

Kraus-Anderson Construction Company's
Special Requirements

*Gary New Duluth Community Center &
Recreation Area Improvements
Duluth, MN*



July 15, 2015

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DOCUMENT 00 1100 ADVERTISEMENT FOR BIDS

1.1 NOTICE OF REQUEST TO BID

- A. **Notice is hereby given** that sealed Prime Bid proposals will be received by Kraus-Anderson Construction Company on behalf of the Owner City of Duluth at City Hall, Purchasing Room 100, Duluth, MN 55802 on **August 4th, 2015 at 2:00 p.m.** for the Gary New Duluth Community Center and Recreation Area Improvements project as described herein and by the Bidding Documents.
- B. **Conceptual Project Scope:** The Owner will construct a sports field, parking area, lighting, site amenities, associated drainage improvements as defined by the Contract Documents. Bid Scopes include: 10.A Protective Covers, 26.A Electrical, 31.A Earthwork, 32.A Asphalt Paving, 32.B Concrete Paving, 32.C Chain Link Fencing, 32.D Permeable Paver Package, 32.E Irrigation Package, 32.F Landscaping Package, and 33.A Site Utilities.
- C. **Basis of Bids:** Prime contract packages shall be as defined in Section 01 1200 – List of Work Scope Categories.

1.2 SUMMARY AND KEY DATES

- A. **Pre-Bid Conference: July 23, 2015 @ 11:00 a.m.**
1. Location: Gary New Duluth Community Center
West Carterett Street & 101st Avenue West
Duluth, MN
 2. Questions regarding Pre-Bid Conference shall be directed to the Construction Manager, attention Greg Schendel – KA Project Manager at greg.schendel@krausanderson.com
- B. **Cut Off Date for Prior Approvals and Written Interpretations: July 28th, 2015 @ 2:00 p.m.**
- C. **Proposed Issue Date of Addendum No. 1: TBD**
1. Scope of Addendum will be limited to clarifications resulting from Pre-Bid Conference and response to Prior Approvals, plus minor coordination issues the Architect or Construction Manager may determine appropriate.
- D. **Bid Due Date and Time: August 4th, 2015 at 2:00 p.m.**

CONSTRUCTION MANAGER

Kraus-Anderson Construction Company
3716 Oneota Street
Duluth, MN 55807
Greg Schendel
218-722-3775

OWNER

City of Duluth
Property & Facilities Management
1532 W. Michigan Street
Duluth, MN 55806

ARCHITECT/ENGINEER

SAS Associates
219 West First Street, Suite 350
Duluth, MN 55802

BID OPENING - TIME AND LOCATION

- A. Bids will be received at the City of Duluth – Purchasing, Room 100 until **2:00 PM**, at which time they will be publicly opened.





EXAMINATION AND PROCUREMENT OF BIDDING DOCUMENTS

- A. **Examination of Documents:** Bidder shall carefully examine entire content of Bidding Documents to become thoroughly familiar with the documents and project requirements. Refer to Kraus-Anderson's Instructions to Bidders for additional requirements.
- B. **Location for Review and Examination:** Bidding Documents (Project Manual, Drawings, and other Contract Documents) are available at the locations indicated below for review and examination:
1. Refer to Special Instructions 00 2110 KA Instruction to Bidders for information.
 - a. Kraus-Anderson Construction Company
3716 Oneota Street
Duluth, MN 55807
218-722-3775
 - b. Duluth Builders Exchange
802 Garfield Avenue
Duluth, MN 55802
218-722-2836
 - c. Hibbing Plan Room
211 E. Howard Street
Hibbing, MN 55746
 - d. City of Duluth Website – duluthmn.gov/purchasing
Bid listed under "Bids & Requests"
- C. **On-line via Kraus-Anderson's iSqFt site:**
1. Refer to Special Instructions 00 2110 KA Instruction to Bidders for information.
- D. **Addenda:** Pre-qualified Bidders and registered document holders will receive copies of Addenda including attachments corresponding to documents obtained via the same method as original documents.

BONDS AND SECURITIES

- A. **Labor and Material Payment Bond:** Refer to Kraus-Anderson's Instructions to Bidders and Kraus-Anderson's Bid Form for additional requirements regarding requirements for Labor and Material Payment Bonds.
- B. **Performance Bond:** Refer to Kraus-Anderson's Instructions to Bidders and Kraus-Anderson's Bid Form for additional requirements regarding requirements for Performance Bonds.
- C. **Out of State Bidders:** 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. The form can be found at the following web address: <http://taxes.statet.mn.us/Forms and Instructions /sde.pdf>
- D. **Bid Security:** Each bid shall be accompanied by Bid Security in form of certified check, cashier's check, or bid bond in the amount of five (5) percent of Base Bid submitted, **made payable to owner**, as guarantee that Bidder will, if awarded, enter into contract in accordance with Contract Documents and submitted Bid.

OTHER CONDITIONS

- A. **Bidder's Qualifications:** Refer to Kraus-Anderson's Instructions to Bidders and Kraus-Anderson's Bid Form for requirements regarding Bidder's Qualifications and Pre-qualification Procedures. Kraus-Anderson reserves the right to request additional information to clarify the Bidder's financial capability, technical experience, ability to successfully staff project, and comply with safety and employment requirements.





- B. **Withdrawal or Revision of Bids:** Bids may not be withdrawn during the 60 day period immediately following the date of receipt of bids.
 - 1. Bids may be withdrawn or revised prior to the scheduled time for opening without prejudice to themselves, provided request for such withdrawal is received by Kraus-Anderson, in writing prior to the time proposals are due. After the time proposals are due, no proposal may be withdrawn.
- C. **Bid Opening:** Sealed bids will be publicly opened and read aloud.
- D. **Acceptance and Rejection of Bids:** Kraus-Anderson Construction Company and the Owner expressly reserves the right to reject any and all bids and to waive irregularities and informality in any bid without explanation. Refer to Kraus-Anderson's Instructions to Bidders and Kraus-Anderson's Bid Form for additional requirements regarding requirements for Performance Bonds.
- E. **Basis of Award:** Award of trade contracts and material contracts will be at the sole discretion of Owner and Kraus-Anderson Construction Company without explanation.

NOTICE TO BIDDERS

- A. **Out of State Bidders:** 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. The form can be found at the following web address: <http://taxes.state.mn.us/Forms and Instructions /sde.pdf>

END OF SECTION



Section 00 2100 – Instructions to Bidders

1.01 INTRODUCTORY INFORMATION

- A. **Request for Sealed Bids:** In accordance with the Advertisement for Bids, Kraus-Anderson Construction Company, on behalf of the Owner is requesting the following:
 - 1. Lump Sum Proposal for the Work Scope Categories identified in Section 01 1200 and on your Bid Form.
- B. **Submit Bids to:** Bids will be received as stated in the Advertisement for Bids – Section 01 1100.
- C. **Bidding Documents:** Bidding Documents include the Advertisement for Bids, Instructions to Bidders, Bid Forms and other documents identified within Project Manual and other Contract Documents indicated herein, including Drawings, Specifications and Addenda issued prior to execution of the Contract.
- D. **Definitions:** Definitions set forth in the General Conditions of the Contract for Construction, or in other Contract Documents are applicable to the Bidding Documents.

1.02 AVAILABILITY OF BIDDING DOCUMENTS

- A. **Availability of Documents:** Refer to Advertisement for Bid for additional information regarding availability and procurement of Bidding Documents.

- 1. Bidding documents are on file at the offices of the Architect and Construction Manager.
- 2. And at the following locations:
 - Duluth Builders Exchange
 - 802 Garfield Avenue
 - Duluth, MN 55802
 - Telephone: 218-722-3775

 - Hibbing Plan Room
 - 211 E. Howard Street
 - Hibbing, MN 55746

City of Duluth Website: duluthmn.gov/purchasing

- B. **Procurement of Documents for Bidders on Prime Contracts:**
 - 1. Prime Bidders may obtain electronic documents via Kraus-Anderson's iSqFt site or Dropbox. Please contact:
Deb Coffman
Email: deb.coffman@krausanderson.com
Phone: 218-722-3775
Direct: 218-624-8624
- C. **Addenda:** Registered document holders will receive copies of Addenda including attachments corresponding to documents obtained via the same method as original documents.

1.03 EXAMINATION OF BIDDING DOCUMENTS

- A. **Examination of Documents:** Bidder shall carefully examine entire content of Bidding Documents to become thoroughly familiar with the documents and project requirements.
- B. **Bidder's Representation:** Bidder by making a Bid represents that:
 - 1. Bidder has read and understands Bidding Documents and the Bid is made in accordance therewith.
 - 2. Bidder has read and understands Bidding Documents or Contract Documents, to the extent that such documentation relates to the Work for which the Bid is submitted, for other portions of Project, being bid concurrently or presently under construction.
 - 3. Bidder has visited the Site, become familiar with local conditions under which the Work is to be performed and has correlated Bidder's personal observations with the requirements of proposed Contract Documents.
 - 4. Bid is based upon the materials, equipment and systems required by Bidding Documents without exception.
- C. **Interpretations or Corrections of Bidding Documents:** Bidder shall carefully study and compare Bidding Documents with each other and with other work being bid concurrently or presently under construction to the extent that it relates to the Work for which the Bid is submitted, shall examine the site and local conditions and shall at once report to Architect and Kraus-Anderson errors, inconsistencies or ambiguities discovered.
 - 1. Bidders requiring clarification or interpretation of Bidding Documents shall make a written request which shall reach Architect and Kraus-Anderson not less than 7 days prior to the date for receipt of Bids.

Section 00 2100 – Instructions to Bidders

2. Bidders requiring clarification or interpretation of Bidding Documents shall make a request via email to Greg Schendel (greg.schendel@krausanderson.com) at Kraus-Anderson Construction Company in accordance with the limitations indicated in the Advertisement for Bids.
 3. It is the Bidder's responsibility to bring discrepancies, ambiguities, omissions, or matters in need of clarification to the attention of the Architect for interpretation and decision. If there is a discrepancy that is unclarified prior to the Bid, the Contractor shall be responsible for the more stringent interpretation of the unclarified condition.
 4. Interpretations, corrections or changes of Bidding Documents will be made by Addendum. Interpretations, corrections and changes of Bidding Documents made in any other manner will not be binding and Bidders shall not rely upon them.
- D. **Substitutions and Requests for Prior Approvals:** Materials, products and equipment described in Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution.
1. Substitution Procedures: Detailed procedures and limitations for submitting requests of substitution for both before and after award of Contract are explained in Section 01 6300. Requests not complying with requirements of Section 01 6300 will be rejected.
 2. Substitution Request Form: Requests submitted without a properly completed and signed Substitution Request Form, will not be evaluated.
 3. Burden of proof of the merit of the proposed substitution is upon the proposer. Architect's decision of approval or disapproval of a proposed substitution shall be final.
 4. If Architect approves proposed substitution prior to receipt of Bids, such approval will be set forth in an Addendum. Bidders shall not rely upon approvals made in any other manner.
- E. **Addenda** will be issued to registered document holders.
1. Copies of Addenda will be made available for inspection wherever Bidding Documents are on file.
 2. Each Bidder shall ascertain prior to submitting a Bid that the Bidder has received all Addenda issued and the Bidder shall acknowledge their receipt in the Bid.
- 1.04 BIDDING PROCEDURES**
- A. **Pre-Bid Conference:** A Pre-bid Conference will be conducted on as defined in the Advertisement for Bid. Refer to Section 00 1110 for details.
1. Attendance is strongly recommended for Prime Contractor Bidders.

Section 00 2100 – Instructions to Bidders

- B. **Form and Style of Bids:** Submit **Sealed Bids** on forms identical to the Bid Form (Section 00 4100) included with Bidding Documents.
Submit Bid in duplicate on the prescribed forms.
1. Submit bid in duplicate on the prescribed form, which is furnished with the specification, with full name and address of the bidder.
 2. All blanks on the bid form shall be filled in by typewriter or manually in ink.
 - a. Express sums in both words and figures, and in cases of discrepancy between the two, the amount written in words shall govern.
 - b. The signer of the Bid shall initial alterations and erasures.
 - c. All Alternates shall be bid. If no change in the Base Bid is required, enter No Change.
 3. Each copy of the Bid shall include legal name of Bidder and a statement that Bidder is a sole proprietor, partnership, corporation or other legal entity. Each copy shall be signed by the person or persons legally authorized to bind Bidder to a contract.
 - a. Corporation shall further give the state of incorporation and have the corporate seal affixed.
 - b. Bid submitted by an agent shall have a current power of attorney attached certifying the agent's authority bind the Bidder.
 4. Sign in longhand, executed by a principal duly authorized to enter into an agreement. If a bidder is a co-partnership, then signatures on the bid shall be by an authorized member of the firm, with names and addresses of each member of partnership.
 5. Base Bids and Alternate Bids shall be stated both in writing and in figures. In all cases, written and numerical figures must agree; otherwise at Owner's option, it shall be cause for rejection of bid. Complete form without interlineations, alteration, or erasure.
 6. Submit alternate prices (bid) for either increasing or decreasing the cost as called for on bid form and Description of Alternates. Submit a bid for all alternates, except those which may be denoted as optional.
 7. Do not stipulate any other conditions, alternates or qualifications. Owner will not accept any condition not contained in specifications or other documents.
 8. Submit bid in a sealed envelope bearing (on the outside) name of the bidder, address, name of the Project and Bid Package for which bid is submitted. If forwarded by mail or other means of delivery, sealed envelope containing the bid must be enclosed in another envelope addressed as specified.
- C. **Bid Security – Execution of Contract:** With each bid, submit a certified check or cashier's check on a solvent bank, or bid bond, equal to five percent (5%) of amount of maximum bid submitted (including additive alternates) and made payable without recourse to the Owner
1. For bid bonds, form may be surety's standard form or AIA Form A-310, duly executed by the bidder as principal, issued by a corporate surety company authorized to do business in the State where the project is located, with copy of Power of Attorney attached, as well as proper acknowledgments.
 2. Bid security in form of certified or cashier's check will be returned to all but the three lowest bidders within ten (10) days after opening of bids.
 3. Bid security shall be forfeited to Owner as liquidated damages in the event bidder is awarded a Contract and he fails or refuses to execute the Agreement and furnish specified bond within ten (10) days after award, provided Agreement is ready for signature. If Agreement has not been prepared within ten (10) days, Contractor shall have two (2) days after its preparation for execution.
- D. **Modification or Withdrawal of Bids:** Bid may not be modified, withdrawn or canceled by Bidder during a **60 day period** following the date of receipt of Bids, and each Bidder so agrees in submitting a Bid.
1. Prior to time and date designated for receipt of Bids, Bid submitted may be modified or withdrawn by notice to party receiving Bids at the place designated for receipt of Bids. Such notice shall be in writing over the signature of Bidder or by fax. If by fax, written confirmation over the signature of Bidder shall be mailed and postmarked on or before the date and time set for receipt of Bids.
 - a. A change shall be so worded as not to reveal the amount of the original Bid.
 2. Withdrawn Bids may be resubmitted up to date and time designated for receipt of Bids provided they are then fully in conformance with these Instructions to Bidders.

Section 00 2100 – Instructions to Bidders

1.05 CONSIDERATION OF BIDS

- A. **Bid Opening:** Bids received by the date and time indicated in the Advertisement for Bids – Section 00 1100 will be publicly opened and read aloud.
- B. **Qualifications of Bidders:** Owner may make such investigations as he deems necessary to determine the ability and responsibility of the bidder to perform the work, and any bidder shall furnish to Owner all such information and data for this purpose, as the Owner may request.
1. Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the contract and to complete the Work contemplated therein.
 2. The following may be required of the lowest responsible bidder in determining an award, including, but not limited to: (1) proof of financial responsibility, (2) quality of similar work, (3) amount of experience with similar projects, (4) facilities, personnel and equipment, (5) reputation for performance, and (6) ability to complete the work within specified time.
 3. Owner reserves the right to reject any Bid where there is reasonable doubt as to the qualifications of the bidder.
 4. **Responsible Contractor:** Minnesota Statute § 16C.285, all provisions of which are incorporated herein by reference and made applicable to this solicitation, requires that all construction contracts that are awarded through a solicitation issued on or after January 1, 2015 may only be awarded to a “responsible contractor.” The term “responsible contractor” as used in this solicitation has the same meaning as the term has in Minn. Stat. §16C.285, subd. 3. In order to qualify as a “responsible contractor”, the contractor or subcontractor, for its portion of the project, must meet the minimum criteria as set forth in Minn. Stat. § 16C.285, subd. 3.
 - a. All responses to this solicitation must include a signed statement under oath by an owner or officer of the contractor verifying compliance with each of the minimum criteria in Minn. Stat. § 16C.285, subd. 3. This requirement is met by completing and submitting the Responsible Contractor Affidavit of Compliance (“Compliance Affidavit”), which is attached to the Bid Form (Section 004100) as Attachment A.
 - b. Any prime contractor or subcontractor that fails to submit its Compliance Affidavit or meet the minimum criteria in Minn. Stat. § 16C.285, subd. 3, is not a responsible contractor and will not be eligible to be awarded a contract or perform work on the project. Any prime contractor or subcontractor that makes any false statement under oath regarding compliance with the minimum criteria in Minn. Stat. § 16C.285, subd. 3 will not be eligible to be awarded a contract and any such false statement may result in termination of a contract awarded to the contractor.
 - c. The prime contractor or subcontractor must also include in its Compliance Affidavit a list of its first-tier subcontractors that it intends to retain for work on the project. The prime contractor or subcontractor must obtain a Compliance Affidavit from all first-tier subcontractors listed on the contractor’s Compliance Affidavit. The prime contractor shall submit copies of all Compliance Statements obtained from all subcontractors of any tier to the Owner upon request.
 - d. If a prime contractor or any subcontractor retains additional subcontractors on the project after submitting its Compliance Affidavit, the contractor shall obtain a Compliance Affidavit from each additional subcontractor and shall submit a supplemental verification, using Attachment A-2 to the Compliance Statement, within 14 days of retaining the additional subcontractors, in accordance with Minnesota Statute § 16C.285, subd. 3. This requirement applies during the solicitation process and continues through the term of any awarded contract.
 5. **Project Labor Agreement:** This project is governed by a Project Labor Agreement (PLA), requiring all labor to comply with the application contract documents.
 6. Provide certified payroll.
- C. **Acceptance of Bid – Award of Contract:** Owner reserves the right to (1) accept bidder's Base Bid only, (2) accept any one or more of bidder's Alternate Bids, in any order regardless of the order in which they were listed, (3) reject all Bids, (4) award contract based on his investigation of bidders, as well as acceptance of alternates, all of which Owner deems to be in his best interest, (5) waive informalities or minor irregularities in bids and waive minor irregularities or discrepancies in bidding procedure.
- D. **Prime Contractor’s Subcontracts and Suppliers:** Proposed subcontractors are subject to Owner's, Construction Manager's and Architect's acceptance. The right of rejection may be exercised when there is reasonable doubt the subcontractor (supplier) will be able to satisfactorily perform work under the Contract, as specified under Article 5.2 of General Conditions and Supplementary Conditions.

Section 00 2100 – Instructions to Bidders

- E. **Alternates:** Owner shall have the right to accept Alternates and Unit Prices in any order or combination and to determine the lowest responsible Bidder on the basis of the sum of the Base Bid and Alternates that are accepted.
- F. **Rejection of Bids:** Owner shall have the right to reject any or all Bids, and to waive informalities or irregularities in a Bid.

1.06 POST BID – PRE-AWARD INFORMATION AND SUBMITTAL REQUIREMENTS

- A. **Contractor's Qualification Statement:** Bidders to whom award of a Contract is under consideration shall submit to the Owner via Kraus-Anderson Construction Company, upon request, a properly executed AIA Document A305, Contractor's Qualification Statement.
- B. **Certificate of Insurance:** Bidder shall submit to Owner via Kraus-Anderson satisfaction supporting data confirming their ability to furnish a Certificate of Insurance in accordance with the project requirements.
- C. **Subcontractor List:** Submit names of proposed subcontractors and material suppliers, including:
 - 1. Names of manufacturers, products and the suppliers.
 - 2. Names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for principal portions of the Work.
 - 3. Self-Performed Work: Designation of the Work to be performed with Bidder's own forces.
- D. **Labor Resources:** Bidder shall submit to Owner via Kraus-Anderson satisfaction supporting data confirming their ability to adequately staff the project with qualified labor classifications as may be required to support the Project Schedule and other project requirements. Specific clarifications, may include, but not limited to:

1.07 BOND REQUIREMENTS

- A. **Performance and Payment Bonds:** Upon notification of award of Contract, Contractor shall provide Performance and Payment Bonds, City of Duluth forms, in the amount of 100% of Contract Sum in accordance with General Conditions of the Contract.
- B. **Timing of Bonds:** Bidder shall deliver the required bonds as requested by the Construction Manager, which may require bonds to be delivered prior to the execution date of the Contract. If the Work is to be commenced prior thereto in response to a letter of intent, Bidder shall, prior to commencement of Work, submit evidence satisfactory to Owner that such bonds will be furnished and delivered in accordance with this paragraph.

-- End --

PROJECT: Gary New Duluth Community Center & Recreation Area Improvements

BID TO: Kraus-Anderson Construction Company
On Behalf of the Owner, City of Duluth
City Hall,
Duluth, MN 55802

BID FROM: _____
(Name of firm or company submitting bid)

(Address of firm or company submitting bid)

(City, State, Zip Code)

(Contact Person, Telephone Number, Fax Number)

1.01 ACKNOWLEDGMENTS

- A. The undersigned Bidder agrees, if this Bid is accepted, to enter into an agreement with the Project Owner, in the form included in the Special Requirements, to perform and furnish the Work as specified or indicated in the Bidding Documents for the Bid Price and within the time constraints outlined in the Preliminary Project Schedule, and will perform in accordance with the other terms and conditions of the Contract Documents.
- B. In submitting this Bid, Bidder represents, as more fully set forth in the Agreement, that:
 - 1. This Bid will remain subject to acceptance for **60 days** after the day of Bid Opening.
 - 2. Owner has the right to accept or reject any or all Bid.
 - 3. Bidder will sign and submit the Agreement with the bonds and other documents required by the Bidding Documents within **10 days** after the date of Notice of Award.
 - 4. Bidder has visited the site and become familiar with the general, local, and site conditions,
 - 5. Bidder is familiar with federal, state, and local laws and regulations applicable for this project.
 - 6. Bidder has examined Bidding Documents, Work Scope Descriptions, Preliminary Project Schedule, and other conditions affecting the Work and has correlated information known to Bidder.
 - 7. Bidder agrees to commence Work when directed by Kraus-Anderson Construction Company to proceed by providing labor and materials required to complete the Work Scope in accordance with the Contract Documents to achieve Substantial Completion of this Work Scope within the time constraints outlined.
 - 8. Bidder represents this Bid is genuine and not made in the interest or on behalf of an undisclosed person, firm, or corporation; and is not submitted in conformity with an agreement or rules of a group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited another Bidder to submit a false bid; Bidder has not solicited or induced a person, firm or corporation to refrain from bidding; Bidder has not sought by collusion to obtain for itself an advantage over another Bidder.

1.02 ADDENDA RECEIVED

A. We hereby acknowledge receipt of the following Addenda and other Clarifications affecting this bid:

Addendum Number _____	Date Issued _____
Addendum Number _____	Date Issued _____
Addendum Number _____	Date Issued _____



1.03 BASE BID

A. Pursuant to the Contract Documents, Addenda, and Kraus-Anderson’s Special Requirements the undersigned bidder hereby agrees to complete the Work as defined in the Work Scope Categories identified below for the amounts:

1. Work Scope Category: _____
[insert Work Scope Number and Work Scope Description here]

Lump-Sum Price of _____ Dollars / \$ _____

2. Work Scope Category: _____
[insert Work Scope Number and Work Scope Description here]

Lump-Sum Price of _____ Dollars / \$ _____

3. Work Scope Category: _____
[insert Work Scope Number and Work Scope Description here]

Lump-Sum Price of _____ Dollars / \$ _____

4. Work Scope Category: _____
[insert Work Scope Number and Work Scope Description here]

Lump-Sum Price of _____ Dollars / \$ _____

5. Work Scope Category: _____
[insert Work Scope Number and Work Scope Description here]

Lump-Sum Price of _____ Dollars / \$ _____

6. Work Scope Category: _____
[insert Work Scope Number and Work Scope Description here]

Lump-Sum Price of _____ Dollars / \$ _____

B. Combined Work Scope Proposal: If Bidder submits a combined bid containing more than one Work Scope Category, Bidder must subdivide labor, materials, and taxes by applicable Work Scope Category. Kraus-Anderson reserves the right to award subcontracts on individual Work Scope Categories and are not bound to award contract as a whole.

Work Scope Category: _____

[insert Work Scope Number and Work Scope Description here]

Combined Lump-Sum Price of _____ Dollars / \$ _____

1.04 RESPONSIBLE CONTRACTOR AFFIDAVIT OF COMPLIANCE

- C. Bidder represents and warrants that it has fully completed its Responsible Contractor Affidavit of Compliance (“Compliance Affidavit”) and has attached its Compliance Affidavit to this Bid Form as Attachment A, which represents Bidder’s signed statement under oath by an owner or officer of the contractor verifying compliance with each of the minimum criteria in Minnesota Statute § 16C.285, subd. 3.
- D. Bidder acknowledges that its failure to submit its fully completed Compliance Affidavit with its bid or meet the minimum criteria in Minnesota Statute § 16C.285, subd. 3 will render Bidder ineligible to be awarded a contract or perform work on the project. Bidder further acknowledges that any false statement it makes under oath regarding compliance with the minimum criteria in Minnesota Statute § 16C.285, subd. 3 will render Bidder ineligible to be awarded a contract and may result in termination of a contract awarded to Bidder.
- E. Bidder represents and warrants that it has included a list of its first-tier subcontractors that it intends to retain for work on the project on Attachment A-1 of its Compliance Affidavit, and that it has obtained a Compliance Affidavit from all such first-tier subcontractors, which shall be made available upon request of the Owner.
- F. Bidder represents and warrants that it shall obtain a Compliance Affidavit from each additional subcontractor it retains on the project after submitting its Compliance Affidavit, and Bidder shall submit a supplemental verification, using Attachment A-2 to the Compliance Statement, within 14 days of retaining the additional subcontractors, in accordance with Minnesota Statute § 16C.285, subd. 3. This requirement applies during the solicitation process and continues through the term of any awarded contract.

1.05 BIDDER IDENTIFICATION

We are:

- Incorporated in the State of
- a Partnership
- a Proprietorship

Company Name: _____

By: _____

Affix Corporate Seal

Signed: _____

Title: _____

Company Address: _____

Phone: _____

Email Address: _____

License No.: _____

-- End --



ATTACHMENT A

RESPONSIBLE CONTRACTOR VERIFICATION AND CERTIFICATION OF COMPLIANCE

PROJECT TITLE: _____

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

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

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

A prime contractor or subcontractor shall include in its verification of compliance under subdivision 4 a list of all of its first-tier subcontractors that it intends to retain for work on the project.

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

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

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

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

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

A false statement under oath verifying compliance with any of the minimum criteria may result in termination of a construction contract that has already been awarded to a prime contractor or subcontractor that submits a false statement. A contracting authority shall not be liable for declining to award a contract or terminating a contract based on a reasonable determination that the contractor failed to verify compliance with the minimum criteria or falsely stated that it meets the minimum criteria.

CERTIFICATION

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

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

Authorized Signature of Owner or Officer:

Printed Name:

Title:

Date:

Company Name:

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

ATTACHMENT A-2

ADDITIONAL SUBCONTRACTORS LIST

PRIME CONTRACTOR TO SUBMIT AS SUBCONTRACTORS ARE ADDED TO THE PROJECT

PROJECT TITLE: _____

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

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

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

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

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

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;
- 4) That a family relationship between a City of Duluth employee and bidder/proposer are in non-collusion; and
- 5) That I have fully informed myself regarding the accuracy of the statements made in this affidavit.

Signed: _____

Firm Name: _____

Subscribed and sworn to me before this ____ day of _____, _____

NOTARY PUBLIC _____

My commission expires: _____

Bidder's E.I. Number _____

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

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

TO: City of Duluth, 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 AMinority 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 ACompliance 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 Asegregated 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^Bif the FIRM has 50 or more employees and if the value of current contracts with the City of Duluth exceeds \$50,000^Bshall 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 AEO Statement and Certification similar in nature to this AStatement and Certification, (2) said documentation to be maintained on file with the FIRM or subcontractor as may be appropriate.

Executed this _____ day of _____, 20__ by:

Printed name and title

Signature

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



CITY OF DULUTH
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



**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

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Wage rate requirements
 - 2. Prevailing wage rate determination
 - 3. Posting of wage determination schedules
 - 4. Enforcement and compliance

1.02 WAGE RATE REQUIREMENTS

- A. Contractor and subcontractors shall be subject to payment of prevailing wage rates for commercial construction determined for Project as per attached MN105. . A laborer or mechanic employed directly on the Project site by Contractor or any subcontractor, agent or other person doing or contracting to do all or a part of the Work on the Project shall not be paid a lesser wage rate than prevailing wage rate determined for same or most similar trade or occupation in the Wage Rate Determination Schedule. If a prevailing wage determination is not scheduled for a trade or classification, Contractor is not relieved from responsibility for paying the prevailing wage rate for trade in question. Additional classifications may develop by federal wage determinations . Therefore, no inferences may be drawn from the omission of a classification which has local usage. Further, the Owner will not be liable for increased labor costs, or errors or changes to the rates or classifications.

1.03 PREVAILING WAGE RATE DETERMINATION

- A. Copy of the applicable Prevailing Wage Determination Schedule, as provided by the City of Duluth, is included for Contractor's reference.

1.04 POSTING OF WAGE DETERMINATION SCHEDULES

- A. Contractor shall post and maintain at least one copy of the schedule of Prevailing Wage Determination Schedule in a conspicuous location on the construction site until Substantial Completion of Project.

1.05 ENFORCEMENT AND COMPLIANCE

- A. Contractor and all of its subcontractors of all tiers are required to comply with the Prevailing Wage requirements for this Project, in accordance with the attached Wage Determination Schedule. Contractor must maintain payroll records for contractor and all of its subcontractors of all tiers.

PART 2 - PRODUCTS

- NOT USED

PART 3 - EXECUTION

- NOT USED

-- End --

MN105

General Decision Number: MN150105 06/12/2015 MN105

Superseded General Decision Number: MN20140105

State: Minnesota

Construction Type: Heavy

County: St Louis County in Minnesota.

HEAVY CONSTRUCTION PROJECTS

Note: Executive Order (EO) 13658 establishes an hourly minimum wage of \$10.10 for 2015 that applies to all contracts subject to the Davis-Bacon Act for which the solicitation is issued on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least \$10.10 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract. The EO minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/02/2015
1	05/22/2015
2	06/12/2015

BOIL0647-004 01/01/2013

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

CARP0361-020 07/11/2011

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

	Rates	Fringes
CARPENTER (Including Form Work).....	\$ 31.07	15.80

CARP0361-021 07/11/2011

ST LOUIS (Duluth)

	Rates	Fringes
CARPENTER (Including Form Work).....	\$ 31.47	15.80

CARP0606-010 05/01/2011

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

MN105

CARPENTER (Including Form Work).....\$ 31.07 15.80

ELEC0242-012 06/01/2014

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

	Rates	Fringes
ELECTRICIAN.....	\$ 32.54	24.07

ELEC0294-006 06/01/2014

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

	Rates	Fringes
ELECTRICIAN.....	\$ 33.72	73.34%

ENGI0049-064 05/01/2015

	Rates	Fringes
OPERATOR: Power Equipment		
Group 2.....	\$ 33.78	17.90
Group 3.....	\$ 33.23	17.90
Group 4.....	\$ 32.93	17.90
Group 5.....	\$ 29.89	17.90
Group 6.....	\$ 28.68	17.90

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

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

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

GROUP 4: Bituminous Roller 8 tons & over; Crusher/Crushing Plant; Drill Rig; Elevating Grader; Loader over 1 cu yd; Grader; Pump; Scraper up to 32 cu yd; Farm Tractor with Backhoe attachment; Skid Steer Loader over 1 cu yd with Backhoe attachment; Bulldozer over 50 hp.

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

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

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

UNDERGROUND WORK:
 UNNELS, SHAFTS, ETC. - \$.25 PREMIUM

UNDER AIR PRESSURE - \$.50 PREMIUM

HAZARDOUS WASTE PROJECTS (PPE Required):

LEVEL A - \$1.25 PREMIUM

LEVEL B - \$.90 PREMIUM

LEVEL C - \$.60 PREMIUM

IRON0512-028 05/01/2015

	Rates	Fringes
IRONWORKER, STRUCTURAL AND REINFORCING.....	\$ 31.04	23.45

LAB01091-006 05/01/2014

ST LOUIS (South of T. 55 N)

	Rates	Fringes
LABORERS		
(1) Common or General.....	\$ 26.97	16.21
(2) Mason Tender		
Cement/Concrete.....	\$ 27.17	16.21
(6) Pipe Layer.....	\$ 29.47	16.21

LAB01091-007 05/01/2014

SOUTHERN ST. LOUIS COUNTY

	Rates	Fringes
LABORER		
Common or General (Natural Gas Pipeline only).....	\$ 26.97	16.21

LAB01097-002 05/01/2014

NORTHERN ST. LOUIS COUNTY

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

LAB01097-005 05/01/2014

ST LOUIS (North of T. 55 N)

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

PLAS0633-036 05/01/2012

ST. LOUIS COUNTY (North of T 55N)

MN105

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 26.71	14.64

PLAS0633-039 05/01/2012

ST. LOUIS COUNTY (South of T 55N)

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 32.78	16.80

* TEAM0160-018 05/01/2015

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

SUMN2009-072 09/28/2009

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

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

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

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

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this

classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

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

Survey Rate Identifiers

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

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

Union Average Rate Identifiers

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

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

WAGE DETERMINATION APPEALS PROCESS

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

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

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

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

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

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

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

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

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

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

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

=====
END OF GENERAL DECISION

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Contractor's Request for Information
 - 2. Overall coordination responsibility.
 - 3. Coordination for construction mobilization
 - 4. Progress and Pre-installation meetings.
 - 5. Procedures for Coordination Drawings
 - 6. Coordination Procedures for Contract Closeout.
- B. Section Includes:
 - 1. Contract methods.
 - 2. Work by Owner or Others.
 - 3. Contractor's use of Premises.
- C. Owner: City of Duluth, herein referred to as Owner
- D. Agency Construction Manager: Kraus-Anderson Construction Company, herein referred to as "Construction Manager" or "CM".
- E. Architect/Engineer: SAS Associates herein referred to as "Architect".
- F. Contractor: As defined in Owner-Contractor Agreement and referred to herein as Contractor or trade contractor.
- G. Subcontractor: As defined in Owner-Contractor Agreement and referred to herein as "subcontractor".

1.02 CONTRACT METHODS

- A. **Contracting Method:** Kraus-Anderson Construction Company (in an Agency Construction Manager role), on behalf of the Owner will receive multiple prime bids for the complete work to construct the Gary New Duluth Community Center and Recreation Area Improvements.
- B. **Related Work Not in Contract:** In addition to the work of this contract, the Owner will be performing related work outside the scope of this contract to accommodate this and other programmatic requirements.
 - 1. to be determined.
 - 2. to be determined.
- C. **Work by Owner or Others:** Owner or other trade contractors will be performing work within the construction limits and at other locations within and around the Project Site during the duration of this contract. Parties will work together and coordinate activities with the Contractor.
- D. **Work Scope Categories:** For each Bid Package, Kraus Anderson will develop a series of separate Work Scopes specifically describing the work for each Contractor (or trade contractor).
 - 1. Refer to Section 01 1200 for detailed descriptions of Work Scope Categories anticipated at this time:
- E. **Clarification:** These Specifications are written in imperative and abbreviated form.
 - 1. It shall be clearly understood that all imperative statements are directed at the Contractor, unless specifically indicated otherwise.
 - 2. Incomplete sentences shall be completed by inserting "shall", "Contractor shall", and similar mandatory phrases by inference in same manner as they are applied to notes on Drawings.
 - 3. The words "shall be" shall be supplied by inference where a colon is used within sentence or phrases.

1.03 OWNER FURNISHED PRODUCTS

- A. **Equipment Lists.** Owner will distribute a list of equipment that it will furnish for installation by Contractor indicated as either OF (Owner furnished) or OFCI (Owner furnished, Contractor installed), and for those items furnished and installed by Owner indicated as OFOI (Owner furnished, Owner Installed) or NIC (Not in contract).
 - 1. Not anticipated at this time, with the exception of furniture and office equipment. If scope of services are modified by Change Order to include Owner Furnished items, comply with the following:
- B. **Owner's Responsibilities**
 - 1. Arrange for, review and deliver Shop Drawings, Product Data, and Samples to Contractor.
 - 2. Arrange and pay for product delivery to Site in compliance with Construction Schedule.

Section 01 1100 – Project Summary

3. Coordinate with vendor to provide Contractor appropriate notifications to accommodate delivery at job site (typically not less than 24 hours).
 4. On delivery, inspect products jointly with Contractor.
 5. Submit claims for damage and for replacement of damaged, defective, or deficient items.
 6. Arrange for manufacturer's warranties, inspections, and service.
- C. Contractor's Responsibilities
1. Review Owner furnished Shop Drawings, Product Data, and Samples.
 2. Equipment List
 - a. Obtain an Equipment List and Product Data for each item from the Owner.
 - b. Verify which items will be Owner furnished, Contractor installed; and Owner furnished, Owner Installed.
 3. Pick-up from Owner's storage and deliver to Site items from Owner's stock scheduled for use in Project.
 4. Receive and unload Owner furnished products at Site; inspect for completeness or damage jointly with Owner.
 5. Handle and store products to prevent damage.
 6. Repair or replace items damaged after receipt.

1.04 WORK RESTRICTIONS

- A. **Tobacco Free Site:** Project Site is a "tobacco free" zone; there is no smoking on the grounds or in the building.
- B. **Interim Life Safety Measures:** Review activities which affect existing emergency exits or fire lanes (temporarily or permanently) with Kraus-Anderson and Owner to ensure proper interim life safety procedures are implemented.
1. Implement procedures involving "Hot Work" (heat, welding, or sparks) acceptable to KA's Safety Procedures.
- C. **Egress and Access Routes:** Do not obstruct existing access and egress from adjacent Site areas or portions of existing facilities which remain operational throughout Construction Period.
1. Move stored products that interfere with operations of Owner.
 2. Obtain and pay for use of additional storage or work areas needed for operations.
 3. Do not store materials on existing roof areas.
- D. **Limit Activities to Construction Limits:** Notify Kraus-Anderson Construction Company, who will notify Owner and Architect if Work activities require work outside Construction Limits.
1. Contractor will coordinate activities with Kraus-Anderson Construction Company and Owner's Representative
 2. Until Substantial Completion, Contractor shall have full use of area within Construction Limits. After completion of identified areas, contractors shall limit activities to minimize disruption to Owner's operations as directed by Kraus-Anderson Construction Company and Owner.
 3. Conduct Work to accommodate use of adjoining facilities during construction period. Coordinate construction schedule and operations with Contractor and Owner Representative.
 4. Owner will require access to areas of the Work for installation of Owner provided items and equipment.
 5. Schedule Work to minimize disruption and inconvenience to Owner's and use of adjacent areas and facilities.
- E. **Use of Site:** Scope will vary throughout Construction Period. Construct Work to accommodate Owner's use of existing facilities with minimum disruption and inconvenience to Owner during construction period.
- F. **Construction Parking:** As directed by Kraus-Anderson Construction Company and Owner Representative.
- G. **Construction Staging Area:** As directed by Kraus-Anderson Construction Company and Owner Representative.
- H. **Working Hours:** Conduct Work during normal working hours unless expressly agreed otherwise with Kraus-Anderson and the Owner. Obtain written authorization to work hours other than normal working hours signed by both Kraus-Anderson and the Owner.
- I. **Noise Restrictions:** Do not use audio equipment such as boom-boxes, radio's, tape players, compact disc or MP-3 players on the Site.
1. Maintain a level of conduct and decorum consistent with the environment in which the Work is being performed.

PART 2 - PRODUCTS

- NOT USED

PART 3 - EXECUTION

- NOT USED

-- End --

PART 1 - GENERAL

1.01 SUMMARY

- A. **Section Includes:**
1. Summary of Work Scope packages currently being bid.
 2. Summary of Contracts previously awarded.
 3. Outline of potential future packages.

1.02 WORK SCOPE BEING BID IN THIS PACKAGE

- A. Kraus-Anderson Construction Company is soliciting competitive **“Lump Sum Bids”** for the portions of work as defined herein.
1. Work Scope categories have been constructed to follow CSI 2004 Master Format specification sections, however individual Work Scope Categories may contain work described in more than one specification section.
 2. Local custom and trade union jurisdictional settlements do not control the scope of work included in Work Scope Categories.
 - a. When a potential jurisdictional dispute or similar interruption of construction activities is identified, effected contractors shall promptly negotiate a reasonable settlement to avoid or minimize interruption and delays.
 3. Unless otherwise indicated, Work Scope Categories include a complete section of Work, including but not limited to labor, materials, equipment, scaffolding, hoisting, applicable permits and taxes as required by the Contract Documents.
- B. By submitting a Bid, bidder acknowledges they have review all Contract Documents, including previously issued documents and have anticipated, based on information provided impact of future Work as it affects their Work Scope.
- C. **Division 10 - Specialties**
1. Work Scope 10.A: Protective Cover - Specialty Manufacturer of Shelter
- D. **Division 26 – 28 – Electrical Package**
1. Work Scope 26.A: Electrical - Site Lighting
- E. **Division 31 – Earthwork Package**
1. Work Scope 31.A: Site Clearing, Earthwork and Subdrainage
- F. **Division 32 – Exterior Improvements**
1. Work Scope 32.A: Asphalt Paving Package
 2. Work Scope 32.B: Concrete Paving Package
 3. Work Scope 32.C: Chain Link Fencing Package
 4. Work Scope 32.D: Permeable Paver Package
 5. Work Scope 32.E: Irrigation Package
 6. Work Scope 32.F: Landscaping Package
- G. **Division 33 - Utilities**
1. Work Scope 33-A: Site Utilities Package

1.03 WORK SCOPE CATEGORIES PREVIOUSLY AWARDED

NOT USED

1.04 FUTURE BID PACKAGES AND WORK SCOPE PACKAGES

NOT USED

PART 2 - PRODUCTS

- NOT USED

PART 3 - EXECUTION

- NOT USED

-- End --

Section 01 1210 – General Requirements for All Work Scopes

1.01 CONTRACT REQUIREMENTS APPLICABLE TO ALL WORK SCOPES

- A. **Comprehensive Scope of Work:** Provide labor, material, and equipment necessary to properly execute the work of this Work Scope in accordance with Contract Documents and specifically the specifications sections listed herein.
1. Contract Documents are complementary, and what is required by one shall be as binding as if required by all.
 2. Each contractor is responsible for the general, structural, architectural, mechanical and electrical notes as they relate to your Work.
 3. It is the intent of this Work Scope and responsibility for this contractor to provide a complete operational assembly/system, unless specifically indicated below.
 4. Review the entire project so that proceeding, concurrent and succeeding work of other contractors can proceed without harm to the Project as a whole.
 5. Each contractor is required to coordinate their work with other contractors, as directed by Kraus-Anderson, without additional compensation.
 6. By submitting your Proposal/Bid, each contractor acknowledges they have review all appropriate contract documents, including previously issued documents and have anticipated, based on information provided or available, impact of future Work as it affects their Work Scope Category.
- B. **Contract Scope and Assigned Responsibilities:** Refer to individual Work Scope Descriptions for additional requirements.
1. Anything contained in the Contract Documents designated as "by General Contractor", "Contractor" or similar terms, shall be by the Contractor performing the same work as so designated by "General Contractor", "Contractor", etc.
 2. In the case where jurisdictional disputes may arise regarding the "claiming" of certain trade work, if you claim it, you are responsible for the costs associated therein.
- C. **Clarification:** The Specification are written in imperative and abbreviated form.
1. It shall be clearly understood that all imperative statements are directed at the subcontractor responsible for that portion of the Work, unless specifically indicated otherwise.
 2. Incomplete sentences shall be completed by inserting "shall", "contractor shall", and similar mandatory phrases by inference in the same manner as they are applied to notes on Drawings.
 3. The words "shall be" shall be supplied by inference where a colon is used within sentence or phrases.
- D. **Interpretations or Corrections of Contract Documents:** Carefully study and compare Documents with each other and with other work being performed concurrently or presently under construction to the extent that it relates to the Work for which this Contract is awarded, shall examine the site and local conditions and shall at once report to Kraus-Anderson inconsistencies or ambiguities discovered or requirements not understood.
1. Using Request for Information form, acceptable to Kraus-Anderson, contractor shall submit to Kraus-Anderson Request for Information prior to performing work in question.
 2. Kraus-Anderson will forward Request for Information on form acceptable to Owner, Architect, and Kraus-Anderson prior to performing work in question.
 3. Responses provided on RFI forms by Owner or Architect are intended to be clarifications only and are not an authorization for a Contract Time extension or an increase in the Contract Amount.
 4. If contractor believes the response is a change in either Contract Time or Contract Amount, contractor shall comply with requirements of the Owner/Contractor Agreement.
 5. Request for Information (RFI's) agreed to by Owner and Kraus-Anderson that change either the Contract Time or Contract Amount will be included into an appropriate Change Order prior to performing work in question.
- E. **Conflicts and Duplication in Work:** In the case of a duplication of scope responsibility either on Drawings, Specification, or Work Scope Descriptions, contractor is responsible to bid the work as called out regardless of potential oversight duplications.
1. In the case of duplication, Kraus-Anderson will make the final decision as to which Work Scope will do the work and the appropriate cost adjustment will be made.

Section 01 1210 – General Requirements for All Work Scopes

1.02 SCOPE CLARIFICATIONS APPLICABLE TO ALL WORK SCOPE CATEGORIES

- A. **Special Coordination and Scheduling Required:** Contractor acknowledges that the performance of this Work Scope must be closely interfaced with the performance of others and that multiple mobilizations will be required.
1. It is understood that punctuality and compliance with agreed upon deliveries is of the essence on the Project.
 2. Comply with Project Schedule and ensure preparatory work of other trades are erected first or carried forward simultaneously where installation sequence required it.
 3. Provide reasonable notice of your intentions to those affected, and if other contractors, after such reasonable notice, fail to have their work in readiness, Kraus-Anderson shall be consulted and their directions followed.
 4. Where indicated or required to maintain Project Schedule or to accommodate Owner's on-going operations, provide required "after-hours" shift work to maintain Project Schedule.
- B. **Submittal and Fabrication Time Requirements:** In accordance with Part 1 of individual specification section requiring Submittals and Division 1 requirements, coordinate, prepare, and submit a complete package of design submittals in accordance with the Project Schedule and requirements of the Subcontract Agreement.
1. Schedule Requirements for Design Submittals: Durations will be mutually agreed to between KA and this contractor for the task identified herein and will be specifically listed within the Agreement.
 - a. Preparation of Design Submittals.
 - b. Fabrication and delivery time.
 - c. Duration of On-Site installation.
 2. For items requiring "design submittals" prepare submittals for review and acceptance by the A/E to comply with the milestone dates outlined within the Project Schedule and Agreement.
 3. For items NOT requiring "design submittals" and upon return of approved submittals for those items requiring submittals, fabricate and delivery items to Site to comply with Project Schedule and Agreement.
- C. **Document Management and Control Procedures:** Ensure on-site contractor's personnel have current contract documents, including, but is not limited to, Specifications, Drawings and clarifications (RFI's and ASI's) and other modifications (CCD's and field orders) affecting the Work.
1. Each contractor will be provided with one (1) complete set of Contract Documents. Contractor is responsible to copy and distribute (at their cost) sufficient copies of documents to contractor's personnel, vendors and suppliers.
 2. Ensure field personnel are familiar with requirements of Contract Documents
 3. Trade contractor to have an established document control procedure to ensure compliance.
- D. **Field Engineering and Layout:** Kraus-Anderson will provide two benchmarks on grade and two control line on each floor (one in each direction) with appropriate off-sets. Refer to individual Work Scope Descriptions for remaining layout requirements.
- E. **Coordinate Layout and Clearances:** Coordinate space requirements and installation for items that are indicated diagrammatically on Documents.
1. Follow routing indicated for pipes, ducts and wiring, place runs parallel with line of building. In finished areas, unless expressly indicated otherwise, conceal pipes, ducts and wiring within construction. Coordinate locations of plumbing and electrical fixtures and electrical outlets with finish elements.
 2. Use space efficiently to maximize accessibility for other installations, maintenance and repairs.
 3. Installing entities shall modify their installations, if needed, to eliminate conflicts and achieve effective coordination of systems and Work.
 4. Contractor's failure to exercise coordination responsibilities constitutes a waiver of claims for an increase in Contract Sum if design modifications are required to resolve conflicts that might have been avoided by complying with requirements of this Section.
- F. **Field Verification of Existing Conditions and Substrates:** Inspect existing conditions and substrates to receive work prior to installation, field verify dimensions that will effect the layout or performance of your work, and confirm preparatory work is complete and acceptable to receive work of this Work Scope.
- G. **Professional Errors and Omission Insurance Requirements:** Where Work Scope Categories included requirements for "Delegated Design", "third party engineering", "Signed Shop Drawings by licensed engineer", or "submission of design calculations" as part of the individual specification sections or structural notes, refer to KA Subcontract Agreement for additional requirements.
- H. **Embeds:** Contractors requiring embeds or provisions for anchors cast into work by others, are responsibility to provide embeds and detailed layout drawings.

Section 01 1210 – General Requirements for All Work Scopes

- I. **Construction Cleaning:** Each Work Scope is responsible for clean up of debris, rubbish and other similar items resulting from their operations on a daily basis.
 - 1. Refer to individual Work Scope for additional requirements regarding cleanup.

1.03 MATERIAL HANDLING AND STORAGE

- A. **Delivery and Receiving of Materials:** Provide labor and equipment necessary to receive materials, unload, inspect, sort, and distribute materials to individual work areas. Stored in an organized manner as not to obstruct other trades and the normal day-to-day operation of this project.
 - 1. Coordinate storage areas with Kraus-Anderson Construction Company.
 - 2. Schedule deliveries to minimize onsite storage and coordinate with Kraus-Anderson's Superintendent.
 - 3. Provide flagmen for operation in contact with public traffic for deliveries.
- B. **Hoisting:** Provide hoisting equipment, labor, means and operations to complete your Work Scope.
- C. **Scaffolding:** Work Scope is responsibility for your own working platforms, scaffolding, and equipment necessary to access Work.
 - 1. Coordinate scope and timing of scaffold with Kraus-Anderson Construction Company.
- D. **Protection of Adjacent Work:** Each subcontractor shall provide necessary protection of roof and adjacent surfaces during the prosecution of this work.
 - 1. Interior scaffolding and charts must be utilized with rubber, locking wheels.

1.04 WORK RESTRICTIONS

- A. **Contractor's Field Offices:** As directed by Kraus-Anderson Construction Company.
- B. **Construction Staging Area:** As directed by Kraus-Anderson Construction Company.
- C. **Construction Parking:** Due to limited site area, on-site construction parking is limited to the following:
 - 1. Comply with other parking restrictions as directed by Kraus-Anderson or the Owner.
- D. **Egress and Access Routes:** Do not obstruct existing access and egress from adjacent Site areas or portions of existing facilities which remain operational throughout Construction Period.
 - 1. Move stored products that interfere with operations of Owner.
 - 2. Obtain and pay for use of additional storage or work areas needed for operations.
 - 3. Do not store materials on existing roof areas.
- E. **Limit activities to Construction Limits:** Notify Kraus-Anderson Construction Company, who will notify Owner and Architect if Work activities require work outside Construction Limits.
 - 1. Contactor will coordinate activities with Kraus-Anderson Construction Company and Owner's Representative
- F. **Work in Occupied Areas:** Work in occupied areas of the facility must be coordinated with Kraus-Anderson's Superintendent who will coordinate same with Owner's Representative.
- G. **Hot Work Permits:** Work activities using and causing sparks and open flame must be coordinated with Kraus-Anderson's Superintendent and special procedures shall be complied with as directed by Kraus-Anderson.
- H. **Working Hours.** Conduct Work during normal working hours unless expressly agreed to by Kraus-Anderson Construction Company and the Owner.
 - 1. Standard five day work week (Monday through Friday) is required, a four-day ten-hour schedule is not acceptable.
- I. **Tobacco Free Site:** Project Site is a "tobacco free" zone; there is absolutely no smoking, or use of tobacco products of any kind are prohibited on the Owner's Property.
- J. **Noise Restrictions:** Do not use audio equipment such as radio's, tape players, compact disc or MP-3 players on Site.
 - 1. Maintain a level of conduct and decorum consistent with the environment in which the Work is being performed.

-- End --

Gary New Duluth Community Center & Recreation Area Improvements 00 2400 Work Scope Index

Note: All work described is furnish and install unless noted otherwise.

PC (Work by Prime Contractors)					
Work Scope No.	Work Scope Description	Work By	Spec Sections Included		Remarks
			Spec #	Spec Section	
		PC			
10.A	Protective Covers	PC	03100 03200 03250 03300 107300	Formwork Reinforcing Steel Concrete Accessories Cast-In-Place Concrete Protective Covers	Complete Complete Complete Complete Complete
26.A	Electrical Site Lighting	PC	260000 261000	Exterior Lighting Lighting Requirements	Complete Complete
31.A	Site Clearing, Earthwork and Subdrainage Package	PC	02100 02110 02210 02315 02620	Site Preparation Site Clearing Finish Grading Excavation and Backfill Subdrainage Erosion & Sedimentation Controls (SWPPP)	Complete Complete Complete Complete Complete Complete
32.A	Asphalt Paving	PC	02210 02315 02512	Finish Grading Excavation and Backfill Bituminous Paving	As it Applies As it Applies Complete
32.B	Concrete Paving	PC	02210 02315 02520	Finish Grading Excavation and Backfill Concrete Flatwork, Paving and Curbs	As it Applies As it Applies As it Applies
32.C	Chain Link Fencing	PC	02830	Chain Link Fencing	Complete
32.D	Permeable Paver Package	PC	02210 02315 02515	Finish Grading Excavation and Backfill Permeable Pavers	As it Applies As it Applies Complete
32.E	Irrigation Package	PC	02210 02810	Grading Irrigation System	As it Applies Complete
32.F	Landscape Package	PC	02210 02315 02930 02932 02934	Finish Grading Excavation and Backfill Plant Materials Seeding Sodding	As it Applies As it Applies Complete Complete Complete
33.A	Site Utility Package	PC	02110 02315	Site Clearing Excavation and Fill Storm Drainage Utilities	As it Applies As it Applies Complete

Work Scope 10-A –Protective Covers
KA SPECIAL REQUIREMENTS

1.1 PROTECTIVE COVERS

A. **Scope of Work:** This Work Scope consists of the Work directly and indirectly required by the specification sections listed below, plus project drawings, addenda, and other documents identified as part of the Agreement, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.

1. Specific Specifications Sections that are the responsibility of the Work Scope:		
	Kraus-Anderson's Special Requirements	As it applies
	01 0000 Division 1 - General Requirements	As it applies
	03100 Formwork	Complete
	03200 Reinforcing Steel	Complete
	03250 Concrete Accessories	Complete
	03300 Cast-in Place Concrete	Complete
	107300 Protective Covers	Complete

1.2 PROJECT SPECIFIC SCOPE CLARIFICATIONS

- A. **General Requirements for All Work Scope Categories:** Refer to Section 01 1210 for additional requirements affecting this Work Scope.
- B. **Protective Covers:** Provide (furnish and erect) Protective cover six-sided superstructure in accordance with Section 107300, including but not limited to:
1. Foundation and Anchor bolts.
 2. Steel Columns and Structural Frame.
 3. Roof Decking
 4. Standing Seam Metal Roofing and Trim.

1.3 SPECIAL COORDINATION OR INSTALLATION REQUIREMENTS

- A. **Field Engineering:** Kraus-Anderson will provide benchmarks and control line in accordance with requirements specified in Section 01 1210. This Work Scope is responsible for remaining layout required for this Work Scope.
- B. **Acceptance of Substrates and Existing Conditions:** Starting work constitutes acceptances of existing conditions, preparatory work, and substrates that may affect the performance of this Work Scope.
- C. **System Coordination:** Provide a qualified representative to coordinate other trades.
1. Ensure interface between interrelated products are compatible with one another.
- D. **Quality / Design:** Protective Cover shall be erected by the manufacturer or their qualified specialty contractor with at least 5 years experience in building protective covers of the type specified.
1. Professional engineer who is legally qualified to practice in jurisdiction when project is located and is experienced in providing engineering services of kind indicated.
 2. Building shall be designed and constructed to meet the Minnesota State Building Code in effect at time of permitting.

1.4 ALLOWANCES

- A. **Subcontractor Allowance:** N/A

1.5 MATERIAL HANDLING AND STORAGE

- A. **Delivery and Receiving of Materials:** Refer to Section 01 1210 for additional requirements.
- B. **Hoisting:** Refer to Section 01 1210 for additional requirements regarding hoisting.
- C. **Scaffolding:** Work Scope is responsibility for your own working platforms, scaffolding, and equipment necessary to access Work. Refer to Subcontract Agreement for additional requirements regarding scaffolding.
1. Coordinate scope and timing of scaffold with Kraus-Anderson Construction Company.
- D. **Storage:** Coordinate storage with Kraus-Anderson Construction

Work Scope 10-A –Protective Covers
KA SPECIAL REQUIREMENTS

1.6 SUBMITTAL REQUIREMENTS

- A. In accordance with Part 1 of individual specification section requiring Submittals and Division 1 requirements, subcontractor shall coordinate, prepare, and submit a complete package of design submittals in accordance with the Project Schedule and requirements of the Subcontractor Agreement.
 - 1. As defined by the Project Schedule.

1.7 UNIT PRICES, EQUIPMENT RENTAL, AND LABOR RATES

- A. N/A

1.8 COST BREAKDOWNS

- A. N/A

1.9 ALTERNATES

- A. N/A

-- End --

Work Scope 26-A – Electrical Site Lighting Package

1.01 ELECTRICAL SITE LIGHTING PACKAGE

- A. **Scope of Work:** This Work Scope consists of the Work directly and indirectly required by the specification sections listed below, plus all project drawings, addenda, and other documents identified as part of the Agreement, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.
- Specific Specifications Sections that are the responsibility of the Work Scope:

00 0000	Division 0 – Procurement Requirements & Conditions of the Contract	As it applies
01 0000	Division 1 - General Requirements	As it applies
Division 26 – Electrical Systems [all sections within Division 26]		
26000	Exterior Lighting	Complete
26100	Lighting Requirements	Complete

1.02 PROJECT SPECIFIC SCOPE CLARIFICATIONS

- A. **General Requirements for All Work Scope Categories:** Refer to Section 01 1210 for additional requirements affecting this Work Scope.
- B. **Functional System:** Provide complete functional system consistent with the design intent of the specifications sections identified above and other project documents, including but not limited to:
- Items not shown but necessary to provide a properly functioning system shall be included in this Work Scope.
 - Required permits and inspections fees.
- C. **Light Pole Foundations:** Provide concrete foundations for your work.
- Including any transformer or lighting control pads.
- D. **Sleeve:** Layout, cutting openings, and setting sleeves and embeds required by this Work Scope.
- E. **Sealant around Electrical Components:** Provide sealant around electrical conduits and comments penetrating exterior walls, sound rated partitions, smoke-tight or vapor-tight assemblies.
- F. **Site Lighting:** Provide related digging, forming, and placement of exterior light fixtures and poles, including concrete bases.
- G. **System Start-up:** Start, test and adjust systems prior to completion.
- H. **Utility Company Coordination:** Coordination with utility/electrical company to install required services and pay for costs associated with connections, unless specifically indicated otherwise.

1.03 SPECIAL COORDINATION OR INSTALLATION REQUIREMENTS

- A. **Field Engineering:** Kraus-Anderson will provide benchmarks and control line in accordance with requirements specified in Section 01 1210 - General Requirements for All Work Scopes.
- This Work Scope is responsible for all remaining layout required for this Work Scope.
- B. **Acceptance of Substrates and Existing Conditions:** Starting work constitutes acceptances of existing conditions, preparatory work, and substrates that may affect the performance of this Work Scope.
- C. **System Coordination:** Provide a qualified representative to coordinate other trades.
- Ensure interface between interrelated products are compatible with one another.

1.04 MATERIAL HANDLING AND STORAGE

- A. **Delivery and Receiving of Materials:** Refer to Section 01 1210 for additional requirements.
- B. **Hoisting:** Refer to Section 01 1210 for additional requirements regarding hoisting.
- C. **Scaffolding:** Work Scope is responsibility for your own working platforms, scaffolding, and equipment necessary to access Work. Coordinate scope and timing of scaffold with Kraus-Anderson Construction Company.

1.05 UNIT PRICES, EQUIPMENT RENTAL, AND LABOR RATES

- A. NA

1.06 ALTERNATES

- A. NA

-- End --

Work Scope 31-A – Site Clearing, Earthwork, Subdrainage Package

1.01 SITE CLEARING, EARTHWORK AND SUBDRAINAGE PACKAGE

- A. **Scope of Work:** This Work Scope consists of the Work directly and indirectly required by the specification sections listed below, plus all project drawings, addenda, and other documents identified as part of the Agreement, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.
- Specific Specifications Sections that are the responsibility of the Work Scope:

00 0000	Division 0 – Procurement Requirements & Conditions of the Contract	As it applies
01 0000	Division 1 - General Requirements	As it applies
02110	Site Clearing	Complete
02100	Site Preparation	Complete
02315	Excavation and Backfill	Complete
02210	Finish Grading	Complete
02620	Subdrainage	Complete
	Erosion and Sedimentation Controls (SWPPP)	Complete

1.02 PROJECT SPECIFIC SCOPE CLARIFICATIONS

- A. **General Requirements for All Work Scope Categories:** Refer to Section 01 1210 for additional requirements affecting this Work Scope.
- B. **Site Clearing:** Provide general site clearing and preparation work in accordance with Division 02 and as indicated on the Drawings and including, but not limited to:
- General site clearing.
 - Demolition and disposal of existing items indicated to be removed.
 - Concrete and asphalt paving indicated to be removal.
 - Curbs, gutters, sidewalks indicated to be removed.
 - Tree removal, including root ball indicated to be removed.
- C. **Earthwork:** Provide earthwork as indicated in accordance with Division 02 including, but not limited to:
- Mass excavation.
 - Fill and backfill:
 - Backfill and compaction for soccer fields (including sand and topsoil)
 - Backfill and compaction for concrete paving.
 - Backfill and compaction for asphalt paving.
 - Backfill and compaction for permeable pavers.
 - Fill and backfill
 - Backfill and compaction (soil and topsoil)
 - Sand and topsoil on soccer field
 - Base and compaction for sidewalk
 - Base and compaction for asphalt paving
 - Base and compaction for pavers.
 - Removal and disposal of abandoned utilities occurring within the excavation.
 - Earth stripping and stockpiling.
 - Coordinate area available for onsite stockpiling with Kraus-Anderson Construction Company.
 - Grading including rough and fine grading.
 - Finish grading for landscaped areas (lawns and soccer fields): Refer to Landscape Sections 02910 - 02934.
- D. **Dewatering Requirements:** Provide all necessary labor and equipment to perform the work of this Work Scope including daily pumping to keep excavated areas dry.
- Coordinate extent and duration of dewatering activities with Kraus-Anderson Construction Company.
- E. **Excavation Support Systems:** Provide (engineer, construct, maintain, and monitor) excavation support systems as required, and as indicated, in accordance with Section 02315 including, but not limited to:
- Removal of extraneous pile material and excess earth as a result of the piling operation from the site and disposed of in a legal disposal site is included in your proposal.
- F. **Subdrainage System (drain tile):** Provide sub grade drainage system in accordance with Section 02620 including, but not limited to:
- Subdrainage piping systems for soccer fields.
 - Subdrainage piping systems for skating area.

Work Scope 31-A – Site Clearing, Earthwork, Subdrainage Package

- G. **Storm Water Pollution Prevention Plan (SWPPP):** Provide labor and materials to install, maintain, monitor, and remove upon completion all elements and process required to administer the storm water compliance requirements for this Project as outlined within the documents and required by the State.
 - 1. Construction entrances and exit areas
 - 2. Perimeter control around construction site
 - 3. Erosion control procedures
 - 4. Sediment control procedures
 - 5. Dewatering and drain basin procedures
- H. **Traffic Control:** Provide traffic control spotters/flag personal and have them present at all times during materials deliveries.
 - 1. Provide traffic and street barrier as required.
- I. **Construction Cleaning:** Perform daily construction cleaning operations for debris generated by this Work Scope.
 - 1. Refer to Section 01 5010 for additional requirements.
 - 2. Debris tracked or carried off site into traffic lanes must be cleaned up immediately. If tracking continues, this Work Scope shall provide continuously cleaning operations during activities of this Work Scope.
 - 3. Hard surface areas shall be broom cleaned upon completion.
- J. **Restoration of adjacent turf areas damaged by Construction:** This Work Scope is responsible to restore disturbed turf areas with sod (seeding is not acceptable) in accordance with requirements of Sections 02910 – 02934 Landscaping.

1.03 SPECIAL COORDINATION OR INSTALLATION REQUIREMENTS

- A. **Soil Borings:** Reports are available at Kraus-Anderson Construction Company for review upon request.
- B. **Field Engineering:** Kraus-Anderson will provide benchmarks and control line in accordance with requirements specified in Section 01 1210 - General Requirements for All Work Scopes.
 - 1. This Work Scope is responsible for all remaining layout required for this Work Scope.
- C. **Acceptance of Substrates and Existing Conditions:** Starting work constitutes acceptances of existing conditions, preparatory work, and substrates that may affect the performance of this Work Scope.
 - 1. This Work Scope is responsible to coordinate and provide services of firm specialized in locating and documenting underground services and utilities similar to Gopher One.
- D. **Multiple Mobilizations and Minimum Work Force:** To comply with the Project Schedule and phasing requirements, multiple mobilizations may be required. Refer to Project Schedule for additional requirements.
 - 1. Coordinate requirements with Kraus-Anderson Construction Company.
- E. **Coordination with Others:** Include coordination with other trades, including but not limited to the following:
 - 1. Protective Covers (shelter): Refer to 107300
 - 2. Site Lighting: Refer to 260000
 - 3. Bituminous Paving: Refer to 02512
 - 4. Concrete Paving: Refer to 02520
 - 5. Permeable Paving: Refer to 02515
 - 6. Irrigation Systems: Refer to 02810.
 - 7. Landscape Package: Refer to Sections 02910 - 02934.

1.04 ALLOWANCES

- A. **Contractor Allowance:** N/A

1.05 MATERIAL HANDLING AND STORAGE

- A. **Delivery and Receiving of Materials:** Refer to Section 01 1210 General Requirements for Work Scopes for additional requirements.

1.06 SUBMITTAL REQUIREMENTS

- A. **Shop Drawings:** Indicating the pile locations, pile numbers and installation sequence along with your expected construction procedures.
- B. **As-Built Logs:** Maintain daily detailed logs indicating layout, number and length items installed, comments regarding installation.

Work Scope 31-A – Site Clearing, Earthwork, Subdrainage Package

1.07 UNIT PRICES, EQUIPMENT RENTAL, AND LABOR RATES

A. N/A

1.08 ALTERNATES

A. N/A

-- End --

1.01 ASPHALT PAVING

A. **Scope of Work:** This Work Scope consists of the Work directly and indirectly required by the specification sections listed below, plus all project drawings, addenda, and other documents identified as part of the Agreement, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.

1. Specific Specifications Sections that are the responsibility of the Work Scope:
- | | | |
|---------|--|---------------|
| 00 0000 | Division 0 – Procurement Requirements & Conditions of the Contract | As it applies |
| 01 0000 | Division 1 - General Requirements | As it applies |
| 02210 | Finish Grading | As it applies |
| 02315 | Excavation and Backfill | As it applies |
| 02512 | Bituminous Paving | Complete |

1.02 PROJECT SPECIFIC SCOPE CLARIFICATIONS

- A. **General Requirements for All Work Scope Categories:** Refer to Section 01 1210 for additional requirements affecting this Work Scope.
- B. **Asphalt Paving:** Provide general site clearing and preparation work in accordance with Section 02512 and as indicated on the Drawings.
- C. **Storm Water Pollution Prevention Plan (SWPPP):** Provided under Work Scope 31-A.
- D. **Restoration of adjacent turf areas damaged by Construction:** This Work Scope is responsible to restore disturbed turf areas with sod (seeding is not acceptable) in accordance with requirements of 02910 – 02934 Landscaping.

1.03 SPECIAL COORDINATION OR INSTALLATION REQUIREMENTS

- A. **Soil Borings:** Reports are available at Kraus-Anderson Construction Company for review upon request.
- B. **Field Engineering:** Kraus-Anderson will provide benchmarks and control line in accordance with requirements specified in Section 01 1210 - General Requirements for All Work Scopes.
1. This Work Scope is responsible for all remaining layout required for this Work Scope.
- C. **Acceptance of Substrates and Existing Conditions:** Starting work constitutes acceptances of existing conditions, preparatory work, and substrates that may affect the performance of this Work Scope.
1. This Work Scope is responsible to coordinate and provide services of firm specialized in locating and documenting underground services and utilities similar to Gopher One.
- D. **Coordination with Others:** Include coordination with other trades, including but not limited to the following:
1. Earthwork.
 2. Site Utilities
 3. Concrete Paving
- E. **Traffic Control:** Provide traffic control spotters/flag personal and have them present during your work activities.
1. Provide traffic and street barrier as required.
- F. **Construction Cleaning:** Perform daily construction cleaning operations for debris generated by this Work Scope.
1. Refer to Section 01 5010 for additional requirements.
 2. Debris tracked or carried off site into traffic lanes must be cleaned up immediately.

1.04 MATERIAL HANDLING AND STORAGE

- A. **Delivery and Receiving of Materials:** Refer to Section 01 1210 General Requirements for Work Scopes for additional requirements.

1.05 UNIT PRICES, EQUIPMENT RENTAL, AND LABOR RATES

- A. NA

1.06 ALTERNATES

- A. NA

-- End --

Work Scope 32-B – Concrete Paving

1.01 CONCRETE PAVING PACKAGE

- A. **Scope of Work:** This Work Scope consists of the Work directly and indirectly required by the specification sections listed below, plus all project drawings, addenda, and other documents identified as part of the Agreement, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.
1. Specific Specifications Sections that are the responsibility of the Work Scope:

00 0000	Division 0 – Procurement Requirements & Conditions of the Contract	As it applies
01 0000	Division 1 - General Requirements	As it applies
02210	Finish Grading	As it applies
02315	Excavation and Backfill	As it applies
02520	Concrete Flatwork, Paving and Curbs	Complete

1.02 PROJECT SPECIFIC SCOPE CLARIFICATIONS

- A. **General Requirements for All Work Scope Categories:** Refer to Section 01 1210 for additional requirements affecting this Work Scope.
- B. **Concrete Paving:** Provide general site clearing and preparation work in accordance with Section 02520 and as indicated on the Drawings.
- C. **Storm Water Pollution Prevention Plan (SWPPP):** Provided under Work Scope 31-A.
- D. **Restoration of adjacent turf areas damaged by Construction:** This Work Scope is responsible to restore disturbed turf areas with sod (seeding is not acceptable) in accordance with requirements of Section 02910 – 02934. Landscaping.

1.03 SPECIAL COORDINATION OR INSTALLATION REQUIREMENTS

- A. **Phase I and II Environmental Site Assessment Reports:** Reports are available at Kraus-Anderson Construction Company for review upon request.
- B. **Soil Borings:** Reports are available at Kraus-Anderson Construction Company for review upon request.
- C. **Field Engineering:** Kraus-Anderson will provide benchmarks and control line in accordance with requirements specified in Section 01 1210 - General Requirements for All Work Scopes.
1. This Work Scope is responsible for all remaining layout required for this Work Scope.
- D. **Acceptance of Substrates and Existing Conditions:** Starting work constitutes acceptances of existing conditions, preparatory work, and substrates that may affect the performance of this Work Scope.
1. This Work Scope is responsible to coordinate and provide services of firm specialized in locating and documenting underground services and utilities similar to Gopher One.
- E. **Traffic Control:** Provide traffic control spotters/flag personal and have them present at during your work activities.
1. Provide traffic and street barrier as required.
- F. **Construction Cleaning:** Perform daily construction cleaning operations for debris generated by this Work Scope.
1. Refer to Section 01 5010 for additional requirements.
 2. Debris tracked or carried off site into traffic lanes must be cleaned up immediately.

1.04 MATERIAL HANDLING AND STORAGE

- A. **Delivery and Receiving of Materials:** Refer to Section 01 1210 General Requirements for Work Scopes for additional requirements.

1.05 UNIT PRICES, EQUIPMENT RENTAL, AND LABOR RATES

- A. NA

1.06 ALTERNATES

- A. NA

-- End --

Work Scope 32-C – Chain Link Fencing Package

1.01 CHAIN LINK FENCING PACKAGE

- A. **Scope of Work:** This Work Scope consists of the Work directly and indirectly required by the specification sections listed below, plus all project drawings, addenda, and other documents identified as part of the Agreement, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.
1. Specific Specifications Sections that are the responsibility of the Work Scope:

00 0000	Division 0 – Procurement Requirements & Conditions of the Contract	As it applies
01 0000	Division 1 - General Requirements	As it applies
02830	Chain Link Fencing	Complete

1.02 PROJECT SPECIFIC SCOPE CLARIFICATIONS

- A. **General Requirements for All Work Scope Categories:** Refer to Section 01 1210 for additional requirements affecting this Work Scope.
- B. **Soil Borings:** Reports are available at Kraus-Anderson Construction Company for review upon request.
- C. **Chain Link Fences & Gates:** Furnish and Install as indicated in accordance with Section 02830 including but not limited to:
1. Drill and excavate soil depths to Achieve the required K-8 or K-12 footing sizes & depths
 2. Cast-in Place Foundations pertinent to this Work Task
 3. Man gates located in Perimeter Fences
 4. Polyester Powder Coating Factory Finish
 5. Restoration and repair of existing chain link baseball backstop.

1.03 SPECIAL COORDINATION OR INSTALLATION REQUIREMENTS

- A. **Field Engineering:** Kraus-Anderson will provide benchmarks and control line in accordance with requirements specified in Section 01 1210 - General Requirements for All Work Scopes.
1. Kraus-Anderson will provide two benchmarks on grade. This Work Scope is responsible for all remaining layout.
- B. **Acceptance of Substrates and Existing Conditions:** Starting work constitutes acceptances of existing conditions, preparatory work, and substrates that may affect the performance of this Work Scope.
- C. **Site Cleaning:** Debris tracked or carried off site into traffic lanes must be cleaned up immediately. If tracking continues, this Work Scope shall provide continuously cleaning operations during activities of this Work Scope.
1. The roads surrounding the site must be kept clean on a daily basis.

1.04 MATERIAL HANDLING AND STORAGE

- A. **Delivery and Receiving of Materials:** Refer to Section 01 1210 for additional requirements.

1.05 UNIT PRICES, EQUIPMENT RENTAL, AND LABOR RATES

- A. NA

1.06 ALTERNATES

- A. NA.

-- End --

Work Scope 32-D – Permeable Paver Package

1.01 PERMEABLE PAVER PACKAGE

- A. **Scope of Work:** This Work Scope consists of the Work directly and indirectly required by the specification sections listed below, plus all project drawings, addenda, and other documents identified as part of the Agreement, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.
1. Specific Specifications Sections that are the responsibility of the Work Scope:
- | | | |
|---------|--|---------------|
| 00 0000 | Division 0 – Procurement Requirements & Conditions of the Contract | As it applies |
| 01 0000 | Division 1 - General Requirements | As it applies |
| 02210 | Finish Grading | As it Applies |
| 02315 | Excavation and Backfill | As it Applies |
| 02515 | Permeable Pavers | Complete |

1.02 PROJECT SPECIFIC SCOPE CLARIFICATIONS

- A. **General Requirements for All Work Scope Categories:** Refer to Section 01 1210 for additional requirements affecting this Work Scope.
- B. **Earthwork:** Provide earthwork as indicated in accordance with Division 02 including, but not limited to:
1. Site clearing not preformed under Site Clearing and Earthwork Package.
- C. **Dewatering Requirements:** Provide all necessary labor and equipment to perform the work of this Work Scope including daily pumping to keep excavated areas dry.
1. Special coordination with concrete trade contractor during footing and foundation work is required.
 2. Coordinate extent and duration of dewatering activities with Kraus-Anderson Construction Company.
- D. **Subdrainage System (drain tile):** Provide sub grade drainage system in accordance with Section 33 4600 including, but not limited to:
1. Drainage system directly related to Permeable Pavers.
- E. **Permeable Pavers [02515]:** Provide permeable Pavers in accordance with Section 02515 including, but not limited to:
1. Parking areas
 2. Plaza area
 3. Delegated Design Requirements: Provide professional engineering services as required by this specification Section including engineering analysis, calculations, and certified shop drawings for segmental wall design.
- F. **Traffic Control:** Provide traffic control as required to perform work of this Work Scope.
1. Provide traffic and street barrier as required.
- G. **Construction Cleaning:** Perform daily construction cleaning operations for debris generated by this Work Scope.
1. Debris tracked or carried of site into traffic lanes must be cleaned up immediately.
- H. **Restoration of adjacent turf areas damaged by Construction:** This Work Scope is responsible to restore disturbed turf areas with sod (seeding is not acceptable) in accordance with requirements of Sections 02910 – 02934 Landscaping.

1.03 SPECIAL COORDINATION OR INSTALLATION REQUIREMENTS

- A. **Phase I and II Environmental Site Assessment Reports:** Reports are available at Kraus-Anderson Construction Company for review upon request.
- B. **Soil Borings:** Reports are available at Kraus-Anderson Construction Company for review upon request.
- C. **Field Engineering:** Kraus-Anderson will provide benchmarks and control line in accordance with requirements specified in Section 01 1210 - General Requirements for All Work Scopes.
1. This Work Scope is responsible for all remaining layout required for this Work Scope.
 2. Layout and engineering for shoring and temporary supports shall be included.
 3. Layout and saw cutting, wall removals, shoring, installation of necessary support steel headers shall be included.
- D. **Acceptance of Substrates and Existing Conditions:** Starting work constitutes acceptances of existing conditions, preparatory work, and substrates that may affect the performance of this Work Scope.
1. This Work Scope is responsible to coordinate and provide services of firm specialized in locating and documenting underground services and utilities similar to Gopher One.

Work Scope 32-D – Permeable Paver Package

1.04 MATERIAL HANDLING AND STORAGE

- A. **Delivery and Receiving of Materials:** Refer to Section 01 1210 General Requirements for Work Scopes for additional requirements.

1.05 UNIT PRICES, EQUIPMENT RENTAL, AND LABOR RATES

- A. NA

1.06 ALTERNATES

- A. NA

-- End --

Work Scope 32-E – Irrigation Package

1.01 IRRIGATION PACKAGE

- A. **Scope of Work:** This Work Scope consists of the Work directly and indirectly required by the specification sections listed below, plus all project drawings, addenda, and other documents identified as part of the Agreement, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.
- Specific Specifications Sections that are the responsibility of the Work Scope:

00 0000	Division 0 – Procurement Requirements & Conditions of the Contract	As it applies
01 0000	Division 1 - General Requirements	As it applies
02210	Grading	As it Applies
	Erosion and Sedimentation Controls	As it Applies
02810	Irrigation System	Complete

1.02 PROJECT SPECIFIC SCOPE CLARIFICATIONS

- A. **General Requirements for All Work Scope Categories:** Refer to Section 01 1210 for additional requirements affecting this Work Scope.
- B. **Earthwork:** Provide earthwork as indicated in accordance with Work Scope 31.A including, but not limited to:
- Final site grading and topsoil not preformed under Earthwork Package.
- C. **Irrigation System – Performance Based:** Provide as indicated in accordance with Section 02810 including, but not limited to:
- Complete performance design a fully automatic 2-wire Irrigation System
 - First Year Winterization and Start-up
 - Low Voltage Wiring directly related to irrigation system.
 - System Scope: The Irrigation System shall include but not be limited to the following: supply and installation of valves, sprinkler heads, backflow preventers, automatic circuit valves, quick coupling valves, porous pipe, valve boxes, controller enclosures, pipe, fittings, automatic control system, wiring of controllers and at control stations, connection to power system connection to water system and water hammer arrestors
 - System Scope: The Irrigation System shall include two (2)
 - Irrigation Sleeves complete shall be furnished & installed to be installed to allow all other site work to be completed prior to the installation of the complete irrigation system.
 - Shop drawings locating all piping and equipment shall be submitted.

1.03 SPECIAL COORDINATION OR INSTALLATION REQUIREMENTS

- A. **Field Engineering:** Kraus-Anderson will provide benchmarks and control line in accordance with requirements specified in Section 01 1210 - General Requirements for All Work Scopes.
- This Work Scope is responsible for all remaining layout required for this Work Scope.
- B. **Acceptance of Substrates and Existing Conditions:** Starting work constitutes acceptances of existing conditions, preparatory work, and substrates that may affect the performance of this Work Scope.
- This Work Scope is responsible to coordinate and provide services of firm specialized in locating and documenting underground services and utilities similar to Gopher One.
- C. **Traffic Control:** Provide traffic control for all work under this scope.
- Provide traffic and street barrier as required.
- D. **Construction Cleaning:** Perform daily construction cleaning operations for debris generated by this Work Scope.
- Refer to Section 01 5010 for additional requirements.
 - Debris tracked or carried off site must be cleaned up immediately.

1.04 MATERIAL HANDLING AND STORAGE

- A. **Delivery and Receiving of Materials:** Refer to Section 01 1210 General Requirements for Work Scopes for additional requirements.

1.05 UNIT PRICES, EQUIPMENT RENTAL, AND LABOR RATES

- A. NA

1.06 ALTERNATES

- A. NA

-- End --

Work Scope 32-F – Landscape Package

1.01 IRRIGATION AND LANDSCAPE PACKAGE

- A. **Scope of Work:** This Work Scope consists of the Work directly and indirectly required by the specification sections listed below, plus all project drawings, addenda, and other documents identified as part of the Agreement, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.
1. Specific Specifications Sections that are the responsibility of the Work Scope:

00 0000	Division 0 – Procurement Requirements & Conditions of the Contract	As it applies
01 0000	Division 1 - General Requirements	As it applies
02210	Finish Grading	As it Applies
02315	Excavation and Backfill	As it Applies
	Erosion and Sedimentation Controls	As it Applies
02920	Soil Preparation	As it Applies
02930	Planting Materials	Complete
02932	Seeding	Complete
02934	Sodding	Complete

1.02 PROJECT SPECIFIC SCOPE CLARIFICATIONS

- A. **General Requirements for All Work Scope Categories:** Refer to Section 01 1210 for additional requirements affecting this Work Scope.
- B. **Earthwork:** Provide earthwork as indicated in accordance with Division 02 including, but not limited to:
1. Final site grading and topsoil not preformed under Earthwork Package.
- C. **Planting:** Provide as indicated in accordance with Section 02930 including, but not limited to:
1. Landscaping Work shall include but not be limited to the following: supply and installation of the trees, shrubs, ground covers, mulch, lawns, soil amendments, fine grading, staking and guying, initial maintenance of landscape materials, miscellaneous landscape work, seeding, sodding, watering, pruning, anti-desiccant, and required warranty work.
 2. Subcontractor shall warranty trees and shrubs for a period of one year after the date of the project completion. Subcontractor shall make monthly visits to the project to make certain that the materials are properly watered, cultivated, pruned and plantings are standing plumb. Final acceptance of trees and shrubs shall occur after completion of the warranty period. Replacement trees or shrubs shall be warranted for one year after installation.
 3. Date of Substantial Completion for "landscape work" shall be defined as the date when all landscape work of this contract is completed and all corrective work made as determined and accepted by the Owner.
 4. Maintain the trees by pruning, spraying, tightening guy stakes, cultivating, and weeding as required for healthy growth during the maintenance period.
- D. **Turf Grasses:** Provide as indicated in accordance with Section 02934 including, but not limited to:
1. Provide labor, material, and equipment necessary to complete the Turf Grasses per plans and specifications.
 2. Maintain the lawns for a period of **60 days after the project completion**, unless otherwise specified. The sod shall be mowed a minimum of one time per week, or more frequently as conditions warrant, maintain a maximum turf height of 3 inches.
 3. Clippings shall be removed from the planting beds, gutters, and streets during the maintenance period.
 4. Provide (furnish and install) topsoil as specified.

1.03 SPECIAL COORDINATION OR INSTALLATION REQUIREMENTS

- A. **Field Engineering:** Kraus-Anderson will provide benchmarks and control line in accordance with requirements specified in Section 01 1210 - General Requirements for All Work Scopes.
1. This Work Scope is responsible for all remaining layout required for this Work Scope.
- B. **Acceptance of Substrates and Existing Conditions:** Starting work constitutes acceptances of existing conditions, preparatory work, and substrates that may affect the performance of this Work Scope.
1. This Work Scope is responsible to coordinate and provide services of firm specialized in locating and documenting underground services and utilities similar to Gopher One.
- C. **Traffic Control:** Provide traffic control as required to complete work in this scope.
1. Provide traffic and street barrier as required.

Work Scope 32-F – Landscape Package

- D. **Construction Cleaning:** Perform daily construction cleaning operations for debris generated by this Work Scope.
 - 1. Refer to Section 01 5010 for additional requirements.
 - 2. Debris tracked or carried off site must be cleaned up immediately.

1.04 MATERIAL HANDLING AND STORAGE

- A. **Delivery and Receiving of Materials:** Refer to Section 01 1210 General Requirements for Work Scopes for additional requirements.

1.05 UNIT PRICES, EQUIPMENT RENTAL, AND LABOR RATES

- A. NA

1.06 ALTERNATES

- A. NA

-- End --

1.01 SITE UTILITY PACKAGE

- A. **Scope of Work:** This Work Scope consists of the Work directly and indirectly required by the specification sections listed below, plus all project drawings, addenda, and other documents identified as part of the Agreement, regardless of design discipline, drawing sheet identification, or jurisdictional requirements.
1. Specific Specifications Sections that are the responsibility of the Work Scope:
- | | | |
|---------|--|---------------|
| 00 0000 | Division 0 – Procurement Requirements & Conditions of the Contract | As it applies |
| 01 0000 | Division 1 - General Requirements | As it applies |
| 02110 | Site Clearing | As it applies |
| 02100 | Site Preparation | As it applies |
| 02315 | Excavation and Backfill | As it applies |
| | Erosion and Sedimentation Controls | As it applies |
| 02315 | Excavation & Backfill | As it applies |
| 02620 | Subsurface Drainage | Complete |

1.02 PROJECT SPECIFIC SCOPE CLARIFICATIONS

- A. **General Requirements for All Work Scope Categories:** Refer to Section 01 2410 for additional requirements affecting this Work Scope.
- B. **Site Clearing:** Provide general site clearing and preparation work in accordance with Section 02110 and as indicated on the Drawings and including, but not limited to:
1. As required for Site Utility work.
- C. **Earthwork:** Provide earthwork as indicated in accordance with Work Scope 31.A including, but not limited to:
1. As required for Site Utility work.
- D. **Dewatering Requirements:** Provide all necessary labor and equipment to perform the work of this Work Scope including daily pumping to keep excavated areas dry.
1. Coordinate extent and duration of dewatering activities with Kraus-Anderson Construction Company.
- E. **Excavation Support Systems:** Provide (engineer, construct, maintain, and monitor) excavation support systems as required, and as indicated, in accordance with Section 02315 including, but not limited to:
1. Removal of extraneous pile material and excess earth as a result of the piling operation from the site and disposed of in a legal disposal site is included in your proposal.
 2. There is NO area for spoils storage on site; spoils are to be removed on a daily basis.
- F. **Site Utilities [33 0000]:** Provide site utilities as indicated and in accordance with Section 33 0000 including, but not limited to:
1. Storm drainage utilities
 2. Storm drainage structures
- G. **Storm Drainage Structures provided by the Owner (CRP):** The city will provide 250 lineal feet of 30" diameter concrete reinforced pipe (delivered to the site) for installation under this scope of work.
- H. **Construction Grading:** Provide and maintain suitable OSHA grades around site and localized excavated areas to accommodate construction activities and equipment access.
1. Coordinate requirements with Kraus-Anderson Construction Company.
- I. **Storm Water Pollution Prevention Plan (SWPPP):** Provide labor and materials to install, maintain, monitor, and remove upon completion all elements and process required to administer the storm water compliance requirements for this Project as outlined within the documents and required by the State.
1. Construction entrances and exit areas
 2. Perimeter control around construction site
 3. Erosion control procedures
 4. Sediment control procedures
 5. Dewatering and drain basin procedures
- J. **Restoration of adjacent turf areas damaged by Construction:** This Work Scope is responsible to restore disturbed turf areas with sod (seeding is not acceptable) in accordance with requirements of Section 02934 - Landscaping.

Work Scope 33-A – Site Utility Package

1.03 SPECIAL COORDINATION OR INSTALLATION REQUIREMENTS

- A. **Phase I and II Environmental Site Assessment Reports:** Reports are available at Kraus-Anderson Construction Company for review upon request.
- B. **Soil Borings:** Reports are available at Kraus-Anderson Construction Company for review upon request.
- C. **Field Engineering:** Kraus-Anderson will provide benchmarks and control line in accordance with requirements specified in Section 01 1210 - General Requirements for All Work Scopes.
 - 1. This Work Scope is responsible for all remaining layout required for this Work Scope.
- D. **Acceptance of Substrates and Existing Conditions:** Starting work constitutes acceptances of existing conditions, preparatory work, and substrates that may affect the performance of this Work Scope.
 - 1. This Work Scope is responsible to coordinate and provide services of firm specialized in locating and documenting underground services and utilities similar to Gopher One.
- E. **Coordination with Others:** Include coordination with other trades, including but not limited to the following:
 - 1. Earthwork.
 - 2. Landscape Package.
- F. **Traffic Control:** Provide traffic control spotters/flag personal and have them present at all times during your work activities.
 - 1. Provide traffic and street barrier as required.
- G. **Construction Cleaning:** Perform daily construction cleaning operations for debris generated by this Work Scope.
 - 1. Refer to Section 01 5010 for additional requirements.
 - 2. Debris tracked or carried off site into traffic lanes must be cleaned up immediately.

1.04 MATERIAL HANDLING AND STORAGE

- A. **Delivery and Receiving of Materials:** Refer to Section 01 1210 General Requirements for Work Scopes for additional requirements.

1.05 UNIT PRICES, EQUIPMENT RENTAL, AND LABOR RATES

- A. NA

1.06 ALTERNATES

- A. NA

-- End --

PART 1 - GENERAL

1.01 SUMMARY

- A. Bidding Materials subject to Allowances. Include in the Contract Sum stated on the Bid Form material costs established using allowances stated in this Section.
- B. Allowances Include costs to Contractor or subcontractor for acquiring the product, less applicable trade discounts, including delivery to the Site and applicable taxes, license fees and charges.
- C. Allowances Do Not Include
 - 1. Handling at Site.
 - 2. Unloading, uncrating, and storage.
 - 3. Protection from elements and from damage.
 - 4. Labor for installation and finishing.
- D. General Requirements
 - 1. In addition to amount of each allowance, include in Contract Sum and not in allowance, Contractor's costs for the following.
 - a) Handling at Site, including unloading, uncrating, and storage.
 - b) Protection from the elements and from damage.
 - c) Labor for installation and finishing, except where labor is specified to be part of allowance.
 - d) Other expenses required to complete the installation.
 - e) Contractor's and subcontractor's overhead and profit.
 - 2. Designate in Progress Schedule delivery dates for products specified under each allowance.
 - 3. Use the references in this Section to Contract Articles, Section Numbers and Drawings only as a guide.
 - 4. Obtain items, subject to these allowances, from persons or entities acceptable to the Owner. Contractor will not be required to employ any material supplier against whom it makes a reasonable objection.
 - 5. The stated allowances are an estimate by the Owner of the cost to the Contractor for the quality of materials required for the subject work. The Contractor shall cooperate with the Owner's Representative in executing any Change Order required to adjust the Contract Amount based on the difference between the actual cost of materials and the stated Allowance.

1.02 ADJUSTMENT OF CONTRACT AMOUNT

- A. Should the net cost to Contractor be either more or less than the stated amount of the allowance, the Contractor agrees to cooperate with the Owner and Architect in the execution of a Change Order to adjust the Contract Sum.
 - 1. The amount stipulated in the Change Order will recognize changes in handling costs at Site, labor, installation costs, overhead, profit, and other expenses caused by selection under the allowance.
 - 2. Unit Cost Allowance, shall apply to the quantity of the subject material actually used in the Project with a nominal allowance for waste, as determined by receipted invoices, or by the Owner's field verification of Work in place.
- B. Submit claims for anticipated additional costs at Site, or other expenses caused by selection under allowance, prior to execution.
- C. Submit documentation for actual additional costs at Site, or other expenses caused by selection under allowance, within 21 days after completion of execution of the Work.
- D. Failure to submit claims within designated time will constitute waiver of claims for additional costs.
- E. At contract closeout, reflect approved changes in contract amounts in final statement of accounting.

1.03 DESCRIPTIONS OF ALLOWANCES

- A. Allowance No. 1 – NOT USED

1.04 PRODUCT SELECTION OF MATERIALS SUBJECT TO ALLOWANCES

- A. Architect/Engineer and Construction Manager's Duties
 - 1. Consult with Contractor in consideration of products and suppliers or installers.
 - 2. Make selection in consultation with Owner. Obtain Owner's written decision, designating the following.
 - a) Product, model, and finish.
 - b) Accessories and attachments.
 - c) Supplier and installer as applicable.
 - d) Cost to Contractor, delivered to Site or installed, as applicable.
 - e) Manufacturer's warranties.
 - 3. Transmit Owner's decision to Contractor.
 - 4. Prepare Change Orders.
- B. Prime Contractor's Duties
 - 1. Assist Architect/Engineer, Construction Manager, and Owner in determining qualified suppliers or installers.
 - 2. Obtain proposals from suppliers and installers when requested by Architect/Engineer.
 - 3. Make appropriate recommendations for consideration of the Architect/Engineer.
 - 4. Notify Architect/Engineer promptly of the following.
 - a) Any reasonable objections Contractor may have against any supplier, or party under consideration for installation.
 - b) Any effect on the Construction Schedule anticipated by selections under consideration.
 - 5. On notification of selection, execute purchase agreement with designated supplier.
 - 6. Arrange for and process Shop Drawings, Product Data, Testing and Samples, as required.
 - 7. Make arrangements for delivery.
 - 8. Upon delivery, promptly inspect products for damage or defects.
 - 9. Submit claims for transportation damage.
 - 10. Install and finish products in compliance with requirements of referenced specification Sections.

PART 2 - PRODUCTS

- NOT USED

PART 3 - EXECUTION

- NOT USED

-- End --

PART 1 - GENERAL

1.01 SUMMARY

- A. Insert in the appropriate space on the Bid Form, a proposed amount to be added to or deducted from the Base Bid for each unit of change from the estimated quantity in the quantity of Work or materials actually put in place for this Project. For each Unit Price on the Bid Form indicate the following.
 - 1. The estimated quantity (number of units) of this work item included in the Base Bid.
 - 2. The dollar amount to be added to or deducted from the Base Bid, for each unit of work of variance from the estimated quantity of work.
- B. Kraus-Anderson Construction Company reserves the right to accept or reject Unit Prices, and to use Unit Prices in its determination of the most responsive Bidder. Unit Prices agreed to by Kraus-Anderson Construction Company and Bidder shall be specifically listed in the Contract.
 - 1. Unit Prices stipulated in the Contract shall be firm Contract prices not subject to change due to change in material prices, wage rates, or other escalatory factors.
 - 2. Unit Prices stipulated in the Contract shall be "all inclusive", including labor and supervision, materials and supplies, tools and equipment, taxes, overhead, profit, payment and performance bonds, etc.
 - 3. Unit Prices stipulated in the Contract shall be for the net change in Contract Amount required to implement one unit of change in the quantity of the work described.
- C. Unit Price descriptions in this Section are general only and are not intended to be a complete tabulation of Work that may be required for a unit of work in place.
 - 1. Each Bidder shall carefully examine Contract Documents and determine the extent of Work required for each Unit Price.
 - 2. Detailed requirements may be specified elsewhere in this Manual or shown in the Drawings.

1.02 UNIT PRICES

- A. Unit Prices shall constitute full compensation or credit for the complete provision, fabrication, and installation for each item listed based on Work in place, including insurance, overhead, profit, superintendence and the necessary appurtenances and connections.
- B. **Unit Price 1: NOT USED**

1.03 ADJUSTMENT OF CONTRACT AMOUNT

- A. Should the provided quantity of materials, subject to a Unit Price, be either more or less than the agreed to "Estimated Quantity in the Contract", Contractor and subcontractor agrees to cooperate with the Kraus-Anderson Construction Company in the execution of a Change Order to adjust the Contract Sum accordingly.
 - 1. The amount stipulated in the Change Order will recognize changes in handling costs at Site, labor, installation costs, overhead, profit, and other expenses caused by change in the quantity of work put in place.
 - 2. Unit Cost, shall apply to the quantity of the subject material actually put in place in the Project with a nominal allowance for waste, as determined by receipted invoices, or by Kraus-Anderson's field verification of Work in place.

PART 2 - PRODUCTS

- NOT USED

PART 3 - EXECUTION

- NOT USED

-- End --

PART 1 - GENERAL

1.01 SUMMARY

- A. Submit bid for each Alternate listed below. State dollar amount of each Alternate to be added to or deducted from Base Bid sum, or indicate no change in Base Bid sum, if Owner elects to accept Alternate.
- B. Owner reserves right to reject all Alternates or to accept any Alternates in any order or combination and to determine the lowest responsible bidder on the basis of the sum of Base Bid and accepted Alternates.
 - 1. Alternate descriptions are general only and are not intended to be a complete tabulation of Work which may be affected by the Alternate.
 - 2. Bidder shall carefully examine Contract Documents and determine the exact extent of Work affected by the Alternate.
 - 3. Detailed requirements may be specified in the various Sections of the Specifications.
- C. Alternate prices shall not increase by change in material prices, wage rates, or other escalatory factors. Alternate prices are "all inclusive", including labor, material, supervision, tools, equipment, taxes, overhead, profit, and other things necessary.

1.02 DESCRIPTION OF ALTERNATES

Alternate No. 1: NOT USED

PART 2 - PRODUCTS

- NOT USED

PART 3 - EXECUTION

- NOT USED

-- End --

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Procedures for Contractor's Progress Payments

1.02 SCHEDULE OF VALUES

- A. Schedule of Values shall be prepared and submitted, prior to the first request for payment.
 - 1. Required format is per AIA Documents G732-2009 and G703. Upon request from the Construction Manager, a sample will be made available.
- B. Organization of Schedule of Values shall generally follow the trade sections of the specification and shall be listed by section number, title and scheduled value in column indicated.
- C. Reference Article 9 of General Conditions and Supplementary Conditions.

1.03 PREPARATION PROCEDURES FOR MONTHLY PROGRESS PAYMENTS

- A. Submittal of Subcontractors and Products List: Applications for payment will not be processed until Contractor has satisfactorily submitted the Subcontractors and Products List required by Conditions of the Contract in accordance with Section 01 3300.
- B. Contractor shall submit Application for Payment on a monthly basis.
 - 1. Each Application for Payment must be submitted directly to the Construction Manager's office at 8625 Rendova Street N.E., P.O. Box 158, Circle Pines, Minnesota 55014 for processing.
 - a. Do not submit to jobsites or branch offices.
 - 2. Monthly request for payment shall be submitted by the _____ of the month for pay period ending the last day of the same month. Owner shall make payment to Contractor not later than the last day of the following month.
- C. Each Application for Payment shall include the following:
 - 1. Four (4) originals, with original notarized signatures, of the Schedule of Values as previously submitted. Schedule of Values shall not be changed except by recording of Change Orders when approved.
 - 2. Fill in required information, including Change Orders executed prior to date of Application for Payment.
 - 3. Do not include in an Application for Payment, work of a Change Order until the Change Order has been completely executed, with all copies signed by Owner, Architect, Construction Manager and Contractor is in possession of a properly executed and signed copy of the Change Order. Applications for payment submitted containing work of Change Orders which have not been completely executed will be rejected and will require resubmittal.
 - 4. Fill in summary of dollar values to agree with respective totals indicated on Continuation sheet.
 - 5. Execute certification with signature by Contractor's responsible officer.
- D. Preparation of Continuation Sheets:
 - 1. Fill in total list of scheduled component items of Work, with item number and scheduled dollar value for each item.
 - 2. Fill in dollar value in each column for each scheduled line item when Work has been performed or products stored.
 - 3. List, at end of Continuation Sheet, each Change Order executed prior to date of submission. List Change Orders by number and description, as for an original component item of Work.

1.04 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS

- A. **Submittal Data:** When Construction Manager or Architect requires substantiating data, submit supporting information, with a cover letter identifying the following:
 - 1. Project name and number.
 - 2. Application for Payment number and date.
 - 3. Detailed list of enclosures.
 - 4. For stored products indicate the following:
 - a. Item number and identification as shown on Application for Payment.
 - b. Description of specified material.
- B. **Number of Copies:** Submit one copy of data and cover letter for each copy of application.

Section 01 2900 – Payment Procedures

1.05 RETAINAGE

- A. The amount that will be retained will be as follows:
1. percent (%) of the value of satisfactorily complete work and site stored materials until the Work of the Contract is fully complete.
 2. Remaining retained percentage may be requested after Final Completion of the Work of the Contract when the Work is fully complete and acceptable to Architect and Owner. Final payment will be made within 30 days thereafter.
 3. In event of a very minor amount of work incomplete or not corrected due to weather, unsuitable conditions for testing or similar conditions preventing the Contractor from proceeding, the retained amount may be reduced to three times the value of the incomplete work upon recommendation of the Construction Manager / Architect and approval of the Owner.

1.06 SURETY DEPOSITS FOR OUT-OF-STATE CONTRACTORS

- A. **Surety Deposit Requirements:** Minnesota Statute 290.9705 requires that eight (8) percent of each payment made to out-of-state contractors (or subcontractors) for work done in Minnesota, be withheld (by Owner or Contractor, as applicable), as a surety deposit on any contract (or subcontract) that exceeds or may reasonably be expected to exceed \$100,000.
- B. **Exempt Contractors:** Surety deposit requirement may be waived if out-of-state contractor (or subcontractor) is exempt.
- C. **Form:** Exemption from Surety Deposits for Non-Minnesota Contractors, Form SD-E, dated 2/99, issued by Minnesota Department of Revenue. Copies may be obtained from: MN Dept. of Revenue, Mail Station 6525, St. Paul, MN 55146-6525; phone 1-800-657-3605. This form is to be used by each Contractor that wants to file for an exemption from the surety deposit requirements.
- D. **Related Form:** Refund of Surety Deposits for Non-Minnesota Contractors, Form SD-4, dated 6/92, issued by Minnesota Department of Revenue. Copies may be obtained from: MN Dept. of Revenue, Mail Station 6525, St. Paul, MN 55146-6525; phone 1-800-657-3605.

1.07 APPLICATION FOR FINAL PAYMENT

- A. Final Application for Payment shall include the following:
1. All items listed above for monthly payment applications.
 2. Form IC-134, Minnesota Department of Revenue Withholding Affidavit for Contractors.
 - a. Forms for this purpose shall be completed by all Prime Contractors and Subcontractors before final payment will be made. Forms are available from the State Commissioner of Taxation.
 3. AIA Document G707, Consent of Surety Company to Final Payment. Upon request from the Architect, a sample will be made available.
 4. AIA Document G706, Contractor's Affidavit of Payment of Debts and Claims. Upon request from the Architect, a sample will be made available.
 5. AIA Document G706A, Contractor's Affidavit of Release of Liens. Upon request from the Architect, a sample will be made available.
 6. All applicable equipment and material guarantees, operation manuals, as-built drawings, extra materials and completed punch lists.
- B. **Note:** No final retainage payment will be released without the receipt and approval of the above referenced documents.

PART 2 - PRODUCTS

- NOT USED

PART 3 - EXECUTION

- NOT USED

-- End --

Section 01 3100 – Project Management & Coordination Procedures

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Request for Information
 - 2. Overall coordination responsibility.
 - 3. Coordination for construction mobilization
 - 4. Preconstruction meetings
 - 5. Progress and Pre-installation meetings.
 - 6. Procedures for Coordination Drawings
 - 7. Coordination Procedures for Contract Closeout.

1.02 REQUEST FOR INFORMATION

- A. **Interpretations or Corrections of Contract Documents:** Carefully study and compare Documents with each other and with other work being performed concurrently or presently under construction to the extent that it relates to the Work for which this Contract is awarded, shall examine the site and local conditions and shall at once report to Kraus-Anderson inconsistencies or ambiguities discovered or requirements not understood.
 - 1. Using Request for Information form, acceptable to Kraus-Anderson, Contractor shall submit to Kraus-Anderson Request for Information prior to performing work in question.
 - 2. Kraus-Anderson will forward Request for Information on form acceptable to Owner, Architect, and Kraus-Anderson prior to performing work in question.
 - 3. Responses provided on RFI forms by Owner or Architect are intended to be clarifications only and are not an authorization for a Contract Time extension or an increase in the Contract Amount.
 - 4. If Contractor believes the response is a change in either Contract Time or Contract Amount, Contractor shall comply with requirements of the Owner/Contractor Agreement.
 - 5. Request for Information (RFI's) agreed to by Owner and Kraus-Anderson that change either the Contract Time or Contract Amount will be included into an appropriate Change Order prior to performing work in question.

1.03 OVERALL COORDINATION RESPONSIBILITY

- A. **Scheduling:** Coordinate construction scheduling, time for submittal preparation and review, and requirements of specification Sections to assure efficient and orderly sequence of installation of interdependent construction elements.
- B. **Coordination Responsibility:** Each Contractor is totally responsible for overall Project coordination and scheduling as defined in the Work Scope Categories and as directed by Kraus-Anderson.
 - 1. Each Contractor is responsible for scheduling their activities and coordinating with other contractors.
- C. **Submittals.** Schedule, coordinate and administrate required submittals as specified in Section 01 3300.
- D. **Fit of the Work:** Coordinate space requirements and installation for items that are indicated diagrammatically on Documents.
 - 1. Follow routing indicated for pipes, ducts and wiring, place runs parallel with line of building. In finished areas, unless expressly indicated otherwise, conceal pipes, ducts and wiring within construction. Coordinate locations of plumbing and electrical fixtures and electrical outlets with finish elements.
 - 2. Use space efficiently to maximize accessibility for other installations, maintenance and repairs.
 - 3. Installing entities shall modify their installations, if needed, to eliminate conflicts and achieve effective coordination of systems and Work.
 - 4. Contractor's failure to exercise coordination responsibilities constitutes a waiver of claims for an increase in Contract Sum if design modifications are required to resolve conflicts that might have been avoided by complying with requirements of this Section.

1.04 COORDINATION FOR CONSTRUCTION MOBILIZATION

- A. Cooperate with Kraus-Anderson in allocation of mobilization areas of Site, field offices, access, traffic, and other facilities.
- B. Comply with Kraus-Anderson's procedures for intra-project communication.
- C. Comply with instructions of Kraus-Anderson for use of temporary utilities and construction facilities.

Section 01 3100 – Project Management & Coordination Procedures

- D. Coordinate field engineering and layout work under instructions of Kraus-Anderson.

1.05 PRECONSTRUCTION MEETINGS

- A. **General:** Pre-Construction Conference shall be scheduled as directed by Kraus-Anderson. Conduct the meeting to review responsibilities and personnel assignments.
- B. **Attendees:** Construction Manager, the Owner, Architect and their consultants, the Contractor and its superintendent, major subcontractors, manufacturers, suppliers and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the Work.
- C. **Agenda:** Discuss items of significance that could affect progress including such topics as:
 1. Construction schedule.
 2. Critical work sequencing.
 3. Designation of responsible personnel.
 4. Procedures for processing field decisions and change orders.
 5. Procedures for processing Applications for Payment.
 6. Distribution of Contract Documents.
 7. Submittal of shop drawings, product data and samples.
 8. Preparation of Record Documents.
 9. Use of the premises.
 10. Office, work and storage areas.
 11. Equipment deliveries and priorities.
 12. Safety procedures.
 13. First aid.
 14. Security.
 15. Housekeeping.
 16. Working hours.

1.06 PROGRESS MEETINGS

- A. **Owner/Architect/Construction Manager Meetings:** These meetings include the Owner, Architect, Consultants (as requested) and Kraus-Anderson. Selected Contractor project managers may be required to attend at the direction of Kraus-Anderson.
 1. Project schedule (generally, with respect to milestone dates)
 2. Any anticipated changes from the Owner or Architect
 3. Status of any critical decisions by the Owner
 4. On-site conditions that may affect schedule, quality, or budget
 5. RFIs that need to be returned, as well as new RFIs to be sent
 6. Outstanding submittals, as well as those forthcoming which will be submitted prior to the next meeting
 7. 10-Week Coordination Planning Schedule
 8. Other issues as determined by the Team.
- B. **Contractor Meetings:** Weekly coordination meeting including Contractor's project manager, project foremen, and Kraus-Anderson's Superintendent and are led by Kraus-Anderson's Project Manager. Meeting minutes are prepared by KA. Items discussed at these meetings include:
 1. Project Safety Issues and Concerns
 2. 10-Week Coordination Planning Schedule
 3. Project schedule (3-Week Look-ahead Schedule)
 4. Discussion of any changes that may be coming from the Architect
 5. On-site conditions that may affect schedule, quality, or budget
 6. Answers to previous RFIs and questions that need to be sent as RFIs
 7. Timing of subcontract submittals for review and submittals that need to be returned from the Architect
 8. Other issues as determined by the Team.
- C. **Progress Meetings:** Kraus-Anderson will schedule and conduct regular progress meetings at the Project site.
 1. Time of meeting to be scheduled by Construction Manager.
 2. Attendees: In addition to representatives of the Owner, Construction Manager and Architect, each prime contractor, subcontractor, supplier or other entity concerned with current progress or involved in planning, coordination or performance of future activities shall be represented at these meetings by persons familiar with the Project and authorized to conclude matters relating to progress.

Section 01 3100 – Project Management & Coordination Procedures

3. Agenda for Progress Meetings:
 - a. Review and correct or approve minutes of the previous progress meeting.
 - b. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the current status of the Project.
 - c. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - d. Review the present and future needs of each entity present, including such items as:
 - 1) Interface requirements.
 - 2) Time.
 - 3) Sequences.
 - 4) Deliveries.
 - 5) Off-site fabrication problems.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and services.
 - 9) Hours of work.
 - 10) Hazards and risks.
 - 11) Housekeeping.
 - 12) Quality and work standards.
 - 13) Change orders.
 - 14) Documentation of information for payment requests.
 - e. Reporting: No later than three (3) days after each progress meeting date, the Construction Manager shall distribute copies of minutes of the meeting to each party present and to other parties as applicable.
 - f. Schedule Updating: Construction schedule shall be revised after each progress meeting where revisions to the Schedule have been made or recognized, and the Revised Schedule shall be issued to all applicable parties.
- D. **Superintendent Meetings:** Weekly coordination meetings include the field foremen or superintendents from all on-site Contractors and are led by Kraus-Anderson's Superintendent. Items discussed at these meetings include:
 1. Project Safety Issues and Concerns
 2. Project schedule (3-Week Look-ahead Schedule)
 3. Discussion of any changes that may be coming from the Architect
 4. On-site conditions that may affect schedule or quality.
 5. Answers to previous RFIs and questions that need to be sent as RFIs
 6. Other issues as determined by the Team.
- E. **Pre-installation Meetings:** Prior to (not less than 10 days before) starting a new work activity, or new work crew, Contractor shall notify Kraus-Anderson's Project Superintendent of anticipated activities. Kraus-Anderson's Project Superintendent will convene a pre-installation meeting to review safety procedures, work process, and requirements of the Drawings, Specifications, and Work Scope Descriptions.
- F. **First-Install Review Meetings:** Immediately after completion of a representative portion of Work, as determined by Kraus-Anderson's Project Superintendent, installing contractor and Kraus-Anderson personal will review the completed portion of Work to ensure compliance with the contract documents.
 1. Interim review and comments by Kraus-Anderson's personal or the Architect or Owner does not relieve the subcontractor from compliance with the Contract Documents.

1.07 COORDINATION DRAWINGS

- A. **Coordination Drawing:** Contractor shall lead the coordination process with the other effected subcontractors fully participating:
 1. Responsibility for printing and timely submission of the coordination drawings.
- B. **Schedule for MEP Coordination and Clash-Detection Work Sessions:** To comply with requirements of the Project Schedule.
 1. Detailed Coordination Schedule will be developed to support the Master Project Schedule.
 - a. Building will be sub-divided into areas as determined by the Team.

Section 01 3100 – Project Management & Coordination Procedures

- b. Coordination meetings will be not less than weekly during the Clash-detection phase. Additional meeting may be required to resolve conflicts.
2. Clash Detection - Prepare, in collaboration with all effected subcontractor a proposed submission schedule will be mutually established to support the overall Project Schedule.
- C. **Document Format:** Format documents to provide space for information pertaining to disciplines such as fire protection, sheet metal, plumbing, piping, electrical and building automation systems.
 1. Hardcopy printouts shall consist of 3/8" - 1'-0" scale drawings; in the same sheet size and organization as used by the Design Team.
 2. Number of hardcopy sets: To be determined by the Team.
 3. Title Block Information: Include name of the project, owner, consultants, and name of Contractors involved in Coordination Drawings.

1.08 COORDINATION OF CONTRACT CLOSEOUT

- A. Refer to Section 01 7710 Kraus-Anderson Procedures for Project Completion and Closeout.

PART 2 - PRODUCTS

- NOT USED

PART 3 - EXECUTION

- NOT USED

-- End --

Section 01 3210 – Project Schedule Requirements

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Project schedule requirements

1.02 COORDINATION

- A. Contractor shall coordinate scheduling with the Construction Manager. In particular, the Contractor shall provide close coordination of progress schedule, schedule of values, listing of subcontractors, schedule of submittals, progress reports and payment requests.
- B. Close coordination will be required between all construction trades in order that individual areas of construction can be completed by their scheduled time. Consult the proposed construction sequence schedule for start and completion dates of individual work areas.

1.03 PRELIMINARY SCHEDULE

- A. Construction Manager has developed a Preliminary Schedule included at the end of this section, showing work areas of the project which directly impact the orderly use of the facility during construction. The timing of these activities has been approved by the Owner.
- B. The Preliminary Schedule may not list the work completely and may vary from the drawings and specifications.

1.04 CONSTRUCTION SCHEDULE

- A. The Construction Manager shall computerize a Precedence Diagram Method (PDM) Network using data supplied by the Contractor and subcontractors. The Contractor will be responsible for his own methods and procedures and the performance of the work consistent with good practice.
- B. Neither the Construction Manager nor the Owner warrants the information supplied by the Contractors is accurate or correct or that the project can be performed as scheduled based upon data supplied by the Contractors.
- C. Contractor shall be responsible for providing all data to develop and update the schedule. The Contractor shall supervise all work activities to maintain progress in accordance with the schedule.
- D. Contractor and Subcontractor shall provide their own data to the Construction Manager reflecting the actual plan of operation for the Project.
- E. Schedule input data shall include a comprehensive list of all activities of the construction phase of the project, including submittals (shop drawings, samples, product data), procurement of material, and on-site activity (erection, installation, construction). Activities for procurement of materials shall be included to delineate between material purchasing and fabrication/delivery.
- F. Contractor shall assign durations and sequencing to each activity. Submittal activities shall be listed with the anticipated date of submittal. Procurement activities shall be listed with the duration required for fabrication and delivery from date of purchase. Construction Manager shall computerize a PDM network using input data supplied by the Contractor. Construction Manager will meet with the Contractor to revise and expand the Schedule and resolve conflicts. The revised schedule shall conform to the specific plan of operation envisioned by the Contractor.
- G. Construction Manager will guide the Contractor in determining the level of detail to be included in the PDM Networks. The schedule shall be adequate enough to evaluate progress, cost of work in place and serve as a control technique for the Contractor's Field Superintendent.
- H. Contractor and subcontractors shall be obligated to perform in accordance with the Construction Schedule and to participate in updating the schedule. The Contractor shall include provisions in all subcontracts binding Subcontractors to participate in revisions of the schedule as are necessary, and to supply data throughout the project.
- I. Upon request, Contractor shall submit to Construction Manager purchase orders and subcontracts. Such information shall be submitted as soon as available so the Construction Manager will be aware of the progress being made by the Contractor in the placing of orders and the status of material. Contractor shall be solely responsible for expediting the delivery of all material furnished by him and coordinating his subcontractors so construction progress shall be maintained according to Contract Schedule.

Section 01 3210 – Project Schedule Requirements

1.05 COMPLIANCE WITH THE CONSTRUCTION SCHEDULE

- A. If Contractor shall fail to adhere to the Construction Schedule or to the said schedule as revised, he must promptly adopt such other or additional means and methods of construction as will make up for the time lost and will assure completion of the work in accordance with said Construction Schedule at no additional cost to the Owner, except in accordance with the provision of the contract governing such costs. If Owner or Construction Manager notifies Contractor of any change in the contract or any extra work performed, or if any other conditions arise which are likely to cause delays, Contractor shall notify the Construction Manager in writing within five (5) days of the receipt of such notice or occurrence of such condition. This notice shall document the effect, if any, of such change, or extra work, of suspension or other condition upon the Construction Schedule. No time extensions will be granted due to a delay in any activity unless Owner deems the length of the delay exceeds the float time associated with the activity at the time the delay occurs.
- B. Refer to General Conditions Paragraph 8.3.3 for actual damages clause.

1.06 FLOAT TIME

- A. Contractor, in directing the compliance with Construction Schedule shall cooperate with the Owner and the Construction Manager in utilizing float time. Full control over use of total float time in the Schedule rests with the Owner and will be utilized by him in any necessary rescheduling of the Construction Schedule occasioned by design changes, field conditions, strikes, Acts of God, or unavoidable equipment and material delays. If rescheduling of any activity adversely affects the Contractor's operation, he shall advise the Construction Manager in writing no later than five (5) days after the receipt of the revised schedule or Notice of Intent to revise the schedule.

1.07 PRELIMINARY SCHEDULE DATES

- A. Work shall be completed as follows:
 - 1. Start Construction: On or about September 1, 2015, but within 5 days of notice to proceed as directed by the Construction Manager.
 - 2. Substantial Completion of soccer field, earthwork, subdrainage, sand and topsoil placement: November 1, 2015.
 - 3. Substantial Completion: June 15, 2016.
 - 4. Final Completion: July 1, 2016.

PART 2 - PRODUCTS

- NOT USED

PART 3 - EXECUTION

- NOT USED

-- End --

PART 1 – GENERAL

1.01 SUMMARY

- A. Section Includes: Section Includes:
 - 1. Administrative submittals.
 - 2. Product submittals including data, shop drawings, and sample.
 - 3. Quality control submittals.
 - 4. Contract closeout submittals.
 - 5. Procedure for submitting, reviewing, and resubmitting.

1.02 ADMINISTRATIVE (PROJECT START-UP) SUBMITTALS

- A. **Certificate of Insurance:** Refer to Instructions to Bidders.
- B. **Performance and Payment Bonds:** As defined in Instructions to Bidders.
- C. **Contractors and Materials List:** Submit Contractors and Materials List.
 - 1. Include only products included in the original Bidding Documents, Addenda, and other Modifications.
 - 2. Subcontractors: Provide names, addresses, and telephone numbers, indicating which specification section will be performed by each subcontractor.
 - 3. Material Suppliers: Provide names, addresses, and telephone numbers, indicating which specification section will be performed by each material supplier.
 - 4. Materials: Identify materials and equipment by brand and model including items specified using reference standards or descriptive specifications without naming a specific product or manufacturer.
 - 5. DO NOT include proposed substitutions with Materials List. To obtain approval of proposed substitutions comply with requirements of Section 01 6300.
- D. **Construction Progress Schedule:** Refer to Section 01 3210 Construction Progress Documentation Requirements.
 - 1. Format, level of detail, and updates as directed by Kraus-Anderson.
- E. **Submittal Schedule:** Provide a Submittal Schedule for Product Data, Shop Drawings, and Samples to Architect coordinated with Construction Progress Schedule including Architect's review period.
 - 1. Coordinate submittals of related items.
 - 2. Updates: Submit a revised Submittal Schedule when changes occur and identify those changes since previous submittal schedule.
- F. **Schedule of Values:** Submit contractor's Schedule of Values as directed by Kraus-Anderson.
- G. **Application for Payment:** Refer to Section 01 2900 Payment Procedures.

1.03 DESIGN SUBMITTALS

- A. **Product Data:** Standardized information published by manufacturer. At least one of manufacturer's original published literature; other copies may be legible reproductions. When Product Data is requested by Section include at the following information.
 - 1. Manufacturer's specifications and technical data including performance data, color selection charts, construction and fabrication details and installation instructions.
 - 2. Mark-up charts, drawings and diagrams to delete information which is not applicable to this Project and to identify products or models, and optional features and accessories to be furnished for this Work.
 - a. Identify applicable performance characteristics and capacities.
 - b. Show dimensions and clearances required.
 - c. Identify any items / features in the submission that are available only with a surcharge or long-lead time.
 - 3. Clearly mark each copy to identify pertinent products or models being proposed.
 - 4. Modify drawings and diagrams to delete information not applicable to this Project.

Section 01 3300 – Submittal Procedures

- B. **Shop Drawings:** Customized documents prepared by Contractor or on Contractor's behalf for a specific item of work. Submit not less than the following information in a clear and thorough manner. Do not reproduce Contract Documents for use as Shop Drawings, however it is acceptable to use contract Document files as "backgrounds".
 - 1. Cross-reference details in Shop Drawings to applicable Contract Documents using same sheet and detail, schedule or room-numbers used in Contract Documents. Do not submit or reproduce Contract Documents as Shop Drawings.
 - 2. Include manufacturer's specifications and technical data including performance/load criteria, construction and fabrication details.
 - 3. Show dimensions and clearances required and relations to adjoining work.
- C. **Samples:** Samples are physical pieces of specified material that display properties to be evaluated or approved by Architect. Unless otherwise indicated, printed, photographic or other graphic representations of material are not acceptable. Label each sample, giving full information.
 - 1. Material Samples shall display functional characteristics of product. Where specified submit whole assemblies with integral parts, accessories and attachment devices. Coordinate material sample submittals with submittals from other Sections for interfacing work.
 - 2. Color Selection Samples shall show full range of colors, textures and patterns available for Architect's selection. Identify items in submission that are available only with a surcharge or long-lead time, unless specified as "custom color".
 - 3. Record Samples are samples made by Contractor, or on Contractor's behalf, to meet requirements of Contract Documents. Submit Record Samples in sizes large enough or as sets of samples to display full range of variation expected in finished work. Size or number of pieces specified is minimum; provide larger samples or more pieces where required to depict range of finish variation. Record Samples will be used by Architect to evaluate completed work for compliance with Contract Documents.

1.04 QUALITY CONTROL SUBMITTALS

- A. Submit in compliance with Section 01 4400.
- B. Statement of Qualification: Submittal required to indicate experience or other evidence of qualification as defined in the Contract Documents.
- C. Statement of Compliance: Submittal to indicate a product complies with the Contract Documents.
- D. Professional Certification: Submittal required to document professional certification of the portion of Work required by the Contract Documents.
- E. Quality Control: Submittal required to document quality control procedures and activities.
 - 1. Source Quality Control: Tests and certifications as described in SOURCE QUALITY CONTROL article in Part 2 of sections.
 - 2. Material Qualification Test: Submittal required directly from testing lab to indicate a proposed material complies with Contract Document requirements.
 - 3. Field Quality Control: Tests and certifications as described in FIELD QUALITY CONTROL article in PART 3 of the technical section within Contract Documents.
 - 4. Soils Engineer Certification: Submittal required from Soils Engineer or their authorized technician indicating confirmation of required inspection and observed required by the Contract Documents.

1.05 CONTRACT CLOSEOUT SUBMITTALS

- A. Submit in compliance with Section 01 7700 Closeout Procedures.

1.06 PROCEDURES FOR SUBMITTING

- A. **Timeline for Submittals:** Transmit submittals within time frame to prevent delay in construction activities or compromise review process. Comply with the following requirements.
 - 1. Administrative (Project Start-up) Submittals: As directed by the Owner, but not less than **10 days before** first application of payment for construction activities.
 - 2. Product Data, Shop Drawings, and Sample Submittals: Submit prior to starting fabrication and in accordance with Submittal Schedule.
 - 3. Quality Control Submittals: Make submittals promptly to not cause construction delay.
- B. **Transmittal:** Accompany submittals with a completed Submittal Transmittal Form. Sample form is attached as an Appendix at the end of this Section.

Section 01 3300 – Submittal Procedures

1. Failure to comply will result in return of submittal without review.
- C. **Electronic Submittal Procedures – Number of Copies Required:** unless otherwise indicated, not less than the following - (product data, shop drawings, and samples).
 1. Product Data (copies of brochures, catalog cuts, or technical data): 8 ½ by 11 full color, pdf format.
 2. Shop Drawings
 3. Samples: 4 sets to Kraus-Anderson.
 4. Informational Submittals: 8 ½ by 11 full color, pdf format.
- D. **Number of Submittal Copies Required:** (reproducible by plain paper copier) Contractors and material suppliers shall submit the number of copies indicated below.
 1. Product Data: 1 submitted electronically
 2. Shop Drawings: 1 submitted electronically
 3. Samples: 4 minimum. More if contractor requires more than (2) two copies returned.
 4. Quality Control: 1 submitted electronically.
- E. **Architect's and Construction Manager's Review Stamps:** Provide 4 inch wide by 8 inch high blank space at lower right corner of each drawing sheet and on cover of product data submittals for use by Architect and Construction Manager.
- F. **Trade Contractor's Review Process:** Contractor's stamp, Subcontractor's stamp as applicable, initialed or signed, certifying prior review of submittal, verification of products, field measurements and field construction criteria and coordination of information within submittal with requirements of Work and of Contract Documents has been performed prior to making submission.
 1. Field dimensions required for communicating Design Intent.
 2. Relation to adjacent or critical features of Work.
 3. Submittals not signed and dated by Contractor will be returned without review and comment.
 4. Submittal without field measurements or coordination with other trades will be returned without review and comment.
- G. **Project Identification:** Locate the following information on each submittal where practical and on the accompanying transmittal.
 1. Date of submission and dates of previous submissions.
 2. Project title.
 3. Contract identification.
 4. Names of the contractor, supplier, manufacturer.
 5. Identification of products with reference to Specification Section number, and paragraph number.
 6. Reference to Drawing numbers.
- H. **Scope of Submittals:** Submittals for each portion of the Work shall be complete and accurate. Incomplete or partial submittals will be rejected and will require resubmittal.
 1. Submittals may be made of portions of the Work, but each Submittal shall be complete in respect to the information necessary for proper review by Architect and their consultants.
 2. Submittals shall be combined to ensure "design intent" of the system assembly.
 3. Cross out non-related material to submittal.
- I. **Product Data, Shop Drawings, Samples, and Quality Control Submittals:** Coordinate each submittal with requirements of the Work, Construction Progress Schedule, and Contract Documents
 1. Determine and verify:
 - a. Field measurements.
 - b. Catalog numbers and similar data.
 - c. Conformance with Contract Documents.
 - d. Coordination with other work.
 2. Notify Architect and Construction Manager in writing, at time of submittal, of minor deviations in submittals from requirements of the Contract Documents. Do not submit requests for substitutions as part of this submittal process.

Section 01 3300 – Submittal Procedures

1.07 PROCEDURE FOR REVIEWING

- A. Submittals will be reviewed by Architect with the following actions:
1. **"No Exception Taken"** indicates submittal conforms to "design intent" of the Work. Contractor at their discretion may proceed with fabrication, procurement, and installation.
 2. **"Make Corrections Noted, No Resubmission Required"** indicates submittal, after indicated corrections are made, would conform to the "design intent" of the Work. Contractor at their discretion may proceed with fabrication, procurement, and installation.
 3. **"Make Corrections Noted, Submit Corrected Copy"** indicates the noted revisions are such that a corrected copy is required for review to confirm the revisions have been understood and made. Contractor may proceed at their discretion with fabrication and procurement and installation. Contractor shall be responsible for correctly interpreting and implementing revisions.
 4. **"Rejected, Revise and Resubmit"** and **"Rejected, Submit Specified Item"** indicates submittal does not conform to the "design intent". Resubmittal is required.
 5. **"Resubmit with Related Assembly Items"** requests submittal of related items for an assembly to permit a coordinated review. Review will not start until related items are submitted.
 6. **"No Action Required"** indicates Contractor may proceed without review of submittal by Architect based on the provisions of the Contract Documents. This does not relieve Contractor of requirements of Contract Documents.
 7. **Clarification – Record Only Submittals:** Purpose/intent for Submittals identified as (for Record Only) is to provide Owner and Architect with specific product information or material samples for record purposes.
 - a. Record Only Submittals will be reviewed and filed by Architect for use by Owner. No further action will be taken, including return of submittal to Contractor or Trade Contractor if Architect determines submittal is in accordance with Contract Documents.
 - b. If Architect determine submittal is not in accordance with Contract Documents, submittal will be returned with comments for resubmission in a timely fashion.
- B. Review by Architect of submittals is not an authorization for Change Order. Any item requiring Change Order shall follow procedures described elsewhere in the Contract Documents.

1.08 PROCEDURE FOR RESUBMITTING

- A. Required Revisions: Make corrections or changes in submittals required by Architect and resubmit when Architect's stamp requires resubmittal.
1. Clearly identify changes made other than those requested by Architect by "clouding" or other suitable means acceptable to Architect. Only changes that are "clouded" and changes requested by Architect will be reviewed on a resubmittal. Architect is not responsible for reviewing resubmittals that are not "clouded" on resubmittal.
- B. Resubmittal Review Fees: If Architect rejects (Rejected, Revise and Resubmit) Contractor's submittal more than 2 times for the same Specification Section, Architect and Construction Manager will be compensated for additional reviews.
1. Amount of such compensation will be incorporated by Change Order and deducted from Contractor's Application for Payment.
- C. Product Submittals: Revise initial submittal to comply with specified requirements.
- D. Contractor is responsible for delays caused by resubmittal process.

PART 2 - PRODUCTS

- NOT USED

PART 3 - EXECUTION

- NOT USED

-- End --

SUBMITTAL COVER SHEET
(Attach to each copy of each submittal)

PROJECT: Gary New Duluth Community Center & Recreation Area Improvements

ARCHITECT/ENGINEER: SAS Architects

CONSTRUCTION MANAGER (CM): Kraus-Anderson® Construction Company

PRIME CONTRACTOR: _____

MANUFACTURER: _____

ITEM SUBMITTED: _____ SUBMITTAL NO.: _____

SPECIFICATION SECTION NO.: _____ PARAGRAPH NO.: _____

DRAWING REFERENCE: _____ DETAIL NO.: _____

CERTIFICATION: _____ Certified to comply with Drawings and Specifications.

Signature: Subcontractor/Supplier _____ Date _____ Signature: Prime Contractor _____ Date _____

<p>CONSTRUCTION MANAGER APPROVAL STAMP:</p>  <p>KRAUS-ANDERSON® CONSTRUCTION COMPANY</p> <p>SUBMITTAL # _____</p> <p>JOB # _____</p> <p>SECTION # _____</p> <p>BY: _____</p> <p>DATE: _____</p> <p align="center">REVIEWED BY KRAUS-ANDERSON AND SUBMITTED TO ARCHITECT FOR APPROVAL.</p>	<p>ARCHITECT/ENGINEER REVIEW STAMP:</p>
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Section 01 4400 – Quality Assurance Procedures

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Owner's Testing and Inspection Program
 - 2. Prime Contractor's Requirements for Testing and Inspection
 - 3. Prime Contractor's Quality Control Program.
 - 4. Laboratory's duties.
 - 5. Repair and protection.
- B. Testing and inspecting services are required to verify compliance with requirements specified.
 - 1. These services do not limit or relieve Prime Contractor of responsibility for compliance with the Contract Documents and to provide the necessary quality assurance and quality control procedures required to perform the Work.
 - 2. Specific quality assurance and quality control requirements for individual construction activities are specified in each specification section.

1.02 OWNER'S TESTING AND INSPECTION PROGRAM

- A. **Owner's Testing and Inspection:** Owner shall employ one or more testing companies for tests and inspections required by the Building Code (Code) plus other tests and inspections required by the Contract Documents, unless specifically indicated to be "by Contractor".
- B. **Special Tests and Inspections.** Unless expressly indicated to be "by Contractor", the Owner will hire and pay for tests and inspections required by the authorities having jurisdiction and other tests and inspections required by the Contract Documents, including at least the following.
 - 1. Special Inspections required by the authorities having jurisdiction
 - a. Inspection of formwork and reinforcing steel placement prior to placing concrete
 - b. Inspection and testing of cured concrete samples taken at the Site
 - c. Testing of masonry units and mortars for load-bearing construction
 - d. Inspection steel-bar-reinforcing placement and grouting for load-bearing masonry
 - e. Inspection of structural steel welding and fastenings
 - f. Inspection and testing of fire-proofing
 - g. Inspection and testing of coiling fire doors and shutters
 - h. Inspection of fire-stopping
 - i. Inspection and testing elevator
 - 2. Other Inspections required by the Contract Documents
 - a. Refer to individual specification sections for specific requirements.

1.03 CONTRACTOR'S REQUIREMENTS FOR TESTING AND INSPECTIONS

- A. Each Contractors shall arrange and pay for tests and inspections as follows:
 - 1. Tests and inspections of materials, products, or equipment required by Contract Documents to be paid for by Contractor.
 - 2. Design preliminary mixes required by Contract Documents for concrete, asphalt, and other materials or mixes which require control by a testing laboratory.
 - 3. Additional tests, samples, inspections, or engineering services Contractor determines appropriate for performance of Work or for contractor's convenience.
 - 4. Tests, inspections, or laboratory services necessary with respect to substitutions.
 - 5. Additional tests and inspections when initial tests or inspections indicate Work does not comply with Contract Documents.
 - 6. Tests and inspections required by public authorities as part of permits or inspection fees.
 - 7. Other tests and inspections indicated to be "by Contractor" or "by trade contractor".
- B. Cooperate with testing laboratory personnel. Provide access to Work and manufacturer's facilities.
- C. Secure and deliver to testing laboratory adequate quantities of representational samples of materials proposed to be used and requiring testing.
- D. Furnish incidental labor and facilities to provide access to Work being tested; to obtain and handle samples at the Project Site or at the source of the product being tested; for storage and curing of test samples.

Section 01 4400 – Quality Assurance Procedures

- E. **Notification Requirements:** Notify special inspectors and testing laboratory sufficiently in advance to allow laboratory to assign personnel and schedule testing.
 - 1. Inspections and tests required by Contractors shall be coordinated with Kraus-Anderson.
 - 2. Do not conceal work requiring inspections until inspection procedures are complete and work is indicated to be acceptable. Inspector's approval to close work shall not relieve Contractor of responsibility to complete Work in accordance with Contract Documents.
- F. **Inspection of Substrates and Conditions:** Prior to installing portion of Work, inspect existing substrates, adjacent construction, and work-in-place to receive the work to be installed.
 - 1. Notify Kraus-Anderson of conditions and existing workmanship that may adversely affect work to be installed.
 - 2. Proceeding with installation constitutes acceptance by installing contractor that substrate and conditions are acceptable to receive materials to be applied and waive claim that the work in place is defective as it pertains to warranty requirements, excluding unascertainable or concealed conditions.
 - 3. Where specifications require material or system to be installed under the supervision or to be inspected by material manufacturer, technical representative from manufacturer shall inspect the work in place and issue a letter of acceptance prior to proceeding.
- G. Requirements for Contractor to provide quality-assurance and quality control services are not limited by provisions of this Section.

1.04 SUBMITTALS

- A. **Quality Control Submittals:**
 - 1. Contractor's Quality Control Program: Submit Quality Control Plan define the operations of the contract.
 - 2. Statements of Qualifications for "contractor provided" testing and inspection services.
 - 3. Certificate of Compliance for each testing laboratory used.
 - 4. Test results and reports for inspections and laboratory services required by Contract Documents.

1.05 DEFINITIONS FOR QUALITY ASSURANCE

- A. **Quality Assurance Services:** Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and will substantiate that proposed construction will comply with requirements.
- B. **Quality Control Services:** Tests, inspections, procedures and related actions during and after execution of the Work to evaluating the actual products incorporated into the Work and completed construction comply with requirements.
- C. **Testing Agency Qualifications:** Agency with experience and capability to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- D. **Delegated Design – Performance and Design Criteria:** Where professional design services or certifications by a design professional are specifically required of Contractor by Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated is not sufficient to perform services or certification required, submit request for information.
- E. **Professional Engineer Qualifications:** Professional Engineer, legally qualified to practice in jurisdiction where Project is located with experience in providing engineering services of kind indicated.
- F. **Manufacturer-Authorized Service Representative's Qualifications:** Authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products similar in material, design, and extent to those indicated for this Project.
- G. **Manufacturer's Field Services:** Where indicated, engage manufacturer's representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing.
- H. **Installer/Applicator/Erector's Qualifications:** Company or individual experienced with installing, erecting, or assembling work similar in material, design and extent to that indicated for this Project.
- I. **Specialist:** Certain sections of the Specifications require specific construction activities to be performed by entities that are recognized experts in those operations. Specialists shall satisfy qualifications requirements indicated and shall be engaged for the activities indicated.
- J. **Experienced:** When used with an entity, "experience" means having successfully completed an appropriate number of previous projects similar in size and scope to this Project, being familiar with special requirements indicated, and having complied with requirements of authorities having jurisdiction.

Section 01 4400 – Quality Assurance Procedures

- K. Conflicting Requirements: If compliance with two or more standards are specified and the standards establish different or conflicting requirements for quantities or quality levels, Contractor shall notify Architect of conflict and request clarification.

1.06 PRIME CONTRACTOR'S QUALITY CONTROL PROGRAM

- A. Develop and maintain Contractor's Quality Control Program to perform testing and inspections of Work, including those of its' subcontractors to ensure conformance with Contract Documents.
- B. *Contractor's Quality Control Program* shall consist of a written set of procedures and processes specifically developed to ensure compliance with project requirements and including the following:
 - 1. Define contractor's quality management team/organization.
 - 2. Establish communication procedures and Quality Assurance Meetings, including but not limited to the following:
 - a. Pre-mobilization/Preconstruction Meeting: prior to preparation of submittals and on-site activities to ensure understanding of project documents, requirements for submittal preparation, and schedule requirements.
 - 1) Systematic review of Contract Documents and preparation of related RFI's.
 - 2) Verify scope and level of detail required for design submittals and mock-ups, and internal subcontractor procedures to ensure initial submittals are complete and in compliance with contract documents to ensure they are approved on the first review cycle.
 - 3) Review requirements for Owner Agreement and KA Special Requirements.
 - b. Pre-installation Meeting: Job-site meetings with project specific foreman and lead installers prior to first installation to ensure understanding and coordination.
 - 1) Document Control: Confirm installing subcontractor has most current Contract Documents.
 - 2) Submittal Approvals: Confirm submittal, field samples, and mock-up are approved by Architect and comments have been incorporated into field set.
 - 3) Acceptance of Substrate: Examine work area to ensure required preliminary work has been completed and substrates are acceptable to receive work.
 - 4) Safety Plan: Review safety plan, material safety data sheets, and other appropriate procedures as determined by project superintendent.
 - c. Job-site Coordination Meetings: Job-site meetings during installation to ensure coordination and compliance with requirements.
 - 1) On-going coordination to confirm workmanship and interface with other trades.
 - 2) Ensure required tests and inspections are incorporated into "3-week look-ahead schedule" and third party inspectors are notified in a timely manner as not to delay the project schedule.
 - 3) Identification and incorporation of field samples and mock-up into project schedule.
 - 3. Field Quality Control Plan: Detailed step by step procedures to be performed by the installing contractor including, but not limited to the following:
 - a. Procedures and documentation for inspection of materials delivered to job-site comply with Contract Documents.
 - 1) Ensure quality control procedures apply to manufactured and shop fabricated items.
 - b. Procedures and documentation for review and acceptance of existing substrates and field conditions prior to starting work.
 - c. Procedures and documentation for on-going subcontractor reviews during installation to ensure Work will comply with Contract Documents when completed.
 - d. Testing and Inspection Log: Organized by specification section, identify types and frequency of tests and inspections required by the Contract, and who is responsible to perform each.
 - e. Contractor's Review for Completion: When portions of the subcontractor's work is nearing completion, define subcontractor foreman's review procedures that they will use to ensure Work is in accordance with the Contract Documents, and proposed procedures for notifying KA's Superintendent that all or a portion of the Subcontractor's Work is complete.
 - f. Procedures for subcontractor's protection of their Work, or acceptance by the following contractor until Substantial Completion.
- C. Submit copy of Contractor's Quality Control Plan to Kraus-Anderson and Architect for information and scheduling prior to starting on-site operations.
- D. Notifications and Reports: Keep Kraus-Anderson and Architect informed of modifications to the initial Contractor's Quality Control Plan and on-going notifications including, but not limited to acceptance of substrates, third party testing and inspection requirements, potential non-conforming work items identified by internal or other quality review procedures, contractor's foremen review and acceptance of identifiable phases/portions of the work, and contractor's completion of Work Scope.

Section 01 4400 – Quality Assurance Procedures

1. Indicate non-conforming items with explanation of cause, proposed remedial action, and corrective action taken.

1.07 LABORATORY DUTIES

- A. Cooperate with parties requiring tests. Provide qualified personnel after due notice; perform to comply with schedule and promptly submit report of each test and inspection to Architect.
- B. Perform specified inspections, sampling, and testing.
- C. For tests and inspections performed at Project Site, promptly notify parties performing Work and Architect of observed irregularities or deficiencies of Work or materials to prevent proceeding with Work, which may subsequently be determined to be defective.
- D. Submit report of each test, inspection, and similar quality control service through Contractor. Include interpretation and narrative explanation indicating if tested or inspected work complies with or deviates from contract requirements.
- E. Do not release, alter, or increase requirements of the Contract Documents, or approve or accept portions of the Work.
- F. Do not perform duties of Contractor.

PART 2 - PRODUCTS

- NOT USED

PART 3 - EXECUTION

3.01 CONTRACTOR'S RESPONSIBILITIES

- A. Cooperate with testing agencies and laboratory personnel performing required tests, inspections, and similar quality control services. Provide reasonable auxiliary services and access to Work or manufacturer's facilities as appropriate.
- B. Coordinate sequence of activities to accommodate required quality assurance and quality control services in accordance with the Project Schedule.
- C. Secure and deliver to testing laboratory adequate quantities of representational samples of materials proposed to be used and requiring testing.
- D. Provide testing laboratory with preliminary design mix proposed for concrete, and other material mixes requiring control by testing laboratory.
 1. Furnish incidental labor and facilities to provide access to Work being tested; to obtain and handle samples at the Project Site or at the source of the product being tested; for storage and curing of test samples.
- E. Each Contractor shall summarize required tests and inspections required by the Owner's Special Inspection Program, Contract Documents (individual specification sections and structural notes), and other requirements identified by the Contractor, that related to their Work.
 1. Each test and required inspection will be identified, the testing agency or inspector will be determined, and the frequency/interval will be established.
 2. Notify Kraus-Anderson, Owner, Architect, and testing agency in advance to allow time to assign personnel, schedule and perform tests and inspections as required, to maintain the project schedule.
 3. For Contractor controlled tests and inspections, notify Kraus-Anderson, Owner and Architect in advance to allow their participation as they determine appropriate.
 4. Maintain records of tests and inspections performed, summary of results, and action log of corrective items if applicable.
- F. Contractor acknowledges that successfully passing a test or inspection is not an acceptance of the completed work and the final installation shall comply with the Contract Documents.
- G. Establish "correction plan" and pay for costs associated with failed tests and inspections.

3.02 REPAIR AND PROTECTION

- A. Upon completion of inspection, testing, sample-taking, and similar services; repair damaged construction and restore substrates and finishes to eliminate deficiencies, including deficiencies in visual qualities of exposed finishes.
 1. Restore patched areas and extend restoration into adjoining areas in a manner that eliminates evidence of patching.
 2. Comply with Contract Document requirements for Cutting and Patching.
- B. Protect work exposed by or for quality control service activities. Repair and protection is Contractor's responsibility, regardless of assignment of responsibility for tests, inspection, and similar services.

Section 01 4400 – Quality Assurance Procedures

-- End --



Section 01 5010 – Temporary Facilities and Controls

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Temporary utilities.
 - 2. Temporary construction.
 - 3. Temporary barriers and enclosures within building.
 - 4. Temporary controls within building.
 - 5. Signs.
 - 6. Field offices.

1.02 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with requirements of authorities having jurisdiction.
- B. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

1.03 PROJECT CONDITIONS

- A. **Project Conditions:** Schedule work, including disconnection, reconnections, interruptions of services and utilities to allow time for Kraus-Anderson and Owner to make necessary arrangements for interruptions.
 - 1. Maintain electrical and mechanical services and utilities to existing facilities at all times. Exercise extreme care in protection of existing utilities and services. Provide and remove temporary connection devices, when no longer required.
 - 2. Exercise care during progress of Work for protection of services and utilities encountered.
 - 3. If interruption of utilities or services is unavoidable, make arrangements with Owner through Kraus-Anderson and obtain written approval before proceeding.
- B. **Temporary Use of Permanent Facilities:** Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility until date of Substantial Completion or specific acceptance by Kraus-Anderson.
- C. **Protection of New and Existing Surfaces (floors, walls, and roofs):** Where work is conducted above or adjacent to existing roofs, protect existing roof.
 - 1. Where existing floors are subject to construction traffic, protect entire floor.
 - 2. Storage of materials will not be permitted on existing roof
 - 3. Contractors, subcontractors, or any employee under their jurisdiction, shall be responsible for damages to roofing, sheet metal, and roof structure, while performing work on the roof. In such case, the roofing contractor will perform the repair work at the expense of the contractor responsible for the damage.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. **General:** Materials may be new or used, but must be adequate in capacity for the required usage, must not create unsafe conditions, and must not violate requirements of applicable codes and standards.
- B. Temporary Electrical Materials
 - 1. Receptacles: 15 ampere, 120 volt, duplex grounding type with ground fault circuit interrupters.
 - 2. Light Fixtures and Lamps: Medium-base rubber pigtail type lamp sockets on suitable boxes, with 200 watt incandescent lamps.
 - 3. Conductors: Insulated copper or aluminum wire, with phase conductor insulation rated for the circuit voltage, and insulation or jacketing suitable for the conditions, and branch circuit conductors - No. 12 AWG minimum size, except use No. 10 AWG where length of branch circuit exceeds 100 feet.

Section 01 5010 – Temporary Facilities and Controls

PART 3 - EXECUTION

3.01 TEMPORARY UTILITIES

- A. **Existing Utilities:** Exercise care and protect existing services and utilities encountered. In the event of accidental interruption of a service or utility, take prompt remedial action and immediately inform Kraus-Anderson and related utility company.
1. Coordinate work requiring disconnection, reconnection, and interruptions of services and utilities with Kraus-Anderson.
 1. Notification: Before beginning work, notify parties owning, operating or maintaining utility facilities on or in vicinity of project site in accordance with notification procedure of each party.
 2. Utility Locations: Project Drawings indicate preliminary assessment of known site utilities based on Owner provided information; such information is not warranted as either accurate or complete.
 - a. Responsibility for determining actual locations of site utilities is considered part of Project Work.
 - b. Take necessary steps to determine actual utility locations in vicinity of Project prior to starting Work.
 - c. Request local, regional or state utility service and/or parties owning, operating or maintaining utilities to locate or stakeout locations, extent, alignment and elevation of proximate utilities, when applicable. For areas outside local or state utility service, Contractor shall take implement appropriate procedures to local utilities prior to digging.
 - d. Verify invert elevations of storm sewer manholes and catch basins and sanitary sewer manholes.
 - e. Should uncharted or incorrectly charted existing utility facilities, equipment and structures be encountered during location activities or performance of Work, consult parties owning, operating or maintaining such utilities for direction and advise Owner.
- B. **Temporary Water:** Coordinate with Kraus-Anderson for connection to either the utility water service, or to Owner's water system for temporary construction purposes to meet individual Contractor requirements.
1. Coordinate location for water source with Kraus-Anderson.
 2. Obtain permission from Fire Department if connection to existing fire hydrant is required.
 3. Individual trades shall furnish their own hoses.
 4. Remove temporary water connections when no longer required or as directed by Kraus-Anderson.
- C. **Temporary Fire Protection:** Provide and maintain fire fighting equipment for the duration of construction in compliance with requirements of authorities having jurisdiction.
1. Portable fire extinguishers as required during the course of construction shall be supplied, inspected, and maintained by Kraus-Anderson, unless required for a specific 'hot work' operation in which case the Contractor performing the work must provide proper portable fire extinguisher within a specified distance from the operation.
- D. **Drinking Water:** Provide drinking water facilities from an approved source and serve from single service containers or satisfactory types of sanitary drinking stands or fountains.
1. Each Contractor is responsible for their own drinking water.

Section 01 5010 – Temporary Facilities and Controls

- E. **Temporary Sanitary Facilities:** KA to provide and maintain adequate chemical toilet facilities in a clean and sanitary condition for use of construction personnel.
 - 1. Keep temporary toilets clean.
 - 2. Do not use existing toilet facilities within adjacent buildings during construction.
- F. **Temporary Telephone.** Do not use either the Owner's or Kraus-Anderson's telephones.
 - 1. Each Contractor shall make its own arrangements for telephone service.

3.02 TEMPORARY ELECTRIC

- A. **Temporary Power for Construction Activities:** Temporary service for temporary power, lighting, and other loads as determined by the Kraus-Anderson.
 - 1. Power consumption shall not disrupt Owner's need for continuous service.
 - 2. Owner will pay costs of power used.
 - 3. Individual trades shall provide flexible power cords for their use.
 - 4. Temporary panel used to supply temporary power requirements will be centrally located at a specific location determined by Kraus-Anderson.
 - 5. It is the responsibility of the trade requiring power to make necessary connections to the panel for equipment requiring power.
 - 6. Power requirements in excessive of panel capacity, or as directed by Kraus-Anderson, shall be the responsibility of the Contractor requiring power.
- B. **Temporary Construction Lighting:** Provide construction lighting as directed by Kraus-Anderson to provide and maintain minimum lighting and receptacle outlets, throughout the construction area, to permit safe pursuit and examination of Work.
 - 1. Lighting: One 200 watt lamp per 625 square feet, maximum spacing of 30 feet on center, or as required by OSHA, whichever is greater
 - 2. Receptacles: One duplex receptacle per 2500 square feet, maximum spacing of 60 feet on center.
 - 3. Stairways: One 200 watt lamp per landing.
 - 4. Provide supplemental lighting as required using suitable portable units.
 - 5. Provide and maintain adequate lighting at barricades for safety.
 - 6. Grounding: Comply with applicable codes relating to permanent work. Permanent grounding system may be utilized for temporary system.
 - 7. Overload protection: Comply with applicable codes relating to permanent Work.
 - 8. Task Lighting shall be provided by individual Contractor requiring it.

Section 01 5010 – Temporary Facilities and Controls

3.03 TEMPORARY CONTROLS

- A. **Site Access Route:** Locate and limit site access where indicated or as otherwise approved by Owner and local authority having jurisdiction over public roads in vicinity of site.
 - 1. Maintain site entrances in a condition which will prevent tracking or flow of mud onto public rights-of-way; remove immediately materials spilled, dropped, washed, or tracked from vehicles onto public roadways or into storm drains.
 - 2. Notification: Notify local authorities having jurisdiction of existing damage in adjacent streets or improvements such as paving, curbs, gutters, sidewalks and alley surfacing, prior to start of work.
 - 3. If damage to streets and improvements is discovered after Work has commenced and such damage was not reported before start of work, responsible Contractor as determined by Kraus-Anderson will perform and pay for necessary repairs.
- B. **Contractor's Staging Area:** Locate staging area where indicated or as directed by Kraus-Anderson.
 - 1. Material storage to be off-site at an insured location determined by each Contractor requiring such, and acceptable to Kraus-Anderson and Owner.
- C. **Dewatering during Construction:** Water control, bailing, or well point equipment necessary to keep excavation and trenches free from accumulation of water during the entire progress of this Work shall be the responsibility of the Contractor performing said excavation and trenching due to their scope of work, unless specifically indicated otherwise in their Work Scope Description.
 - 1. Discharge water in compliance with local, state, and DNR pollution control requirements.
 - 2. Obtain discharge permits where required.
 - 3. Coordinate location, extent, and duration with Kraus-Anderson.
- D. **Contractor Hoisting:** Contractor shall provide equipment, labor, means and operations to perform and complete the work defined within the work scope category utilizing the Contractor's own hoisting equipment, and agrees to use the hoisting equipment in such a manner as to keep interference with the work of other contractors to a minimum.
 - 1. Authorization for Hoisting Equipment: Notify Kraus-Anderson and obtain consent prior to bring hoisting equipment onto the Project site.
 - 2. Hoisting Equipment Tie-offs: Hoisting equipment shall not be attached to the building structure without prior written authorization of the structural engineer and Kraus-Anderson.
 - 3. Compliance with Regulations: Hoisting equipment and its operation shall meet applicable codes, laws, statutes, ordinances, rules, regulations, and legal requirements. It shall be installed, operated, relocated, removed and maintained by certified mechanics and operators and the Contractor will reasonably cooperate in its application and use so there shall not be a conflict with operations and installation with Kraus-Anderson or other Contractors.
 - 4. All power systems, communication systems, related connections, fuel consumption and other similar items for the equipment shall be provided by requiring hoisting equipment.
- E. **Scaffolding:** Scaffolding necessary to perform the Work of this contract or Work Scope Category shall be provided by the Contractor.
 - 1. Scaffolding systems shall comply with all applicable codes, laws, statutes, ordinances, rules, regulations and legal requirements.
 - 2. Scaffolding systems shall be designed, if required, by a registered engineer and installed, maintained, operated, relocated, and removed by licensed operators.
 - 3. Scaffolding shall be affixed to the building structure without prior written authorization of the Structural engineer and Kraus-Anderson.
 - 4. Contractor is entirely responsible for design, engineering, structural integrity, installation, maintenance, safety, relocations, and removal of the complete scaffolding system.
 - 5. Contractor agrees to cooperate reasonable in application and use of the Contractor's scaffolding in order that (a) operations and installation of other Contractors are maintained and smooth and (b) interferences and conflicts are kept to a minimum.

3.04 CONSTRUCTION CLEANING AND SNOW REMOVAL

- A. **Construction Cleaning:** Provide daily cleanup of your debris, rubbish, containers, over-spray, and other similar items resulting from your operations.
- B. **Construction Cleaning - General:** provide daily cleanup of your debris, rubbish, containers, over-spray, and other similar items resulting from your operations.

Section 01 5010 – Temporary Facilities and Controls

1. Provide ongoing regular clean-up (not less than daily) and removal of unused construction materials and debris to maintain an orderly construction site for duration of Work.
 2. Contractor generating debris is responsible to transport such debris to jobsite dumpsters.
 3. Failure by the Contractor, to improperly clean up work area, or to do so in a timely manner, or to place debris in the construction dumpsters will result in one or more of the following actions by Kraus-Anderson:
 - a. Without impairing the contractor's liability, clean up the contractor's debris and backcharge contractor of the work involved.
 - b. To provide composite crew labor on the contractor's behalf and backcharge the contractor for the cost of the same.
 - c. Contractor will no longer be allowed to use Kraus-Anderson provided dumpsters and will be responsible for removing its own debris from the Project at the Contractor's own expense.
 - d. Other actions Kraus-Anderson deems necessary to promote the safety and cleanliness of the Project site.
- C. **Construction Cleaning - Interior:** Provide ongoing pickup and removal of unused construction materials to maintain an orderly construction site.
1. Provide ongoing regular clean-up (not less than daily) and removal of unused construction materials and debris to maintain an orderly construction site for duration of Work.
 2. Keep loose materials subject to wind pickup to a minimum by regular inspection and removal.
 3. Respond promptly to direction of Kraus-Anderson and Owner to increase or improve cleaning measures.
- D. **Construction Dumpsters for Common Use:** Contractor shall provide dumpsters for removal of debris. Dumpsters shall not be used for bulk demolition items, such as concrete rubble, excavated soils, brick, structural steel, reinforcing steel, or hazardous materials. Removal of these items from the site is the responsibility of the respective Contractor.
1. Debris placed in dumpsters must be broken down to the fullest extent possible to allow for the most efficient and economical use of containers and removal of debris.
- E. **Construction Purpose Dumpsters:** Where specifically indicated by Kraus-Anderson, individual Contractor shall provide their own dumpsters for removal of debris.
1. Where specifically assigned to a specific Contractor, comply with the following:
 - a. Contractor is responsibly to transport such debris to it own dumpster.
 - b. Contractor shall make provisions for it own containers and for the removal and proper disposal of debris at Contractor's expense.
- F. **Snow Removal:** Contractors performing Work under exposed conditions shall remove snow and ice from Work area to allow efficient execution and protection of their Work.

3.05 TEMPORARY BARRIERS, ENCLOSURES, PROTECTION AND SECURITY

- A. **Barriers and Enclosures:** Provide temporary enclosures as specified, indicated, or inferred inside and outside the building for safety, prevention of trespassing, and protection against the weather.
1. Trades affecting integrity of enclosures shall coordinate changes with Kraus-Anderson and shall pay related costs.
 2. Temporary enclosures shall not block required legal egress routes.
 3. Construct enclosures of steel studs and joist framing covered with fire-treated plywood, gypsum board, or other suitable panels to comply with required fire separations or fire resistant construction as determined by City Building Inspection Department, and as acceptable to Kraus-Anderson.
 4. Provide protection against rain, wind, snow storms, heat, and other weather conditions so as to maintain Work free from injury or damage.
 5. Adjust location as directed by Kraus-Anderson as work progresses.
- B. **Exterior Temporary Partition:** Intended to provide thermal and moisture protection and control dust, noise, and separate construction activities from public/staff activities, between exterior and interior areas.
1. As determined by Kraus-Anderson.
- C. **Interior Dustproof Partitions:** Dustproof partitions shall extend from floor to underside of structure above. With 5/8 inch thick gypsum board on Owner occupied side of partitions. Cover joints between sheets and at floors, walls, and ceilings with 1-1/2 inch wide tape or gypsum board tape and compound. Paint surface a light neutral color approved by the Owner.
1. Install foil faced batt insulation designed for use in exposed conditions, with foil facing taped to studs and perimeter.

Section 01 5010 – Temporary Facilities and Controls

3.06 SIGNS

- A. **Temporary Signs:** Provide and maintain temporary warning signs and other temporary signs required for safe and proper execution of Work.
 - 1. Except for "Safety Signs" which may be required by authorities having jurisdiction, do not install billboards, advertisements or other similar signs unless approved by Kraus-Anderson.
- B. **Sign Maintenance:** Protect signs from damage and maintain in first class condition and in proper position until Substantial Completion unless approval is given for removal at an earlier date.

3.07 REMOVAL

- A. Completely remove temporary materials and equipment when their use is no longer required.
- B. Clean and repair damage caused by temporary installation or use of temporary facilities.
- C. Repair or replace materials on existing facilities used for temporary services to specified or original condition.

-- End --

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Installation of existing removed material and equipment.
 - 2. Manufacturer's instructions.
 - 3. Transportation and handling.
 - 4. Storage and protection.
 - 5. Existing utilities or services.
 - 6. Integrity of fire, sound, and weatherproof assemblies.

1.02 EXISTING REMOVED MATERIALS

- A. Unless otherwise indicated, do not install existing removed materials and equipment.
- B. For existing removed material and equipment specifically indicated to be installed in the Work:
 - 1. Use special care in removing, handling, storing, and reinstalling to assure proper function in the completed Work.
 - 2. Provide transportation, storage, and handling of materials and equipment which require off-site storage, restoration, or renovation.

1.03 MANUFACTURERS INTRUCTIONS

- A. When Contract Documents require installation to comply with manufacturer's recommendations, obtain copies of instructions and distribute to parties involved.
 - 1. Maintain 1 set of complete instructions at the Project Site during installation and until completion.
 - 2. Submit 1 copies to Architect to comply with Section 01 3300.
- B. Handle, install, connect, clean, condition, and adjust products in compliance with manufacturer's recommendations and to comply with specified requirements.
 - 1. Should Project conditions or specified requirements conflict with manufacturer's recommendations, consult with Architect for clarification.
 - 2. Do not proceed with Work without clear directions.
 - 3. Do not omit preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

1.04 TRANSPORTATION AND HANDLING

- A. Coordinate all construction deliveries with the Contractor. Do not use the Owner's receiving dock.
- B. Arrange product deliveries to comply with construction schedules. Coordinate to avoid conflict with Work and conditions at Project Site.
 - 1. Deliver products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
 - 2. Immediately on delivery, inspect shipments to assure compliance with requirements of Contract Documents and reviewed submittals, and that products are properly protected and undamaged.
- C. Provide equipment and personnel to handle products to prevent soiling or damage to products or packaging.
- D. Each Contractor and subcontractor is responsible for items damaged by their employees (including subcontractors) and shall remove such damaged items and provide new without additional cost to Contract.
- E. Arrange with material suppliers and manufacturers for delivery and entry of equipment into the building at a suitable time. Inform appropriate parties of the size of building entries available for equipment so assembly of large units of equipment on Project Site may be considered when they are being manufactured.

1.05 STORAGE AND PROTECTION

- A. Store products to comply with manufacturer's recommendations, with seals and labels intact and legible.
- B. Store products subject to damage by the elements in weather tight enclosures.
 - 1. Maintain temperature and humidity within the ranges required by manufacturer's instructions.

Section 01 6000 – Product Requirements

- C. Exterior Storage:
 - 1. Store fabricated products above ground, on blocking or skids, to prevent soiling or staining.
 - 2. Cover products which are subject to deterioration with impervious sheet coverings; provide adequate ventilation to avoid condensation.
 - 3. Store loose granular materials on solid surface in well drained area and prevent mixing with foreign matter.
- D. Provide substantial coverings to protect installed products from damage caused by traffic and subsequent construction operations. Remove when no longer needed.
- E. Arrange storage to allow access for inspection and verification. Periodically inspect to ensure products are undamaged and secured.
- F. Contractor and subcontractor are responsible for damaged, broken, or scratched glass and fixtures caused by employees (including subcontractors) and shall replace such damaged items without additional cost to Contract.

1.06 EXISTING UTILITIES OR SERVICES

- A. Provide protection to prevent damage or interference to existing utility or service lines and mains.
- B. If there is damage to a known existing utility, service line, or main refer to Section 01 5000.
- C. If an unknown utility, service line, or main is uncovered, stop Work in that area and notify Owner and utility or service company, to obtain information on how to proceed.

1.07 INTEGRITY OF FIRE, SOUND, AND WEATHERPROOF ASSEMBLIES

- A. Spaces formed between fire or sound rated wall, floor, ceiling, or roof assemblies or penetrations through such assemblies by pipe, conduit, ductwork, any other item, or voids provided for possible use of any item shall be caulked, grouted, filled, or otherwise protected in a manner to maintain fire or sound ratings.
- B. Where openings or penetrations are subject to moisture or weather, seal openings and penetrations with non-shrink grouts and elastomeric sealants intended for specific application
 - 1. Seal floor penetrations during construction to prevent water from flowing through building.
 - 2. Where safing and batt insulation are used, protect from moisture. Remove damp material and install new material before enclosing.
- C. Sound Control: Maintain sound ratings through partitions which have a designed STC rating.

PART 2 - PRODUCTS

- NOT USED

PART 3 - EXECUTION

- NOT USED

-- End --

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Special definitions.
 - 2. Specification format and content explanation
 - 3. Reference specifications
 - 4. Methods of specifying.
 - 5. Substitution procedures.

1.02 DEFINITIONS

- A. **Standard of Quality:** Specified manufacturers, materials, products, and equipment have been used in preparing the Contract Documents and thus establish minimum qualities for performance and appropriateness.
 - 1. Materials, products, and equipment described in the Contract Documents establish a standard of required function, dimension, appearance, and quality.
 - 2. Comply with specifications and reference standards as minimum requirements.
 - 3. Where a particular manufacturer and product is indicated, followed by a description of the product (material and equipment) including special features or performance criteria, the manufacturer shall agree to make necessary modifications to their "Standard or Custom Products" to fully comply with the product described.
- B. **Base Bid:** Base on materials, products, and equipment described in the Contract Documents.
 - 1. The phrase "or equal" is not used within this Project Manual and is not implied. Requests for substitutions shall be made to comply with the procedures specified herein.
 - 2. It is understood and agreed by bidders, Contractors, material suppliers, and tier subcontractors that bids and contracts shall be based on products (material and equipment) and processes as specified or as revised by addenda or modification.
 - 3. Products of other manufacturers which may be equal in size, design, function and performance may be submitted to Contractor and Architect for approval prior to receipt of bids, unless specification indicates "No Substitution" for item.
- C. **Substitutions:** Requests for changes in products (materials and equipment) and methods of construction required by the Contract Documents are requests for "substitutions".
 - 1. The following are not defined as substitutions as used herein:
 - a. Revisions to Contract Documents requested by Owner, Construction Manager, or Architect.
 - b. Specified product options or alternate construction methods included in Contract Documents.
 - c. Contractor's determination of and compliance with governing regulations and orders issued by authorities having jurisdiction.
 - d. Value management items accepted by the Owner.
- D. **By Owner (B.O.):** Items that will be ordered, paid for and shipped to Project by Owner. Contractor shall receive, unload, unpack or uncrate, protect, store, move into place, install and connect these items as specified or indicated in the Contract Documents.
- E. **Furnish:** Pay for, deliver (or receive), unload, inspect, and store as specified or directed while retaining care, custody and control until received for installation by others based on a signed receipt.
- F. **Herein:** As used in the Contract Documents refers to the contents of a particular Section, or the contents within parts of the Conditions of the Contract (General and Supplemental Conditions), and Division 1 - General Requirements.
- G. **Install:** Receive, set or place in position, make required connections, and adjust and test for satisfactory performance and operation.
- H. **Not In Contract (N.I.C.):** Products not in the Contract, but which may require provisions in the construction for future installation by Others.
- I. **Product:** Refer to Conditions of the Contract for definition.
- J. **Project:** Is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by Owner or by separate contractors.
- K. **Proposal Request:** Document issued by Architect, which requests a cost quotation for proposed changes to Contract Documents. If accepted by "Owner", is followed by issuance of Change Order.

- L. **Provide:** Furnish and install, including without limitation, labor, materials, equipment, transportation, services, and other items required to complete referenced tasks.
- M. **Relocate Existing (R.E.):** Existing items requiring relocation under the Contract and which may require service disconnection and capping and new service connections.
- N. **Work:** Refer to Conditions of the Contract for definition.

1.03 SPECIFICATION FORMAT AND CONTENT EXPLANATION

- A. Format: Specifications are organized into Divisions and Sections based on Construction Specifications Institute's (CSI) 2004 MasterFormat numbering system.
- B. Specification writing style: Written in imperative and abbreviated form.
 - 1. It shall be clearly understood that all imperative statements are directed at the Contractor (each Trade Contractor), unless specifically indicated otherwise.
 - 2. Incomplete sentences shall be completed by inserting "shall", "Contractor shall", and similar mandatory phrases by inference in same manner as they are applied to notes on Drawings.
 - 3. The words "shall be" shall be supplied by inference where a colon is used within sentence or phrases.

1.04 REFERENCE STANDARDS

- A. When Contract Document specified Work is to comply with References, unless more stringent requirements are indicated, applicable construction industry standards have same force and effect as if bound or copied directly into Contract Documents.
 - 1. Such standards are made a part of the Contract Documents by reference.
- B. The Article titled "REFERENCES" in specification sections does not automatically require compliance with indicated References Standards, unless specifically indicated for work to "comply with" or when Reference Standards are indicated elsewhere within a specification section.
- C. Notify Architect of conflicts between reference standards and requirements indicated in specifications or on Drawings before proceeding with Work.
- D. Publication Dates: Unless otherwise indicated or where the date of issue of a reference standard is not indicated, comply with the reference standard in effect as of issue date of Contract Documents.

1.05 METHODS OF SPECIFYING

- A. **Descriptive Specifications:** Where products (material and equipment) are specified by indicating a detailed description of the required properties, minimum attributes, special features, or performance criteria required, provide products complying with the specified description.
 - 1. If a descriptive specification is followed by a list of specified manufacturers or specified products, select a product from only those listed.
 - a. If a manufacturer's standard product is listed in the specification and does not comply with the minimum description indicated, make modifications to the "Standard or Custom Product" to make the product fully comply with the description of the specified product's special features, or performance criteria.
 - 2. If a list of specified manufacturers includes the following statement "Comparable products of other specified manufacturers", then select product from only manufacturers listed in the Project Manual or addenda complying with the minimum attributes, special features, or performance criteria.
 - 3. If list of specified manufacturers includes the following statement, "Comparable products of other manufacturers", then select a product from any manufacturer that complies with the minimum attributes, special features, and performance criteria.
- B. **Proprietary Specifications (including multiple manufacturers):** Where the desired products (material and equipment) are indicated by a specific manufacturer's name, brand name, model number, type designation, or other unique characteristics, provide only products listed in the Project Manual or addenda.
 - 1. Where indicated in the Project Manual as "No Substitution", bids must be based on the specific named product only.
- C. **Reference Standard Specifications:** Where products (material and equipment) are specified only by reference standard, provide products complying with standard.
 - 1. If reference standard is followed by a description of a product's special features, or performance criteria: Modify "Standard or Custom Products" to fully comply with the description of the specified product's special features or performance criteria.

- D. The design layout, space allocations, connection details, performance criteria are based on specifically identified proprietary products identified in PART 2 - PRODUCTS of each specification section.
 - 1. Other manufacturers, even if listed as "Acceptable Manufacturers", shall comply with the minimum levels of material, detailing, and dimensional restrictions established by the proprietary product.

1.06 REQUESTS FOR SUBSTITUTIONS DURING BIDDING PHASE

- A. **Refer to Instructions to Bidders for Pre-Bid Substitution procedures.**
- B. **Request for Substitutions:** Contractors, subcontractors, and material suppliers requesting a substitution or additions to the list of specified products, must bid the specified materials, products, or systems as specified, but are encouraged to submit a separate voluntary alternate, clearly identified as a "Alternate Bid" to Contractor for consideration at same time bids are due.
 - 1. Substitution Request Form: Include properly completed and signed "Substitution Request Form", Section 00 6313 with each Request for Substitution.
 - 2. Burden of proof of merit of proposed substitution is upon proposer.
 - 3. Owner and Architect's decision of approval or disapproval of a proposed substitution shall be final, and such approval will be set forth in an Addenda.

1.07 REQUESTS FOR SUBSTITUTIONS AFTER AWARD OF CONTRACTS

- A. **Request for Substitutions after Award of Contracts:** Contractor shall submit request to Contractor for consideration, and if Contractor supports Request for Substitution, they will consolidate supporting data and impact on other contractors and submit request for consideration.
 - 1. Substitution Request Form: Include properly completed and signed "Substitution Request Form", Document 00 6313 with each request for substitution.
 - 2. Burden of proof of merit of the proposed substitution is upon proposing Contractor.
 - 3. Owner and Architect's decision of approval or disapproval of a post bid substitution shall be final, and such approval will in a Change Order.

1.08 SUPPORTING INFORMATION FOR SUBSTITUTIONS

- A. Include the following supporting information: Name of product (material or equipment) for which substitution is being requested and a complete description of the proposed substitute including drawings, product data, performance and test data, and any other information necessary for an evaluation.
 - 1. Substitution Request Form: Completed Substitution Form must accompany each request for substitution.
 - a. Include a statement indicating changes in other materials, equipment, or other Work that incorporation of this substitute would require.
 - b. Alterations or changes to other Work are the responsibility of the Contractor proposing substitution, including redesign if determined by Architect.
 - 2. Burden of proof of the merit of the proposed substitute is upon the proposer.
- B. It is understood and agreed by Contractor, Bidders, subcontractors, material suppliers, and tier subcontractors, that bids and contracts shall be based on products (material and equipment) and processes as specified or as revised by addenda or modification.

1.09 CONSIDERATION REQUIREMENTS

- A. Substitution request will be considered by Architect when the following conditions are satisfied:
 - 1. Extensive revisions to Contract Documents are not required.
 - 2. Proposed changes are in keeping with the general intent of Contract Documents.
 - 3. Request is timely, fully documented, and properly submitted.
 - a. Substitution Request Form is completed and attached.
 - 4. Plus 1 or more of the following apply.
 - a. If a specified product is not available.
 - b. Substantial advantage is offered to Owner, in terms of cost or time savings, energy conservation or other considerations of merit, after deducting offsetting responsibilities Owner may be required to bear additional costs, as determined by Architect, which includes additional compensation to Architect for redesign and evaluation services, increased cost of other construction, or separate contractors, and similar considerations.
- B. Where proposed substitution involves more than 1 installer, installers shall cooperate to coordinate the Work, provide uniformity and consistency, and to assure compatibility of products.

Section 01 6200 – Product Options

- C. Submit a separate substitution request for each product, supported with complete product data, drawings, and samples including but not limited to the following:
 - 1. Comparison of qualities of proposed substitution with specified product.
 - 2. Changes required in other elements of the Work because of the substitution.
 - 3. Effect on construction schedule.
 - 4. Cost data comparing proposed substitution with specified product.
 - 5. License, fees, or royalties required.
 - 6. Availability of maintenance service, and source of replacement materials.
- D. To determine if proposed substitution complies with the function, appearance, quality, performance, and dimensional characteristics of specified item, Architect may require samples, technical product data, and other data to establish compliance. Cost of which shall be paid by the submitting party.
- E. Substitution requests not complying will be returned without action other than to record noncompliance with submittals requirements.

1.10 CONTRACTOR'S/BIDDER'S REPRESENTATION

- A. A request for substitution constitutes a representation that Contractor/Bidder:
 - 1. Has investigated proposed product and determined it is equal to or superior in all respects to specified product.
 - 2. Will provide the same or better warranties or bonds for substitution as for the specified product.
 - 3. Will coordinate installation of substitution, if accepted, into the Work; and make other changes as required to make the Work complete.
 - 4. Waives claims for additional costs, under his responsibility, which may subsequently become apparent.

1.11 ARCHITECT'S EVALUATION PROCESS

- A. Architect, in conjunction with Owner and Construction Manager, is sole judge of acceptability of proposed substitution.
- B. Architect will review requests for substitutions with reasonable promptness, and respond as follows:
 - 1. Request additional information or documentation necessary for evaluation.
 - 2. Pre Award: Notify Bidders of the decision to accept proposed substitution by written addendum.
 - 3. Post Award: Notify Contractor through Construction Manager of decision to accept or reject proposed substitution.
 - a. Accepted substitutions after award will be documented by Modification (Change Order), including manufacturers' names and catalog numbers.

PART 2 - PRODUCTS

- NOT USED

PART 3 - EXECUTION

- NOT USED

-- End --



SUBSTITUTION REQUEST

(During the Bidding/Negotiating Stage)

Project: _____ Substitution Request Number: _____

From: _____

To: _____ Date: _____

A/E Project Number: _____

Re: _____ Contract For: _____

Specification Title: _____ Description: _____

Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: _____

Manufacturer: _____ Address: _____ Phone: _____

Trade Name: _____ Model No.: _____

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted by: _____

Signed by: _____

Firm: _____

Address: _____

Telephone: _____

A/E's REVIEW AND ACTION

- Substitution approved - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
- Substitution approved as noted - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
- Substitution rejected - Use specified materials.
- Substitution Request received too late - Use specified materials.

Signed by: _____

Date: _____

Supporting Data Attached: Drawings Product Data Samples Tests Reports _____

Section 01 7710 – Procedures for Project Closeout

PART 1 - GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Procedures for Completion.
 - 2. Contractor Closeout Submittals.
 - 3. Final Construction Cleaning.
- B. Related Items:
 - 1. Construction cleaning during construction: Refer to Section 01 5010.

1.02 SUBSTANTIAL COMPLETION

- A. Comply with requirements and provisions of the Conditions of Contract.
 - 1. System commissioning is a part of the construction process. Documentation and testing of systems, as well as training of Owner's operation and maintenance personnel, is required in cooperation with Owner's Commissioning Coordinator.
- B. **Contractor's Procedures prior to Request for Inspection:** Before requesting inspection for certification of Substantial Completion, complete the following tasks and list exceptions in the request.
 - 1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.
 - a. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.
 - 2. Advise Owner of pending insurance change-over requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.
 - 4. Remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.
- C. **Contractor's Request for Inspection:** When Contractor considers the Work in compliance with requirements of Substantial Completion, submit the following to Kraus-Anderson, who will forward to Architect.
 - 1. A written notice that the Work, or designated portion thereof, is substantially complete.
 - 2. A list of items to be completed or corrected.
- D. **Architect's Inspection Procedures:** On receipt of a request for inspection, Architect shall:
 - 1. Conduct an inspection for Substantial Completion.
 - 2. Architect will review Contractor's List and will supplement the list of items to be completed or corrected, indicating items which must be completed or corrected before Work can be determined to be substantially complete.
 - 3. Architect will prepare the Certificate of Substantial Completion following the inspection, or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.
- E. **Contractor's Corrective Actions Required prior to Substantial Completion:** Contractor shall take necessary action to promptly complete and correct items on the work list that must be completed prior to Substantial Completion.
 - 1. When Contractor has completed the open items, provide written notice to Architect through Kraus-Anderson with an updated list of work items have been completed and those items identified by the Architect that can be completed by Final Completion that are still outstanding, and that the Work is now ready for inspection.
- F. **Architect's Re-Inspection:** On receipt of a request for inspection, Architect shall:
 - 1. Architect will repeat inspections to ensure Work is substantially completed.
 - 2. Results of the completed inspection will form the basis of requirements for final acceptance.
 - 3. Architect will prepare the Certificate of Substantial Completion following the inspection, or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.
- G. **Re-inspection Fees:** Should Architect and Kraus-Anderson be required to perform a second re-inspections due to failure of the Work to comply the Owner may:
 - 1. Compensate Architect and Kraus-Anderson for such additional services.
 - 2. Owner will deduct the amount of such compensation from the final payment to Contractor.

Section 01 7710 – Procedures for Project Closeout

1.03 PROCEDURES FOR FINAL COMPLETION

- A. **Preliminary Procedures:** Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.
1. Submit final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required. Conform to the requirements of Section 01 2900 - Application for Payment.
 2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
 3. Submit a certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved, and the list has been endorsed and dated by Architect.
 4. Submit final meter readings for utilities, records of stored fuel, and similar data as of the date of Substantial Completion, or when Owner took possession of and responsibility for corresponding elements of the Work.
 5. Submit consent of surety to final payment.
 6. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. **Notification for Final Completion:** When Contractor considers Work is complete, Contractor shall submit written certification to Architect, through Kraus-Anderson Construction Company, indicating:
1. Contract Documents have been reviewed.
 2. Work has been inspected for compliance with Contract Documents.
 3. Equipment and systems have been tested in the Owner's presence.
 4. Items on punch list for Substantial Completion have been fully completed or corrected.
 5. Contractor's closeout Submittals have been properly assembled and submitted.
 6. Work has been completed in compliance with Contract Documents and is ready for final inspection.
- C. Architect, accompanied by Kraus-Anderson Construction Company and Owner's Representative, will make an inspection to verify status of completion with reasonable promptness after receipt of Contractor's written certification.
- D. If Owner's Representative or Architect considers there is incomplete or defective Work:
1. Architect will promptly notify Contractor in writing, listing the incomplete or defective Work.
 2. Contractor shall promptly take steps to remedy the stated deficiencies, and send Architect (through Kraus-Anderson Construction Company) a second written certification that the Work is complete.
- E. When Architect finds Work is acceptable under the Contract Documents, Architect will request that Contractor make closeout submittals.
- F. **Re-inspection Procedure:** Architect will re-inspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Architect.
1. Upon completion of re-inspection, Architect will prepare a certificate of final acceptance, or advise Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.
 2. If necessary, re-inspection will be repeated.

1.04 CONTRACTOR'S CLOSEOUT SUBMITTALS

- A. Before requesting final inspection for certification of final Acceptance and Final Payment, Contractor shall prepare and submit the following:
1. Subcontractor's "As-built Documents"
 2. Operating and Maintenance Manuals
 3. Special Warranty Manuals.
 4. Start-up and Commissioning Reports, required by contract documents including final test and balance reports.
 5. Evidence of compliance with requirements of authorities having jurisdiction.
 6. Project Record Documents.
- B. When Owner have determined the Work is acceptable under the Contract Documents, and confirmed by the Architect, Contractor shall prepare and submit the final Application for Payment together with the following:
1. Contractor's Affidavit of Payment of Debts and Claims.
 2. Contractor's Affidavit of Release of Liens.
 3. Contractor's lien waiver in the full amount of the Contract Sum.
 4. Lien waivers from Contractors, subcontractors, and major material suppliers who have furnished materials or labor for subcontractor. Lien waivers shall be in the full amount of the contract involved.
 5. Consent of surety to final payment on Consent of Surety Company to Final Payment form.
 6. MN IC134 for final contract value.

Section 01 7710 – Procedures for Project Closeout

1.05 CONTRACTOR'S "AS-BUILT DOCUMENTS"

- A. **Requirement for Contractor "As-Built Documents":** Maintain for Owner, 1 set of As-Built Documents including Drawings, Specifications, Addenda, Change Orders, and other Modifications to the Contract, plus Architect's Clarifications, or other written instructions, reviewed submittals, and test reports to record actual field conditions.
 - 1. Each contractor shall maintain "As-Built Documents" as directed by Kraus-Anderson Construction Company.
- B. **Scope of As-Built Documents:** As-Built Documents include, but are not limited to:
 - 1. Marked-up copies of Contract Documents including drawings and specifications.
 - 2. Marked-up copies of Proposal Requests, indicating which items were accepted and corresponding Change Order number.
 - 3. Copies of Addenda, Change Orders, and other Modifications issued.
 - 4. Copies of "Reviewed" Contractor's submittals, including:
 - a. Reviewed product data and shop drawings.
 - b. Copies of quality control submittals.
 - 5. Other information specified in individual Specification Sections.
- C. **Format for As-Built Documents:**
 - 1. Project Manual: Addenda and other 8-1/2 inch by 11 inch data, bind within 3 ring binder identified on exterior with Project name and Bid Package.
 - a. Include Addenda, Change Orders, and other modifications.
 - 2. Drawings: Legibly mark revisions on large sheets.
 - a. Depths of various elements of foundation in relation to finish first floor datum.
 - b. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - c. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.
 - d. Field changes of dimension and detail.
 - e. Changes made by Field Order or by Change Order.
 - f. Details not on original Contract Drawings.

1.06 OPERATING AND MAINTENANCE MANUALS

- A. **Operating and Maintenance Manual:** In a time frame acceptable to the Owner and before Substantial Completion is scheduled or anticipated assemble and bind in 8-1/2 inch by 11 inch, 3-ring binders, data and operating and maintenance instructions for equipment and materials specified herein. Include the following as applicable.
 - 1. Product data, manufacturer, subcontractor, supplier, source of maintenance/parts supply, wiring and flow diagrams when applicable, cleaning and maintenance instructions for specified surfaces, and a recommended spare parts list for equipment when specified.
 - 2. Include copies of reviewed shop drawings for items of equipment requiring operating and maintenance manuals. Fold to 8-1/2 inch by 11 inch size and bind in separate binders.
- B. Complete operating instructions for equipment. Include index tabs between major sections of operating and maintenance data.
- C. Submit 1 hard copy and 1 electronic copy

1.07 SPECIAL WARRANTY MANUALS

- A. **Warranty Manual:** In a time frame acceptable to the Owner and before Substantial Completion is scheduled or anticipated, assemble and bind in 8-1/2 inch by 11 inch, 3-ring binders, manufacturers' warranties and specified special warranties.
 - 1. Provide 1 hard copy and 1 electronic copy.
 - 2. Provide table of contents and index tabs labeled by Project Manual section numbers.
 - 3. Execute and assemble documents from subcontractors, suppliers, and manufacturers.
- B. For items of Work delayed beyond Date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing date of acceptance as start of warranty period.
 - 1. In no case shall warranty period start before Date of Substantial Completion.

PART 2 - PRODUCTS

- NOT USED

Section 01 7710 – Procedures for Project Closeout

PART 3 - EXECUTION

3.01 FINAL CONSTRUCTION CLEANING

- A. Kraus-Anderson Construction Company will arrange and coordinate Final Construction Cleaning activities to comply with Owner's specific requirements as part of Work Scope 01 5010.
- B. Complete final construction cleaning prior to Architect's Inspection for Substantial Completion.
- C. In addition to removal of debris and cleaning specified under other Sections, clean exterior surfaces as directed by Kraus-Anderson Construction Company including but not limited to:
 - 1. Remove labels are not permanent labels.
 - 2. Clean transparent materials, including mirrors and glass. Remove glazing compounds and other substances that are noticeable vision-obscuring materials.
 - 3. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films, and similar foreign substances.
 - a. Restore reflective surfaces to their original condition.
 - b. Leave concrete floors broom clean.
 - c. Damp mop tile, terrazzo, and resilient flooring.
 - d. Vacuum carpeted surfaces.
 - 4. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances.
 - 5. Clean plumbing fixtures to a sanitary condition
 - 6. Clean light fixtures and lamps.
 - 7. Clean site, including landscape development areas, of rubbish, litter, and other foreign substances. Remove silt fences and drainage protection, sweep paved areas broom clean, remove stains, spills, and other foreign deposits.
 - 8. Rake grounds that are neither paved nor planted to a smooth, even-textured surface.

-- End --

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GARY NEW DULUTH RECREATION CENTER

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**SECTION 02100
SITE PREPARATION**

PART 1 - GENERAL

1.01 SCOPE:

- A. **INCLUDED:** Work included in this spec section generally includes all materials, labor, equipment, and incidentals for the completion of work shown on the Drawings, Specification and/or otherwise required herein.
- B. Site preparation includes but is not limited to existing survey, examination of site, marshaling and access, construction layout, clearing, grubbing, topsoil stockpiling, erosion control, dust control, site protection and protection of all site elements remaining.

1.02 RELATED: General Requirements Division One of this Project Manual governs and is hereby made a part of this section.

- A. **FINISH GRADING** is Spec SECTION 02210.

PART 2 - PRODUCTS

2.01 NOT APPLICABLE - Products do not apply to this Section of the work.

PART 3 - EXECUTION

3.01 EXAMINATION OF THE SITE: The Contractor shall visit, inspect and thoroughly familiarize himself with the site and with the scope of work to be done under his Contract.

3.02 ACCESS: The Contractor shall meet with the Owner's Representative to determine the point of access and areas to be utilized in executing the work. The Contractor shall limit his access to the job site to approved areas.

3.03 PREPARATION: Before commencement of any excavation operations this contractor shall remove from the site organic material, trash and debris, to the extent existing on the construction areas; however, payment request(s) will not be recognized for unauthorized clearing and grubbing in or outside of the construction limits defined on the Drawings.

3.04 CONSTRUCTION LAYOUT:

- A. Contractor shall refer to Construction Documents for all layout work. This includes but is not limited to sidewalks, railings, gates, and site furnishings.
- B. The Contractor shall establish and record all necessary boundary points, lines, elevation, grades and bench marks on site for proper control, coordination with subcontractors and execution of the work. The Contractor or his surveyor shall verify all furnished survey and topographic data and all points, lines and elevations, including elevations at the bases of existing trees which are to remain; the Contractor shall notify the Owner's Representative of any discrepancies between information given on drawings and actual site or field condition and shall not proceed with any affected work until the Owner's Representative issues instructions.

3.05 TOPSOIL: Topsoil is defined as friable loam surface soil found to a depth approximating 4". Satisfactory topsoil is reasonably free of subsoil, lumps, stones and other objects over 1" in diameter; without weeds, roots, other objectionable material. Landscape Architect to approve the topsoil to be reused.

- A. **STRIPPING:** Unless otherwise recommended in Soil Report, strip topsoil, if existing, from area(s) to be graded, to whatever depths encountered in manner to prevent intermingling with underlying subsoil or other objectionable material.
- B. **STOCKPILING:** Stockpile topsoil in storage piles in on-site areas where directed by the Owner's Representative, for use in sod and planting areas. Construct storage piles to freely drain surface water.

Prevent / contain erosion from water by covering and erection of silt fencing around stock piles. Cover storage piles if required to prevent windblown dust.

3.06 JOB SITE CONDITIONS:

- A. **WORK BY OTHERS:** Primary electric, gas and telephone service is normally provided by the local utility companies; however, contractor(s) involved with these particular services shall verify, coordinate and assume responsibility with local Utility Company or Department for provision of proper and adequate temporary and permanent utility service.
- B. **PROTECTION:**
 - 01. **PEOPLE AND PROPERTIES:** Contractor(s) shall, in accord with local laws and regulations, adequately protect persons and properties from being damaged by work of this contract. Contractor(s) shall provide proper and sufficient barricades for safety and protection of persons for this work and adjacent properties during and after work hours.
 - 02. **TREES AND SHRUBS:** Existing trees and shrubs to remain or to be relocated shall be protected from operations related to site construction work.
 - a. Trees to remain are to be protected with approved fencing. Fencing for both deciduous and evergreen trees to include all areas within the drip lines.
 - b. Areas within the drip line of existing or relocated trees shall not have any stockpiling of materials, equipment or machinery. Grading shall not be allowed unless indicated on plans; nor will the passage of equipment such as trucks, compressors or heavy wheel driven machinery be allowed.
 - c. **Damage & Repair -** Retained trees or shrubs that are damaged or disturbed shall be immediately repaired or replaced if necessary by and at cost to the party responsible for the damage.
- C. **DUST CONTROL:** Work of this contract includes dust control as required for alleviation or prevention of dust nuisance on or about the site. Contractor(s) shall assume all liability, including court costs of codefendants, for claims related to dust or windblown materials that are attributable to this work.
- D. **DRAINING:** Contractor(s) shall provide for surface drainage during construction period in manner to avoid creating a nuisance to adjacent areas. Excavations, pits, trenches and sub-grade area(s) shall be kept free of water during entire progress of the work by providing and operating pumps or other equipment necessary to drain. Water shall not be discharged onto adjacent public or private properties without written permission from adjacent property owner(s).
- E. **CLEANUP** shall be in accord with the General Conditions and Requirements.
 - 01. **ROADWAYS:** Public or private ways, highways, roads, streets, alleys, drives, parking areas used as access or egress to or from the site shall be kept free from materials falling from trucks or carried to such ways on tires. Cleaning of roadways shall be done promptly and to satisfaction of Owner's Representative and public or private authority having jurisdiction.

END OF SECTION

**SECTION 02110
CLEARING**

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. Work included: Clearing, grubbing, removing and disposing of all vegetation and debris and sawcutting and removal of asphalt paving, play equipment, removal of concrete curbing and removal of chainlink fencing within work limits, and such other areas as required, except objects designated to remain. Also includes preservation from injury or defacement of all vegetation and objects designated to remain.

1.02 RELATED: General Requirements Division One of this Project Manual governs and is hereby made a part of this section.

- A. EARTHWORK is Spec SECTION 02200.
- B. FINISH GRADING is Spec SECTION 02210.

1.03 SUBMITTALS:

Permits: If requested, furnish copies of permits. Contractor is responsible for obtaining all required permits from jurisdictional agencies.

1.04 JOB CONDITIONS:

Protection: Protect trees, shrubs and planted areas to remain from damage or from unnecessary vehicular traffic, in manner acceptable to Owner's Representative. Protect bench marks, staking, existing structures, roads, sidewalks, paving, and curbs from damage. Maintain designated temporary roadways, walkways, and detours. Burning is not permitted.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION

3.01 CLEARING:

- A. Clear and/or grub all surface objects and all turf, stumps, roots, paving, concrete curbs and chainlink fencing and other protruding obstructions, not designated to remain. Refer to demolition plan for limits of construction.

3.02 DISPOSAL: Remove and dispose of all waste materials off site in an approved landfill.

END OF SECTION

**SECTION 02150
AGGREGATE BASE**

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The Conditions of the Contract and the Provisions of Division 01 apply to all work of this Section.
- B. This Section includes all labor, materials and equipment necessary to furnish place and compact aggregate base for exterior pavement structures where shown on drawings and specified herein.
- C. Related Work Specified Elsewhere:
 - 1. Site Preparation - Section 02100
 - 2. Concrete Flatwork - Section 02520

1.02 SUBMITTALS

- A. TESTS: The following tests shall be made by an independent testing laboratory. The Contractor shall pay for all tests. One set of the following tests shall be performed during construction of the Aggregate Base Course:
 - 1. Gradation..... ASTM C136-76 and C117-76
 - 2. Abrasion..... ASTM C131-76
 - 3. Spall Material..... ASTM C123-69
 - 4. Standard Proctor Density..... ASTM D698

Field density tests shall be made in conformance with ASTM D1556-64. Test compaction of base course at locations not more than 50 feet on center.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Aggregate shall conform to MnDOT Section 2211, Aggregate Base (or approved equal) using Class 5 aggregate.

PART 3 - EXECUTION

3.01 CONSTRUCTION REQUIREMENTS

- A. Coordinate with work under other Sections to confirm prepared subgrade elevations and conditions prior to placing aggregate base.
- B. Conform with MnDOT Section 2211, Aggregate Base, (or approved equal) to place compacted layers not more than 3" in compacted thickness; except that if vibratory or other approved types of special compacting equipment are used, the thickness of each layer may be increased to a maximum of 6". Base course under all walks and paving shall be 6" compacted thickness unless otherwise noted on drawings.
- C. Compact the full thickness of each layer of aggregate base to 100% of maximum density. Compaction tests are described in Article 1.02 above.

END OF SECTION

**SECTION 02210
FINISH GRADING**

PART 1 - GENERAL

- 1.01 INCLUDED: Work of this Spec Section generally includes finish grading for sodded or otherwise planted areas.
- 1.02 RELATED: General and Supplemental Conditions and all of Division One Sections govern and are hereby made a part of all work of this Section.
- A. SITE PREPARATION: Spec SECTION 02100.
 - B. SODDING: Spec SECTION 02934.
 - C. TOPSOIL: Spec SECTION 02910
- 1.03. JOB CONDITIONS:
- A. Examine the site, determine the nature of conditions to be encountered and accept the site as found upon the examination.
 - B. PROTECTION:
 - 01. Carefully maintain and protect all bench marks, corner monuments and other points; if disturbed or destroyed, replace as directed and at the Contractor's expense.
 - 02. Report to the Owner's Representative any underground utilities which may be encountered.
 - 03. Provide for surface drainage during construction.
 - 04. Appropriate protective measures shall be taken to reduce dust, noise and damage.
 - 05. Have all utility lines and appurtenances located by the utility companies prior to beginning work.
 - 06. Coordinate with the Owner's Representative on earthwork sequencing and operations. Give advance notification to other contractors, utility companies and the Owner's Representative when doing work that affects their operations.
 - 07. All existing pavements, utilities, vegetation and structures to remain shall be protected at all times. Any damage caused by the Contractor shall be reported to the Owner's Representative. The damaged item or items shall be repaired or removed at the expense of the Contractor and shall be approved by the Owner's Representative.
 - 08. Maintain clean pavement for all adjacent parking lots, sidewalks and roads during entire project.

PART 2 - PRODUCTS

- 2.01 NOT APPLICABLE: Products do not apply to this Section of the work.

PART 3 - EXECUTION

- 3.01 GRADING:
- A. The Contractor shall do all finish grading on site in all planting areas as indicated on Drawings. Where no elevations are provided on the Drawings, the Contractor shall match the existing grade.
 - B. Excavated and filled sections and adjacent transition areas shall be reasonably smooth, compacted and free from irregular surface changes.
 - C. Obtain Owner's Representative's approval of the subgrade before commencing further improvements. Tolerances shall not exceed 3/4" above or below desired subgrade elevations in all areas to be graded.

END OF SECTION

**SECTION 02315
EXCAVATION & BACKFILL**

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The Conditions of the Contract and the Provisions of Division 01 apply to all work of this Section.
- B. This Section shall include furnishing all labor, material and equipment necessary to do all excavating and backfilling for the building, and do any work related to the earthwork construction.
- C. Related Work Specified Elsewhere:
 - 01. Site Preparation - Section 02100
 - 02. Aggregate Base - Section 02150
 - 03. Bituminous Paving - Section 02512
 - 04. Concrete Flatwork, Paving - Section 02520
 - 05. Subsurface Drainage - Section 02620
 - 06. Topsoil - Section 02910
- D. All trenching and other miscellaneous excavation designated under other sections of these specifications shall be in accordance with this section.
- E. Unit Prices - Contractor shall state in the appropriate spaces on the Bid Form, Unit Prices for the following items as defined herein:
 - 01. Rock Excavation - per cubic yard.
 - 02. Granular fill under floor slabs and footings - per cubic yard.
 - 03. Mass Excavation - per cubic yard.
 - 04. Hand Excavation - per cubic yard.

1.02 DEFINITIONS

- A. Rock - Is defined as stone or hard shale in original ledge, boulders 2 cu. yd. in volume or greater, masonry or concrete that cannot be broken and removed by normal job equipment without the use of explosives and drills. This classification does not include materials such as loose rock, concrete or other materials that can not be removed by means other than drilling and blasting and wedging, but which, for reasons of economy in excavating, the Contractor prefers to remove by drilling or blasting.
- B. Earth : Material to be excavated that can be removed by hand shoveling, power shovel, bulldozer or other normal equipment but not requiring the use of drills shall be defined as earth removal, mass excavation or hand excavation.

1.03 TESTING

- A. Owner shall hire and pay an independent testing laboratory to verify soil conditions and do compaction tests on all backfill materials.
- B. This contractor shall cooperate with testing laboratory in developing a testing schedule.

1.04 UTILITIES

- A. Rules and regulations governing the respective utilities shall be observed in executing all work under this Section.
- B. Active utilities shown on the drawings shall be adequately protected from damage and removed and relocated only as indicated or specified. Where active utilities are encountered but are not shown on the drawings, the County/Owners Representative shall be advised; the work shall be adequately protected, supported or relocated as directed by the County/Owners Representative; the contract price will be adjusted for such additional work.
- C. This contractor shall contact the local governing utility for assistance in locating utilities.

SECTION 02315
EXCAVATING & BACKFILL

D. If you are doing any digging, state law requires you to notify Diggers Hotline of your intent to work, and to contact them at least three working days in advance.

To notify of your intent to dig:

- Call **811** or
- Visit Diggers Hotline (800)-242-8511 or (262)-432-7910
- Hearing Impaired (TDD) call 800-542-2289

PART 2 - PRODUCTS

2.01 FILL OUTSIDE THE BUILDING

- A. Exterior backfill material shall be excavated material free from concrete, brick, broken masonry, stone, rock, wood, clay lumps, frozen earth, soft and unstable material which does not compact readily by tamping and rolling.
- B. Additional fill required to bring up to design grades shall be furnished under this contract. Fill shall meet the requirements set forth in the above paragraphs.

2.02 FILL AT DRAINTILE

- A. Pea Rock - Shall be a uniform grade of 3/8" diameter rocks.

2.03 COMPACTION CRITERIA

- A. Compaction criteria for this construction shall meet the following based on ASTM D1557:
Sub-grade Fills: Minimum Percent Compaction

Below Footings	95
Below Slabs-on-Grade	95
Below Pavements	95

Subbase Fills:

Below Footings	95
Below Slabs-on-Grade	95
Below Pavements	95
Aggregate Base Course (MDOT 22A or approved equal)	95
Non-Structural Fills	85

PART 3 - EXECUTION

3.01 EXCAVATION FLATWORK

- A. Provide barricades, fences and protective devices as required for safety around all excavations.
- B. Excavate all material of any nature to the lines and grades required by the drawings. Excavation shall be confined generally to the building lines allowing sufficient space for removal of form work, application of damp-proofing and similar foundation work.
- C. Where concrete slabs are to be placed on grade, all loam organic material or other undesirable soil shall be removed to its full depth. In any case, soil shall be removed to a point at least six inches

**SECTION 02315
EXCAVATION & BACKFILL**

below the bottom of the slab.

- D. When excavations have reached the required depth, make at least 4 borings, 2 inches in diameter and 3 feet deep where directed. If material disclosed is satisfactory to Owners Representative, the holes shall be filled with concrete. If foundations require greater depth because of latent soil or other unusual conditions, adjustments will be made in the contract. No concrete shall be poured until soil at footing level has been examined and approved by the Owners Representative.
- E. Roll proof the exposed material beneath the building, paved areas and walks using a tractor drawn vibratory compactor. Compaction shall be to 95% of the Modified Proctor Density beneath the building and 95% beneath paved areas and walks.
- F. Protect bottom of excavation against freezing by means of blankets or straw as required. No fill or footings shall be placed over frozen ground and no frozen fill material shall be placed.

3.02 EXCAVATION RAINGARDEN

- A. Provide barricades, fences and protective devices as required for safety around all excavations.
- B. Excavate all material of any nature to the lines and grades required by the drawings. Excavation shall be confined generally to the building lines allowing sufficient space for removal of form work, application of damp-proofing and similar foundation work.
- C. Where concrete slabs are to be placed on grade, all loam organic material or other undesirable soil shall be removed to its full depth. In any case, soil shall be removed to a point at least six inches below the bottom of the slab.
- D. When excavations have reached the required depth, make at least 4 borings, 2 inches in diameter and 3 feet deep where directed. If material disclosed is satisfactory to Owners Representative, the holes shall be filled with concrete. If foundations require greater depth because of latent soil or other unusual conditions, adjustments will be made in the contract. No concrete shall be poured until soil at footing level has been examined and approved by the Owners Representative.
- E. Roll proof the exposed material beneath the building, paved areas and walks using a tractor drawn vibratory compactor. Compaction shall be to 95% of the Modified Proctor Density beneath the building and 95% beneath paved areas and walks.
- F. Protect bottom of excavation against freezing by means of blankets or straw as required. No fill or footings shall be placed over frozen ground and no frozen fill material shall be placed.

3.03 ROCK EXCAVATION

- A. Material to be excavated is assumed to be earth and other materials that can be removed by power shovel, bulldozer or other normal equipment to excavation work, but not requiring the use of explosives or drills. If rock, as herein defined, is encountered within the limits of excavation, the contract price will be adjusted. When the rock is encountered, the Contractor shall immediately notify the Owners Representative and shall not proceed further until instructions are given and measurements made for the purpose of establishing volume of rock excavation.
- B. Before placing concrete or masonry on rock surfaces, the surfaces shall be leveled off or shelved to a slope not exceeding 1" per foot.
- C. Payment for rock excavation, as defined above, shall be at the agreed unit price per cu. yd. Final computations will be made in a vertical plane from the lowest point from which rock is excavated.

3.04 PUMPING

- A. This Contractor shall provide and operate all pumping equipment necessary to maintain dry conditions. Pumps shall be operated as necessary to keep footing excavations dry until after footings have been poured. Operate pumps as necessary to keep excavated spaces clear of water during construction.

3.05 FILL OUTSIDE THE BUILDING AREA

SECTION 02315
EXCAVATING & BACKFILL

- A. Excavated material that is clean granular material free of contaminants, organic matter or other materials specified to be removed in Section 02100 may be used for backfill.
- B. Any excavated material may be used for backfilling and for berms. Compaction to be 95% standard proctor.

3.06 ROUGH GRADING

- A. Rough grading shall be a reasonably smooth surface approximately six inches below final grade. If sufficient material is not available at the site to raise grades to the contours shown, additional fill material shall be brought in. Fill material shall be sand or clean earth. Grade shall be sloped in such a manner that will insure drainage away from the building at all points.
- B. Grading shall be done to grade stakes placed not less than 50 feet on center each way over the area to be graded. After fill and backfill have settled fill in shallow areas to bring them to the proper grade.

3.07 FINISH GRADING

- A. Surface tolerances, uniformly smooth grading shall be accomplished on all areas, including excavated and fill sections and adjacent transition areas. The finished surface shall be reasonably smooth, compacted and free from all building debris and rubbish. The degree of finish shall be that ordinarily obtainable from blade-grade operations, except as otherwise specified. The finished surface shall be not more than 0.10 foot above or below the established grade or approved cross section. All ditches and gutters shall be finished so as to drain readily. The surface of areas to be top soiled shall be finished so as to drain readily. The surface of areas to be top soiled shall be finished as to a smoothness suitable for the placing of 6" of topsoil. The surface of embankments or excavated areas on which pavement is to be placed shall not vary more than 0.50 foot from the established grade and approved cross section when tested with 10 foot straight-edge applied both parallel to and at right angles to the centerline of the area.
- B. Protection: Protect newly graded areas from the actions of the elements. Any settlement or washing that occurs prior to acceptance of the work shall be repaired and grades reestablished to the required elevation and slopes. Fill to required subgrade levels any areas where settlement occurs.

3.08 SETTLEMENT

- A. Fill and backfill shall be compacted sufficiently to prevent future settlement or displacement of lawns. Particular emphasis shall be directed to utility trenches or deep excavations. If settlement does occur within the one year guarantee period, contractor shall correct the settlement conditions including replacement of sidewalks and blacktopping at no expense to the Owner.

END OF SECTION

**SECTION 02512
BITUMINOUS PAVING**

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The Conditions of the Contract and the Provisions of Division 01 apply to all work of this Section.
- B. This Section includes all labor, material, equipment and services necessary to furnish and install all bituminous paving and related work all in accordance with the drawings and specified herein.
- C. Related Work Specified Elsewhere:
 - 01. Site Preparation - Section 02100
 - 02. Aggregate Base - Section 02150
 - 03. Excavation/Backfill – Section 02315
 - 04. Concrete Flatwork-Paving-Curbs - Section 02520

1.02 SYSTEM DESCRIPTION

- A. Two courses of Bituminous Pavement (plant mixed) in repaired areas
- B. One course of Bituminous Surface Course

1.03 QUALITY ASSURANCE

- A. All work shall conform to requirements of the Minnesota Department of Transportation specifications (or approved equal).

1.04 SUBMITTALS

- A. This contractor shall submit a preliminary design mix for approval by the County/Owners Representative, based on materials outlined in Article 2.01 below.
- B. TESTS: The following tests shall be made by an independent testing laboratory. Tests shall be paid for by the contractor. One set of tests shall be performed for the Base Course and one set of tests on the Surface Course. Test set shall be as follows:
 - 01. Extraction of Bitumen.....ASTM D2172-75
 - 02. Gradation.....ASTM C136-76 and C117-76
 - 03. Field Density.....ASTM D1188-71 and D1559-76
 - 04. Thickness.....Field Measurement

PART 2 - PRODUCTS

2.01 BITUMINOUS MATERIALS

- A. Furnish and place plant mixed bituminous materials using Plant Mixed Bituminous Pavement and Asphalt concrete surface.
- B. BASE COURSE: Conform to MnDOT (or approved equal) Spec. 2331, Type 61 Aggregate Class A or D, Non-wear Course graded per MnDOT (or approved equal) Spec. 3139. Bitumen for base course shall be asphalt cement, 85-100 penetration or 120-150 penetration. The exact bitumen content shall be as determined by the preliminary job mix formula within the range of 3.5 to 5.5% by weight of the total mixture. Base course shall be 2” in compacted thickness.
- C. TACK COAT: Conform to MnDOT (or approved equal) Spec. 2357, Bituminous Tack Coat, RC liquid asphalt.
- D. SURFACE COURSE: Conform to MnDOT (or approved equal) Spec. 2331, Type 61 Aggregate Class A or D, Wear-Course graded per MnDOT (or approved equal) Spec. 3139. Bitumen for the surface course shall be asphalt cement, 85-100 penetration. The exact bitumen content shall be as determined by the preliminary job mix formula within the range of 5-8% by weight of the total mixture. Surface course shall be 1” in thickness.

PART 3 - EXECUTION

3.01 INSTALLATION - BITUMINOUS

- A. Bituminous surfacing shall not be placed until testing lab has approved aggregate base compaction.
- B. Conform with MnDOT (or approved equal) Sections called for above and the following requirements:
 - 01. Compaction shall be complete and uniform over all bituminous surfaces. Ordinary compaction method may be used over each course uniformly compacting until there is no further evidence of consolidation, all roller marks are eliminated, and complete surface drainage is achieved. Roll to attain a uniformly tight and dense surface without voids, cracks, and similar Water traps.

END OF SECTION

**SECTION 02515
CONCRETE PAVER STONES
PART 1 - PERMEABLE**

PERMEABLE CONCRETE PAVER MATERIALS

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes the following:
 - 1. Permeable Concrete Pavers
 - 2. Permeable Joint Opening Aggregate
 - 3. Permeable Joint Aggregate Type 1
 - 4. Permeable Joint Aggregate Type 2
 - 5. Permeable Setting Bed Aggregate (Open-graded)
 - 6. Permeable Base Aggregate (Open-graded)
 - 7. Permeable Subbase Aggregate (Open-graded)

1.02 REFERENCES

Note: Design street, industrial, port and airport pavement thicknesses in consultation with a qualified civil engineer, in accordance with established flexible pavement design procedures, LOCKPAVE[®] software, and in accordance with Interlocking Concrete Pavement Institute Technical Bulletins. Sample construction detail drawings are available from Unilock[®]. This specification may require modifications.

- A. ASTM International, latest edition:
 - 1. C 29 Bulk Density and Voids in Aggregate Materials.
 - 2. C 33, Standard Specification for Concrete Aggregates.
 - 3. C 67, Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile, Section 8, Freezing and Thawing.
 - 4. C 136, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - 5. C 140, Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units.
 - 6. C 144 Standard Specifications for Aggregate for Masonry Mortar.
 - 7. D 448, Standard Classification for Sizes of Aggregate for Road and Bridge Construction.
 - 8. C 936, Standard Specification for Solid Concrete Interlocking Paving Units.
 - 9. C 979, Standard Specification for Pigments for Integrally Colored Concrete.
 - 10. D 698 Test Methods for Moisture Density Relations of Soil and Soil Aggregate Mixtures Using a 5.5 lb (24.4 N) Rammer and 12 in. (305 mm) drop.
 - 11. D 1557 Test Methods for Moisture Density Relations of Soil and Soil Aggregate Mixtures Using a 10-lb (44.5 N) Rammer and 18 in. (457 mm) drop.
 - 12. C1645 Standard Test Method for Freeze-thaw and De-icing Salt Durability of Solid Concrete Interlocking Paving Units
 - 13. D 2940 Graded Aggregate Material for Bases or Subbases for Highways or Airports.

Note: In order to determine the latest version of the listed specifications and standards, please consult the ASTM web page (www.astm.com)

1.03 SUBMITTALS

- A. Permeable Concrete Pavers:
 - 1. Samples for verification: Three representative full-size samples of each paver type, thickness, color and finish that indicate the range of color variation and texture expected upon project completion.
 - 2. Accepted samples become the standard of acceptance for the product produced.

3. Test results from an independent testing laboratory for compliance of concrete pavers with ASTM C 936.
 4. Manufacturer's catalog product data, installation instructions, and material safety data sheets for the safe handling of the specified materials and products.
- B. Permeable Joint Opening Aggregate:
1. Provide three representative one pound samples in containers of aggregate materials that indicate the range of color variation and texture expected upon project completion.
 2. Accepted samples become the standard of acceptance for the product produced.
 3. Test results from an independent testing laboratory for sieve analysis, including washed gradations per ASTM C 136.
 4. Test results for void space percentage per ASTM C 29.
- C. Permeable Setting Bed, Base and Subbase Aggregate:
1. Test results from an independent testing laboratory for compliance with ASTM D 448 No. 8, No. 57 and No. 2.
 2. Test results from an independent testing laboratory for sieve analysis, including washed gradations per ASTM C 136.
 3. Test results for void space percentage per ASTM C 29.
- D. Paving Installation Contractor:
1. Job references from a minimum of three projects similar in size and complexity. Provide Owner/Client/General Contractor names, postal address, phone, fax, and email address.

1.04 QUALITY ASSURANCE

- A. Utilize a Manufacturer having at least ten years of experience manufacturing interlocking concrete pavers on projects of similar nature or project size.
- B. Source Limitations:
1. Obtain Permeable Concrete Pavers from one source location with the resources to provide products of consistent quality in appearance and physical properties.
 2. Obtain Permeable Joint Opening Aggregate from one source with the resources to provide materials and products of consistent quality in appearance and physical properties.
- C. Paving Contractor Qualifications:
1. Utilize an installer having successfully completed concrete paver installation similar in design, material, and extent indicated on this project.
- D. Mockups:
1. Install a 3 ft x 3 ft paver area.
 2. Use this area to determine joint sizes, lines, laying pattern(s) and levelness. This area will serve as the standard by which the workmanship will be judged.
 3. Subject to acceptance by owner, mock-up may be retained as part of finished work.
 4. If mock-up is not retained, haul offsite and dispose legally.

1.05 DELIVERY, STORAGE & HANDLING

- A. In accordance with Conditions of the Contract and Division 1 Product Requirement Section or as submitted by contractor.
- B. Deliver Permeable Concrete Pavers in manufacturer's original, unopened and undamaged container packaging with identification labels intact.
1. Coordinate delivery and paving schedule to minimize interference with normal use of streets and sidewalks adjacent to paver installation.
 2. Deliver concrete pavers to the site in steel banded, plastic banded or plastic wrapped packaging capable of transfer by forklift or clamp lift.
 3. Unload pavers at job site in such a manner that no damage occurs to the product or adjacent surfaces.
- C. Store and protect materials free from mud, dirt and other foreign materials.

1.06 PROJECT/SITE CONDITIONS

- A. Environmental Requirements:

1. Install permeable pavers only on unfrozen permeable setting bed aggregate materials.
2. Install permeable setting bed only on unfrozen permeable base and subbase aggregates.
3. Install permeable base or subbase aggregates only over unfrozen subgrade.

1.07 PERMEABLE CONCRETE PAVER OVERAGE AND ATTIC STOCK

- A. Provide a minimum of 5% additional material for overage to be used during construction.
- B. Furnish 100 square feet of each product and size used to owner for maintenance and repair. Furnish Permeable Concrete Pavers from the same production run as installed materials.
- C. Manufacture to supply maintenance and reinstatement manuals for Permeable Concrete Paver units.

PART 2 PRODUCTS

2.01 PERMEABLE CONCRETE PAVERS

- A. Basis-of-Design Product: The permeable concrete paver shapes are based on:
 1. Unilock:
 - a. Eco-Priora
 - b. Thornbuy
 2. As manufactured by:
 - Unilock
- B. Product requirements:
 1. Permeable Paver Type 1: Unilock Eco-Priora or Pre-Approved Equal
 - a. Color: Heritage Brown
 - b. Finish:
 1. Standard
 - c. Edge: Chamfer - 3 mm rolled
 - d. Size: Manufacture the sizes indicated with a maximum tolerance of plus or minus 1/16 in all directions.
 1. 120 mm (5 in) x 120 mm (5 in) x 80 mm (3-1/8 in) thick
 2. 120 mm (5 in) x 240 mm (10 in) x 80 mm (3-1/8 in) thick
 3. 240 mm (10 in) x 240 mm (10 in) x 80 mm (3-1/8 in) thick

Note: Imperial dimensions are nominal equivalents to the metric dimensions.
- C. Product requirements:
 1. Permeable Paver Type 1: Unilock Thornbury or Pre-Approved Equal
 - a. Color: Bavarian Blend
 - b. Finish:
 1. Flagstone
 - c. Edge: Chamfer - 3 mm rolled
 - d. Size: 3 sizes indicated with a maximum tolerance of plus or minus 1/16 in all directions.
- D. Provide pavers meeting the minimum material and physical properties set forth in ASTM C 936, Standard Specification for Interlocking Concrete Paving Units. Efflorescence is not a cause for rejection.
 1. Average compressive strength 8000 psi (55MPa) with no individual unit under 7,200 psi (50 MPa).
 2. Average absorption of 5% with no unit greater than 7% when tested according to ASTM C 140.
 3. Resistance to 50 freeze-thaw cycles, when tested according to ASTM C1645, with no breakage greater than 1.0% loss in dry weight of any individual unit. Conduct this test method not more than 12 months prior to delivery of units.
- D. Accept only pigments in concrete pavers conforming to ASTM C 979.
 Note: ACI Report No. 212.3R provides guidance on the use of pigments.

- E. Maximum allowable breakage of product is 5%.

2.02 PERMEABLE JOINT OPENING AGGREGATE

- A. Provide Permeable Joint Opening Aggregate materials conforming to ASTM C 33 and gradation requirements as presented in Table 2.
 - 1. Supplier:
 - a. Kafka Granite LLC, 101 S. Weber Ave, Stratford, WI 54484 – Toll Free: 800-852-7415
 - b. Alliance Aqua-Roc
 - c. SEK Perm Chip
 - 2. Color:

**TABLE 2 - ECO-PRIORA & TOWN HALL
PERMEABLE JOINT OPENING AGGREGATE
GRADATION REQUIREMENTS
(GRANITE CHIPS)**

1/8 to 3/16 inch granite chips	
Sieve Size	Percent Passing
1/4 in (6 mm)	97 to 100
No. 4 (4.75 mm)	70 to 83
No. 8 (2.36 mm)	37 to 50
No. 16 (1.18 mm)	0 to 12
pan	

2.03 PERMEABLE SETTING BED AGGREGATE

- A. Provide Permeable Setting Bed Aggregate materials conforming to ASTM C 33 and gradation requirements of ASTM D 448 No. 8 as presented in Table 3.

**TABLE 3
PERMEABLE SETTING BED AGGREGATE
GRADATION REQUIREMENTS**

ASTM No. 8	
Sieve Size	Percent Passing
½ in (12.5 mm)	100
3/8 in (9.5 mm)	85 to 100
No. 4 (4.75 mm)	10 to 30
No. 8 (2.36 mm)	0 to 10
No. 16 (1.18 mm)	0 to 5

2.04 PERMEABLE BASE AGGREGATE

- A. Provide Permeable Base Aggregate materials conforming to ASTM C 33 and gradation requirements of ASTM D 448 No. 57 as presented in Table 4.

**TABLE 4
PERMEABLE BASE AGGREGATE
GRADATION REQUIREMENTS**

ASTM No. 57	
Sieve Size	Percent Passing
1-1/2 in (37.5 mm)	100

1 in (25 mm)	95 to 100
1/2 in (12.5 mm)	25 to 60
No. 4 (4.75 mm)	0 to 10
No. 8 (2.36 mm)	0 to 5

2.05 PERMEABLE SUBBASE AGGREGATE

- A. Provide Permeable Subbase Aggregate materials conforming to ASTM C 33 and gradation requirements of ASTM D 448 No. 2 as presented in Table 5.

**TABLE 5
PERMEABLE SUBBASE AGGREGATE
GRADATION REQUIREMENTS**

ASTM No. 2	
Sieve Size	Percent Passing
3 in (75 mm)	100
2-1/2 in (63 mm)	90 to 100
2 in (50 mm)	35 to 70
1-1/2 in (37.5 mm)	0 to 15
3/4 (19 mm)	0 to 5

Note: For all aggregates, provide washed, clean, have zero plasticity, free from deleterious or foreign matter, crushed, angular rock and contain no No. 200 sieve size aggregate materials used in the construction of permeable pavement. Aggregate materials serve as the structural load bearing platform of the pavement as well as a temporary receptor for the infiltrated water that is collected through the openings in the pavement's surface.

2.06 GEOTEXTILE

- A. Provide Geotextile material conforming to the following performance characteristics, measured per the test methods referenced:
1. 4 oz., nonwoven needle punched geotextile composed of 100% polypropylene staple fibers that are inert to biological degradation and resists naturally encountered chemicals, alkalis, and acids.
 2. Grab Tensile Strength: ASTM D 4632: 115 lbs.
 3. Grab Tensile Elongation: ASTM D 4632: 50%
 4. Trapezoidal Tear: ASTM D4533: 50 lbs.
 5. Puncture: ASTM D4833: 65 lbs.
 6. Apparent Opening Size: ASTM D 4751: 0.212 mm, 70 U.S. Sieve
 7. Permittivity: ASTM D 4491: 2.0 sec⁻¹
 8. Flow Rate: ASTM D 4491: 140 gal/min/s.f.
- B. As supplied by Unilock
1. Carthage Mills – FX-40HS
 2. U.S. Fabrics – US 115NW
 3. Mirafi – 140N

2.07 EDGE RESTRAINTS

- A. Concrete Edge Restraint as indicated.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine areas indicated to receive paving for compliance with requirements for installation tolerances and other conditions affecting performance for the following items before placing the Permeable Concrete Pavers.
 - 1. Verify that subgrade preparation, compacted density and elevations conform to specified requirements.
 - 2. Verify that Geotextiles, if applicable, have been placed according to drawings and specifications.
 - 3. Verify that Permeable Base and Subbase Aggregate materials, thickness, compacted density, surface tolerances and elevations conform to specified requirements.
 - 4. Provide written density test results for soil subgrade, Permeable Base and Subbase Aggregate materials to the Owner, General Contractor and paver installation subcontractor.
 - 5. Verify location, type, and elevations of edge restraints, concrete collars around utility structures, and drainage inlets.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
 - 1. Beginning of bedding sand and paver installation signifies acceptance of base and edge restraints.

3.02 PREPARATION

- A. Verify that the subgrade soil is free from standing water.
- B. Stockpile Permeable Setting Bed, Joint, Base and Subbase Aggregate materials such that they are free from standing water, uniformly graded, free of any organic material or sediment, debris, and ready for placement.
- C. Remove any excess thickness of soil applied over the excavated soil subgrade to trap sediment from adjacent construction activities before placing the Geotextile and Permeable Subbase Aggregate materials.
- D. Keep area where pavement is to be constructed free from sediment during entire job. Remove and replace all Geotextile, Permeable Joint, Setting Bed, Base and Subbase Aggregate materials contaminated with sediment with clean materials.
- E. Complete all subdrainage of underground services within the pavement area in conjunction with subgrade preparation and before the commencement of Permeable Subbase Aggregate construction.
- F. Prevent damage to underdrain pipes, overflow pipes, observation wells, or inlets and other drainage appurtenances during installation. Report all damage immediately.
- G. Compact soil subgrade uniformly to at least 90 percent of Standard Proctor Density per ASTM D 698 for pedestrian areas. Compact soil subgrade uniformly to at least 95 percent Modified Proctor per ASTM D 1557 for vehicular areas.
- H. Proof-roll prepared subgrade according to requirements in Division 31 Section "Earth Moving" to identify soft pockets and areas of excess yielding. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting and replace with compacted backfill or fill as directed.

Note: Base compaction and proof-rolling of the subgrade soil on the recommendations of the Design Engineer. Request the Architect/Engineer to inspect subgrade preparations, elevations and conduct density tests for conformance to specifications.

Note: Mechanical tampers (jumping jacks) are recommended for compaction of soil subgrade and aggregate base around lamp standards, utility structures, building edges, curbs, tree wells and other protrusions. Compact areas, not accessible to roller compaction equipment, to the specified density with mechanical tampers. **CAUTION** – Proceed with care around the perimeters of excavations, buildings, curbs, etc. These areas are especially prone to consolidation and settlement. Do not place wedges of backfill in these areas. If possible particularly in these areas, proceed with backfilling and compacting in shallow lifts, parallel to the finished surface.

3.03 INSTALLATION

A. EDGE RESTRAINTS

1. Provide edge restraints as indicated.
 - a. Install job-built concrete edge restraints to comply with requirements in Division 3 Section "Cast-in-Place Concrete."
 - b. Provide concrete edge restraint along the perimeter of all paving as specified. Install the face of the concrete edge restraint, where it abuts pavers vertical down to the subbase.
 - c. Construct concrete edge restraint to dimensions and level specified and support on a compacted subbase not less than 6 in (150 mm) thick.

B. GEOTEXTILES

1. Provide separation geotextile on bottom and sides of prepared soil subgrade. Secure in place to prevent wrinkling or folding from equipment tires and tracks.
2. Overlap ends and edges a minimum of 18 in. (450 mm) in the direction of drainage.

C. PERMEABLE BASE AND SUBBASE AGGREGATE

1. Provide the Permeable Subbase Aggregate in uniform lifts not exceeding 6 in., (150 mm) loose thickness and compact to at least 95 percent as per ASTM D 4254 to depths as indicated.
2. Compact the Permeable Subbase Aggregate material with at least two passes in the vibratory mode then at least two in the static mode with a minimum 10 ton vibratory roller until there is no visible movement. Do not crush aggregate with the roller.
3. Tolerance: Do not exceed the specified surface grade of the compacted Permeable Subbase Aggregate material more than $\pm 3/4$ in. (20 mm) over a 10 ft. (3 m) long straightedge laid in any direction.
4. Provide the Permeable Base Aggregate material in uniform lifts not exceeding 6 in. (150 mm) over the compacted Permeable Subbase Aggregate material and compact to at least 95 percent as per ASTM D 4254 to depths as indicated.
5. Compact the Permeable Base Aggregate material with at least two passes in the vibratory mode then at least two in the static mode with a minimum 10 ton vibratory roller until there is no visible movement. Do not crush aggregate with the compaction device.
6. Tolerance: Do not exceed the specified surface grade of the compacted Permeable Base Aggregate material more than $\pm 1/2$ in. (13 mm) over a 10 ft. (3 m) long straightedge laid in any direction.
7. Grade and compact the upper surface of the Permeable Base Aggregate material sufficiently to prevent infiltration of the Permeable Setting Bed Aggregate material both during construction and throughout its service life.

Note: In-place density of the Permeable Base and Subbase Aggregate materials may be checked per ASTM D 4254. Establish a Compacted density of 95% of the laboratory index density for the subbase and base stone.

D. PERMEABLE SETTING BED AGGREGATE

1. Provide and spread Permeable Setting Bed aggregate evenly over the Permeable Base Aggregate course and screed to a nominal thickness of 1-1/2 in. (40 mm).
 - a. Protect screeded Permeable Setting Bed Aggregate from being disturbed.
 - b. Screed only the area which can be covered by pavers in one day.
 - c. Do not use Permeable Setting Bed Aggregate material to fill depressions in the base surface.
2. Keep moisture content constant and density loose and constant until Concrete Pavers are set and compacted.
3. Inspect the Permeable Setting Bed Aggregate course prior to commencing the placement of the permeable concrete pavers.
4. Inspect the Setting Bed Aggregate course prior to commencing the placement of the Permeable Concrete Pavers. Acceptance of the Setting Bed Aggregate occurs with the initiation of Permeable Concrete Paver placement.

E. PERMEABLE CONCRETE PAVERS

1. Replace unit pavers with chips, cracks, voids, discolorations, and other defects that

- might be visible in finished work.
2. Mix Concrete Pavers from a minimum of three (3) bundles simultaneously drawing the paver vertically rather than horizontally, as they are placed, to produce uniform blend of colors and textures. (Color variation occurs with all concrete products. This phenomenon is influenced by a variety of factors, e.g. moisture content, curing conditions, different aggregates and, most commonly, from different production runs. By installing from a minimum of three (3) bundles simultaneously, variation in color is dispersed and blended throughout the project).
 3. Exercise care in handling face mix pavers to prevent surfaces from contacting backs or edges of other units.
 4. Provide Permeable Concrete Pavers using joint pattern as indicated. Adjust joint pattern at pavement edges such that cutting of edge pavers is minimized. Cut all pavers exposed to vehicular tires no smaller than one-third of a whole paver.
 5. Use string lines or chalk lines on Permeable Setting Bed aggregate to hold all pattern lines true.
 6. Set surface elevation of pavers 1/8 in. (3 mm) above adjacent drainage inlets, concrete collars or channels.
 7. Place units hand tight against spacer bars. Adjust horizontal placement of laid pavers to align straight.
 - a. When installation is performed with mechanical equipment, use only unit pavers with spacer bars on sides of each unit.
 8. Provide space between paver units of 1/32 in. (1 mm) wide to achieve straight bond lines.
 9. Prevent joint (bond) lines from shifting more than $\pm 1/2$ in. (± 15 mm) over 50 ft. (15 m) from string lines.
 10. Fill gaps between units or at edges of the paved area that exceed 3/8 inch (10 mm) with pieces cut to fit from full-size unit pavers.
 11. Cut unit pavers with motor-driven masonry saw equipment to provide clean, sharp, unchipped edges. Cut units to provide pattern indicated and to fit adjoining work neatly. Use full units without cutting where possible. Hammer cutting is not acceptable.
 12. Prevent all traffic on installed pavers until Permeable Joint Aggregate has been vibrated into joints. Keep skid steer and forklift equipment off newly laid pavers that have not received initial compaction and Permeable Joint Aggregate material.
 13. Vibrate pavers into leveling course with a low-amplitude plate vibrator capable of a to 5000-lbf (22-kN) compaction force at 80 to 90 Hz. Perform at least three passes across paving with vibrator. Vibrate under the following conditions:
 - a. After edge pavers are installed and there is a completed surface.
 - b. Compact installed concrete pavers to within 6 feet (1,800 mm) of the laying face before ending each day's work. Cover pavers that have not been compacted and leveling course on which pavers have not been placed, with nonstaining plastic sheets to prevent Permeable Setting Bed Aggregate from becoming disturbed.
 14. Protect face mix Concrete Paver surface from scuffing during compaction by utilizing a urethane pad.
 15. Remove any cracked or structurally damaged pavers and replace with new units prior to installing Permeable Joint Opening Aggregate material.
 16. Provide, spread and sweep Permeable Joint Opening Aggregate into joints immediately after vibrating pavers into Permeable Setting Bed course until full. Vibrate pavers and add Permeable Joint Aggregate material until joints are completely filled, then remove excess material. This will require at least 4 passes with a plate compactor.
 17. Remove excess Permeable Joint Aggregate broom clean from surface when installation is complete.

3.04 FIELD QUALITY CONTROL

- A. Verify final elevations for conformance to the drawings after sweeping the surface clean.

1. Prevent final Concrete Paver finished grade elevations from deviating more than $\pm 3/8$ in. (± 10 mm) under a 10 ft (3 m) straightedge or indicated slope, for finished surface of paving.
 - B. Lippage: No greater than 1/32 in. (0.8 mm) difference in height between Permeable Concrete Pavers and adjacent paved surfaces.
- 3.05 REPAIRING, CLEANING AND SEALING
- A. Remove and replace unit pavers that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Provide new units to match adjoining units and install in same manner as original units, with same joint treatment and with no evidence of replacement.
 - B. Cleaning: Remove excess dirt, debris, stains, grit, etc. from exposed paver surfaces; wash and scrub clean.
 1. Clean Permeable Concrete Pavers in accordance with the manufacturer's written recommendations.
- 3.06 PROTECTION
- A. Protect completed work from damage due to subsequent construction activity on the site.
- 3.07 PERMEABLE JOINT AGGREGATE MATERIAL REFILLING
- A. **Remove all debris from joint and provide additional Permeable Joint Aggregate material after 120 days and before 150 days after date of Substantial Completion/Provisional Acceptance.**
 1. **Fill Permeable Joint Aggregate material full to the lip of the paver.**
- 3.08 LIFE CYCLE ACTIVITIES
- A. Paver cleaning: Clean Permeable Concrete Pavers as needed to remove staining, dirt, debris, etc.
 1. Clean per manufacturers recommendations.
 - B. Maintenance: Permeable Joint Aggregate Material.
 1. Annually inspect Permeable Joint Aggregate material for areas clogged with debris.
 2. Vacuum or sweep as necessary to restore surface infiltration.
 3. Remove debris by vacuuming or sweeping Permeable Joint Aggregate
 - a. Replenish removed Permeable Joint Aggregate material with clean aggregate material flush to paver lip.
 - b. Sweep excess material from paver surface.

END OF SECTION

**SECTION 02520
CONCRETE FLATWORK, PAVING**

PART 1 _ GENERAL

- 1.01 **INCLUDED:** Work of this Section generally includes provision of on-site concrete curbs, walks, ramps and paved seating and pedestrian plazas.
- 1.02 **RELATED:** General Requirements Division One of the Project Manual pertains to and is hereby made a part of the work of this Section.
- A. **FORMWORK:** Spec SECTION 03100.
 - B. **REINFORCING STEEL:** Spec SECTION 03200.
 - C. **CONCRETE ACCESSORIES:** Spec SECTION 03250.
- 1.03 **QUALITY ASSURANCE:** Materials, items, accessories, manufacturers, proprietary, are listed in Part 2 - PRODUCTS and Part 3 - EXECUTION of this Spec Section.
- A. **TESTING AGENCY QUALIFICATION:** Field testing, including taking of cylinders and cones, loading or coring if required, shall be by independent testing laboratory engaged by the contractor.
- 1.04 **REFERENCES:** Comply with requirements of manufacturer, codes, specifications, standards, cited in this Spec Section, except where more stringently shown or specified comply with construction documents.
- A. American Concrete Institute (ACI):
 - 01. ACI 211.1-77 Recommended Practice for Selecting Proportions for Normal and Heavyweight Concrete.
 - 02. ACI 301-84 Specifications for Structural Concrete for Buildings.
 - 03. ACI 302-69 Recommended Practice for Concrete Floor and Slab Construction.
 - 04. ACI 306R-88 Cold Weather Concreting.
 - 05. ACI 318-77 Building Code Requirements for Reinforced Concrete.
 - 06. ACI 305R-89 Hot Weather Concreting.
 - B. American Society for Testing and Materials (ASTM):
 - 01. ASTM C31_69 (1980) Making and Curing Concrete Test Specimens in the Field.
 - 02. ASTM C33_81 Spec for Concrete Aggregates.
 - 03. ASTM C150_81 Spec for Portland Cement.
 - 04. ASTM C260_77 Spec for Air-Entraining Admixtures for Concrete.
 - 05. ASTM C309_81 Spec for Liquid Membrane-Forming Compounds for Curing Concrete.
 - 06. ASTM C494_80 Spec for Chemical Admixtures for Concrete.
 - 07. ASTM E329_77 Rec Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction.
 - C. U.S.A. Federal Specifications (FS):
 - 01. FS TT-C-800A(2) 23 Jun 77, Curing Compound, Concrete, For New and Existing Surfaces.
 - D. ADA Handbook for walks, ramps and curb ramps.
 - E. Douglas County standards.
- 1.05 **SUBMITTALS** shall be made in compliance with 1.03.
- 1.06 **CONCRETE HANDLING TIME:** No more than 90 minutes shall be allowed to elapse between the time the concrete is loaded on the truck to the time that it is placed on site.
- 1.07 **JOBSITE CONDITIONS**
- A. **ENVIRONMENTAL REQUIREMENTS:**
 - 01. **COLD WEATHER:** When outside temperature is below 40°F (5°C) or likely to fall below 40°F during 24-hour period before or after placing, supplier and installer(s) shall employ equipment and means for heating materials and keeping materials from freezing. Frozen materials or materials containing ice shall not be used. Temperatures of separate materials when placed in mixer shall not exceed 140°F. Temperature of concrete when placed shall be above 40°F.
 - 02. **HOT WEATHER:** When outside ambient temperature is above 75°F or likely to rise above 75°F supplier and installer shall take precautions to prevent water evaporation and subsequent pre-

- hardening of mixed materials.
03. **INCLEMENT WEATHER:** Protect completed in-place erected work from rain, hail, snow, freezing, blowing acts of nature. Maintain minimum temperature of 40°F around newly placed items for minimum 48-hours by use of supplementary heat, electric blankets or infrared lamps.

PART 2 - PRODUCTS

2.01 MATERIALS & ITEMS:

- A. **CONCRETE:** Ready-mixed concrete, conforming to ASTM C94. Six sack mix (540 lbs) 4,000 p.s.i. at 28 days, 2" to 4" slump, air-entrained to 6% to 7% with no additional additives and no additional water added on site.
- B. **CEMENT:** Six sack per cubic yard minimum, conforming to ASTM C150, Type I or II.
- C. **FINE AGGREGATE:** Sand, natural or manufactured; well graded, clean, hard; conforming to ASTM C33; free from clay, loam, mica, sticks, organic matter, other impurities.
- D. **COARSE AGGREGATE:** Same as fine aggregate except gravel or crushed stone, well graded 1/4" (6mm) to 1-1/2" (4cm) for caissons and footings; maximum 3/4" (2cm) for slabs, walls, other structural elements.
- E. **WATER:** Fresh, clear, clean, free from oil, acid, chemicals, animal or vegetable matter, alkalies or other material(s) or impurities harmful to cement; potable, suitable for domestic consumption. If heated, 100°F (38°C) maximum. No water added to concrete on site.
- F. **PLASTICIZER:** Master Builders POZZOLITH, Protex PDA, Sika PLASTIMENT, conforming to ASTM C494, retarded or normal formula as required by weather conditions and desired workability.
- G. **AIR-ENTRAINMENT:** Protex, Master Builders, Sika, Gifford-Hill AEA, in foundations and exterior flatwork only, conforming to ASTM C260, controlled at 6% plus/minus 1% at installation.
- H. **ACCELERATORS:** Calcium chloride or any other salt, salt-like or chloride-like admixture shall not be used in cast-in-place concrete work.
- I. **HARDENER-SEALER:** Over exterior flatwork, and slabs-on-grade provide National Expansion Joint Co. TECHKOTE 1020, Symons CURE & SEAL, L&M DRESS & SEAL #18, one-coat clear concentrate conforming to ASTM C309 and FS TT-C-800; may also be used as curing agent for exterior concrete other than flatwork.
- J. **SLEEVES:** Sleeves under paved areas shall be PVC Schedule 40 unless specified otherwise sized and located as shown on Drawings.
- K. **FIBROUS REINFORCING:** "Fibermix" by Fibermesh Company of Chattanooga, TN, or pre-approved substitute.
 - 01. Physical characteristics:
 - Specific Gravity: 0.91
 - Tensile Strength: 70 to 100 ksi
 - Fiber Lengths: 1/2 inch, 3/4 inch

PART 3 - EXECUTION

3.01 SCHEDULE OF CONCRETE MIXES:

- A. Exterior Concrete Flatwork
 - 01. Compressive strength at 28 days 4,000 psi
 - 02. Minimum Cement 6 sacks
 - 03. Maximum aggregate size 3/4 inches
 - 04. Air Entrainment 5 to 7 percent
 - 05. Maximum Water Cement Ratio 0.50
 - 06. Fibrous Reinforcement 1.5 lb/cy

- 3.02 **CONTROL & CONSTRUCTION JOINTS** not shown or noted will be located and formed in accord with ACI 318, Spec SECTION 03250, this spec section and the drawings.

3.03 INSTALLATION:

- A. **DISTRIBUTION:** Distribute concrete evenly in the forms to produce a homogeneous composition free of air pockets, honeycombs, pouring joints and other imperfections. Use mechanical vibrators operated by experienced personnel in walls only. Do not over-vibrate or drag vibrator to cause segregation of material. Place concrete in maximum 24" lifts; no drop greater than 36".

- B. CURING: Cure on-site cast concrete finish work. Curing compound, if used, should be clear concentrate material.
- C. PATCHING: Immediately after removing forms grout flush with Portland cement grout, 1 part cement to 4 parts sand, minor honeycombing in exposed to view walls and paving. Major honeycombing in exposed areas shall be cause for removal of section to nearest construction joint. In unexposed areas, honeycombing shall be removed to solid concrete and patched to insure structural requirements.
- D. FINISHING: All surfaces of exposed concrete are to be finished to be approved by Owner's Representative. Do not use dry cement or mixture of dry cement and sand on any setting concrete surfaces to absorb moisture or stiffen mix. Do not trowel if free water is present. Do not add water to concrete on site. Do not overwork/over-trowel concrete so as to weaken surface layer and allow spalling after concrete has cured.
- E. WALKS: Minimum 4" thick with fibrous reinforcing (except where otherwise noted on the Drawings), with expansion joints at intervals of approximately 25 ft. and tooled control joints at +/- 5'-0" intervals equal to width of walks or maximum 8ft. o.c. (space joints equally in run). Tool edges to rounded profile and finish as noted herein or shown on the Drawings. Pitch walks 1/4" per ft. for drainage unless otherwise indicated. 6x6x1.4x1.4 Welded Wire Mesh (WWM) to be used in all sidewalk areas.
- F. RAMPS: Construct ramps similar to walks. Maximum allowable slope not to exceed 1 ft. vertical in 12 ft. horizontal, with maximum rise not to exceed 30" between level landings. Provide an 8" thickened edge along both sides of ramp as shown on the drawings for anchoring of metal hand railings.
- G. CURBS: Construct to profiles indicated as shown in Drawings. Provide expansion joints at 30 ft. o.c. maximum.
- H. JOINTS:
 - 01. Expansion Joints: Construct expansion joints at spacing indicated or specified herein, at joints between concrete curbs and sidewalks, and joints between walls or paving and manholes or fixed structures. Form joints with 1/2" thick x full depth compressible filler material; form upper 1/2" of joints with removable plastic "void strip" where joints are to be sealed.
 - 02. Sidewalk Joints: Divide sidewalk into sections by installing tooled dummy joints at intervals indicated on the Drawings. Joint dimensions shall be approximately 1/8" wide x 1/3 the concrete depth.
 - 03. Provide bond break between concrete walk and building surfaces.

3.04 FINISHING, PROTECTION AND CURING

- A. FINISHES: Unless otherwise indicated or noted on the Drawings, provide the following finishes on concrete flatwork and paving:
 - 01. Walks: Medium broom, non-slip finish, with uniform striations perpendicular to long dimension of walk or ramp.
 - 02. Paving: medium broom, non-skid finish, with striations in opposite directions in alternate panels defined by expansion or control joints.
 - 03. Curbs: Medium broom or brush finish, perpendicular to long dimension.
 - 04. Ramps: Heavy broom non-slip finish,
 - 05. Steps: Heavy broom non-slip finish, perpendicular to long dimension.
 - 06. Edges: Edge all outside edges of concrete sidewalks, paving and other flatwork with a 1/5" radius edging tool.
- B. PROTECTION:
 - 01. Provide barricades or other suitable barriers to prevent pedestrian or vehicular traffic until concrete has sufficiently hardened.
 - 02. Remove and replace flatwork and other concrete work defaced by vandals, at no additional cost to the Owner.
- C. CURING: Comply with applicable provisions of Section 03300.

3.05 CLEANUP shall be accomplished in accord with paragraph 1.32 of Spec SECTION 02100.

- A. ROADWAYS & SITE - Concrete contractor(s) shall keep the site and public and private ways (streets and roads) used as access or egress from the site free from materials falling from concrete trucks or other vehicles associated with the work and carried to such ways on wheels, tires, cleats, etc. Cleaning of site and roadways shall be done promptly and to satisfaction of Owner's Representative and public or private authority having jurisdiction.

END OF SECTION

**SECTION 02620
SUBSURFACE DRAINAGE**

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The Conditions of the Contract and the Provisions of Division 01 apply to all work of this Section.
- B. This section includes all labor, material, equipment and services necessary to furnish and install all drain pipe, as indicated in accordance with the drawings and the specifications, for a complete installation.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Gravel, pearock, and fill material, See Section 02315 Excavation & Backfilling.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Draintile - 4" or 6" diameter corrugated polyethylene, perforated tubing with integral polypropylene protective fabric wrap, conforming to ASTM F405, as manufactured by Advanced Drainage System Inc., ADS-Green Stripe Drain Guard 4" No. 472 or equal.
- B. Draintile Accessories - Provide all couplings, elbows and tees required to install new draintile to existing draintile shown on drawings. Accessories shall be from same manufacturer as draintile.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install draintile according to manufacturer's instructions. Connect draintile to existing draintile as shown on drawings. Provide an evenly sloping grade from existing draintile high point to low point and make a secure connection with existing.
- B. Provide a 2" minimum bed of gravel below draintile at the necessary elevations.

END OF SECTION

SECTION 02810
IRRIGATION SYSTEM / PERFORMANCE

PART 1 - DESCRIPTION OF WORK

1. Limits of underground irrigation system to be within the right of way of 101st and within the park both Phase I and Phase II.
2. Work includes design and installation of underground irrigation system for project site.

PART 2 - QUALITY ASSURANCE

1. Subcontract irrigation work to a single firm specializing in irrigation work and having a minimum of five years of experience with projects of similar size and scope.
2. Manufacturers Qualifications: Provide underground irrigation system as a complete unit produced by a single acceptable manufacturer, including heads, valves, controls and accessories.

PART 3 - PERMITS, LICENSES AND INSPECTIONS

1. Contractor is responsible for obtaining all permits and licenses required for installation to comply with all local and state laws and ordinances. Payment of related fees incident to obtaining necessary permits, licenses and inspections shall be by this contractor.

PART 4 - SUBMITTALS

1. Product: Submit manufacturer's technical data and installation instructions for underground sprinkler system.
2. Shop Drawings: Submit shop drawings for underground irrigation system including plan layout and details illustrating location and type of heads, valves, piping circuits, controls, controller, backflow preventer and meter enclosure and accessories. Include design calculations for operation of system.
3. Record Drawings: Following completion and acceptance of installation, contractor shall furnish "as-built" drawings showing all sprinkler heads, valves, drains, and pipe line locations and depths to scale where required. Provide drawings on reproducible mylar stock and in a dwg format.
4. Operating Manuals/Instructions: Submit four operating manuals covering the complete system and instruct city representatives on the correct operation of the system.

PART 5 - ACCEPTABLE MANUFACTURERS

1. **Manufacturer:** Subject to compliance with requirements, provide products by the following: The Toro Company, Irrigation Division or Approved Substitute.

PART 6 - MATERIALS

1. **Pressure Pipe:** Comply with following for interior of above grade piping:
 - a. 80 mm and larger, galvanized steel pipe, ASTM A 120, Schedule 40.
 - b. Under 80mm, galvanized steel pipe, ASTM A120, Schedule 40, or seamless copper water tube, ASTM B88, Type "K", drawn temper.
2. **Comply with the following for exterior below-grade piping:**
 - a. PVC Plastic Pipe: ANSI / ASTM A120, Class 160, Schedule 40.
 - b. Galvanized Steel Pipe: ANSI / ASTM A 120, Schedule 40.
 - c. Polyethylene Pipe: Use for size 40 mm and less.
3. Provide one of the above at Contractor's option.
4. **Circuit Pipe (downstream from circuit valves):** Comply with following:
 - a. Polyethylene plastic pipe, ASTM D 1785, Schedule 40.
 - b. Galvanized steel pipe, ASTM A 120, Schedule 40.
 - c. Seamless copper water tube, ASTM B88, Type "M", drawn temper.
5. Provide one of the above at Contractor's option.
6. **Pipe Fittings:** Comply with following:
 - a. For PVC plastic pipe, ASTM D2466 stock fitting with ASTM D 2564 solvent cement.
 - b. For galvanized steel pipe, ANSI B16.3 galvanized malleable-iron crewed fittings.
 - c. For copper tubing, ANSI B16.22 wrought copper or cast brass, recessed solder joint type fittings.
7. **Valves:** Manufacturer's standard of type and size indicated and as follows:
 - a. Provide cast bronze, unless otherwise indicated.
 - b. Manual Circuit Valves: Globe valves.
8. **Quick Coupling Valves:** Manual valves, fitting of quick coupling key operation. Valves shall fully open with one-half turn of key.
 - a. Furnish two quick coupling valve keys with handles and swivel end to fit 25mm threaded hose connection. Locate one quick coupling in behind the backstop and adjacent to the north of side of building.

9. Automatic Circuit Valves: Globe valves operated by low-power solenoid, normally closed, manual flow adjustment.
10. Backflow Preventer: Manufacturer's standard to suit sprinkler system and local plumbing codes and standards.
11. Sprinkler Heads: Manufacturer's standard unit designed to provide uniform coverage over entire area of spray at available water pressure, as follows:
 - a. Shrubbery: Fixed pattern with screw-type flow adjustment.
 - b. Pop-Up Spray: Fixed pattern with screw-type flow adjustment and stainless steel retraction spring.
12. Valve Box: As manufactured by Amtek or other as approved, and shall be 305mm or jumbo size for automating electric valves. Valve box shall be 10 inches round for quick coupling valves.
13. Drainage Backfill: cleaned gravel or crushed stone, graded from 76mm maximum to 19mm minimum.
14. Controller Enclosure:
 - a. Weatherproof and vandal proof enclosure to contain irrigation equipment, work to include: a) a concrete base; b) metal cabinet; c) piping, backflow preventer, controller, water meter, blowout pipe, valves, fittings; d) electrical and water service connections, and other components necessary to construct the system complete in place as specified. Location of irrigation controller to be shown on plans 1) at in main utility room, contractor to coordinate all conduit into building.
 1. Concrete Base: Cast in place concrete base to support the weight and area requirements of the equipment and enclosure. All penetrations through the base shall be PVC sleeve the full depth of the concrete. All power and control wiring shall be installed in NEC, approved conduit, and all wiring shall be in accordance with NEC, state and local codes.
 2. Equipment Enclosure: Provide shop drawings for approval. The cabinet shall be primed with one coat of an industrial grade epoxy based primer and finished with two coats of an industrial grade epoxy based enamel paint. Paints used shall be approved by the project landscape Architect.
 3. Pipe and Fittings: Piping installed above the top of the concrete slab shall be type "K" hard drawn copper, solder joint, 95-5 solder and Number 50 flux. Unions provided for the installation shall be solder joint type. Provide Di-electric unions where copper pipe is connected to steel equipment.

PART 7 - AUTOMATIC CONTROL SYSTEM

1. General: Furnish low voltage system manufactured expressly for the control of automatic circuit valves of underground irrigation systems. Provide unit of capacity to suit number of circuits as indicated.
2. Transformer: To convert LINE service voltage to control voltage of 24 volts.
3. Controller: Toro 12 Station Vision II with rain sensor electromechanical controller.
4. Circuit Control: Each circuit variable from approximately 5 to 60 minutes. Include switch for manual or automatic operation of each circuit.
5. Timing Device: Adjustable, 24 hour and 7 or 14 day clocks to operate any time of day and skip any day in a 7 or 14 day period.
 - a. Allow for manual or semi-automatic operation without disturbing preset automatic operation.

PART 8 - SYSTEM DESIGN

1. Design Pressures: Indicate on shop drawings, at the connection to water source and at last head in circuit. Verify supply pressure with the City of Duluth Engineer.
2. Location of Heads: design to provide specified coverage of all planting and sodded areas. Make minor adjustments as necessary to avoid plantings and other obstructions. Locate heads to avoid overspray onto roadways, sidewalk paving, parking areas and signs.
3. Minimum Water Coverage:
 - a. Planting areas, 95 percent minimum coverage.
 - b. Turf areas, 100 percent.
 - c. Seed areas, 50 percent. Accomplish by overspray and from turf area heads.
 - d. Design system which places shrub beds and turf areas on separate zones.
4. Manual Shut Off: Locate manual shut off valve downstream of backflow preventer.
5. Manual Quick Coupler Valves: Locate one quick coupler valve in each median shrub bed.
6. Winterization: Design system to accommodate winterization by blowing system dry with compressed air.
7. Sleeves: Utilize sleeves for all walks, roadway paving, walls or foundations by piping or control wiring. Contractor is responsible for coordination of sleeve locations with General Contractor prior to construction. Payment for sleeving is incidental to irrigation system.

PART 9 - TRENCHING AND BACKFILLING

1. General: Excavate straight and true with bottom uniformly sloped to low points. Route 18 inches from back of curb where possible.
2. Trench Depth: Excavate trenches to a depth of 80 mm below invert of pipe, unless otherwise indicated.
3. Minimum Cover: Provide the following minimum cover over top of installed piping:
 - a. Steel Piping, 300 mm
 - b. Copper tubing, 300 mm
 - c. PVC and polyethylene piping, 450 mm
 - d. Control wiring, 450 mm.
4. Backfill: Backfill with clean material from excavation. Remove organic material as well as rocks and debris larger than 25 mm diameter. Place acceptable backfill material in 125 mm lifts, compacting each lift.
5. Backfill trench to within 150 mm of finished grade. Continue fill with acceptable topsoil and compact to bring sod even with existing lawn.
6. Replant sod within three days after removal, roll and water generously.
7. Resod and restore to original condition any sod areas not in healthy condition equal to adjoining lawns 30 days after replanting.
8. Excavate trench to required depth and width.
9. At walkways, jack piping under paving material if possible.
10. Backfill with dry sand material, placing in 150 mm lifts.

PART 10 - INSTALLATION

1. General: Unless otherwise indicated, comply with requirements of Uniform Plumbing Code. The Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incidental to the proper and lawful prosecution of the work. They shall also obtain and supply the Owner with all certificates required to show the work has been performed in accordance with the plumbing, electrical, and other codes, rules and regulations of local or other authorities.
2. Irrigation contractor is responsible for all wiring at controller locations.
3. Construction Coordination: Location of all existing and proposed underground utilities, irrigation lines, structures and plantings shall be the responsibility of this Contractor. Any damages occurring due to irrigation installation shall be repaired or replaced to the satisfaction of the Project Landscape Architect at the expense of the Contractor.
4. Connection to Mainline: Connect to main water source located within the proposed building. Coordinate with the architect/utility contractor on location of connection point.
5. Maintain uninterrupted water service to buildings during normal working hours. Arrange for any temporary water shut off with City.

6. Backflow Preventer: Provide valve and union on downstream side. Install minimum 150 mm above highest ground level sprinkler head.
7. Water Hammer Arrester: Install between connection to main and circuit valves, in a valve box.
8. Circuit Valves: Install in valve box, arranged for easy adjustment and removal.
 - a. Provide union on downstream side for galvanized steel piping.
 - b. Adjust automatic control valves to provide flow rate of rated operating pressure required for each sprinkler circuit.
9. Piping: Lay pipe on solid sub-base, uniformly sloped without humps or depressions.
 - a. For circuit piping, avoid low points in pipe where water could collect during winterization of system.
 - b. At all penetrations, pack the opening around pipe with non-shrink grout. At exterior face, leave a perimeter slot approximately 12 mm wide by 19 mm deep. Fill this slot with backer rod and an acceptable elastomeric sealant. Repair below grade waterproofing disturbed by this work and make penetration watertight.
 - c. Install PVC in dry weather when temperature is above 40 degrees F (4 degrees C) in strict accordance with manufacturer's instructions. Allow joints to cure at least 24 hours at temperatures above 40 degrees F (4 degrees C) before testing, unless otherwise recommended by manufacturer.
10. Sprinkler Heads: Flush circuit lines with full head of water and install heads after hydrostatic test is completed.
 - a. Install shrubbery and lawn heads at manufacturer's recommended heights.
 - b. Locate part-circle heads to maintain a minimum distance of 100 mm from walls and 50 mm from other boundaries, unless otherwise indicated.
11. Dielectric Protection: Use dielectric fittings at connection where pipes of dissimilar metal are joined.

PART 11 - TESTING

1. General: Notify Landscape Architect in writing when testing will be conducted. Conduct tests in presence of Landscape Architect.
2. Hydrostatic Test: Test water piping and valves, before backfilling trenches, to a hydrostatic pressure of not less than 100 psi. Piping may be tested in sections to expedite work. Remove and repair piping, connections, valves which do not pass hydrostatic testing.
3. Operational Testing: Perform operational testing after hydrostatic testing is completed, backfill is in place and sprinkler heads have been adjusted to final position.

- a. Demonstrate to Landscape Architect that system meets coverage requirements and that automatic controls function properly.
 - b. Coverage requirements are based on operation of one circuit at a time.
4. After completion of grading, sodding and rolling of grass areas, carefully adjust lawn sprinkler heads so they will be flush with or not more than 10 mm above finished grade.

PART 12 - GUARANTEE

1. Contractor shall guarantee irrigation system for materials and workmanship for a period of one year from the date of acceptance. Contractor shall drain and winterize system in the fall following acceptance and shall put system back in service the following spring as part of the work of the contract at no additional cost to the Owner.

END OF SECTION

**SECTION 02830
CHAINLINK FENCING**

PART I - GENERAL

- 1.01 INCLUDED: Work of this section consists of furnishing all required labor, materials, equipment, and supplies necessary for the fencing in accordance with these specifications.
- 1.02 RELATED: General Requirements Division One of the Project Manual pertains to and is hereby made a part of the work of this Spec Section.
- A. CAST IN PLACE CONCRETE is Spec SECTION 03300.
- 1.03 SUBMITTALS: Submit shop drawings of all gates, rail to post connections, fabric to rail and post connections, and fabricated fittings; samples of hinges, latches and fence fabric; and mill certificates for fabric and pipe to Owner's Representative for approval.

PART 2 - PRODUCTS

- 2.01 HEIGHT: Height of fence shall be as shown on the Drawings.
- 2.02 FABRIC: Shall be two inch (1 3/4") galvanized fabric shall have a polyvinyl chloride coating, minimum wall thickness of .015 inches over a galvanized substrait. GAW chainlink with a Class 1 zinc coat weight of 1.2 oz. per square foot (366 g/sq. m.) of un-coated wire surface, manufactured in accordance with ASTM A 392. Top and bottom selvage of the fabric shall be knuckled.
- A. Nine gauge (9 Ga.). The base metal shall have a nominal coated wire diameter of 0.148" (3.7 mm) and a minimum breaking strength (N) of 1,290/lb.
- 2.03 PIPE AND ACCESSORIES:
- A. METHODS OF MANUFACTURING: Base metal pipe used for fence framework shall be SS-40 weight, cold rolled and electric-resistance-welded from steel conforming to ASTM A-569 and hot dip galvanized to ASTM A-525 G-90 zinc weight both inside and outside the pipe.
- B. POSTS:
01. All line posts shall be two and three-eighths inch outside diameter (2 3/8" O.D.) with a wall thickness of .120 (11 Ga.)
02. All terminal and gate posts shall be two and seven-eighths outside diameter (2 " O.D.)with a wall thickness of .160 (11 Ga.).
03. All pipe and accessories shall receive a galvanized coating. zinc phosphate pretreatment of galvanized steel.
- C. RAILS: Rails shall be one and five-eighths inch outside diameter (1 " O.D.) pipe with a wall thickness of .133 (13 Ga.) and a minimum yield strength of fifty five thousand pounds per square inch (55,000 p.s.i.) and provided with seven inch (7") long expansion sleeve couplings.
- D. ACCESSORIES:
01. Fabric Ties: Eleven gauge (11 Ga.) galvanized steel tie wire to fasten fabric to framework. Tension wire shall be attached to fabric bottom with heavy galvanized hog rings.
02. Tension Wire: Two (2) strands of twelve and a half gauge (12.5 Ga.) steel wire twisted together.
03. Tension Bands: Beveled edge type with nuts and bolts.
04. Line Post Tops: Heavy galvanized cast from eye top fitting.
05. Terminal, Gate and Backstop Post Tops: Heavy galvanized iron tops of bullet type construction sized for specified post.
- .06 All accessories to galvanized coating.
- E. GATES: Construct gate frames with one and seven-eighths inches outside diameter (1 " O.D.) rail material with a wall thickness of .120 with welded corners. Cross bracing at corners

shall be one and five-eighths inch (1 5/8 ") pipe with a wall thickness of .111, welded to the frame. Provide same fabric filler as used in fence, truss rods, roller assemblies with covers and heavy duty galvanized hardware with lockable latches and 180 degree industrial hinges.

F. CONCRETE: Concrete shall have twenty-eight (28) day, four thousand five hundred pounds per square inch (3,500 p.s.i.) compressive strength.

G. GATE LOCKS: Provided by Owner

PART 3 - EXECUTION

- 3.01 WORKMANSHIP: The complete fence shall be plumb, both in line and transverse to the fence, straight and rigid with fabric tightly stretched and held firmly in place. Details of construction not specified, shall be performed in keeping with standard good fencing practices.
- 3.02 POSTS: Space all posts not more than ten feet (10') apart and set in concrete thirty six inches (36") deep and not less than 12 inches (12") in diameter, unless otherwise noted on the Drawings.
- 3.03 RAILS: Install top, mid, bottom rails (and other rails as required) as shown on the Drawings. Set rails as nearly parallel to the finish grade as possible and at the specified height of the fence or backstop.
- 3.04 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 and lubricate where necessary.

END OF SECTION

**SECTION 02910
TOPSOIL**

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The Conditions of the Contract and the Provision of Division 01 apply to all work of this Section.
- B. This Section includes all labor, material and equipment necessary for furnishing and placing topsoil borrow over areas to receive future sod and plantings.
- C. Related Work Specified Elsewhere:
 - 1. Finish Grading: Spec SECTION 02210
 - 2. Sodding: Spec SECTION 02934

1.02 SUBMITTALS

Submit 1/8 cubic foot sample of topsoil with test results for associated use to be used for Owners Representative approval prior to placing any topsoil.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Topsoil Borrow - conform with MnDOT (or approved equal) Section 3877 and as below, Topsoil Borrow for class A Topsoil to be used as a sports turf growing medium. Coordinate furnishing and placing with other operations.

	minimum	maximum
passing the No.10 Sieve	95%	na
Clay	5%	20%
Silt	25%	50%
Sand & Gravel	25%	60%
Organic Matter	15%	25%
PH	6.0	7.1

- B. Note - If topsoil can be salvaged from the construction area, Landscape Architect shall be consulted for permission to use the topsoil.
- C. Coordinate furnishing and placing with other operations.
 - 01. CONTRACTOR shall provide following information:
 - a. TEST RESULTS showing mixture of composition and analysis.
 - b. LOADING TICKETS showing amounts of topsoil delivered to the site.
 - c. TESTS shall be by qualified soils laboratory, in accord with accepted soils amendments testing procedures, and shall be at Contractor expense.

PART 3 - EXECUTION

3.01 EXAMINATION OF SURFACES

- A. Before starting any work under this section this contractor shall examine the areas that are to receive his materials and report any deficiencies to the Owners Representative in writing. Examination shall look for any irregular or settled subgrade surfaces, soft spots or settlements causing unsatisfactory surface drainage. Such deficient areas shall be corrected by the General Contractor before any work begins. Starting of any work by this contractor shall imply his acceptance of the surfaces as suitable to receive his materials.

3.02 INSTALLATION

- A. Conform with
 - 01. Conform to MnDOT (or approved equal) Section 2105, Finishing Operations for placing and finish grading topsoil.
 - 02. Coordinate furnishing and placing with other operations.
 - 03. Upon completion of rough grading, soil surface shall be loosened by rototilling to

SECTION 02910
TOPSOIL

minimum depth of 6", and materials over 1" in diameter/lenght shall be removed.

04. After completion of sub-grade preparation, place minimum 4" settled measure depth of topsoil over entire area unless otherwise noted. Smooth grade to within 3/4" of finish grade after settlement to eliminate irregularities and to match adjacent pavements and walks. Intermix topsoil with loosened sub-grade by means of a rototiller.

END OF SECTION

**SECTION 02920
SOIL PREPARATION**

PART 1 - GENERAL

- 1.01 INCLUDED - Work of this Spec Section generally includes provisions for soil preparations on areas to be sodded, or otherwise planted as part of earthwork operations.
- 1.02 RELATED - General and Supplemental Conditions and all of Division One Sections govern and are hereby made a part of the work of this Section.
- A. FINISH GRADING: Spec SECTION 02210
 - B. TOPSOIL: Spec SECTION 02910
 - C. SODDING: Spec SECTION 02934.
- 1.03 DELIVERY/STORAGE/HANDLING - Deliver, unload, store, and handle materials and products in dry, weatherproof, waterproof condition in manner to prevent damage, breakage, deterioration, intrusion, ignition, or vandalism. Deliver materials and products in original unopened packaging containers prominently displaying manufacturer name, proprietary, volume, quantity, contents, instructions, conformance to local, state, and federal law. Remove and replace, at the Contractor's cost: cracked, broken, spoiled, or contaminated items; and corrosive elements prematurely exposed to moisture, inclement weather, snow, ice, temperature extremes, fire or jobsite damage.
- A. SOIL AMENDMENT shall be delivered to site in bulk, measured on volume basis.
 - B. DELIVERY & INSPECTION - Notify Owner's Representative of delivery schedule in advance so material may be inspected upon arrival at jobsite. Unaccepted material shall be removed immediately from jobsite.
- 1.04 SUBMITTALS:
- A. A sample of the proposed soil amendment shall be submitted to the Owner's Representative for approval.
 - B. Soil test results

PART 2 - PRODUCTS

- 2.01 SOIL AMENDMENTS:
- A. CHEMICAL FERTILIZER – Fertilizer shall be in slow-release granular form.
 - 01. Contractor shall apply fertilizer in strict conformance with manufacturer's instructions.
 - 02. Add fertilizer to topsoil and planting areas at a rate as recommended by the results of the required soil tests.
 - 03. Mix into topsoil or planting soil as instructed.
 - 04. Any fertilizer falling on paved areas shall be promptly cleaned up.
 - 05. Contractor shall clean up any spills immediately.

PART 3 - EXECUTION

- 3.01 PREPARATION & TILLING OF BLUEGRASS SOD AREAS - Upon completion of rough grading, soil surface shall be loosened by rototilling to minimum depth of 6", and materials over 1" in diameter shall be removed. Spread 4" topsoil evenly over sod area and mix thoroughly into soil surface to minimum depth of 6" by means of rototiller or soil mixer (rippers, discs, chisel plows, are not acceptable). After completion of soil loosening and mixing, spread chemical fertilizers evenly over surface at rate recommended by the soil test results and lightly mixed into soil surface. Surface shall then be finish graded to appropriate elevations and compaction. (Refer to SECTION 02930 for soil preparation in tree and shrub plantings.)

END OF SECTION

**SECTION 02930
PLANT MATERIALS**

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The Conditions of the Contract and the Provisions of Division 01 apply to all work of this Section.
- B. This Section includes furnishing all labor, materials and equipment necessary to place plant materials as shown on the drawings and specified herein.
- C. Related work specified elsewhere:
 - 01. Topsoil - Section 02910

1.02 REFERENCE STANDARDS

- A. Conform with MnDOT Section 3861, Plant Stock (or approved equivalent). Only planting zone 3 or 4 (University of Minnesota Extension Bulletin 267) will be accepted or approved equivalent.
- B. Plant material shall conform to nomenclature of "Standardized Plant Names": as adopted by the Joint Committee of Horticulture Nomenclature, latest edition. Size and grading standards shall conform to the American Association of Nursery Stocks", latest edition. No substitutions of size or grade shall be permitted without written permission of the Architect. Each bundle of plants and all separate plants shall be properly identified with legible waterproof tags securely fastened to each plant or bundle of plants.
- C. All plant material shipments and deliveries shall comply with State and Federal laws and regulations governing the inspection, shipping, selling and handling of plant stock. A tag or label bearing the name and address of the licensed dealer or nurseryman and a certification that the material is from an officially inspected source shall accompany each shipment or delivery of plant material.

1.03 QUALITY ASSURANCE

- A. All plants shall be true to type. They shall have normal, well-developed branch systems and a vigorous fibrous root system. They shall be sound, healthy, vigorous plants free from defects, disfiguring knots, sunscald injuries, abrasions of the bark, plant diseases, insect eggs, borers, and all forms of infestation. All plants shall be nursery grown unless otherwise indicated. They shall have been growing in similar climatic conditions as the location of the project for at least two years prior to the date of this contract.
- B. All plants, including their roots, shall be free from disease, insects, or other injurious qualities. All local, state and federal laws pertaining to the inspection, sale and shipment of plant materials shall be complied with. The trunk bark of all trees shall be sound, trees shall have no large wounds, and any small wounds shall have a satisfactory callus roll formed or forming over them. Plants shall show good annual growth. Buds shall be plump and well filled for the species. Evergreen foliage shall be of good intense color.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Plant stock shall be furnished balled and burlapped (B & B) and shall be moved with a compact dug ball of earth so firmly wrapped in burlap that upon delivery the soil in the ball is still firm and compact about the small feeding roots. Each ball shall be of sufficient size to encompass all the fibrous feeding roots necessary to insure successful recovery and development of diameters, and increased ball sizes for collected stock shall be in accordance with Recommended Balling and Burlapping Specifications as set forth in the current edition of the American Standard for Nursery Stock sponsored by the American Association of Nurserymen, Inc.

1.05 SCHEDULING

- A. The normal spring planting season for all plants shall extend to June 1. The normal fall planting season for all plants except evergreens shall begin on October 1. Fall evergreen planting shall be done between September 1, and October 1. Unless otherwise approved, planting shall not be done when the ground is frozen or when the soil is in an unsatisfactory condition for planting.

1.06 GUARANTEE

- A. All plants shall be subject to the approval of the Owners Representative. All plants rejected at the project site shall be replaced with acceptable plants of the same species, variety and size unless otherwise directed by the

SECTION 02930
PLANT MATERIALS

- Owners Representative.
- B. The Contractor shall guarantee all new plant materials through one spring growing season after acceptance by the Owners Representative. Plants accepted after October 1 shall be guaranteed until October 1 of the following year. If any plants die as a result of improper planting or related causes, they shall be replaced by this Contractor at no additional expense to the Owner. If any replacement plants die as a result of improper planting, they shall also be replaced by this Contractor at no additional expense to the owner.
 - C. All evergreens that die during the course of the plant establishment period shall be removed and disposed of by the contractor as their dead condition becomes evident. Fall plantings which fail to survive the winter dormancy period shall be replaced by the contractor during the following spring planting season and before beginning of the growing season.
 - D. Near the end of the first full growing season, but no later than the expiration of the plant establishment period, an inspection of the planting will be made and only those plants that are alive and normally healthy will be accepted. Unaccepted material shall be removed and replaced by the contractor, at his own expense, during the next planting season. Material and method of replacement planting shall be the same as specified for the original planting.

PART 2 - PRODUCTS

2.01 PLANT MATERIALS

- A. Trees, shrubs and ground cover; description, size and quantity are shown in the plant list on the drawings. Plants supplied shall conform to MnDOT Section 3861 (or approved equivalent) and the following:
 - 01. All plants shall be nursery grown stock that has been transplanted or root-trimmed two or more times according to the kind and size of plant.
 - 02. All plants shall be typical of their species and have well formed tops and root systems and shall be free from injurious insects, plant diseases or other plant pests. Plants shall be hardy under the climatic conditions at the site.
 - 03. Plants furnished shall be free from the following defects:
 - a. Serious injuries to top, branches, trunk, bark or roots.
 - b. Dried out roots.
 - c. Prematurely opened buds.
 - d. Thin or poor tops or root systems.
 - e. Evidence of molding.
 - f. Dry, loose or broken ball of earth in B & B stock.
 - 04. Plant stock shall conform to the code of standards set forth in the current edition of American Standard for Nursery Stock recommended for general use and adoption by the American Association of Nurserymen, Inc.

2.02 MISCELLANEOUS ACCESSORIES

- A. Mulch – See plans and details for mulch type and thickness required.
- B. Fabric Weed Barrier - shall be a 4 oz. spunbonded non-woven polyester fabric, Mirafi, Inc. - Mirascape Landscape Fabric or approved equal. Provide sample to Owners Representative for approval.
- C. Water - shall be free from any impurities or substances which might injure plants
- D. Edging - Metal edging shall be 3/16" x 5-1/2" Steel edging - black in color from the manufacturer. Provide sample to Owners Representative for approval

2.03 PLANTING SOIL

- A. Conform with MnDOT Section 3877 (or approved equivalent), Topsoil Borrow, for "select topsoil borrow" or approved equivalent.

PART 3 - EXECUTION

SECTION 02930
PLANT MATERIALS
3.01 PLANTING

- A. Conform with MnDOT Section 2571 (or approved equivalent), Plant Installation, Place planting as follows:
01. Insofar as practicable, plant stock shall be planted on the day of delivery at the project site. In the event this is not possible, the plant stock shall be temporarily stored by "heeling-in" or by placing in a well ventilated, cool, moist storage place and shall be adequately protected against drying by the use of moist sphagnum moss, straw or other suitable covering around the roots of BR stock and the balls of B&B stock.
 02. The plant hole shall be large enough to permit placing at least 6" or backfill material around the balls of B&B stock.
 03. In the event it is necessary to suspend planting operations until the following planting season, any open plant holes shall be backfilled before suspending the work.
 04. The bruised or broken parts or large or fleshy roots shall be cut off smoothly before planting or potting. The tops of deciduous plants shall be pruned either before or at the time of planting. This shall consist of removing dead and broken branches to compensate for root loss and to shape the plant. The pruning shall be done so that the plant retains its natural form. Except when heading back, all cuts shall be made flush with the trunk or branch. Evergreen plants shall not be pruned except to remove dead or broken branches. All cut surfaces one inch or more in diameter shall be painted with a tree wound dressing.
 05. All planting shall be performed in accordance with the method herein provided, insofar as practicable.
 06. The soil in the bottom of the hole, which has been excavated to the prescribed requirements, shall be loosened to a depth of 6" and mixed with an equal amount of topsoil. A mound of soil shall be formed in the center of the hole to support the roots or ball of the plant. The plant shall be placed on the mound of soil and held in a vertical position. Plants shall be placed in their wrapped ball, and shall be moved and hauled only by the ball.
 07. The plant shall be so set, by adjusting the elevation of the mound, that after settlement the plant will stand at approximately the same depth it stood in the nursery or field.
 08. The plant hole shall be backfilled with planting soil to which either peat moss or compost has been added at the ratio of six parts soil to one part by volume. The soil compost mixture shall be placed in layers around the ball. Each layer shall be carefully tamped in place in a manner to avoid injury to the ball or disturbing the position of the plant. When approximately two-thirds of the plant hole has been backfilled, the hole shall be filled with water and the soil allowed to settle around the ball. Plants shall have the twine or rope and burlap cut away or folded back from the top of the ball before applying the water. After the water has been absorbed, the plant hole shall be filled with topsoil and tamped lightly to grade. Any settlement shall be brought to grade with topsoil. Unless otherwise directed or specified, a shallow rain cup or berm shall be formed in the completed backfill by shaping the soil around the plant.
 09. Landscape fabric shall be laid over all soil where mass shrub planting is shown. Mulch shall then be placed over the fabric to a depth of 4", unless otherwise specified.
 10. Trees shall be guyed with two wires whose ends encircle the tree trunk, just below the lowest main branches of deciduous trees. The other ends shall be anchored to stakes set in the ground around the tree, equal distance apart and at a distance from the tree of approximately three-fourths the distance from the ground to the upper point of fastenings. The anchor stakes shall be notched to prevent slipping of the wire and shall be driven into the ground, at a slight angle away from the tree, to a depth of 24 inches or more until solid, and shall extend above the ground as shown on drawings. The bracing and guying materials shall consist of such wood or steel stakes, wire, rubber hose, soft rope or straps, turnbuckles and other material as needed to perform the work. Stakes shall be of solid durable wood approximately 2" x 2" and of the required length, except that stakes used for bracing may be approved steel posts of the required length.
 11. Wire of good quality shall be No. 11 or 12 steel wire when used for trees of 4" or less in diameter and no. 9 or 10 for trees over 4" in diameter. A suitable turnbuckle for adjusting the wire shall be used with the larger wire.
 12. Each wire where it encircles the tree shall be enclosed in a hose of sufficient length to clear the trunk 6" at the ends. The wires shall be drawn taut to equal tension, by means of twisting or use of turnbuckles, and securely fastened, with the trunk of the tree remaining in a vertical position.

SECTION 02930
PLANT MATERIALS

3.02 MAINTENANCE

- A. Maintain plants as follows during the construction period:
01. A plant establishment period shall follow the completion of planting. The plant establishment period for material planted in the spring shall extend until the following spring, and when the planting is completed in the fall, the plant establishment period shall extend until September 15 of the succeeding year.
 02. The Contractor shall properly care for all plants from the time of planting until the date of substantial completion.
 03. Proper care of plants shall consist of doing such watering, weeding, cultivating, pruning, spraying, tightening of braces and guys, remulching and such other work as may be necessary to keep the plants in a healthy growing condition.
 04. A sufficient amount of water shall be placed in each plant hole at the time of each watering to keep the topsoil backfill material in a moist condition, and to keep the plant in a healthy growing condition.
 05. All mulched areas shall be kept free of weeds by hoeing and hand weeding.
 06. Pesticides shall be applied as required to control insects and disease and to keep the plants in a healthy condition during the maintenance period.

3.03 CLEAN-UP

- A. Any soil, manure, peat or similar material which has been placed on paved areas shall be removed and washed clean promptly, keeping the area clean at all times. Upon completion of the planting, all excess soil, stones, and debris shall be removed from the site. All ground areas disturbed as a result of planting operations shall be restored to their original condition or to the desired new appearance.

END OF SECTION

**SECTION 02932
SEEDING**

PART 1 _ GENERAL

- 1.01 INCLUDED: Native grass or bluegrass seeding in all areas specified in plans and disturbed by construction activities excluding sod areas and shrub beds.
- 1.02 RELATED: General and Supplemental Conditions and all of Division One Sections govern and are hereby made a part of work of this Section.
A SOIL PREPARATION: SUBSECTION 02915.
- 1.03 QUALITY ASSURANCE: Materials, items, accessories, manufacturers, processes, proprietary, are listed in Part 2 _ PRODUCTS and Part 3 _ EXECUTION of this Spec Section.
A. QUALITY OF MATERIALS: Seed materials shall be subject to inspection and approval. Landscape Architect reserves the right to reject at any time or place prior to acceptance, work and seed which, in the Landscape Architect's opinion, failed to meet these Specification requirements. Inspection is primarily for quality; however, other requirements are not waived even though visual inspection results in approval. Inspection may be made periodically during seeding, at completion and at the end of guarantee period, by the Landscape Architect.
B. TIME OF PLANTING: Landscape Contractor shall inform Landscape Architect three days prior to commencement of seeding; thereafter seeding operations shall be continued during favorable weather conditions. At option, and on full responsibility of Landscape Contractor, seeding may be conducted under unseasonable conditions, without extra compensation.
- 1.04 REFERENCES: Comply with requirements of manufacturer, codes, specifications, and standards cited in this Spec Section, except where more stringently shown or specified, comply with the construction documents.
A. STANDARDS: U.S. Department of Agriculture Rules and Regulations under Federal Seed Act and equal in quality to standards for Certified Seed.
- 1.05 SUBMITTALS:
A. CERTIFICATES OF INSPECTION FOR MATERIALS _ State, Federal, or other inspection certificates shall accompany invoice for materials showing source or origin. File with Landscape Architect's representative prior to acceptance of material.
B. MAINTENANCE INSTRUCTIONS _ At completion of work furnish three copies of written maintenance instructions to Landscape Architect for maintenance and care of installed seeding. Instructions shall include directions for irrigation, fertilizing and spraying as required for continuance and proper maintenance through a full growing season and dormant period. Maintenance will be responsibility of seeding contractor as per this Section.
- 1.06 PRODUCT DELIVERY/STORAGE/HANDLING:
A. SEED _ Deliver seed in sealed standard containers, stating correct seed name and composition on outside of container. Seed damaged in transit or storage will not be accepted. Notify Landscape Architect's representative of delivery schedule in advance so material may be inspected upon arrival at jobsite. Unacceptable material shall be removed immediately from jobsite.
B. CHEMICAL FERTILIZER _ Deliver chemical fertilizer to site in original unopened container bearing manufacturer's guaranteed chemical analysis, name, trade name, trademark and conformance to State Law, bearing name and warranty of producer.
- 1.07 JOBSITE CONDITIONS _ Seeding Contractor shall be responsible for proper repair of any underground pipe or electrical wiring damaged by operations under this Section. Repairs will be made by contractors designated by Landscape Architect with cost being charged to the contractor

responsible for damages. Seeding Contractor shall notify General Contractor where seeded areas should be protected and barriers installed for proper protection and traffic control. Seeding Contractor shall install barriers at his expense.

- 1.08 GUARANTEE _ Seeded areas shall be guaranteed for one growing season to be in a healthy vigorous growing condition. Bare areas greater the 12" by 12" will be re-seeded at no additional cost to the client until final acceptance. During original guarantee period seeded areas that die due to natural causes, failure of germination, etc., or that are in opinion of Landscape Architect unhealthy, shall be re-seeded as required and at expense of Seeding Contractor. Such replacements shall be installed as specified, equal to original planting. Should settlement occur, Contractor will fill and compact settled areas and reseed affected areas per these specifications.

PART 2 _ PRODUCTS

2.01 SEED:

- A. 100% KENTUCKY BLUEGRASS SEED
Seeding rate of 2 pounds per 1000 square feet.
- B. Woodland Seed Mix
Seeding rate of 2 pounds per 1000 square feet.

- 2.02 HYDRAULIC MULCH _ Hydraulic mulch shall be wood cellulose fiber with a nonasphaltic tackifier (Conwed 2000 or equal), with green color additive to allow visual metering of application or approved equivalent. Wood cellulose fibers shall have property to become evenly dispersed and suspended when agitated in water. When sprayed uniformly on soil area fibers shall form a blotter like ground cover which readily absorbs water allowing filtration to subsurface soil. Weight specifications shall refer only to air dry weight, a standard equivalent to 10% moisture. Water and wood cellulose fiber shall be mixed to form a homogenous slurry.

- 2.03 EROSION CONTROL NETTING: Jute mesh erosion control netting or other suitable type as accepted by the Landscape Architect.

PART 3 _ EXECUTION

3.01 PREPARATION:

- A. LAYOUT _ Areas to be seeded shall be verified on site by seeding contractor prior to starting operations. An estimate of the amount of seeding required shall be provided to the Landscape Architect prior to beginning work.
- B. PREPARATION _ Seed areas shall be free of debris and/or rocks larger than 1", which may hinder tilling, seeding, finish grading or subsequent operations. Accumulated debris shall be disposed of off-site at direction of the General Contractor or Landscape Architect. Seeding Contractor shall perform finish grading as required to maintain drainage into catch basins, drainage structures, etc., and as required to provide a smooth well-contoured, freely draining surface prior to proceeding. No seeding shall occur until the Landscape Architect's has examined and approved the base preparation.

3.02 SEEDING:

- A. **BROADCAST SEEDING** - Seed shall be broadcast and harrowed or raked, and rolled to assure good seed/soil contact. Seed shall have 1/4" cover upon completion of raking and rolling operations. Seed shall not be broadcast during windy weather or when ground is frozen or otherwise un-tillable.
- 3.03 **MULCHING** _ Mulch shall be hydraulically applied (mixed with water) with a heavy tackifying agent at a rate of 2,000 lbs. per acre. Hydro mulching shall not be done during or after rainstorms, when water is standing or when runoff is occurring.
- 3.04 **NETTING** _ Install netting pegged in accord with manufacturer recommendations and standard installation procedures on all slopes 3:1 or greater. Cover netting with straw or other acceptable mulch. Maintain netting as required.
- 3.05 **MAINTENANCE & ACCEPTANCE** _ Maintenance period shall begin immediately after each area is seeded, and continue until final acceptance of landscaping work. During this time Contractor shall be responsible for mowing, weeding and related work as necessary to insure that seeded areas are in a vigorous growing condition until final acceptance. Landscape Architect will direct Contractor on what seed areas need to be replaced during this period. Areas that are not producing a uniform plant growth shall be re-seeded. Acceptable uniform plant growth shall be defined as when there are no bare spots, not greater than 1 sq. ft. Native Grass areas shall be mowed as recommended by the seed supplier.
- 3.06 **CLEAN UP** _ After completion, objects or debris which may interfere with maintenance operation shall be removed. Paved areas over which operations have been conducted shall be cleaned. Remove excess mulch immediately from trees, shrubs and sod to prevent damage to same.

END OF SECTION

**SECTION 02934
SODDING**

PART 1 - GENERAL

- 1.01 INCLUDED - Work of this Spec Section generally includes provision for bluegrass sod in all areas disturbed by construction.
- 1.02 RELATED - General and Supplemental Conditions and all of Division One Sections govern and are hereby made a part of all work of this Section.
- A. FINISH GRADING: SECTION 02210.
 - B. SOIL PREPARATION: SECTION 02920.
 - C. TOP SOIL: SECTION 02910
- 1.03 QUALITY ASSURANCE - Materials, items, accessories, manufacturers, processes, proprietary, are listed in Part 2 - PRODUCTS (and Part 3 - EXECUTION) of this Spec Section.
- A. QUALITY OF MATERIALS - Sod materials shall be subject to inspection and approval. Owner's Representative reserves the right to reject at any time or place prior to final acceptance, work and sod which in the Owner's Representative's opinion fails to meet these Specifications. Inspection is primarily for quality; however, other requirements are not waived even though visual inspection results in approval. Sod may be inspected where growing, but inspection at the place of growth shall not preclude right of rejection at site. Rejected sod shall be promptly removed from site. Inspection shall be made periodically during laying of sod, at completion and at end of guarantee periods by Owner's Representative.
- 1.04 REFERENCES - Comply with requirements of manufacturer, codes, specifications, and standards cited in this Spec Section, except where more stringently shown or specified, comply with the construction documents.
- A. STANDARDS - U.S. Department of Agriculture Rules and Regulations under Federal Seed Act and equal quality to standards for Certified Seed.
 - B. Cut sod using an approved method, in accordance with local governing American Sod Producers Association.
- 1.05 SUBMITTALS:
- A. CERTIFICATES OF INSPECTION FOR MATERIALS - State, Federal, or other inspection certificates shall accompany invoice for materials showing source or origin. File with Owner's Representative prior to acceptance of material.
 - B. MAINTENANCE INSTRUCTIONS - At completion of work, furnish three copies of written maintenance instructions to Owner's Representative for maintenance and care of installed sod through its full growing season. Maintenance will be responsibility of Sodding Contractor until final acceptance of project. Owner will be responsible for maintenance after that date.
- 1.06 PRODUCT DELIVERY/STORAGE/HANDLING:
- A. Deliver sod properly loaded on vehicles and protected from exposure to sun, wind, heating, in accord with standard practice and labeled in accord with Federal Seed Act.
 - B. CHEMICAL FERTILIZER - Deliver chemical fertilizer to site in original unopened container bearing manufacturer's guaranteed chemical analysis, name, trade name, trademark and conformance to State Law, bearing name and warranty of producer.
 - C. SOD ROLLS shall not be dropped from loading carts, trucks or sod pallets. Sod damaged in transit or storage will not be accepted. Notify Owner's Representative of delivery schedule in advance so material may be inspected upon arrival at jobsite. Unacceptable material shall be removed immediately from jobsite.
- 1.07 JOB CONDITIONS - Sodding Contractor shall be responsible for proper repair of lawn watering system, other underground pipe or electric wiring damaged by operations under this Section. Repairs will be made by contractors designated by the Owner's Representative with cost being charged to contractor responsible for damages.
- A. DAMAGED AREAS shall be repaired to re-establish grade and condition prior to sodding.
 - B. SOD DESTRUCTION - Responsibility for vandalized sod will be determined per PLANT MAINTENANCE AND ACCEPTANCE, PART 3, Section 02930. Sodding Contractor shall install barriers for proper protection and traffic control.

- 1.08 GUARANTEE -Sod shall be guaranteed for one growing season to be in a healthy, vigorous growing condition. During guarantee period, sod areas that die due to natural causes, or that are in Owner's Representative's opinion, unhealthy, shall be replaced at once, and at expense of the Sodding Contractor. Such replacements shall be installed as originally specified and guaranteed.

PART 2 - PRODUCTS

2.01 SOD/FERTILIZER:

- A. SOD shall be Wisconsin grown 100% Kentucky bluegrass sod comprised of at least three improved varieties, or approved substitute.
01. SOD SHALL HAVE VIGOROUS ROOT SYSTEM, been regularly fertilized, watered, mowed, free of weeds and objectionable grasses, and provide a thick turf. Note supply source and mixture on Bid form. Each piece of sod will have a sandy_loam soil base that will not break, crumble or tear during sod installation. Sod shall be cut in strips 48" wide (minimum), with a soil base not less than 5/8" (1.75cm), nor more than 3/4" (2cm) thick. Sod shall be cut no more than 24 hours prior to delivery, kept damp on pallets at the site, and laid in place within 24 hours of delivery.
- B. CHEMICAL FERTILIZER
- C. Fertilizer shall be approved by Owner's Representative prior to application.

PART 3 - EXECUTION

3.01 PREPARATION:

- A. LAYOUT of sodded areas is indicated on landscape drawing(s). Sodding Contractor shall verify locations on-site prior to starting operation.
- B. PREPARATION - Sodded areas shall be prepared per Spec SECTION 02920 and shall be free of debris, and/or rocks larger than 1" which may hinder tilling, sodding, finish grading or subsequent operations. Accumulated debris shall be disposed of at direction of the Owner's Representative. Sodding Contractor shall perform finish grading required by drawings, to maintain drainage into catch basins, drainage structures, etc., and to provide a smooth, well-contoured surface prior to proceeding.
01. FINISH GRADES - It shall be Sodding Contractor's responsibility to assure finished grades of sod are such that drainage of storm and irrigation waters will occur and ponding of water will be prevented. Refer to Spec SUBSECTION 02210.
02. BASE PREPARATION - Soil shall be prepared in accordance with Spec SECTION 02920 (Soil Preparation). No sod will be laid until Owner's Representative has examined and approved base preparations.
- C. TILLAGE - Sodded areas shall be thoroughly tilled to an average depth of 6" until soil is sufficiently pulverized per Spec SECTION 02920. Work shall not be performed when conditions will not provide satisfactory results.
- 3.02 FERTILIZING - Distribute chemical fertilizer uniformly at rate recommended by the results of the soil tests and in conformance with manufacturer's instructions.
- 3.03 SODDING – Soil (48" WIDE ROLLS) on which sod is laid shall be lightly moist, sod ends and sides shall be butted tightly together, laid with longest dimensions parallel to contours and continuous rows. Vertical joints between sod strips shall be staggered, and the sod shall be compacted by rolling, so it will be incorporated with ground surface insuring tight joints between adjacent pieces. All rows terminating on designated property lines will be cut equal to a straight line. Topsoil shall be added along exposed edges to match adjacent grade. Feather topsoil out approximately 1' from edge of sod. Sod shall be laid flush with adjacent walks, curbs, etc.
- A. Secure sod on slopes of 3.5:1 or more with wood pegs as required to prevent slippage.
- B. Sod laid adjacent to existing bluegrass turf shall be installed so there is no noticeable transition.
- 3.04 WATERING - Sod shall be initially watered upon completion of convenient work areas until installation is complete and irrigation system can be operated under full control. The Contractor shall work with the Owner to coordinate the operation of the irrigation system to assure water is available to sodded areas in the amounts required. If permanent irrigation is not available through fault of the Contractor, the Contractor shall provide temporary irrigation as necessary and at no additional cost to the Owner. Water sod sufficiently to moisten subsoil at least 4" deep, in a manner not to cause erosion or damage to adjacent finished surfaces. Any damage or erosion to adjacent areas as a result of watering of sodded areas shall be the sole responsibility of the Contractor with no additional cost to the Owner.

- 3.05 MAINTENANCE & ACCEPTANCE - Maintenance period shall begin immediately after each area is sodded, and continue until final acceptance of all project work. During this time Sodding Contractor shall be responsible for watering, mowing, spraying, weeding and related work as necessary to insure that sodded areas are in vigorous growing condition until final acceptance. Owner's Representative will direct Sodding Contractor on what sod areas need to be replaced during this period.
- 3.06 CLEAN-UP - Pallets, unused sod, and other debris shall be removed from site, and paved areas over which operations have been conducted shall be cleaned. Paved areas are to be broomed and washed with water.

END OF SECTION

SECTION 03100 FORMWORK

PART 1 _ GENERAL

- 1.01 **INCLUDED:** Work of this Spec Section generally includes provision of wood, plywood, metal, plastic formwork for structural cast_in_place concrete, and items to be set in concrete.
- 1.02 **RELATED:** General Requirements Division One of the Project Manual pertains to and is hereby made a part of the work of this Section.
- A. CONCRETE FLATWORK, PAVING, is Spec SECTION 02520.
 - B. REINFORCEMENT is Spec SECTION 03200.
 - C. ACCESSORIES is Spec SECTION 03250.
- 1.03 **QUALITY ASSURANCE:** Materials, items, accessories, manufacturers, proprietary are listed in Part 2 _ PRODUCTS of this Spec Section.
- A. ALLOWABLE TOLERANCES:
 - 01. CAST_IN_PLACE WORK:
 - a. FLATWORK: Slabs , curb, ramps, walks, seating areas, shall not be out of level more than 1/8" in 10' above or below elevation(s) shown.
- 1.04 **REFERENCES:** Comply with requirements of manufacturer, codes, specifications, standards, referred to in this Spec Section, except where more stringently shown or specified comply with construction documents.
- A. American Concrete Institute (ACI):
 - 01. ACI 318_77 Building Code Requirements for Reinforced Concrete.
 - 02. ACI 347_78 Recommended Practice for Concrete Formwork.
 - B. American Plywood Association (APA):
 - 01. APA Jan 1980 Plywood Specification & Grade Guide.
 - C. American Society for Testing and Materials (ASTM):
 - 01. ASTM A36_77a Spec for Structural Steel.
 - D. U.S.A. Department of Commerce/National Bureau of Standards (DOC/NBS) Product Standards (PS):
 - 01. DOC/NBS PS1_74 Construction and Industrial Plywood.
 - E. U.S.A. Western Wood Products Association (WWPA):
 - 01. WWPA Jun 1, 1979 Standard Grading Rules for Western Lumber.

PART 2 _ PRODUCTS

- 2.01 **MATERIALS/ITEMS/ACCESSORIES** may be new or reused, optional with installer provided no extra cost charge(s) to Owner; wood, plywood, metal or plastic, or combinations thereof. Board material may be used only to form nonexposed_to_view concrete surfaces. Formwork material shall be clean, straight and of sufficient thickness and construction to withstand pressures of newly_placed concrete without allowing bow or deflection, free of extraneous holes and provided in largest practical sizes available to minimize jointing.

PART 3 _ EXECUTION

- 3.01 **ERECTION:** Design, construct, fabricate, support, brace and maintain formwork in accord with ACI 347 to obtain accurate and correct alignment, location, elevation, position, levelness, and plumbness to provide concrete members and structure of sizes, shapes, lines, dimensions required by drawings.
- A. **INCLUSIONS:** Provide openings, offsets, sinkages, keyways, recesses, chamfers, blocking, screeds, bulkheads, anchorages, inserts, other features required by the work.
 - B. **FABRICATING:** Assemble forms for easy removal without the necessity for hammering or prying against newly formed concrete surfaces.
 - A. **PROTECTION PLATES:** Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces.
 - C. **KERFING:** To minimize swelling and to allow for easy removal kerf (bevel) wood inserts when forming keyways and recesses.
 - D. **CHAMFERING:** Ease exposed to view out edges and out corners of walls and flatwork (slabs) concrete with preformed rounded or mitered wood, metal, PVC, or rubber chamfer strips fabricated to produce tight

- edge joints with smooth uniformly continuous lines.
- E. REMOVAL of forms will be in accord with ACI 318. Forms shall not be disturbed until concrete has adequately hardened.
 - F. TIE BARS: If tie bars are used they shall be placed so that they are either above or below exposed portions of the wall.

END OF SECTION

**SECTION 03200
CONCRETE REINFORCEMENT**

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The Conditions of the Contract and the Provisions of Division 01 apply to all work of this Section.
- B. This Section includes all labor, material, equipment and services necessary to furnish and install all reinforcing steel and accessories as specified herein or shown on the drawings. All work shall be done in accordance with the latest A.C.I. Code unless otherwise detailed.
- C. Related Work Specified Elsewhere:
 - 01. Concrete Flatwork, Paving - Section 02520
 - 02. Cast-In-Place Concrete - Section 03300

1.02 REFERENCE STANDARDS

- A. ASTM A615 - Reinforcing Bars
- B. ASTM A185 - Welded Wire Fabric
- C. ACI 315 – Details and Detailing of Concrete Reinforcement
- D. ACI 318 - Building Code Requirements For Structural Concrete
- E. ACI 301 – Standard Specifications for Structural Concrete
- F. CRSI – Manual of Standard Practice

1.03 SUBMITTALS

- A. Submit shop drawings to the Owners Representative for approval in accordance with the requirements of Division 01. No material shall be fabricated until such drawings have been approved.
- B. List and mark bars, showing sizes, lengths, location, bending numbers and ASTM designation.
- C. Show location, type and quantities of bolsters, spacers, chairs support bars and bar dowels.

1.04 TESTS

- A. Any concrete reinforcing field welded on the site shall be inspected by the County. Contractor shall pay for special inspections of welded reinforcing.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Reinforcing steel shall be shop fabricated to conform to the approved shop drawings. All bars shall be free from mill scale, excessive rust or other coating which would reduce or destroy the bond with the concrete.
- B. After fabrication, all bars shall be bundled before delivery to the job. Each bundle shall be identified by attaching metal tags bearing the bars marks.
- C. Reinforcing steel, after delivery to the job, shall be stored clear of the ground and protected from damage and rusting.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. All reinforcing steel shall be from domestic mills. No foreign or imported steel will be permitted. All materials shall bear manufacturers standard rolled-on identification grade markings.
- B. Reinforcing bars shall be deformed bars conforming to ASTM A-615, Grade 60 for straight bars and Grade 60 for bent bars, with identification marks rolled in the bars. Furnish all tiles, spacers, chairs, bolsters and similar accessories required for assembling, placing and supporting the reinforcing. Reinforcing shall be clean and free from loose rust, scale and other coatings that will reduce bond.
- C. Reinforcing mesh shall be welded wire fabric conforming to ASTM-A- 185. Mesh not otherwise indicated shall be fabricated from 10-gauge wire spaced 6" each way (6/6 x 10/10).

2.02 DETAILING

- A. Reinforcing steel shall be detailed in accordance with the above-mentioned ACI "Building Code" and CRSI "Manual of Standard Practice", unless specifically shown otherwise. The number, type and spacing of supports and other accessories shall be as recommended in the CRSI "Manual of Standard Practices".

SECTION 03200
CONCRETE REINFORCEMENT

2.03 FABRICATION

- A. Shop fabricate reinforcing bars to conform to required shapes and dimension, with fabrication tolerances complying with ACI 315. In case of fabricating errors, do not rebend or straighten reinforcement in a manner that will injure or weaken the material.
- B. Bend all bars cold.
- C. Do not use bars with kinks or bends not shown on the drawings or on the approved shop drawings.
- D. Do not bend or straighten steel in a manner that will injure the material.

PART 3 - EXECUTION

3.01 PLACING REINFORCING STEEL

- A. All reinforcing steel shall be placed strictly in accordance with the approved shop drawings. Accessories shall be furnished in sufficient quantity for proper location of all reinforcement in position shown on the drawings. Accessories shall be sufficient to hold bars securely in position in spite of construction traffic and to insure against displacement during placement of concrete.
- B. Reinforcing bars shall be protected by the thickness of concrete indicated on the drawings. Where not otherwise shown, this thickness shall be as follows:
 - Footings, Bottom..... 3"
 - Walls..... 1-1/2"
 - Slabs, Self-supporting..... 3/4"
- C. Welded wire mesh reinforcing shall be placed at mid-height of concrete slabs.
- D. Reinforcing steel shall be inspected in the forms and approved by the Architect/Owners Representative before the concrete is poured.
- E. Splicing:
 - 01. Splicing of bars, bar spacings and concrete cover should conform to "Building Code Requirements for Structural Concrete (ACI 318)", published by the American Concrete Institute of recommended practices in "Splicing Reinforcing Bars" by the CRSI.
 - 02. Use "L" dowels to carry all horizontal reinforcing in walls and footings around corners. Diameter of dowels to be equal to the diameter of the reinforcing bars being extended.
 - 03. Splices in bond beam reinforcing shall be 2'-6" minimum.
 - 04. Splices shall be Class "B" lap splices minimum unless indicated otherwise.
 - 05. Splicing by welding of reinforcing bars shall not be permitted.
 - 06. Splicing with dowel bar substitution and splicing system shall be performed in strict accordance with the manufacturer's instructions.
- F. Obstructions - In the event conduits, piping, inserts, sleeves or any other items interfere with placing reinforcement and indicated on the drawings, or as otherwise required, immediately consult the Owners Representative and obtain approval of new procedure before placing concrete.

3.02 INSPECTION OF STEEL IN PLACE

- A. The Architect/Owners Representative will inspect the reinforcing steel in place prior to the pouring of the concrete for each section. Contractor shall also contact the Building Official for any inspections required.
- B. Do not pour concrete until approval has been obtained from the Architect/Owners Representative. Notify the Architect/Owners Representative sufficiently in advance of the scheduled time for pouring of the concrete to allow the inspection to be made and corrections completed, where required. Correction shall be made by the Contractor at his expense.
- C. Exposed reinforcing steel, indicating the bars are not properly located, after the concrete has been placed will be sufficient cause for the rejection, removal and replacement of the concrete section.

END OF SECTION

**SECTION 03250
CONCRETE ACCESSORIES**

PART 1 - GENERAL

- 1.01 INCLUDED: Work of this Spec Section generally includes provision of expansion and contraction joint fillers, anchors, inserts, for structural cast-in-place concrete.
- 1.02 RELATED: General Requirements Division One of the Project Manual pertains to and is hereby made a part of the work of this Spec Section.
A. CONCRETE FLATWORK, PAVING: Spec SECTION 02520.
- 1.03 QUALITY ASSURANCE: Materials, items, accessories, manufacturers, proprietary, are listed in Part 2 - PRODUCTS of this Spec Section.
- 1.04 REFERENCES: Comply with requirements of manufacturer, codes, specifications, standards, cited in this Spec Section, except where more stringently shown or specified comply with construction documents.
A. American Concrete Institute (ACI):
01. ACI 318-77 (1978) Building Code Requirements for Reinforced Concrete.
B. American Society for Testing and Materials (ASTM):
01. ASTM D1751-73 (1978) Spec for Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Non-extruding and Resilient Bituminous Types).
02. ASTM D1752-67 (1978) Spec for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.
- 1.05 SUBMITTALS shall be made in compliance with Spec SECTION 03100.
A. SAMPLES are required of exterior expansion joint fillers.
- 1.06 DELIVERY/STORAGE/HANDLING: Deliver, unload, store and handle materials, packaging, products, in dry, weatherproof, waterproof condition in manner to prevent damage, breakage, deterioration, ignition, intrusion, vandalism. Deliver in original unopened packaging containers prominently displaying manufacturer name, proprietary, quantity, contents and instructions. Remove and replace crushed, broken, split, deformed, spoiled or contaminated items and elements prematurely exposed to moisture, inclement weather, temperature extremes, fire, job site damage.

PART 2 - PRODUCTS

- 2.01 MATERIALS & ITEMS:
A. EXTERIOR EXPANSION JOINT FILLERS - 1/2" (1.3cm) thick by full depth of slab by lengths required Grace SERVICISED KORK-PAK, J&P Petroleum Products TEX-LITE, W.R. Meadows SEALTIGHT or similar Owner's Representative accepted non-extruding resilient bituminous material meeting ASTM D1751.

PART 3 - EXECUTION

- 3.01 INSTALLATION:
A. EXTERIOR EXPANSION JOINT FILLERS - Unless otherwise shown or noted provide at maximum 25'-0" centers in walks, ramps, curbs, gutters, elsewhere as may be shown or noted.
B. SCORING - To be executed as shown on Drawings and details.
C. WATERPROOFING shall be installed as per manufacturer's specifications.

END OF SECTION

**SECTION 03300
CAST-IN-PLACE CONCRETE**

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. The conditions of the contract and the provisions of Division 01 apply to all work of this section.
- B. This section includes all labor, materials, equipment and services necessary to mix, place and cure all concrete in accordance with the drawings, schedules and this specification.
- C. Build into concrete the following materials as required, which may be supplied under other sections of this Specification:
 - 01. Reinforcing steel.
 - 02. Sleeves and thimbles for pipes and conduit.
 - 03. Inserts, hangers and anchors for work of all trades.
 - 04. Items of structural, miscellaneous iron or ornamental metals which occur in concrete.
- D. Related work specified elsewhere:
 - 01. Concrete Flatwork, Paving - Section 02520
 - 02. Concrete Form Work - Section 03100
 - 03. Concrete Reinforcement - Section 03200

1.02 REFERENCE STANDARDS

- A. The current issue of the following specifications, test methods and recommended practices shall govern except where superseded by particular requirements of this specification.
 - 01. Specifications for Ready-Mixed Concrete, ASTM C-94.
 - 02. Specifications for Portland Cement, ASTM C-150.
 - 03. Specifications for Concrete Aggregates, ASTM C-33.
 - 04. Method of Test for Slump of Portland Cement Concrete, ASTM C-143.
 - 05. Method of Sampling Fresh Concrete, ASTM C-172.
 - 06. Method of Making and Curing Concrete Compression and Flexure Test, ASTM C-31.
 - 07. Method of Test for Compressive Strength of Molded Concrete Cylinders, ASTM C-39.
 - 08. Specification for Air-Entraining Admixtures for Concrete, ASTM C-260.

1.03 TESTS

- A. LABORATORY- All tests shall be by a recognized testing laboratory approved by the County/Owners Representative.
- B. Owner shall pay for all tests performed on concrete and concrete materials.
- C. Provide the following tests:
 - 01. Slump as per ASTM C-143, One for each pour.
 - 02. Compression as per ASTM C-39, 3 cylinders for each pour.
- D. The contractor shall secure samples and shall provide safe storage for them pending their removal to the testing laboratory. The contractor shall provide shipping containers as required for transporting cylinders to the testing laboratory.
- E. To conform to the requirements of this specification, every twenty-eight (28) day test representing each mix must be equal to or greater than the specified minimum strength without exception. If a specimen shows manifest evidence of improper sampling, molding or testing, it will be disregarded. Note, however, that the anticipated strength for all mixes is appreciably above the specified minimum strength, due to quality required by the minimum cement content specified.
- F. Slump tests shall be made from the same batch from which strength tests are made. The contractor shall provide a standard slump cone for this testing. If the measured slump falls outside the limits specified, a check test will be made immediately on another portion of the same sample. In the event of a second failure, the concrete will be considered to have failed to comply with the specification.
- G. Air content tests shall be made from the same batch from which strength tests are made. If the measured air content falls outside the limits specified, a check test will be made immediately on another portion of the same sample. In the event of a second failure, the concrete will be considered to have failed to comply with the specification.
- H. County/Owners Representative may require additional testing of concrete, including cement content or chloride presence. Tests which comply with the specification shall be paid for by the Owner. Tests which

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- fail to comply with the specifications will be paid for by the contractor.
- I. Two (2) copies of test results shall be forwarded directly from the testing laboratory to the County/Owners Representative.

1.04 SUBMITTALS

- A. Submit concrete mix designs to the County/Owners Representative for approval in accordance with the requirements of Division 01.
- B. Mix design shall state proportions of all materials used in the concrete mixture; source and gradation of aggregate; manufacturer of cement and manufacturer of all admixtures to be used.

1.05 QUALITY ASSURANCE

- A. The current issue of the following American Concrete Institute (ACI) requirements and recommended practices shall govern except where supersede by particular requirements of this specification:
 - 01. Building Code Requirements for Structural Concrete ACI-318.
 - 02. Standard Practice for Selecting Proportions for Concrete, ACI-211.
 - 03. Standard Specifications for Cold Weather Concreting, ACI-306.1.
 - 04. Standard Specifications for Structural Concrete for Buildings, ACI-301.

1.06 DELIVERY STORAGE AND HANDLING

- A. Cement shall be stored in a weatherproof building on pallets approximately 6" above the floor.
- B. Aggregates fine, medium and coarse shall be stored separately and in such a manner as to prevent segregation of size and to avoid the inclusion of dirt and other foreign materials.

PART 2 - PRODUCTS

2.01 CONCRETE MATERIALS

- A. AGGREGATES: Conform to ASTM C-33.
 - 01. Course Aggregate Material: Strong, clean crushed granite or limestone gravel, are subject to approval as to use, other inert material having similar characteristics, free from adherent coatings and injurious amount of friable or fragile pieces, flake organic matter, or other deleterious substances, all meeting the following gradation requirements:

a. Footings	1-1/2"
b. Slabs on grade, structural slabs, foundations, columns and beams	3/4"
c. Bond Beams, concrete topping	3/8"
 - 02. Fine Aggregate Material: Clean, strong, natural are subject to approval and authorization as to use, other inert material suitable for the work to be done, having characteristics similar to natural sand, free of frozen materials, all meeting the following grading limits:

a. Passing No. 4 Sieve	95% to 100%
b. Passing No. 14 Sieve	45% to 80%
c. Passing No. 50 Sieve	10% to 30%
d. Passing No. 100 Sieve	2% to 10%
- B. CEMENT - Conforming to ASTM C-150, Type I.
- C. WATER - Clean, free from oil, acids and injurious amounts of vegetable matter, alkalis or other salt, and of drinkable quality.
- D. No admixtures shall be used except with specific written approval of the County/Owners Representative. CALCIUM CHLORIDE OR MATERIALS CONTAINING CHLORIDES OR NITRATES WILL NOT BE PERMITTED IN ANY CASE AND WILL NOT BE KNOWINGLY APPROVED. USE OF SUCH MATERIALS, WITH OR WITHOUT APPROVAL, WILL ALLOW THE COUNTY/OWNERS REPRESENTATIVE TO REQUIRE REMOVAL AND REPLACEMENT OF ALL CONCRETE CONTAINING OR TREATED WITH, SAME.
 - a. Coloring is to be applied in strict accordance with manufacture's specification
 - b. Color to be selected by Architect/Owners Representative

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2.02 CONCRETE ADDITIVES

- A. Air Entrainment Agent: Conform to ASTM C260 to produce air entrainment of 5% to 7%. Air entrainment admixture shall be used in strict accordance with the manufacturer's recommendations and shall be one of the following or approved equal:
 - 01. W.R. Grace - Darex AEA
 - 02. Protex Industries - Pro-Air
 - 03. W.R. Meadows - Sealtight Air Entrainment Agent
 - 04. Sika - Sika AER
 - 05. Euclid - Air Mix

2.03 CONCRETE JOINT MATERIALS

- A. BOND BREAKER: at juncture concrete slabs and adjacent footings shall be 15 lb. felt with adhesive on one side.
- B. CONTROL JOINT FORMER: shall be a one piece plastic insert with removable top cap. Joint former shall be sized to 1/3 the depth of the slab. Joint former shall be as follows or approved equal:
 - 01. Greenstreak Plastic Products - Zipcap
 - 02. Progress Unlimited - Crack Inducer
 - 03. DeMay - Zipstrip
- C. Expansion Joint Filler: shall be an asphalt, vegetable fibers and mineral filler joint formed under heat and pressure between two asphalt felt liners conforming to ASTM D994. It shall be resistant to oil, solvents, ozone and weathering. Joint Filler shall be as manufactured by one of the following or approved equal:
 - 01. W.R. Meadows, Inc. - Sealtight Asphalt Expansion Joint Filler

2.04 CONCRETE MIXES

- A. All concrete used throughout this construction shall be ready-mixed concrete furnished by a well established mixing plant.
- B. Concrete shall be furnished in accordance with the following schedule:

Class of Concrete	Compressive Strength @ 28 days	Maximum aggregate size	Cement Type
A	4000	1-1/2"	Non-Air Entrained
B	4000	3/4"	Non-Air Entrained
C	4000	3/4"	Non-Air Entrained
D	3000	3/8"	Non-Air Entrained
E	4000	3/4"	Air Entrained

- C. The class of concrete to be used for various conditions shall be as follows:
 - 01. Footing - Class A
 - 02. Foundations - Class B
 - 03. Slab on Grade - Class B
 - 04. Columns & Beams - Class C
 - 05. Exterior Concrete - Class E
- D. Where mechanical vibrators are used in placing the concrete, the slump shall not exceed 3" in any case. Where mechanical vibrators are not used, the slump may vary between the limits noted.

PART 3 - EXECUTION

3.01 MIXING AND DELIVERY

- A. Ready-Mixed concrete shall be mixed and delivered to the job site by the means and standards set forth in

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- ASTM C-94.
- B. No water shall be added on the job unless authorized by the Architect/Owners Representative in writing. If added, the amount of water added shall be recorded on all copies of the delivery ticket hereinafter described. If water is added to mixed concrete on arrival at the job, an additional mixing of twenty revolutions of the drum will be required.
 - C. Concrete delivered in outdoor temperatures lower than 40 degrees F., shall arrive at the site of the work having a temperature not less than 60 degrees F., nor greater than 90 degrees F. unless otherwise specified or permitted by the Architect/Owners Representative.
 - D. With each load of concrete delivered to the job, there shall be furnished by the ready-mixed concrete producer, duplicate delivery tickets, one for the contractor and one for the Architect/Owners Representative. Delivery tickets shall provide the following information:
 - 01. Date
 - 02. Name of Ready-Mixed concrete plant
 - 03. Contractor
 - 04. Job Location
 - 05. Type and brand of cement
 - 06. Class and specified cement content in bags per cubic yard of concrete.
 - 07. Maximum size of aggregate
 - 08. Water added at job, if any
 - 09. Truck number
 - 10. Time Dispatched
 - 11. Amount of concrete, in load, in cubic yards.

3.02 PLACING CONCRETE

- A. Before placing any concrete Engineer shall be notified in sufficient time to allow inspection of concrete reinforcing in place.
- B. Before placing concrete, excavation shall be dry, forms and reinforcement shall be clean, and reinforcement shall be securely tied into place. Forms shall be treated with releasing agent.
- C. Concrete shall be transported from the mixer to the place of final deposit as rapidly as practicable by methods which will prevent the separation of ingredients or displacement of reinforcement. It shall be deposited as nearly as possible in its final position to avoid rehandling or flowing. Deposit concrete in such a fashion that free fall of concrete will not exceed 3 feet.
- D. Concrete shall be placed before initial set has occurred and in no case after it has contained its water more than 30 minutes.
- E. The Contractor shall provide sufficient labor to thoroughly spade, or by internal mechanical vibration, work the coarse aggregate away from the forms and avoid air pockets or voids in exposed sections, and leave solid, homogenous and smooth uniform surface after forms are removed. Concrete for slabs on fill shall be mixed and placed with as little water as possible, and shall be compacted by spading and tamping.
- F. For slabs on grade, check compaction of fill and determine proper grade. Moisten subgrade thoroughly just before exterior slabs are cast.

3.03 TOLERANCES

- A. ACI Standards shall govern concrete work except where specified differently.
- B. Allowable Tolerances -
 - 01. Variation from plumb:
 - a. 0 to 10 feet - 1/4" maximum
 - b. 20 feet or more - 3/8" maximum
 - 02. Variation in thickness - 1/4" to 1/2" standard, 5% for footings
 - 03. Variation in grade:
 - a. 0 to 10 feet - 1/4" standard,
1/8" for floors
 - b. 10 to 20 feet - 3/8" standard,
1/4" for floors
 - c. 40 feet or more - 3/4" standard,

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3/8" for floors

- 04. Variation in plan:
 - a. 0 to 20 feet - 1/2"
 - b. 40 feet or more - 3/4" standard,
plus 1/2" for footings
- 05. Variation in eccentricity: - 2% for footings
- 06. Variation in openings:
 - a. Size - plus 1/8"
 - b. Location - 1/4"

3.04 CONSTRUCTION AND CONTROL JOINTS IN FLAT WORK

- A. Provide construction joints as shown on drawings, at the end of all pours, where placing operations are stopped for 1/2 hour or more and in no case to exceed 30 feet in any direction. Construction joints shall be formed with a 2x4 tapered keyway. Reinforcing shall run through joint.
- B. Architect/Owners Representative may direct additional control joints to be cut in concrete slabs after approximately two (2) weeks curing time if the concrete shows evidence of cracking. Joints shall be saw cut and shall be 1/3 the depth of the slab.
- C. Provide expansion joints where exterior slabs abut a wall or other fixed object or at intervals not to exceed 30 feet. Expansion joint filler material shall be placed at its top 1/4" below the finished surface of the concrete and the edge of the concrete shall be eased with a rounding tool. When concrete has cured top of joint shall be sealed with joint sealer installed as per manufacturer's instructions.

3.05 PROTECTION IN COLD AND FREEZING WEATHER

- A. In cold weather, concrete shall be mixed and placed only when the temperature is 40°F, and rising, unless permission for placement of concrete is obtained from the Architect/Owners Representative. In freezing weather, the mixing water and aggregates shall be heated, and freshly placed concrete shall be protected by adequate housing of cover and heating.
- B. Contractor shall have on job, ready to install, adequate equipment for heating the materials and freshly placed concrete and for enclosing work in accordance with requirements specified herein.
- C. Concrete when placed in the form shall have a temperature of not less than 60°F. Concrete and the surrounding air shall be maintained at a temperature of 50°F, or greater for a period of 7 days immediately after placing. The method of protection and curing shall be such as to prevent evaporation of moisture from the concrete for a period of not less than 7 days.
- D. Heat shall be removed gradually from the concrete to avoid thermal shock. Covering shall be left in place until concrete reaches surrounding outside temperature.
- E. Salts, chemicals or other foreign materials shall not be mixed with the concrete to prevent freezing. Concrete work which has been damaged by freezing will be rejected.

3.06 CURING

- A. All concrete shall be protected from premature drying and freshly placed concrete shall be protected against wash by rain, flowing water, freezing, mechanical injury, etc.
- B. Concrete of walls, piers, etc., shall be cured by leaving the forms in place as long as possible, 2 DAYS MINIMUM.
- C. Exposed concrete floor slabs, etc, shall be cured by covering with the specified, or approved curing agent.

3.07 REMOVAL OF FORMS

- A. Forms shall be removed in such a manner as to insure the complete safety of the structure. Footing and foundation wall forms may be removed after 48 hours, providing the concrete is sufficiently hard to not be damaged thereby.
- B. The Contractor shall assume responsibility for all damage due to the removal of the forms. It shall be contractor's duty to consult with the Architect/Owners Representative before the removal of any forms.

3.08 SURFACE FINISH OF CONCRETE (EXCEPT FLOORS)

- A. Immediately after removing forms, remove all projections, loose materials, and cut back all metal form ties, and point up all voids with cement mortar, 1:2 mix. Rub areas thus repaired with carborundum to a smooth, even finish to match adjacent surfaces.

SECTION 03300
CAST-IN-PLACE CONCRETE

- B. All formed concrete exposed to view, whether painted or unpainted, shall be finished in the manner noted above.

END OF SECTION

SECTION 26 56 00

EXTERIOR LIGHTING

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Lighting Equipment
- B. Related Sections:
 - 1. Section 26 01 01 - Basic Electrical Materials and Methods

1.02 REFERENCES

- A. National Electric Code
- B. State and Local Electrical Code
- C. National Electrical Contractors Association (NECA) - Standards of Installation
- D. Underwriters Laboratories, Inc. (UL)
- E. National Electrical Manufacturers Association (NEMA)

1.03 SYSTEM DESCRIPTION

- A. Site lighting comprised of concrete bases, transformer bases, luminaire poles, LED luminaires, mounting accessories, photo electric controls, controls, and accessories as shown on plans and as required to provide a complete installation.
- B. Equipment type as provided by equipment manufacturer shown on plans or approved equal.
- C. 10 Day Prior to Bid Date submission required for unspecified products

1.04 SUBMITTALS

- A. Shop Drawings:
 - 1. Lighting equipment shown on equipment schedule and plans.

- B. Product Data included but not limited to:
 - 1. Pole
 - 2. Luminaires
 - 3. Photo Control (to be determined by electrical contractor)
- C. Submittal drawings must be sent to Landscape Architect.

1.05 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Obtain approval of completed system from state or local electrical inspector.
 - 2. Provide all necessary permit and inspection fees.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers as listed on lighting plan and written specifications. All other manufacturers must be submitted 10 day prior to bid date.

2.02 LIGHTING UNITS

- A. Lighting pole:
 - 1. Length:
 - a. 25 foot mounting height
 - 2. Material:
 - a. 0.188" thick aluminum
 - b. Straight Square Aluminum- 5" diameter,
 - c. 4.9 EPA
 - 3. Factory Finish:
 - a. Factory powder coated finish
 - b. Color: Landscape Architect to select standard finish.
 - 4. Design for 80 mph wind loading (including arms, luminaires, ice and all mounting devices)
 - 5. Include handhole in base
 - 6. Warranty- Lifetime Corrosion warranty
 - 7. Galvanized tip anchor bolts (sizing per pole manufacture)

8. Acceptable Units:
 - a. Hapco SSA25 or pre-approved equal
- B. Site LED Luminaire:
1. Weatherproof IP66 rating
 2. LED Light source:
 - a. Qty 6 and 18 LED lamps- quantity per lighting plan.
 - b. See lighting plan and fixture cutsheets for fixture wattage
 - c. 95% Light output at 100,000 Hours
 - d. 106 Lumens per watt (minimum at 700mA)
 - e. 700mA LED operating current. Fixture must be supplied with triple tap connector allowing three different field selected wattages
 - f. Color temperature - 4000 Kelvin
 3. Driver:
 - a. High power factor – 90%
 - b. Auto adjusting voltage – 120 to 277 volts
 - c. 0-10 V dimmable driver as standard.
 4. Factory Finish:
 - a. Polyester powder coat
 - b. Color: Landscape Architect to select standard finish.
 5. All integral parts to be readily accessible
 6. UL Listed
 7. DesignLights Consortium qualified
 8. Fixture Warranty: Standard 10 Year Limited Warranty on luminaire and components. 5 Year warranty on optional motion sensor (sensor to be determined by owner if needed).
 9. Acceptable Units:
 - a. Leotek Arieta13 or pre-approved equal.
- C. LED Wall Pack Luminaire:
1. Weatherproof IP66 rating
 2. LED Light source:
 - a. Qty 24 LED lamps
 - b. See lighting plan and fixture cutsheets for fixture wattage
 - c. OMNILENS system to create low brightness source to reduce glare
- D. Lighting Control Cabinet
1. Weatherproof, NEMA 3R assembly with dimensions, construction, and components to be determined by electrical contractor.
 2. Photocontrol to be determined by electrical contractor.
 3. All Components shall bear 'UL' label and be rated for the intended use.
 4. Control cabinet determined by electrical contractor.
- E. LED Structure Luminaire:
1. Weatherproof IP66 rating
 2. LED Light Source
 - a. To be submitted with shop drawings for structure
- with precise Wide or Forward Throw distributions.
- d. 700mA LED operating current.
 - e. 5,770 Lumens, 59Watt at 98 Lumens per watt.
 - f. Color temperature - 4000 Kelvin, 70CRI
3. Driver:
 - a. High power factor – 90%
 - b. Auto adjusting voltage – 120 to 277 volts
 - c. 0-10 V dimmable driver as standard.
 4. Factory Finish:
 - a. Polyester powder coat
 - b. Color: Landscape Architect to select standard finish.
 5. All integral parts to be readily accessible
 6. Back mounting plate to include hanging feature to allow one-person installation.
 7. UL Listed
 8. Fixture Warranty: Standard 10 Year Limited Warranty on luminaire and components. 5 Year warranty on optional motion sensor (sensor to be determined by owner if needed).
 9. Contractor to coordinate mounting location with landscape architect.
 10. Acceptable Units:
 - a. Leotek ES1 or pre-approved equal.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify rules and procedures of the energy supplier for connection to the existing system or new system.
- B. Verify locations for making connections to existing facilities.
- C. Verify location of existing underground facilities prior to installation.

3.02 PROTECTION

- A. Protect all existing surface and underground facilities.

3.03 INSTALLATION

- A. General:
 - 1. Conform to NECA Standards of Installation except as modified herein.
 - 2. Install all equipment based on the locations and dimensions shown on the drawings or as directed by the Engineer.
- B. Concrete Foundation
 - 1. Furnish and install a concrete Light Base as detailed on plans at the locations indicated in the Plan or as directed by the Landscape Architect. If necessary, anchor bolt size and circle shall be modified to accommodate pole manufacturer's requirements.
 - 2. Install one ground rod next to foundations as indicated in the Plan.
- C. Lighting Units
 - 1. General: The Contractor shall furnish and install all lighting poles, nut covers, luminaires, mounting arms and accessories, as required by the contract documents and in accordance with manufactures instructions and as specified on the Equipment Schedule in the Plans.
 - 2. Luminaires:
 - a. Aim/orient fixtures per lighting plan. Have final lighting aiming

approved by owner prior to turn over.

- b. The Contractor shall apply an approved zinc-based anti-seize compound to all mounting hardware prior to assembly.

3. Poles:

- a. Installed Poles shall be installed plumb and level.
- b. Stainless steel mounting hardware shall be used to secure access door and to mount luminaires to pole tenons.
- c. The Contractor shall apply an approved zinc-based anti-seize compound to all mounting hardware prior to assembly.

D. Lighting Control Cabinet

- 1. Coordinate location with owner prior to rough-in

3.04 FIELD QUALITY CONTROL

A. Testing

- 1. Test completed system for unwanted grounds in accordance with Mn/DOT 2545.3.J.
- 2. Conduct megohm meter test (at 500 volts D.C.) indicating resistance of each circuit.
- 3. Allowable Results:
 - a. Phase Conductor Insulation Resistance:
 - 1) Not less than 100 megohms.
 - b. Neutral Conductor Insulation Resistance:
 - 1) Not less than 5 megohms.
 - c. Circuit Insulation Resistance:
 - 1) Not less than 5 megohms.
- 4. Provide necessary corrections and retest.

B. Demonstration

- 1. Demonstrate proper operation of completed system.
- 2. The footcandle levels on and around the fields shall be tested by the contractor in the presence of the owner.

C. Field Service

1. Provide full instruction and demonstration in the adjustment, operation and maintenance of all components of the system.
2. Provide instruction and demonstration to the Owner's employees during regular working hours.

3.05 PAINTING

- A. Paint all exposed metal surfaces or areas damaged during construction.
- B. Match original paint type and color.

END OF SECTION

SECTION 26 01 00

BASIC ELECTRICAL REQUIREMENTS

PART 1 GENERAL

1.01 SCOPE

- A. This Section covers basic electrical requirements for providing labor, materials, equipment, and services necessary for the proper completion of all electrical work as shown on the drawings and specified herein. In general, this consists of providing site security lighting, building and sign flood lighting and associated power and control circuitry for the new Gary New Duluth Recreation Center in Duluth, MN, as hereinafter specified or required. Electrical work shall be complete with documentation, wiring, conduit, fittings, equipment, and connections as specified or required.
- B. The omission of express reference to any items or work necessary for, or reasonably incidental to, a complete installation shall not be construed as releasing the Contractor from providing such items or work.

1.02 SUBMITTALS

- A. Shop Drawings shall be submitted for approval for all equipment listed in following sections.
- B. Samples of equipment or system components shall be submitted for examination/approval as requested.
- C. Instructions and Manuals
 - 1. Provide on-site training and copies of instruction manuals to Owner designated personnel for operation and maintenance of electrical systems.
- D. Test Reports
 - 1. Reports shall be submitted outlining the results of testing performed for the installed equipment as described herein.

- E. As-Built Drawings
 - 1. Keep layout plans for each system on the job site, marking changes made during installation. At completion of the project, this set of As-Built drawings shall be submitted as described herein.
- F. Warranty
 - 1. Warranty information shall be submitted upon project completion.

1.03 CODES, ORDINANCES, AND REGULATIONS.

- A. The National Electric Code, together with applicable state and city ordinances or regulations, establishes minimum requirements for the work.
- B. Ascertain the existence of, and comply with, any interpretations and/or enforcement policies of the local enforcement agencies or individuals peculiar to this area or to this particular installation.
- C. Where these specifications call for materials or construction of better quality or larger size than required by the stated rules and regulations, the provisions of this Specification shall take precedence.
 - 1. Environmental Protection Agency
 - 2. International Fire Code – IFC
 - 3. Life Safety Code
 - 4. National Electrical Code
 - 5. State of Minnesota Building Code
 - 6. City of Duluth Building Code
 - 7. State Energy Code

1.04 STANDARDS

- A. The following industry standards are considered minimum requirements:
 - 1. ADA - American Disabilities Act

2. ANSI - American National Standards Institute
3. IEEE - Standard Rules and Regulations of the Institute of Electrical and Electronic Engineers
4. IES - Illuminating Engineering Society
5. NECA - National Electrical Contractor's Association Standard of Installation
6. NEIS - National Electrical Installation Standards
7. NEMA - National Electrical Manufacturer's Association Standards
8. NESC - National Electric Safety Code
9. NFPA - Rules and Regulations of the National Fire Protection Association
10. OSHA - Occupational Safety and Health Act
11. TIA/EIA - Telecommunication Electronic Industry/Electronic Industry Association
12. UL - Underwriters Laboratories, Inc.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Duly authorized distributors shall represent equipment and systems to be used on this project with service departments regularly engaged in the maintenance and installation of these systems and equipment. Such service departments shall regularly stock standard replacement parts and equipment and shall be located within a reasonable distance from the installation site.

2.02 MATERIALS

- A. Materials and equipment shall be listed, labeled, or certified by a nationally recognized testing laboratory, such as Underwriter's Laboratories (UL). Materials and equipment shall be of current production by a manufacturer regularly engaged in the manufacture of such items from which replacement parts shall be available. When items are specified by manufacturer's name or catalog designation, it shall be understood that this is to establish the class, features, rating, duty and, in the case of visible

building elements such as lighting fixtures, service fittings, control panels, and the like, appearance.

2.03 EQUIPMENT SUBSTITUTION

- A. When one or no manufacturer of a product is specified, the option of material substitution is with the Landscape Architect. The substituted product must be submitted 10 days prior to bid date and comply with the specific provisions of Section 26050 and other Sections that apply.
- B. When three or more manufacturers of a product are specified, one of the named manufacturers shall be provided.

2.04 MATERIAL PROTECTION

- A. Material and equipment shall be protected during shipment and storage against physical damage, dirt, moisture, cold, and rain. During installation, enclosures, equipment, controls, controllers, circuit protective devices, and other like items shall be protected against entry of foreign matter and be vacuum cleaned both inside and outside before testing and operating and repainting if required. Damaged equipment shall be, as determined by the Engineer, placed in first class operating condition or be returned to the source of supply for repair or replacement. Damaged paint on equipment and materials shall be refinished to the satisfaction of the Engineer.

2.05 OWNER'S RIGHT OF RETENTION

- A. Firmware, hardware, and software which is necessary to run the Project systems and/or equipment provided hereunder, shall become the property of the Owner. Such firmware, hardware, and software shall be upgradable and/or editable by the Owner to facilitate future functional changes and/or additions or deletions without cost or the need for second party software.

PART 3 EXECUTION

3.01 GENERAL INSTALLATION

- A. Material, equipment, or systems as shown and/or specified shall be installed in accordance with manufacturer's recommendations and industry standards as applicable. Electrical work shall be installed in a professional, neat, workmanlike manner, as per NEIS. Electrical equipment shall be adequately and securely mounted and supported.
 - 1. Outdoor/Underground. Electrical work installed outdoors shall be rated for such areas.
 - 2. Penetrations. Electrical work installed between different environments shall be sealed to prevent moisture or contaminants from traveling from one area to another.
 - 3. Grounding. Electrical equipment and materials shall be grounded in accordance with NEC Article 250.
 - 4. Fireproofing. Electrical materials and equipment shall be installed so as to prohibit the spread of fire. Fire-stop wall, floor, and ceiling penetrations to the same fire-rating as the penetrated wall, floor, or ceiling.
 - 5. Identification of Electrical Systems and Equipment. For switching and protective equipment within switchboards, panelboards, terminal cabinets, pull and junction boxes, etc., provide screw applied engraved white laminated plastic plates with black letters. Submit nameplate schedule for approval prior to manufacture.

3.02 PERMITS AND INSPECTIONS

- A. Obtain and pay for permits and inspections required for the electrical work; arrange for inspections required for the electrical work; furnish a certificate of final inspection and approval by enforcement authorities.

3.03 STORAGE OF MATERIAL AND EQUIPMENT

- A. Electrical materials and equipment may be stored at the site in trailers or temporary buildings. Additionally, equipment with bare current carrying parts such as motor starters, motor control centers, electronic equipment, etc., shall be encased in plastic sheeting with a desiccant agent enclosed.
- B. Equipment designed for outdoor use may be stored outdoors on raised platforms. However, sensitive areas, such as openings for yet to be installed insulators on transformers, shall be covered and sealed with plastic sheeting with a desiccant agent enclosed. Adequate protection shall be provided to prevent accidental rupturing of the plastic coverings.

3.04 FIELD TESTS AND ADJUSTMENTS

- A. Work shall, upon completion, be subjected to such tests as are required under industry standards and/or specified herein. Acceptance of the work by the Engineer shall be contingent upon satisfactory completion of these tests. Actual tests required shall be specified under their respective sections.
- B. Prior to completion, the work shall be subjected to a careful and thorough visual inspection to detect erroneous or loose connections, presence of foreign objects or materials, poor workmanship, incorrect ratings of overcurrent protective devices or equipment, compliance with drawings, or other abnormal conditions.
- C. Tests shall be scheduled in advance in order that a representative of the Engineer may be present. Test Reports shall be tabulated by the Contractor including the pertinent readings or observations, as well as a statement of the method and specific equipment employed, and shall be filed with the Engineer as part of the permanent Project record. In cases of test failure, it shall be agreed that the corrective measures

proposed are adequate before making repairs. A second test shall be conducted upon completion of repairs, adjustments, or replacements.

- D. The Contractor shall provide calibrated test equipment and temporary energy sources as required to provide the required tests.

3.05 COMPLETION OF INSTALLATION

- A. Final Inspection.
 - 1. Upon completion of the work, notify the Engineer that the Project is complete and ready for inspection. The Engineer will inspect the project and generate a list of items to be corrected or completed before contract closeout. The Contractor will then perform the necessary work to complete the project and notify the Engineer accordingly.
- B. Training
 - 1. The Contractor shall furnish training for the operating and maintenance personnel of the Owner of the recommended and proper operation and maintenance of electrical systems. Training shall be both of the classroom type and the hands-on type, and shall cover all areas of maintenance and operation. Training shall be coordinated with the Engineer and Owner to allow video taping, if requested by Owner.
 - 2. The training period may be either concurrent with the system start-up or follow the start-up period at the Contractor's option; however, if it is given concurrent to the start-up, then the instructing personnel shall be furnished in addition to the start-up personnel and one shall not interfere with the other.
- C. Cleanup. Keep the premises free from accumulation of waste material and rubbish. Remove debris from the job site and leave work areas broom clean upon completion of the work.
- D. Spare Parts. Spare parts shall be turned over to the Owner at the completion of the

Project. The spare parts shall not be used during start-up or warranty. Package spare parts for protection against dirt and moisture.

3.06 GUARANTEE (WARRANTY)

- A. Unless specified in another Section, the warranty shall be as described herein. The Contractor shall guarantee the equipment and systems to be free of defects in design, equipment, and installation workmanship for a period of one year from the date of acceptance. The Contractor shall replace, redesign, and correct any equipment that malfunctions or fails within the one-year period.

END OF SECTION