12. List the **start** and estimated **completion dates** of the construction project.
13. Select the title that best describes the person completing this application for this Permit.

Responsible Parties

14. **Owner Information:** Provide the information requested of the owner of the company, organization, or other entity for which this construction project is being done. The **Owner** means the person or party possessing the title of the land on which the construction activities will occur; or if the construction activity is for a lease, easement, or mineral rights license holder, the party or individual identified as the lease, easement or mineral rights license holder; or the contracting government agency responsible for the construction activity. **The owner is the party responsible for the compliance with all terms and conditions of the permit.** The **alternate contact** should be the owner's representative in charge of the project that the MPCA can, if needed, contact regarding the SWPPP or the conditions of the construction site.

After completing this application, certify it with a **signature and date** from an individual authorized to sign the application. This application form must be signed by either a principal executive officer, vice president, representative agent responsible for overall operations, general partner, or a proprietor. If the activity is being conducted by a unit of government (state, county, municipality, or township), this application must be signed by a principal executive officer or ranking elected official (**for example**, city or county engineer, administrator, or manager; director of public works; mayor, etc.) For additional information, see Minnesota Rules 7001.0060.

15. **Contractor (Operator) Information:** Provide the information requested of the contractor. The **Contractor** means the party who signs the construction contract with the owner to construct the project described in the final plans and specifications. Where the construction project involves more than one contractor, the general contractor will be the party responsible for managing the project on behalf of the owner. In some cases the owner may be the general contractor. In these cases, the owner may contract an individual as the operator who would be the co-permittee. **The operator (usually the general contractor) is jointly responsible with the owner for compliance with Part II.B., Part II.C., and Part IV of the permit.**

After this application has been completed by the owner, the contractor must certify it with a **signature and date** from an individual authorized to sign the form. The application must be signed by either a principal executive officer, vice president, representative agent responsible for overall operations, general partner, or a proprietor. If the general contractor is a unit of government (state, county, municipality, or township), this application must be signed by a principal executive officer, ranking elected official, administrator, manager, coordinator, or engineer. (For additional information, see Minnesota Rules 7001.0060.) The **alternate contact** should be the contractor's representative in charge of the project that the MPCA can, if needed, contact regarding the SWPPP or the conditions of the construction site.

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