PROJECT MANUAL

Project: West Duluth Deep Winter Greenhouse
North 45th Avenue West and Grand.
Duluth, MN 55807

Owner: City of Duluth

Architect: Wagner Zaun Architecture
17 N. Lake Ave.
Duluth, MN 55802

Contact: Dan Kislinger
218-213-7069

Date: May 4, 2017
Date: June 21, 2017 Rebid

Certifications:

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

Douglas G. Zaun, AIA License 21630

Date __5-4-17_____

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Purchasing Division
100 City Hall, 411 W. 1st Street
Duluth, MN 55802-1189
TEL. 218-730-5340
purchasing@duluthmn.gov

INVITATION TO BID

WEST DULUTH DEEP WINTER GREENHOUSE

BID NUMBER: **17-0409 REBID** **BID OPENING: THURSDAY, JULY 6, 2017 AT 2:00 PM**

PROJECT DESCRIPTION: This project has two components. Component One consists of site demolition of paving surfaces, concrete sidewalks, and grading, and construction of a deep winter green house, hoop house, pergola on an existing concrete slab, and storage spaces. Component Two consists of demolition of selected bituminous and concrete paving, the extension of water utilities, installation of public area concrete curb and gutter and sidewalk. Please refer to the plans and project manual for more information. PLEASE NOTE THAT THE BID FORM HAS BEEN UPDATED.

this project in funded in part by a Community Development Block Grant; federal contract terms and conditions will be included in the contract.

QUESTIONS: A formal pre-bid walk-through will not be conducted. Please submit any questions regarding this project via e-mail to purchasing@duluthmn.gov. Responses will be provided to all interested bidders as an addendum to this solicitation.

The selected contractor will be issued a construction contract. A copy of the City standard Contract for Construction, General Conditions, and Supplementary Conditions for Federally, State of Minnesota, and/or City Assisted Activities can be found at http://www.duluthmn.gov/purchasing/forms/ . Notice to Proceed will be issued once the agreement is fully executed.

Proposal forms, contract documents, plans and specifications are on file at the following offices: Duluth Builder's Exchange, Minnesota Builder's Exchange, BXWI-Fox Valley Plan Room, and Blue Book Building and Construction Network.

INSTRUCTIONS TO BIDDERS

All bids must be complete, signed, and transmitted in a sealed envelope plainly marked with the bid number, subject matter, and opening date.

Bids may be mailed to the Purchasing Office, City Hall, 411 West 1st Street, Room 100, Duluth, MN 55802 or dropped off in person at the same address.

Bids must be received in Purchasing before 2:00 PM local time on the bid opening date specified on the Invitation for Bids. The City Purchasing Agent or her designee will conduct a public bid opening in Room 100 immediately following receipt of the bids. Once all bids have been reviewed, bid results will be posted online at http://www.duluthmn.gov/purchasing/bids-request-for-proposals/.

No alternatives to the specification will be considered unless specifically requested. Erasures or other changes to the bid must be initialed and dated, however no special conditions shall be made or included in the bid form by the bidder.

The City of Duluth reserves the right to split the award where there is a substantial savings to the City, to waive informalities and to reject any and all bids. Do not include sales tax in the unit price. Price may not be the only consideration for bid award. Bids must be firm for a minimum of 30 days.

The following documents must be submitted with your bid:

1. **Bid Bond** - A certified check or bank draft, payable to the order of the City of Duluth, negotiable U.S. Government Bonds (at par value), or a satisfactory bid bond executed by the bidder and acceptable surety, in an amount equal to five per cent (5%) of the total bid. Bids may be withdrawn without forfeiture of surety if the request is submitted by the Bidder and received at the Purchasing Office in writing or by e-mail prior to the scheduled bid opening.

2. **Acknowledgment of Addendum –** any changes to this solicitation will be announced via Addendum. Bidders must indicate that they have reviewed any addendum(s) by initialing and dating on the bid form where indicated. Failure to acknowledge addendum(s) may result in your bid being deemed non-responsive.

3. **Responsible Contractor** - No construction contract in excess of $50,000 will be awarded unless the Bidder is a "responsible contractor" as defined in Minnesota Statute §16C.285, subdivision 3. All Bidders submitting a proposal for this project must verify that they meet the minimum criteria specified in the statute by submitting a Responsible Contractor Verification and Certification of Compliance form (attached) with their bid.

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

1. **Insurance** – Contractor must provide proof of Public Liability and Automobile Liability Insurance with limits not less than $1,500,000 Single Limit prior to the commencement of work. The City of Duluth must be named as an additional insured. Please refer to the draft Contract, Section 7.

2. **Affidavit of Non-Collusion** – The successful bidder shall be required to execute the attached affidavit stating that he/she has not entered into a collusive agreement with any other person, firm, or corporation in regard to any bid submitted.

3. **Performance & Payment Bonds** – The awarded contractor will be required to submit performance and payments bonds in the full amount of the project cost prior to award. Bonds must be submitted on City standard forms. Copies of these forms may be found at http://www.duluthmn.gov/purchasing/forms/

4. **Affirmative Action/EEO** - The contractor must take affirmative action to ensure that the employees and applicants for employment are not discriminated against because of their race, color, creed, sex or national origin, and must meet the affirmative action goals. Contractors are encouraged to subcontract with Disadvantaged Business Enterprises (DBEs) when possible. A current list of certified DBEs is available on the Minnesota Unified Certification website at http://mnucp.metc.state.mn.us . Contractor will comply with all applicable Equal Employment Opportunity laws and regulations. Awarded contractor will submit the attached Equal Employment Opportunity (EEO) Affirmative Action Policy Statement & Compliance Certificate.

5. **Project Labor Agreement (PLA)** - A PLA will be required for any bid that is over or could virtually go over $150,000. A copy of the City standard PLA may be found at http://www.duluthmn.gov/purchasing/forms/

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

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

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

CITY OF DULUTH

Amanda Ashbach, Purchasing Agent

BID FORM

Date: _____

Bidder: _____

WEST DULUTH DEEP WINTER GREEN HOUSE
Received and Opened at 332 City Hall
Duluth, MN 55802

Bid Section:

The undersigned; having carefully examined the Bidding Requirements, Contracting Requirements, the Drawings and Specifications, as well as the conditions affecting the work; propose to furnish, in accordance with the Contract Documents, materials, labor and equipment required for the construction of the Component One; WEST DULUTH DEEP WINTER GREEN HOUSE and Component Two; CITY PROJECT NO. 1650.

COMPONENT ONE BID

Stipulated Sum of _____
_____
_____ Dollars ($)

COMPONENT TWO BID

Stipulated Sum of _____
_____
_____ Dollars ($)

COMBINED TOTAL OF COMPONENT ONE AND COMPONENT TWO BID

Stipulated Sum of _____
_____
_____ Dollars ($)

Amounts shall be shown in both words and figures. In case of discrepancy, the amount shown in words will govern.

ALTERNATES COMPONENT ONE BID

ALTERNATE 1 OMIT ROOT STORAGE BUILDING:
Stipulated Sum of _____
_____
_____ Dollars ($)

ALTERNATE 2 OMIT STORAGE SHED:
Stipulated Sum of _____
_____
_____ Dollars ($)

ALTERNATE 3 OMIT HIGH TUNNEL HOOP HOUSE:
Stipulated Sum of _____
_____
_____ Dollars ($)

ALTERNATE 4 OMIT OUTDOOR CLASS ROOM:
Stipulated Sum of _____
_____
_____ Dollars ($)

ALTERNATE 5 OMIT EAST SITE SPHERICAL BOLLARDS:
Stipulated Sum of _____
_____
_____ Dollars ($)

Amounts shall be shown in both words and figures. In case of discrepancy, the amount shown in words will govern.

Addendum Number(s) _____ are hereby acknowledged.

In submitting this bid, it is understood the right is reserved by the Owner to accept or reject any or all bids. It is agreed that this bid may not be withdrawn for a period of thirty (30) calendar days after the date of receipt of this Bid Form.

The undersigned further agrees, if awarded the contract to execute and deliver to the Owner within ten (10) calendar days of signing the Contract, a Performance Bond and Labor and Material Bond in the full amount of the Contract. The company providing the bond must be registered for business in the State of Minnesota and satisfactory to the Owner.

We agree to commence work under the Components One and Two Bid, when the Owner-Contractor Agreement is executed; and to maintain progress necessary to complete the Work associated with the Root Storage Building as shown on A2.5 and A2.6 of Component One by October Fifteenth, 2017 and a fully functional Deep Winter Green House with necessary work of Component Two shown on Civil work and as shown on A2.1, A2.2, A2.3 and A2.4 by December First, 2017 with balance of the Architectural and Civil work of Component One and Two of this project by June Fifteenth, 2018.

Respectfully Submitted:

Firm Name: _____

By: _____

Title: _____

Address: _____

Telephone: _____

Contact Name and E-mail Address _____

Indicate legal entity: ___ Sole Proprietor ___ Partnership ___ Corporation

If a corporation, what is the state of the corporation: _____

If a partnership, state the full name of co-partners: _____

_____

_____

END OF DOCUMENT

THIS FORM MUST BE RETURNED WITH YOUR BID

PRIME CONTRACTOR RESPONSE

RESPONSIBLE CONTRACTOR VERIFICATION AND CERTIFICATION OF COMPLIANCE

STATE PROJECT NUMBER: _____

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

Minn. Stat. § 16C.285, Subd. 7. **IMPLEMENTATION.** … any prime contractor or subcontractor or motor carrier that does not meet the minimum criteria in subdivision 3 or fails to verify that it meets those criteria is not a responsible contractor and is not eligible to be awarded a construction contract for the project or to perform work on the project…	
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:	
(1)	The Contractor: (i) is in compliance with workers' compensation and unemployment insurance requirements; (ii) is in compliance with Department of Revenue and Department of Employment and Economic Development registration requirements if it has employees; (iii) has a valid federal tax identification number or a valid Social Security number if an individual; and (iv) has filed a certificate of authority to transact business in Minnesota with the Secretary of State if a foreign corporation or cooperative.
(2)	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: (i) repeatedly fails to pay statutorily required wages or penalties on one or more separate projects for a total underpayment of $25,000 or more within the three-year period, provided that a failure to pay is “repeated” only if it involves two or more separate and distinct occurrences of underpayment during the three-year period; (ii) has been issued an order to comply by the commissioner of Labor and Industry that has become final; (iii) has been issued at least two determination letters within the three-year period by the Department of Transportation finding an underpayment by the contractor or related entity to its own employees; (iv) has been found by the commissioner of Labor and Industry to have repeatedly or willfully violated any of the sections referenced in this clause pursuant to section 177.27; (v) has been issued a ruling or findings of underpayment by the administrator of the Wage and Hour Division of the United States Department of Labor that have become final or have been upheld by an administrative law judge or the Administrative Review Board; or (vi) has been found liable for underpayment of wages or penalties or misrepresenting a construction worker as an independent contractor in an action brought in a court having jurisdiction. Provided that, if the contractor or related entity contests a determination of underpayment by the Department of Transportation in a contested case proceeding, a violation does not occur until the contested case proceeding has concluded with a determination that the contractor or related entity underpaid wages or penalties;*

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

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

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

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

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

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

Minn. Stat. § 16C.285, Subd. 4. **VERIFICATION OF COMPLIANCE.**
A contractor responding to a solicitation document of a contracting authority shall submit to the contracting authority a signed statement under oath by an owner or officer verifying compliance with each of the minimum criteria in subdivision 3, with the exception of clause (7), at the time that it responds to the solicitation document. A contracting authority may accept a signed statement under oath as sufficient to demonstrate that a contractor is a responsible contractor and shall not be held liable for awarding a contract in reasonable reliance on that statement. A prime contractor, subcontractor, or motor carrier that fails to verify compliance with any one of the required minimum criteria or makes a false statement under oath in a verification of compliance shall be ineligible to be awarded a construction contract on the project for which the verification was submitted. A false statement under oath verifying compliance with any of the minimum criteria may result in termination of a construction contract that has already been awarded to a prime contractor or subcontractor or motor carrier that submits a false statement. A contracting authority shall not be liable for declining to award a contract or terminating a contract based on a reasonable determination that the contractor failed to verify compliance with the minimum criteria or falsely stated that it meets the minimum criteria. A verification of compliance need not be notarized. An electronic verification of compliance made and submitted as part of an electronic bid shall be an acceptable verification of compliance under this section provided that it contains an electronic signature as defined in section 325L.02, paragraph (h).

CERTIFICATION	
By signing this document I certify that I am an owner or officer of the company, and I swear under oath that: **1) My company meets each of the Minimum Criteria to be a responsible contractor as defined herein and is in compliance with Minn. Stat. § 16C.285, and** **2) if my company is awarded a contract, I will submit Attachment A-1 prior to contract execution, and** **3) if my company is awarded a contract, I will also submit Attachment A-2 as required.**	
Authorized Signature of Owner or Officer:	**Printed Name:**
Title:	**Date:**
Company Name:	

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

ATTACHMENT A-1

FIRST-TIER SUBCONTRACTORS LIST

SUBMIT PRIOR TO EXECUTION OF A CONSTRUCTION CONTRACT

STATE PROJECT NUMBER: _____

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

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

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

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

ATTACHMENT A-2

ADDITIONAL SUBCONTRACTORS LIST

PRIME CONTRACTOR TO SUBMIT AS SUBCONTRACTORS ARE ADDED TO THE PROJECT

STATE PROJECT NUMBER: _____

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

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

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

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

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

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 of materials, supplies, 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 Federal Identification Number _____

EQUAL EMPLOYMENT OPPORTUNITY EEO AFFIRMATIVE ACTION
POLICY STATEMENT & COMPLIANCE CERTIFICATE

TO: City of Duluth, MN PROJECT NUMBER & DESCRIPTION _____

_____

FROM: _____

_____

(Vendor's name, address, telephone number)

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

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

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

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

C) Nonsegregated Facilities: The FIRM certifies that it does not maintain or provide for its employees any segregated facilities at any of its establishments and that it does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The FIRM certifies that it will not maintain or provide for its employees any segregated facilities at any of its establishments and that it will not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The FIRM agrees that a breach of this certification is a violation of the Equal Opportunity Clause in this certificate. As used in this Certification, the term "segregated

facilities" means any waiting rooms, work area, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation for entertainment area, transportation, and housing facilities provided for employees which are segregated by explicit directive or are, in fact, segregated on the basis of race, color, religion, or national origin, because of habit, local custom, or otherwise.

D) Affirmative Action Compliance Program: Unless exempted by regulation and law, the FIRM–if the FIRM has 50 or more employees and if the value of current contracts with the City of Duluth exceeds $50,000–shall prepare and maintain a written affirmative action compliance program that meets the requirement as set forth in 41CFR60.

E) Non-Compliance: The FIRM certifies that it is not currently in receipt of any outstanding letters of deficiencies, show cause, probable cause, or other such notification of non-compliance with EEO Laws and Regulations.

F) Employment Goals - "Construction" Projects: It shall be the goal of the FIRM if the PROJECT is of a construction nature that in all on-site employment generated that no less than 3% of the on-site workforce will be minority employees and that no less than 7% of the on-site workforce will be female employees. Further, it is the goal of the FIRM if the PROJECT is of a construction nature that in all on-site employment generated that no less than 3% of the work hours generated shall be worked by minority employees and that no less than 7% of the work hours generated shall be worked by female employees.

G) Subcontractors: The FIRM will for all its PROJECT subcontractors regardless of tier (unless exempted by law and regulation) that received in excess of $2,500 require that: (1) the subcontractor shall execute an "EEO Statement and Certification" similar in nature to this "Statement and Certification", (2) said documentation to be maintained on file with the FIRM or subcontractor as may be appropriate.

Executed this _____ day of _____, 20__ by:

_____
Printed name and title

_____
Signature

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

Applicability

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

A. 1. (i) Minimum Wages. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section l(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

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

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

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

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

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

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

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

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

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

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part

of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

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

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

(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i) except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at *http://www.dol.gov/esa/whd/forms/wh347instr.htm* or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this subparagraph for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to HUD or its designee. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

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

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

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

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

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

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

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

4. Apprentices and Trainees.

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

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

the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

General Decision Number: MN170041 05/26/2017 MN41

Superseded General Decision Number: MN20160041

State: Minnesota

Construction Type: Building

County: St Louis County in Minnesota.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.20 for calendar year 2017 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.20 (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2017. 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	01/06/2017
1	01/20/2017
2	02/03/2017
3	02/17/2017
4	04/14/2017
5	05/26/2017

ASBE0049-007 06/01/2016

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR (Includes the application of all insulating materials, protective coverings, coatings & finishes to all types of mechanical systems)	$ 28.77	24.70

BOIL0647-007 01/01/2017

	Rates	Fringes
BOILERMAKER	$ 35.65	29.89

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* BRMN0001-050 05/01/2017

ST LOUIS (Remaining Northern part)

	Rates	Fringes
TILE SETTER	$ 25.20	23.63

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* BRMN0003-008 05/01/2017

ST. LOUIS COUNTY (City of Duluth and South of a line between Townships #54 & #55, 2 miles north of Cotton)

	Rates	Fringes
BRICKLAYER	$ 33.95	23.73

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* BRMN0003-011 05/01/2017

ST. LOUIS (City of Duluth and south of Township Line 55)

	Rates	Fringes
TILE SETTER	$ 25.20	23.63

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* BRMN0016-002 05/01/2017

ST. LOUIS COUNTY (North of a line between Townships #54 & #55, 2 miles north of Cotton)

	Rates	Fringes
BRICKLAYER	$ 32.83	24.85

CARP0068-005 07/01/2012

	Rates	Fringes
SOFT FLOOR LAYER	$ 30.94	11.75

CARP0361-012 05/01/2016

DULUTH AREA including Alborn, Arnold, Bartlett, Birch, Brookstone, Canyon, Clinton, Culver, Floodwood, Gowan, Island, Kelsey, Lakewood, Meadowlands, Munger, Palmers, Payne, Prasit, Shaw, Taft)

	Rates	Fringes
CARPENTER (Including Acoustical Installation,		

Drywall Hanging, Form Work &
Overhead Door Installation).....$ 29.97 16.96

CARP0606-001 05/01/2015

EXCLUDING DULUTH AREA

	Rates	Fringes
CARPENTER (Including Acoustical Installation, Drywall Hanging, Form Work & Overhead Door Installation)	$ 29.45	14.37

ELEC0242-012 05/29/2016

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

	Rates	Fringes
ELECTRICIAN	$ 34.92	25.05

ELEC0294-006 05/29/2016

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

	Rates	Fringes
ELECTRICIAN	$ 35.60	71.72%

ENGI0049-045 05/01/2016

	Rates	Fringes
OPERATOR: Power Equipment		
GROUP 1	$ 39.14	18.40
GROUP 2	$ 38.80	18.40
GROUP 3	$ 37.39	18.40
GROUP 4	$ 37.05	18.40
GROUP 5	$ 36.13	18.40
GROUP 6	$ 34.62	18.40
GROUP 7	$ 33.50	18.40
GROUP 8	$ 31.49	18.40

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Truck & Crawler Crane with 200' of Boom & Over, including Jib ($.50 premium with 300' of Boom & over, including jib); & Tower Crane 250' & Over.

GROUP 2: Truck & Crawler Crane with 150' of Boom, up to but not including 200' of Boom, including Jib; & Tower Crane 200' & Over.

GROUP 3: Traveling Tower Crane; Truck & Crawler Crane, up to but not including 150' of Boom, including Jib; Tower Crane (Stationary) up to 200'; All-Terrain Vehicle Crane, Boom Truck over 100 ft.

GROUP 4: Backhoe/Track/Trackhoe, Hoist (3 drums or more); Overhead Crane (inside building perimeter), Excavator.

GROUP 5: Asphalt Spreader, Bulldozer, Curb Machine, Drill, Forklift, Compressor 450 CFM or over (2 or more machines); Boom Truck up to 100 ft, Loader over 1 cu yd, Hoist (1 or 2 drums); Mechanic; Milling Machine, Roller, Scraper, Tractor over D2.

GROUP 6: Bobcat/Skid Loader, Loader up to 1 cu. yd., Tractor D2 or similar size.

GROUP 7: Compressor 600 CFM or over, Crane Oiler.

GROUP 8: Oiler.

IRON0512-018 06/05/2016

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

LABO1091-011 01/01/2016

	Rates	Fringes
LABORER (ASBESTOS ABATEMENT)		
Removal from Floors, Walls & Ceilings.....	$ 29.20	17.43

LABO1091-013 05/01/2012

ST. LOUIS (South of T 55 N)

	Rates	Fringes
Laborers:		
GROUP 1.....	$ 21.95	14.93
GROUP 2.....	$ 22.10	14.93
GROUP 3.....	$ 22.35	14.93
GROUP 4.....	$ 22.65	14.93

LABORER CLASSIFICATIONS

GROUP 1: Common or General, Asphalt Shoveler, Carpenter Tender, Form Stripping

GROUP 2: Vibrating Plate

GROUP 3: Pipelayer

GROUP 4: Mason Tender (Brick, Cement/Concrete)

LABO1097-008 05/01/2012

ST.LOUIS (North of T 55N)

	Rates	Fringes
LABORER		
GROUP 1	$ 20.62	16.25
GROUP 2	$ 21.02	16.25

LABORERS CLASSIFICATIONS

GROUP 1 - Common or General, Asphalt Shoveler, Carpenter Tender, Form Stripping, Mason Tender (Brick, Cement/Concrete)

GROUP 2 - Pipelayer, Vibrating Plate

PAIN0106-001 05/02/2016

	Rates	Fringes
GLAZIER	$ 30.17	17.47

FOOTNOTE:
1 to 4 years service - 1 week paid vacation; 5 to 11 years - 2 weeks paid vacation; 11 years or more - 3 weeks paid vacation

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PAIN0106-013 05/02/2016

	Rates	Fringes
Painters:		
New:		
Brush, Roller	$ 29.86	16.35
Spray, Drywall Finisher/Taper	$ 30.46	16.35
Repaint:		
Brush, Roller	$ 28.36	16.35
Spray, Drywall		

Finisher/Taper.....$ 28.96 16.35

PLAS0633-024 05/01/2016

ST. LOUIS (North of White Face River) COUNTIES

Rates Fringes

CEMENT MASON/CONCRETE FINISHER...$ 29.46 15.77

PLAS0633-059 05/01/2016

CARLTON & ST. LOUIS (South of T 55N) COUNTIES

Rates Fringes

CEMENT MASON/CONCRETE FINISHER...$ 30.86 17.13

PLUM0011-019 05/02/2016

ST. LOUIS (South of an east-west line drawn through Cotton)

Rates Fringes

PLUMBER/PIPEFITTER.....$ 39.07 18.73

PLUM0589-007 05/01/2016

ST. LOUIS (North of an East- West line drawn through Cotton)

Rates Fringes

PLUMBER/PIPEFITTER
Contracts $90,000.00 and
under.....$ 39.25 18.66
Contracts over $90,000.00...$ 39.25 18.66

ROOF0096-024 07/01/2016

ST. LOUIS (South of Hwy 16, excluding City of Forbes)

Rates Fringes

ROOFER.....$ 33.00 15.12

ROOF0096-025 05/01/2016

ST. LOUIS (Remaining Northern two-thirds)

Rates Fringes

ROOFER.....$ 29.00 11.82

SHEE0010-045 05/01/2016

ST. LOUIS (Southern one-third)

	Rates	Fringes
SHEET METAL WORKER (Including HVAC Duct Installation)	$ 31.87	25.09

SHEE0010-056 05/01/2016

ST. LOUIS (Northern two-thirds)

	Rates	Fringes
SHEET METAL WORKER (Including HVAC Duct Installation)	$ 30.51	23.90

SUMN2009-050 07/27/2009

	Rates	Fringes
LABORER: Landscape	$ 12.88	4.61
TRUCK DRIVER: Dump Truck	$ 19.15	5.70

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

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

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

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

Union Rate Identifiers

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

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

Survey Rate Identifiers

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

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

Union Average Rate Identifiers

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

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

WAGE DETERMINATION APPEALS PROCESS

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

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

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

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

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

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

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

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

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

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

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

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END OF GENERAL DECISION

U.S. Department of Labor
Wage and Hour Division

PAYROLL

(For Contractor's Optional Use; See Instructions at www.dol.gov/whd/forms/wh347instr.htm)

Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number.

U.S. Wage and Hour Division

Rev. Dec. 2008

NAME OF CONTRACTOR ☐ OR SUBCONTRACTOR ☐ | ADDRESS | OMB No.: 1235-0008 Expires: 02/28/2018

PAYROLL NO. | FOR WEEK ENDING | PROJECT AND LOCATION | PROJECT OR CONTRACT NO.

(1) NAME AND INDIVIDUAL IDENTIFYING NUMBER (e.g., LAST FOUR DIGITS OF SOCIAL SECURITY NUMBER) OF WORKER	(2) NO. OF WITHHOLDING EXEMPTIONS	(3) WORK CLASSIFICATION	OT. OR ST.	(4) DAY AND DATE / HOURS WORKED EACH DAY	(5) TOTAL HOURS	(6) RATE OF PAY	(7) GROSS AMOUNT EARNED	(8) DEDUCTIONS: FICA	WITH-HOLDING TAX			OTHER	TOTAL DEDUCTIONS	(9) NET WAGES PAID FOR WEEK
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While completion of Form WH-347 is optional, it is mandatory for covered contractors and subcontractors performing work on Federally financed or assisted construction contracts to respond to the information collection contained in 29 C.F.R. §§ 3.3, 5.5(a). The Copeland Act (40 U.S.C. § 3145) contractors and subcontractors performing work on Federally financed or assisted construction contracts to "furnish weekly a statement with respect to the wages paid each employee during the preceding week." U.S. Department of Labor (DOL) regulations at 29 C.F.R. § 5.5(a)(3)(ii) require contractors to submit weekly a copy of all payrolls to the Federal agency contracting for or financing the construction project, accompanied by a signed "Statement of Compliance" indicating that the payrolls are correct and complete and that each laborer or mechanic has been paid not less than the proper Davis-Bacon prevailing wage rate for the work performed. DOL and federal contracting agencies receiving this information review the information to determine that employees have received legally required wages and fringe benefits.

Public Burden Statement

We estimate that is will take an average of 55 minutes to complete this collection, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. If you have any comments regarding these estimates or any other aspect of this collection, including suggestions for reducing this burden, send them to the Administrator, Wage and Hour Division, U.S. Department of Labor, Room S3502, 200 Constitution Avenue, N.W. Washington, D.C. 20210

(over)

Date _____

I, _____ _____
(Name of Signatory Party) (Title)

do hereby state:

(1) That I pay or supervise the payment of the persons employed by

_____ on the
(Contractor or Subcontractor)

_____; that during the payroll period commencing on the
(Building or Work)

_____ day of _____, _____, and ending the _____ day of _____, _____,

all persons employed on said project have been paid the full weekly wages earned, that no rebates have been or will be made either directly or indirectly to or on behalf of said

_____ from the full
(Contractor or Subcontractor)

weekly wages earned by any person and that no deductions have been made either directly or indirectly from the full wages earned by any person, other than permissible deductions as defined in Regulations, Part 3 (29 C.F.R. Subtitle A), issued by the Secretary of Labor under the Copeland Act, as amended (48 Stat. 948, 63 Stat. 108, 72 Stat. 967; 76 Stat. 357; 40 U.S.C. § 3145), and described below:

_____

_____

_____

_____

(2) That any payrolls otherwise under this contract required to be submitted for the above period are correct and complete; that the wage rates for laborers or mechanics contained therein are not less than the applicable wage rates contained in any wage determination incorporated into the contract; that the classifications set forth therein for each laborer or mechanic conform with the work he performed.

(3) That any apprentices employed in the above period are duly registered in a bona fide apprenticeship program registered with a State apprenticeship agency recognized by the Bureau of Apprenticeship and Training, United States Department of Labor, or if no such recognized agency exists in a State, are registered with the Bureau of Apprenticeship and Training, United States Department of Labor.

(4) That:

(a) WHERE FRINGE BENEFITS ARE PAID TO APPROVED PLANS, FUNDS, OR PROGRAMS

☐ – in addition to the basic hourly wage rates paid to each laborer or mechanic listed in the above referenced payroll, payments of fringe benefits as listed in the contract have been or will be made to appropriate programs for the benefit of such employees, except as noted in section 4(c) below.

(b) WHERE FRINGE BENEFITS ARE PAID IN CASH

☐ – Each laborer or mechanic listed in the above referenced payroll has been paid, as indicated on the payroll, an amount not less than the sum of the applicable basic hourly wage rate plus the amount of the required fringe benefits as listed in the contract, except as noted in section 4(c) below.

(c) EXCEPTIONS

EXCEPTION (CRAFT)	EXPLANATION

REMARKS:

NAME AND TITLE	SIGNATURE

THE WILLFUL FALSIFICATION OF ANY OF THE ABOVE STATEMENTS MAY SUBJECT THE CONTRACTOR OR SUBCONTRACTOR TO CIVIL OR CRIMINAL PROSECUTION. SEE SECTION 1001 OF TITLE 18 AND SECTION 231 OF TITLE 31 OF THE UNITED STATES CODE.

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents are in two components.
3. Access to site.
4. Work restrictions.
5. Specification and drawing conventions.

B. Related Requirements:

1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.2 PROJECT INFORMATION

A. Project Identification: West Duluth Deep Winter Green House. WZ Project number 1517

1. Project Location: 45th Avenue West and Grand Duluth, Minnesota 55807.

B. Owner: City of Duluth.

1. Owner's Representative: Amanda Ashbach.

2. City Purchasing Agent
   a. 411 West First Street # 100.
   b. 218.730.5003.

C. Architect: Wagner Zaun Architecture. Project contact: Dan Kislinger.

D. Contractor: to be determined.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:

1. Component One of the Project “West Duluth Deep Winter Greenhouse” consists of private onsite civil work such as site demolition of paving surfaces, concrete sidewalks, and grading, and architectural work consisting of a deep winter green house, hoop house, pergola on an existing concrete slab, and storage spaces.

2. Component Two of the Project “City Project no. 1650” consists of work in public spaces including demolition of selected bituminous and concrete paving, the extension of water utilities, installation of public area concrete curb and gutter and sidewalk.

B. Type of Contract.

1. Project will be constructed under a single prime contract.

1.4 ACCESS TO SITE

A. General: Contractor shall have use of Project site for construction operations as indicated on Civil Drawings by the Property lines in the Component One work. Contractor Parking areas to be determined.

B. Use of Site: Limit use of Project site to work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Contractor trailers, parking and material storage will occur on the site.

1.5 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

B. On-Site Work Hours: generally 7 am until 4 pm.

C. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruptions adjacent to Denfeld School.

D. Controlled Substances: Use of tobacco products and other controlled substances within the existing Project site is not permitted.

1.6 SPECIFICATION AND DRAWING CONVENTIONS

A. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

B. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations scheduled on Drawings.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.2 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.3 PROCEDURES

A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated revisions to alternates.

C. Execute accepted alternates under the same conditions as other work of the Contract.

D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. **Alternate No. 1**: **Omit Root Storage Building**.

1. **Base Bid:** All work as shown on component one in the drawings.
2. **Alternate:** Omit all work associated with the construction of Root Storage Building location as indicated on Sheet A1.1 “Architectural Site Plan” labeled as “12 x 12 Root Cellar” and as indicated on Sheet A2.5 “Root Storage Bldg. Plan and Elevations” and A2.6 “Root Storage Bldg. Details”.

B. **Alternate No. 2**: **Omit Storage Shed**.

1. **Base Bid:** All work as shown on component one in the drawings.

Alternate: Omit all work associated with furnishing and installing the Storage Shed location as indicated on Sheet A1.1 “Architectural Site Plan” labeled as “8 x 12 Shed” and as specified in Section 133401 Storage Shed.

C. **Alternate No. 3: Omit High Tunnel Hoop House**.

1. **Base Bid:** All work as shown on component one in the drawings.

2. **Alternate:** Omit furnishing and installing High Tunnel Hoop House location as indicated on Sheet A1.1 “Architectural Site Plan” labeled as “24 x 60 Hoop House” and as specified in Section 133400 High Tunnel Hoop House.

D. **Alternate No. 4**: **Omit Outdoor Classroom**.

1. **Base Bid:** All work as shown on component one in the drawings.

2. **Alternate:** Omit furnishing and installing Outdoor Classroom as located on sheet A1.1 “Architectural Site Plan” labeled as “Pergola/Outdoor Classroom” and as indicated and detailed on Sheet A2.7 “Outdoor Classroom”.

E. Alternate No. 5: Omit East Site Spherical Bollards.

1. Base Bid: All work as shown on component one in the drawings

2. **Alternate:** Omit Furnishing and installing spherical bollards as located on Sheet A1.1 **“**Architectural Site Plan” in plan East corner of the site and detailed on 6/A1.1 “Spherical Bollard Plan”, 3/A1.1 “Spherical Bollard Section” and 4/A1.1 “Spherical Bollard Plan” and as specified in Section 322000 “Traffic Bollards”.

END OF SECTION 012300

WEST DULUTH DEEP WINTER GREENHOUSE

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

1.2 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents.

B. Pre-bid substitution: A request for a substitution of product or construction method that is submitted to the architect prior to the submission of the construction bid.

C. Post-bid substitution: A request for a substitution of product or construction method that is submitted to the architect for approval after the bid has been awarded.

1.3 SUBMITTALS

A. Substitution Requests: Submit one copy of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

    a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
    b. Coordination information, including a list of changes needed to other parts of the Work and to construction performed by separate contractors that will be necessary to accommodate proposed substitution.
    c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified.
    d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
    e. Samples, where applicable or requested.
    f. Cost, including a proposal of change, if any, in the Contract Sum.

2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution.

    a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.

3. For Pre-Bid Substitutions, if the architect deems the requested substitution is equivalent to the product or method specified, or that the substitution is warranted due to unusual conditions, then the substitution will be noted and distributed to all bidders as an approved alternate by means of an addendum.

    a. No requests for substitutions will be reviewed or accepted within a week of the bid due date in order to ensure that the above addendum may be issued to all potential bidders.

4. For Post-bid Substitutions, if the architect deems the substitution unacceptable for any reason, the contractor will be required to provide the specified product or method as contractually bound by the contract documents.

    a. Unanticipated long lead times and product availability are not in themselves reason for acceptance of Post-Bid Substitutions, as those lead times and product availability should be accounted for as part of the project schedule and bid submissions.
    b. If product approval submissions or shop drawings are submitted to the architect, and the submitted product or method is not per the projects specifications, and the submitted product has not been previously approved by the above substitution procedures, the shop drawing or submittal will be rejected.

END OF SECTION 012500

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.2 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time.

1.3 PROPOSAL REQUESTS

A. Owner-Initiated Request for Proposal (RFP): Architect or Construction Manager will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Proposal Requests issued by the Architect are for informational purposes only. Do not consider them instructions to either stop work in progress or to execute the proposed change.
2. Within 7 days after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

    a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made.
    b. Indicate applicable taxes, delivery charges, and equipment rental.
    c. Include costs of labor and supervision directly attributable to the change.
    d. Include Contractor's administrative costs and Profit and Overhead.

B. Contractor-Initiated Request for Proposal (CRFP): If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Indicate applicable taxes, delivery charges, and equipment rental.
3. Include costs of labor and supervision directly attributable to the change.
4. Comply with requirements in Division 01 Section "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
5. Include Contractor's administrative costs and Profit and Overhead.

1.4 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Request for Proposal, the Architect will issue a Change Order for signatures of Owner and Contractor.

1.5 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive (CCD): Architect may issue a Construction Change Directive to instruct Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It may also designate method to be followed to determine change in the Contract Sum or the Contract Time.

END OF SECTION 012600

WEST DULUTH DEEP WINTER GREEN HOUSE

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.2 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.

1. Correlate line items in the schedule of values with other required administrative forms and schedules, including the Application for Payment forms with continuation sheets.

2. Submit the schedule of values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.

B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.

1.3 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Architect and paid for by Owner.

1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

B. Payment Application Times: There shall be monthly pay draws. Pay applications will be prepared beforehand and then reviewed at the regularly scheduled pay draw meeting. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.

C. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.

D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.

1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
3. Provide 10% retainage until the project is 50% complete. No additional retainage is required after that point. The final retainage then becomes 5%.

E. Transmittal: Submit signed and notarized original copies of each Application for Payment to the Architect by a method ensuring receipt.

F. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of values.
3. Contractor's construction schedule (preliminary if not final).
4. List of Contractor's principal consultants.
5. Copies of building permits.
6. Initial progress report.
7. Certificates of insurance and insurance policies.

H. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.

I. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Insurance certificates for products and completed operations where required.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706-1994, "Contractor's Affidavit of Payment of Debts and Claims."
5. AIA Document G706A-1994, "Contractor's Affidavit of Release of Liens."
6. AIA Document G707-1994, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.

END OF SECTION 012900

WEST DULUTH DEEP WINTER GREEN HOUSE

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. Coordination drawings.
2. Requests for Information (RFIs).
3. Project meetings.

B. Related Requirements:
1. Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.

1.2 DEFINITIONS

A. RFI: Request from Owner, or Contractor seeking information required by or clarifications of the Contract Documents.

1.3 INFORMATIONAL SUBMITTALS

A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.

1.4 GENERAL COORDINATION PROCEDURES

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts

and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's construction schedule.
2. Preparation of the schedule of values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Pre-installation conferences.
7. Project closeout activities.

1.5 REQUESTS FOR INFORMATION (RFIs)

A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall contact Architect and submit a RFI in the form generated by the contractor.

1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:

1. Project name.
2. Project number.
3. Date.
4. Name of Contractor.
5. Name of Architect.
6. RFI number, numbered sequentially.
7. RFI subject.
8. Specification Section number and title and related paragraphs, as appropriate.
9. Drawing number and detail references, as appropriate.
10. Field dimensions and conditions, as appropriate.
11. Contractor's suggested resolution. If Contractor's solution(s) impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
12. Contractor's signature.

C. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI.

1. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
2. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."

a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.

D. On receipt of Architect's action, immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.

1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

1.6 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.

B. Preconstruction Conference: Contractor will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.

1. Attendees: Authorized representatives of Owner Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:

a. Tentative construction schedule.
b. Phasing.
c. Critical work sequencing and long-lead items.
d. Designation of key personnel and their duties.
e. Procedures for processing field decisions and Change Orders.
f. Procedures for RFIs.
g. Procedures for testing and inspecting.
h. Procedures for processing Applications for Payment.
i. Distribution of the Contract Documents.
j. Submittal procedures.
k. Preparation of record documents.
l. Use of the premises**.**
m. Work restrictions.
n. Working hours.
o. Responsibility for temporary facilities and controls.
p. Procedures for disruptions and shutdowns.

q. Construction waste management and recycling.
r. Parking availability.
s. Office, work, and storage areas.
t. Equipment deliveries and priorities.
u. First aid.
v. Security.
w. Progress cleaning.

3. Minutes: Contractor will record and distribute meeting minutes.

C. Pre-installation Conferences: Conduct a pre-installation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect and Owner's Commissioning Authority of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

a. Contract Documents.
b. Options.
c. Related RFIs.
d. Related Change Orders.
e. Purchases.
f. Deliveries.
g. Submittals.
h. Possible conflicts.
i. Compatibility problems.
j. Time schedules.
k. Weather limitations.
l. Manufacturer's written instructions.
m. Warranty requirements.
n. Compatibility of materials.
o. Acceptability of substrates.
p. Temporary facilities and controls.
q. Space and access limitations.
r. Regulations of authorities having jurisdiction.
s. Testing and inspecting requirements.
t. Installation procedures.
u. Coordination with other work.
v. Required performance results.
w. Protection of adjacent work.
x. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.

5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Progress Meetings: Conduct progress meetings bi-monthly intervals.

1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

    a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction 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.

    b. Review present and future needs of each entity present, including the following:

        1) Interface requirements.
        2) Sequence of operations.
        3) Status of submittals.
        4) Deliveries.
        5) Off-site fabrication.
        6) Access.
        7) Site utilization.
        8) Temporary facilities and controls.
        9) Progress cleaning.
        10) Quality and work standards.
        11) Status of correction of deficient items.
        12) Field observations.
        13) Status of RFIs.
        14) Status of proposal requests.
        15) Pending changes.
        16) Status of Change Orders.
        17) Pending claims and disputes.
        18) Documentation of information for payment requests.

3. Minutes: Contractor will record and distribute the meeting minutes to each party present and to parties requiring information.

    a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Contractor's construction schedule.
2. Construction schedule updating reports.
3. Site condition reports.

1.2 INFORMATIONAL SUBMITTALS

A. Format for Submittals: Submit required submittals in the following format:

1. Working electronic copy of schedule file, where indicated.
2. PDF electronic file.

B. Provide Contractor's Construction Schedule for entire construction period.

C. Construction Schedule Updating Reports: Submit with Applications for Payment.

D. Site Condition Reports: Submit at time of discovery of differing conditions.

1.3 COORDINATION

A. Coordinate Contractor's construction schedule with the schedule of values list of subcontracts**,** submittal schedule, progress reports, payment requests, and other required schedules and reports.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established from Notice to Proceed to date of Substantial Completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

B. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:

1. Identification of activities that have changed.
2. Changes in early and late start dates.
3. Changes in the Contract Time.

2.2 REPORTS

A. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: As needed, update schedule to reflect actual construction progress and activities. Issue schedule three days before regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. As the Work progresses, indicate final completion percentage for each activity.

B. Distribution: Distribute copies of approved schedule to Architect**,** Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

END OF SECTION 013200

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action.

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.3 ACTION SUBMITTALS

A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Architect's Digital Data Files: Electronic copies of digital data files of the Contract Drawings will **not** be provided by Architect for Contractor's use in preparing submittal except on specific request basis.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow time for submittal review, including time for re-submittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the

Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including re-submittals.

1. Initial Review: Allow **7 calendar** days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. **Architect** will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Re-submittal Review: Allow **7** days for review of each re-submittal.

D. Paper Submittals: Place a permanent label or title block on each submittal item for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
3. Include the following information for processing and recording action taken:

    a. Project name.
    b. Date.
    c. Name of Architect.
    d. Name of Construction Manager.
    e. Name of Contractor.
    f. Name of subcontractor.
    g. Name of supplier.
    h. Name of manufacturer.
    i. Revise first subparagraph below to suit Project and office practice.

    j. Number and title of appropriate Specification Section.
    k. Drawing number and detail references, as appropriate.
    l. Location(s) where product is to be installed, as appropriate.

4. Additional Paper Copies: Unless additional copies are required for final submittal, and unless Architect observes non-compliance with provisions in the Contract Documents, initial submittal may serve as final submittal.

5. Transmittal for Paper Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will **return without review** submittals received from sources other than Contractor.

E. Options: Identify options requiring selection by Architect.

F. Deviations: Identify deviations from the Contract Documents on submittals.

G. Re-submittals: Make re-submittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.

3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.

H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

I. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements:

1. Submit electronic submittals via email as PDF electronic files.

    a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.

2. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

    a. Provide a digital signature with digital certificate on electronically-submitted certificates and certifications where indicated.

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

    a. Manufacturer's catalog cuts.
    b. Manufacturer's product specifications.
    c. Standard color charts.
    d. Statement of compliance with specified referenced standards.
    e. Testing by recognized testing agency.
    f. Application of testing agency labels and seals.
    g. Notation of coordination requirements.
    h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:

    a. Wiring diagrams showing factory-installed wiring.
    b. Printed performance curves.

c. Operational range diagrams.
d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before or concurrent with Samples.
6. Submit Product Data in the following format:

a. PDF electronic file.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

a. Identification of products.
b. Schedules.
c. Compliance with specified standards.
d. Notation of coordination requirements.
e. Notation of dimensions established by field measurement.
f. Relationship and attachment to adjoining construction clearly indicated.
g. Seal and signature of professional engineer if specified.

2. Submit Shop Drawings in the following format:

a. PDF electronic file.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following:

a. Generic description of Sample.
b. Product name and name of manufacturer.
c. Sample source.
d. Number and title of applicable Specification Section.

3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

a. Number of Samples: Submit **one** full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected.

a. Number of Samples: Submit **two** sets of Samples. Architect will retain one of the Sample sets; remainder will be returned. Mark up and retain one returned sample set as a project record sample.

E. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

F. Application for Payment and Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."

G. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Division 01 Section "Quality Requirements."

H. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 01 Section "Closeout Procedures."

I. Maintenance Data: Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."

J. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

K. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

L. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

M. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

N. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

O. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents.

P. Schedule of Tests and Inspections: Comply with requirements specified in Division 01 Section "Quality Requirements."

Q. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.

R. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect

B. Project Closeout and Maintenance Material Submittals: See requirements in Division 01 Section "Closeout Procedures."

C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate **action.**

C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

D. Incomplete submittals are unacceptable, will be considered non-responsive, and will be returned for re-submittal without review.

E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 013300

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

B. Related Requirements:

1. Section 011000 "Summary" for work restrictions and limitations on utility interruptions.

1.2 USE CHARGES

A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, testing agencies, and authorities having jurisdiction.

1.3 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Portable Chain-Link Fencing: Minimum 2-inch. 0.148-inch thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch OD corner and pull posts, with 1-5/8-inch- OD top and bottom rails. Provide galvanized-steel bases for supporting posts.

2.2 TEMPORARY FACILITIES

A. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed..

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.

C. Sanitary Facilities: Provide temporary toilets for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of facilities.

D. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.

E. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

3.3 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Provide construction for temporary shops, and sheds located within construction area.

B. Parking: Provide temporary parking areas for construction personnel at road adjacent to plan north along right of way north of the site.

C. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.

1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.

D. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution."

E. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

C. Temporary Erosion and Sedimentation Control: Comply with authorities having jurisdiction**.**

D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.

E. Site Enclosure Fence: Before construction operations begin and Prior to commencing earthwork, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.

1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.

F. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each work day.

G. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

H. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities.

3.5 MOISTURE AND MOLD CONTROL

A. Exposed Construction Phase: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect materials from water damage and keep porous and organic materials from coming into prolonged contact with concrete.

3.6 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

C. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion.

END OF SECTION 015000

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. Installation of the Work.
4. Progress cleaning.
5. Starting and adjusting.
6. Protection of installed construction.
7. Correction of the Work.

B. Related Requirements:

1. Division 01 Section "Summary" for limits on use of Project site.

PART 2 - PRODUCTS

2.1 MATERIALS – NOT USED

PART 3 - EXECUTION

3.1 PREPARATION

A. Existing Utility Information: Furnish information to Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control

of Contractor, submit a request for information to Architect according to requirements in Division 01 Section "Project Management and Coordination."

3.2 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings. If discrepancies are discovered, notify Architect promptly.

3.3 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

G. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.

H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.
1. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.

3.4 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.5 STARTING AND ADJUSTING

A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

B. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.

C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Manufacturer's Field Service: Comply with qualification requirements in Division 01 Section "Quality Requirements."

3.6 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 017300

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for the following:
   1. Disposing of non-hazardous construction waste.

1.2 DEFINITIONS

A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Provide handling, containers, storage, signage, transportation, and other items as required during the entire duration of the Contract.

B. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.

3.2 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

A. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.

   1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.

      a. Inspect containers and bins for contamination and remove contaminated materials if found.

2. Remove recyclable waste from Owner's property and transport to recycling receiver or processor.

3.3 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials.

C. Disposal: Remove waste materials from Owner's property and legally dispose of them.

END OF SECTION 017419

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Substantial Completion procedures.
2. Final completion procedures.
3. Warranties.
4. Final cleaning.
5. Repair of the Work.

B. Related Requirements:
1. Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
2. Division 01 Section "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
3. Divisions 03 through 33 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.2 ACTION SUBMITTALS

A. Product Data: For cleaning agents.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.3 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Certificate of Insurance: For continuing coverage.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.5 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of 7 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, damage or settlement surveys, and similar final record information.
3. Submit closeout submittals specified in individual Divisions 02 through 33 Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Submit maintenance material submittals specified in individual Divisions 02 through 33 Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number where applicable.
5. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of 7 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise Owner of pending insurance changeover requirements.
2. Complete startup and testing of systems and equipment.
3. Perform preventive maintenance on equipment used prior to Substantial Completion.
4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
5. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
6. Complete final cleaning requirements, including touchup painting.
7. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of calendar 7 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

2. Results of completed inspection will form the basis of requirements for final completion.

1.6 FINAL COMPLETION PROCEDURES

A. Preliminary Procedures: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
2. Certified List of Incomplete Items: Submit copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Inspection: Submit a written request for final inspection to determine acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.7 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with the site then by building.
2. Submit list of incomplete items in the one of the following formats:
   a. PDF electronic file. Architect will return annotated copy.

1.8 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.

B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Bind warranties and bonds in three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
2. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file Provide bookmarked table of contents at beginning of document.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

END OF SECTION 017700

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for project record documents, including the following:

1. Record Drawings.
2. Record Specifications.
3. Record Product Data.

B. Related Requirements:
1. Divisions 02 through 33 Sections for specific requirements for project record documents of the Work in those Sections.

1.2 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit one set of marked-up record prints. Provide complete set whether or not there are markups on the sheets.

B. Record Specifications: Submit one paper copy of Project's Specifications, including addenda and contract modifications.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised Drawings as modifications are issued.

1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally.

B. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Identification: As follows:

a. Project name.
b. Date.
c. Designation "PROJECT RECORD DRAWINGS."
d. Name of Architect.
e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

B. Format: Submit record Specifications as paper copy of marked-up paper copy of Specifications.

2.3 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.

B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

END OF SECTION 017839

SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

B. Related Requirements:

1. Section 312000 "Earth Moving" for drainage fill under slabs-on-grade.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Design Mixtures: For each concrete mixture.

1.3 INFORMATIONAL SUBMITTALS

A. Material certificates.

B. Material test reports.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

B. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

1.5 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on concrete mixtures.

1.6 FIELD CONDITIONS

A. Cold-Weather Placement: Comply with ACI 306.1.

1. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

B. Hot-Weather Placement: Comply with ACI 301.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

A. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301.

2.2 FORM-FACING MATERIALS

A. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

2.3 STEEL REINFORCEMENT

A. Epoxy-Coated Reinforcing Bars: ASTM A 615/A 615M, **Grade 60** , epoxy coated, with less than 2 percent damaged coating in each 12-inch bar length.

2.4 CONCRETE MATERIALS

A. Cementitious Materials:

1. Portland Cement: ASTM C 150/C 150M, Type II gray.
2. Fly Ash: ASTM C 618.

B. Normal-Weight Aggregates: ASTM C 33/C 33M, graded.

1. Maximum Coarse-Aggregate Size: ¾ inch nominal.
2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Air-Entraining Admixture: ASTM C 260/C 260M.

D. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

E. Water: ASTM C 94/C 94M and potable.

2.5 FIBER REINFORCEMENT

A. Synthetic Micro-Fiber: Monofilament polypropylene micro-fibers engineered and designed for use in concrete, complying with ASTM C 1116/C 1116M, Type III.
   1. Uniformly disperse in concrete mixture at manufacture’s recommendations.

2.6 VAPOR RETARDERS

A. Sheet Vapor Retarder: Polyethylene sheet, ASTM D 4397, not less than 10 mils thick.

2.7 CURING MATERIALS

A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.

B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

D. Water: Potable.

2.8 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

2.9 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

B. Cementitious Materials: Use fly ash, pozzolan, slag cement, and silica fume as needed to reduce the total amount of Portland cement, which would otherwise be used, by not less than 40 percent.

C. Admixtures: Use admixtures according to manufacturer's written instructions.

   1. Use plasticizing admixture in concrete, as required, for placement and workability.
   2. Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

2.10 CONCRETE MIXTURES FOR BUILDING ELEMENTS

A. Normal-Weight Concrete:

   1. Minimum Compressive Strength 4000 at 28 days.

2.11 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.12 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M and ASTM C 1116/C 1116M, and furnish batch ticket information.

PART 3 - EXECUTION

3.1 FORMWORK INSTALLATION

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position, within tolerance limits of ACI 117.

3.2 VAPOR-RETARDER INSTALLATION

A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder according to manufacturer's written instructions.

1. Lap joints 6 inches and seal with manufacturer's recommended tape.

3.3 STEEL REINFORCEMENT INSTALLATION

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

3.4 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint.
2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

3.5 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections are completed.

B. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.

1. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.

3.6 FINISHING SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power-driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.

3.7 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI for hot-weather protection during curing.

3.8 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

3.9 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.

END OF SECTION 033000

SECTION 042000 - UNIT MASONRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Concrete masonry units.

1.2 DEFINITIONS

A. CMU(s): Concrete masonry unit(s).

B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.4 INFORMATIONAL SUBMITTALS

A. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.

1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C 109/C 109M for compressive strength, ASTM C 1506 for water retention, and ASTM C 91/C 91M for air content.
2. Include test reports, according to ASTM C 1019, for grout mixes required to comply with compressive strength requirement.

1.5 FIELD CONDITIONS

A. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

B. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

PART 2 - PRODUCTS

2.1 UNIT MASONRY, GENERAL

A. Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6, except as modified by requirements in the Contract Documents.

B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects are exposed in the completed Work.

2.2 CONCRETE MASONRY UNITS

A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.

B. CMUs: ASTM C 90.

2.3 MORTAR AND GROUT MATERIALS

A. Portland Cement: ASTM C 150/C 150M, Type I or II, may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.

B. Hydrated Lime: ASTM C 207, Type S.

C. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.

D. Masonry Cement: ASTM C 91/C 91M.

E. Aggregate for Mortar: ASTM C 144.

1. For joints 3/8 inch thick, use aggregate graded with 100 percent passing the No. 16 sieve.

F. Aggregate for Grout: ASTM C 404.

G. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C 494/C 494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.

H. Water: Potable.

2.4 REINFORCEMENT

A. Uncoated-Steel Reinforcing Bars: ASTM A 615/A 615M or ASTM A 996/A 996M, Grade 60.

B. Masonry-Joint Reinforcement, General: ASTM A 951/A 951M.
   1. Exterior Walls: Hot-dip galvanized carbon steel.
   2. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches o.c.

C. Masonry-Joint Reinforcement for Single-Wythe Masonry: Ladder **or truss** type with single pair of side rods.

2.5 MISCELLANEOUS MASONRY ACCESSORIES

A. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene.

B. Bond-Breaker Strips: Asphalt-saturated felt complying with ASTM D 226/D 226M, Type I (No. 15 asphalt felt).

C. Liquid applied waterproofing: Basis of Design; Carlisle Coatings and Waterproofing; Product Miraseal or approved equal.

2.6 MORTAR AND GROUT MIXES

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.

   1. Do not use calcium chloride in mortar or grout.
   2. Use portland cement-lime or masonry cement mortar unless otherwise indicated.

B. Pre-blended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a pre-blended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.

C. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated **or** needed to provide required compressive strength of masonry.

   1. For masonry below grade or in contact with earth, use Type S.

   2. For masonry above grade use Type N.

D. Grout for Unit Masonry: Comply with ASTM C 476.
   1. Proportion grout in accordance with ASTM C 476, for specified 28-day compressive strength indicated, but not less than 2000 psi.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

B. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.

3.2 TOLERANCES

A. Dimensions and Locations of Elements:

1. For dimensions in cross section or elevation, do not vary by more than plus 1/2 inch or minus 1/4 inch.
2. For location of elements in plan, do not vary from that indicated by more than plus or minus 1/2 inch.

B. Lines and Levels:

1. For bed joints and top surfaces of bearing walls, do not vary from level by more than 1/4 inch in 10 feet, or 1/2-inch maximum.
2. For vertical lines and surfaces, do not vary from plumb by more than 1/4 inch in 10 feet.

C. Joints:

1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch.

3.3 LAYING MASONRY WALLS

A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

B. Bond Pattern for Masonry: lay exposed masonry in running bond; do not use units with less-than-nominal 4-inch horizontal face dimensions at corners or jambs.

C. Fill cores in hollow CMUs with grout 24 inches under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.

3.4 MASONRY-JOINT REINFORCEMENT

A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches.
   1. Space reinforcement not more than 16 inches o.c. in foundation walls.

B. Interrupt joint reinforcement at control and expansion joints unless otherwise indicated.

3.5 REINFORCED UNIT MASONRY INSTALLATION

A. Placing Reinforcement: Comply with requirements in TMS 602/ACI 530.1/ASCE 6.

B. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.

   1. Comply with requirements in TMS 602/ACI 530.1/ASCE 6 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
   2. Limit height of vertical grout pours to not more than **60 inches.**

3.6 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage special inspectors to perform tests and inspections and prepare reports. Allow inspectors access to scaffolding and work areas as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.

B. Inspections:

   1. Begin masonry construction only after inspectors have verified proportions of site-prepared mortar.
   2. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.
   3. Place grout only after inspectors have verified proportions of site-prepared grout.

C. Testing Prior to Construction: One set of tests.

D. Testing Frequency: One set of tests for each 5000 sq. ft. of wall area or portion thereof.

E. Concrete Masonry Unit Test: For each type of unit provided, according to ASTM C 140 for compressive strength.

F. Mortar Aggregate Ratio Test (Proportion Specification): For each mix provided, according to ASTM C 780.

G. Grout Test (Compressive Strength): For each mix provided, according to ASTM C 1019.

3.7 MASONRY WASTE DISPOSAL

A. Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soil-contaminated sand, waste mortar, and broken masonry units, by crushing and mixing with fill material as fill is placed.

1. Do not dispose of masonry waste as fill within 18 inches of finished grade.

B. Masonry Waste Recycling: Return broken CMUs not used as fill to manufacturer for recycling.

C. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above or recycled, and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION 042000

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Framing with dimension lumber.

2. Rot resistant wood sill plates.
3. Wood blocking and nailers.
4. Wood furring.
5. Plywood Sheathing.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product.

1.3 INFORMATIONAL SUBMITTALS

A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Grade lumber by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. Dress lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content of Lumber: 19 percent for 2-inch nominal thickness or less; 19 percent for more than 2-inch nominal thickness unless otherwise indicated.

1. Allowable design stresses, as published by manufacturer, shall meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2**,** Use Category UC3b for exterior construction not in contact with the ground.

B. See the Evaluations for information about treatment chemicals.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.

C. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.

D. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

E. Application: Treated items indicated on Drawings on A2.7 in construction of the Pergola:

1. Wood Posts and framing.

2.3 ROT RESISTANT LUMBER

A. Provide locally sourced Tamarac, Cedar or Douglas Fir at all wood sill plates.
1. Separate sill plates from concrete block units with flexible flashing.

2.4 DIMENSION LUMBER FRAMING

A. Non-Load-Bearing Interior Partitions: Standard, Construction or No. 2 grade.

1. Application: All vertical walls.
2. Species:

a. Southern pine or mixed southern pine; SPIB.
b. Northern species; NLGA.
c. Eastern softwoods; NeLMA.
d. Western woods; WCLIB or WWPA.

B. Framing Other Than Non-Load-Bearing Partitions: Select Structural No. 2 grade.

1. Application: Joists, Rafters and Beam Framing other than interior partitions
2. Species:

a. Hem-fir (north); NLGA.
b. Southern pine; SPIB.
c. Douglas fir-larch; WCLIB or WWPA.
d. Southern pine or mixed southern pine; SPIB.
e. Spruce-pine-fir; NLGA.
f. Douglas fir-south; WWPA.
g. Hem-fir; WCLIB or WWPA.
h. Douglas fir-larch (north); NLGA.

i. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.

2.5 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.
3. Furring.
4. Grounds.

B. Dimension Lumber Items: Construction or No. 2 grade lumber of any species.

2.6 PLYWOOD SHEATHING PANELS

A. Plywood interior Panels at walls and roof plane: Plywood, B-C in thickness indicated.
1. All seams shall be sealed at exterior with 3m flashing tape.

B. Plywood exterior face of 2x4 framing: Exterior, B-C in thickness indicated.

2.7 FURRING FOR WOOD PANELING SIDING

A. 1x4 nominal size.
1. Southern Yellow pine or equivalent per mfg recommendations.
2. See Section 074646: Fiber Substrate siding.

2.8 FASTENERS

A. General: Fasteners shall be of size and type indicated and shall comply with requirements specified in this article for material and manufacture.

B. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

2.9 METAL FRAMING ANCHORS

A. Allowable design loads, as published by manufacturer, shall meet or exceed those indicated of basis-of-design products of products of manufacturers listed. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency. Framing anchors shall be punched for fasteners adequate to withstand same loads as framing anchors.

B. Basis of Design: Simpson Strong Tie Architectural Anchors Products

1. See product models listed on drawings.

2.10 MISCELLANEOUS MATERIALS

A. Flexible Flashing at framing sills: Basis of Design: Holman and Bernard Inc. Product: Neoprene Sill Seal. Or approved equal.
   1. www.h-b.com
   2. Phone: 800.645.0616.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

B. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry accurately to other construction. Locate furring**,** nailers, blocking, and similar supports to comply with requirements for attaching other construction.

C. Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.

D. Do not splice structural members between supports unless otherwise indicated.

E. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated.

END OF SECTION 061000

SECTION 072100 - THERMAL INSULATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Extruded polystyrene foam-plastic board.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 EXTRUDED POLYSTYRENE FOAM-PLASTIC BOARD

A. Extruded polystyrene boards in this article are also called "XPS boards."

B. Extruded Polystyrene Board, Type IV ASTM C 578, Type IV, 25-psi minimum compressive strength; unfaced; maximum flame-spread and smoke-developed indexes of 25 and 450, respectively, per ASTM E 84.

2.2 ACCESSORIES

A. Insulation Anchors, Spindles, and Standoffs: As recommended by manufacturer.

B. Adhesive for Bonding Insulation: Product compatible with insulation and air and water barrier materials, and with demonstrated capability to bond insulation securely to substrates without damaging insulation and substrates.

C. Weather and infiltration Resistant Barrier:
1. Basis of Design: Certa Wrap mfg by Certainteed Corp. Valley Forge Pa.
2. Other acceptable products: Tyvek and Hardiewrap.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Comply with insulation manufacturer's written instructions applicable to products and applications.

B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.

C. Extend insulation to envelop entire area to be insulated. Fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.

D. Provide sizes to fit applications and selected from manufacturer's standard thicknesses, widths, and lengths.

3.2 INSTALLATION OF SLAB INSULATION

A. On vertical slab edge and foundation surfaces, set insulation units using manufacturer's recommended adhesive according to manufacturer's written instructions.

B. On horizontal surfaces, loosely lay insulation units according to manufacturer's written instructions. Stagger end joints and tightly abut insulation units.

3.3 INSTALLATION OF FOUNDATION WALL INSULATION

A. Butt panels together for tight fit.

B. Anchor Installation: Install board insulation on concrete substrates by adhesively attached, spindle-type insulation anchors.

END OF SECTION 072100

SECTION 074113.13 - FORMED METAL ROOF PANELS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes roof deck insulation.

B. Section includes exposed-fastener, lap-seam, metal roof panels.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Include fabrication and installation layouts of metal panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details.

C. Samples: For each type of metal panel indicated.

1.3 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

1.5 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.

1. Warranty Period:Twenty years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 EXPOSED-FASTENER, LAP-SEAM, METAL ROOF PANELS

A. General: Provide factory-formed metal roof panels designed to be installed by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps. Include accessories required for weathertight installation.

B. Manufacturers: Subject to compliance with requirements, provide products manufactured by:
   1. Firestone Building Products, 1001 Lund blvd., Anoka, Minnesota 55330 Phone 800-426-7737. www.firestonebpco.com.
   2. Product: UR Pro Omega Panels.

   3. Aluminum Sheet: Coil-coated sheet, ASTM B 209 (ASTM B 209M), alloy as standard with manufacturer, with temper as required to suit forming operations and structural performance required.

      a. Thickness:0.032 inch.
      b. Surface: Smooth, flat finish.
      c. Exterior Finish: Comply with NAAMM’s metal finishes manual for architectural metal products for recommendations for applying and designating finishes.
      d. Color: As selected by Architect from manufacturer's full range.

2.2 UNDERLAYMENT MATERIALS

A. Self-Adhering, High-Temperature Underlayment: Provide self-adhering, cold-applied, sheet underlayment, a minimum of 30 mils thick, specifically designed to withstand high metal temperatures beneath metal roofing. Provide primer when recommended by underlayment manufacturer.

   1. Thermal Stability: Stable after testing at 250 deg F ; ASTM D 1970.
   2. Low-Temperature Flexibility: Passes after testing at minus 20 deg F (29 deg C); ASTM D 1970.

B. Slip Sheet: Manufacturer's recommended slip sheet, of type required for application.

2.3 MISCELLANEOUS MATERIALS

A. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.

   1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal panels.
   2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
   3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- (25-mm-) thick, flexible closure

strips; cut or premolded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.

B. Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.

C. Gutters and Downspouts: Formed from same material as roof panels according to SMACNA's "Architectural Sheet Metal Manual." Finish to match metal roof panels

D. Panel Fasteners: Self-tapping screws designed to withstand design loads. Provide exposed fasteners with heads matching color of metal panels by means of plastic caps or factory-applied coating. Provide EPDM or PVC sealing washers for exposed fasteners.

E. Panel Sealants: Provide sealant types recommended by manufacturer that are compatible with panel materials, are non-staining, and do not damage panel finish.

2.4 ROOF INSULATION

A. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 1, Grade 2, felt or glass-fiber mat facer on both major surfaces. (First Layer).

1. Basis of Design: Mfg. John Manville, Product; “ENRGY 3”.

B. Composite Polyisocyanurate Board Insulation (Nail base): ASTM C 1289, with factory-applied facing board on one major surface, as indicated below by type, and felt or glass-fiber mat facer on the other.

Basis of Design: Mfg, John Manville, Product “Nailboard.”

1. Type V, oriented strand board facer.

2.5 FABRICATION

A. General: Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

B. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.

C. Fabricate metal panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.

D. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.

2.6 FINISHES

A. Panels and Accessories:

1. Two-Coat Fluorocarbon resin using 70% Kynar 500 resins.

PART 3 - EXECUTION

3.1 PREPARATION

A. Miscellaneous Supports: Install sub-framing, furring, and other miscellaneous panel support members and anchorages according to ASTM C 754 and metal panel manufacturer's written recommendations.

3.1 INSULATION INSTALLATION

A. Mechanically Fastened Insulation: Install each layer of insulation and secure to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type.

1. Fasten insulation to resist uplift pressure at corners, perimeter, and field of roof.

B. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.

3.2 UNDERLAYMENT INSTALLATION

A. Self-Adhering Sheet Underlayment: Apply as recommended by manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation. Retain one of two subparagraphs below or delete if indicated on Drawings.

1. Apply over the entire roof surface.

B. Slip Sheet: Apply slip sheet over underlayment before installing metal roof panels.

C. Flashings: Install flashings to cover underlayment.

3.3 METAL PANEL INSTALLATION

A. Lap-Seam Metal Panels: Fasten metal panels to supports with fasteners at each lapped joint at location and spacing recommended by manufacturer.

1. Lap ribbed or fluted sheets one full rib. Apply panels and associated items true to line for neat and weathertight enclosure.

2. Provide metal-backed washers under heads of exposed fasteners bearing on weather side of metal panels.
3. Locate and space exposed fasteners in uniform vertical and horizontal alignment. Use proper tools to obtain controlled uniform compression for positive seal without rupture of washer.
4. Install screw fasteners with power tools having controlled torque adjusted to compress washer tightly without damage to washer, screw threads, or panels. Install screws in predrilled holes.
5. Flash and seal panels with weather closures at perimeter of all openings.
6. Watertight Installation:

    a. Apply a continuous ribbon of sealant or tape to seal lapped joints of metal panels, using sealant or tape as recommend by manufacturer on side laps of nesting-type panels and elsewhere as needed to make panels watertight.
    b. Provide sealant or tape between panels and protruding equipment, vents, and accessories.
    c. At panel splices, nest panels with minimum 6-inch end lap, sealed with sealant and fastened together by interlocking clamping plates.

B. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

C. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level. Install work with laps, joints, and seams that are permanently watertight.

3.4 CLEANING

A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.

END OF SECTION 074113.13

SECTION 074646 - FIBER-SUBSTRATE SIDING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes fiber-substrate panels.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For fiber-substrate panels including related accessories.

1.3 INFORMATIONAL SUBMITTALS

A. Sample warranty.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.5 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace products that fail in materials or workmanship within specified warranty period.

1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 FIBER-SUBSTRATE PANELING

A. Paneling P-1
1. Basis-of-Design Product: Subject to compliance with requirements, provide Louisiana-Pacific Corporation; Series 76 smooth finish panels or comparable product.
2. Nominal Thickness: Not less than 7/16 inch.
3. Texture: Smooth.
4. Finishes; Pre-Primed.
5. Edge; square edged.
6. Size; 48x96 inches.

2.2 FIBER SUBSTRATE TRIM

A. Trim T-1:
   1. Basis-of-Design Product: Subject to compliance with requirements, provide Louisiana-Pacific Corporation; LP Smartside Reversible Trim (Fiber) or comparable product.

B. Fiber Trim: 440 Series.

   1. Style: Cedar grain.
   2. Thickness: 0.625 inch.
   3. Width: 3.5 inch
   4. Length: 8 feet and 12 feet see drawings.
   5. Finishes: Factory primed.

2.3 ACCESSORIES

A. Siding Accessories, provide 1x2 cedar vertical batten strips.

B. Flashing: Provide Sheet Metal Flashing and Trim at window and door heads and where indicated.

C. Fasteners ring shank type as recommended by the Manufacturer.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Comply with manufacturer's written installation instructions applicable to products and applications indicated unless more stringent requirements apply.

B. Install joint sealants as specified in Section 079200 "Joint Sealants" and to produce a weather tight installation.

3.2 ADJUSTING AND CLEANING

A. Remove damaged, improperly installed, or otherwise defective materials and replace with new materials complying with specified requirements.

B. Clean finished surfaces according to manufacturer's written instructions and maintain in a clean condition during construction.

END OF SECTION 074620

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Silicone joint sealants.
2. Mildew-resistant joint sealants.
3. Latex joint sealants.
4. Butyl Rubber sealants.

1.2 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product.

B. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant color.

1.3 WARRANTY

A. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

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

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, GENERAL

A. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the following:
1. Sealants and sealant primers for nonporous substrates shall have a VOC content of 250 g/L or less.
2. Sealants and sealant primers for porous substrates shall have a VOC content of 775 g/L or less.

2.2 SILICONE JOINT SEALANTS

A. Silicone, S, NS, 50, NT: Single-component, nonsag, plus 50 percent and minus 50 percent movement capability, non-traffic-use, neutral-curing silicone joint sealant.

1. Products: Subject to compliance with requirements, provide one of the following**:**

a. Dow Corning Corporation
b. GE Construction Sealants
c. May National Associates, Inc., a subsidiary of Sika Corporation U.S.
d. Pecora Corporation
e. Sika Corporation U.S..

2.3 URETHANE JOINT SEALANTS

A. Urethane, S, NS, 25, NT: Single-component, nonsag, nontraffic-use, plus 25 percent and minus 25 percent movement capability, urethane joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Use NT.

1. Products: Subject to compliance with requirements, provide one of the following:

a. BASF Construction Chemicals, LLC, Building Systems.
b. Bostik, Inc.
c. Pecora Corporation.
d. Polymeric Systems, Inc.
e. Schnee-Morehead, Inc., an ITW company
f. Sherwin-Williams Company (The)
g. Sika Corporation U.S.
h. Tremco Incorporated

2.4 MILDEW-RESISTANT JOINT SEALANTS

A. Mildew-Resistant Joint Sealants: Formulated for prolonged exposure to humidity with fungicide to prevent mold and mildew growth.

B. Silicone, Mildew Resistant, Acid Curing, S, NS, 25, NT: Mildew-resistant, single-component, nonsag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, acid-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Use NT.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Dow Corning Corporation
b. GE Construction Sealants
c. May National Associates, Inc., a subsidiary of Sika Corporation U.S.
d. Soudal USA
e. Tremco Incorporated

2.5 LATEX JOINT SEALANTS

A. Acrylic Latex: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.

1. Products: Subject to compliance with requirements provide one of the following:

    a. BASF Construction Chemicals, LLC, Building Systems
    b. May National Associates, Inc., a subsidiary of Sika Corporation U.S.
    c. Pecora Corporation
    d. Tremco Incorporated

2.6 JOINT-SEALANT BACKING

A. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skind Type O (open-cell material) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
    1. Manufacturers: Subject to compliance with requirements, provide one of the products listed below:

        a. BASF Construction Chemicals, LLC, Building Systems.
        b. Construction Foam Products, a division of Nomaco, Inc.

B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.

2.7 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.

C. Masking Tape: Non-staining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

    1. Remove laitance and form-release agents from concrete.
    2. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces.

3.2 INSTALLATION OF JOINT SEALANTS

A. General: Comply with ASTM C 1193 and joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.

1. Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.

3.3 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal non-traffic surfaces.

1. Joint Locations:

a. Control and expansion joints on exposed interior surfaces of exterior walls.
.

2. Joint Sealant: Urethane, S, NS, 25, NT.
3. Joint-Sealant Color: As selected by Architect from standard colors.

B. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal non-traffic surfaces not subject to significant movement.

1. Joint Locations:
a. Perimeter joints between interior wall surfaces and frames of interior doors windows.

2. Joint Sealant: Acrylic latex.

3. Joint-Sealant Color: As selected by Architect from manufacturer's standard colors.

C. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal non traffic surfaces.

1. Joint Locations:

a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
b. Tile control and expansion joints where indicated.

2. Joint Sealant: Silicone, mildew resistant, acid curing, S, NS, 25, NT.
3. Joint-Sealant Color: As selected by Architect from manufacturer's standard colors.

D. Joint-Sealant Application: Concealed mastics.

1. Joint Locations:

a. Aluminum thresholds.
b. Sill plates.

2. Joint Sealant: Butyl-rubber based.
3. Joint-Sealant Color: Black.

END OF SECTION 079200

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes hollow-metal work.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Include elevations, door edge details, frame profiles, metal thicknesses, preparations for hardware, and other details.

C. Schedule: Prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Hollow frames as Mfg by Assa Abloy Ceco product “Mercury Series TRB Thermal Broken Frame.
   1. Acceptable option: Hollow metal frame as Mfg by Steel Craft; Product” FT 14” series thermally broken frame.
   2. Or approved equal.

2.2 EXTERIOR DOORS AND FRAMES

A. Standard-Duty Doors and Frame: ANSI A250.8, SDI 100. At locations indicated in the Door and Frame Schedule.
   1. Doors:

      a. Type: As indicated in the Door and Frame Schedule.
      b. Thickness: **1-3/4 inches.**
      c. Face: factory applied rust inhibiting primer**,** over cold-rolled steel sheet.
      d. Edge: visible edge seem.
      e. Core: Polyurethane.

   2. Thermally broken Frames: as Mfg by Steel Craft, Product “FT” series or Ceco product TRB

      a. Materials: 14 gauge cold-rolled steel sheet.
      b. Construction: Full profile welded 5 ¾’ Depth see drawings for details.

c. Galvanized G60.

3. Exposed Finish: Factory rust inhibiting Primer.

2.3 FRAME ANCHORS

A. Jamb Anchors:

1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size.

2.4 FABRICATION

A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.

B. Hollow-Metal Doors:

1. Exterior Doors: Provide weep-hole openings in bottoms of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.

C. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.

D. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.

1. Reinforce doors and frames to receive non-templated, mortised, and surface-mounted door hardware.
2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.

2.5 STEEL FINISHES

A. Prime Finish: Clean, pretreat, and apply manufacturer's standard rust inhibiting primer.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Hollow-Metal Frames: Install hollow-metal frames for doors, of size and profile indicated. Comply with SDI A250.11 or NAAMM-HMMA 840 as required by standards specified.

1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
   a. Install frames with removable stops located on secure side of opening.
   b. Install door silencers in frames before grouting.
   c. Remove temporary braces necessary for installation only after frames have been properly set and secured.
   d. Check plumb, square, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
   e. Field apply bituminous coating to backs of frames that will be filled with grout containing anti-freezing agents.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.
3. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.

3.2 ADJUSTING AND CLEANING

A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow-metal work that is warped, bowed, or otherwise unacceptable.

B. Remove grout and other bonding material from hollow-metal work immediately after installation.

C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

D. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

E. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

END OF SECTION 081113

SECTION 081416 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Solid-core exterior doors with fiberglass faces.
2. Factory fitting flush doors to frames and factory machining for hardware.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of door

B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: Pella Entry Door Systems: Model “Encompass” Flush design.

2.2 FLUSH WOOD DOORS, GENERAL

A. Quality Standard: In addition to requirements specified, comply with AWI's, AWMAC's, and WDMA I.S.1-A, "Architectural Wood Flush Doors."

B. Frame:

1. Primed Pine frame with elevated frame design.

2. Solid extruded aluminum sill.

3. Primed wood brick mould.

C. Door Panels:

1. Fiberglass interior and exterior skins with insulated core.
2. Solid wood lock block for latch and deadbolt installations.
3. Smooth fiberglass grain.
4. Compression typed weather strip at head and jambs.
5. Bulb weatherstrip at bottom rail to contact threshold.

D. Door hardware:

1. Hinges: Standard steel – Satin Nickel finish.

2. Prep door for latch bore with standard backsets, See 087100 Door Hardware.

3. Provide accessible thresholds typical.

2.3 FABRICATION

A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.

B. Factory machine doors for hardware that is not surface applied.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Hardware: For installation, see Section 087100 "Door Hardware."

B. Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality standards.

C. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.

END OF SECTION 081416

SECTION 085200 - WOOD WINDOWS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes aluminum-clad wood windows.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Include plans, elevations, sections, hardware, accessories, insect screens, operational clearances, and details of installation, including anchor, flashing, and sealant installation.

1.3 WARRANTY

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

1. Warranty Period:

a. Window: 10 years from date of Substantial Completion.
b. Aluminum-Cladding Finish: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 WOOD WINDOWS

A. Product Standard: Comply with AAMA/WDMA/CSA 101/I.S.2/A440 for definitions and minimum standards of performance, materials, components, accessories, and fabrication unless more stringent requirements are indicated.

1. Window Certification: WDMA certified with label attached to each window.

B. Basis for Design: Pella Windows and Doors Mfg. Model: Proline 450 series, Aluminum Clad Awning Window with installation fin.
1. Acceptable option: Marvin: Model “Clad Ultimate Awning”, Aluminum Clad Awning Window with installation fin.
2. Or Approved Equal.

C. Frame:
1. Immersion treated pine.
2. Exterior aluminum clad.

D. Sash:
   1. Immersion treated pine.
   2. Exterior aluminum clad.

E. Operating Type: Awning Type.

F. Insulating-Glass Units: ASTM E 2190.

   1. Glass: ASTM C 1036, Type 1, Class 1, q3.

      a. Tint: Clear.
      b. Kind: Fully tempered where indicated on Drawings .

   2. Lites: Two.
   3. Filling: Fill space between glass lites with air.

G. Glazing System: Manufacturer's standard factory-glazing system that produces weathertight seal .

H. Projected Window Hardware:

   1. Gear-Type Rotary Operators: Complying with AAMA 901 when tested according to ASTM E 405, Method A. Provide operators that function without requiring the removal of interior screens or using screen wickets.
      a. Finish of fold away crank: satin nickel.
   2. Single-Handle Locking System: Operates positive-acting arms that pull sash into locked position. Provide one arm on sashes up to 29 inches tall and two arms on taller sashes. Finish satin nickel.
   3. Limit Devices: Limit clear opening for ventilation.

I. Weather Stripping: Provide full-perimeter weather stripping for each operable sash unless otherwise indicated.

J. Fasteners: Noncorrosive and compatible with window members, trim, hardware, anchors, and other components.

   1. Exposed Fasteners: Do not use exposed fasteners to greatest extent possible. For application of hardware, use fasteners that match finish hardware being fastened.

2.2 INSECT SCREENS

A. General: Fabricate insect screens to integrate with window frame. Provide screen for each operable exterior sash. Screen wickets are not permitted.

   1. Type and Location: Full, inside for project-out.

B. Aluminum Frames: Complying with SMA 1004 or SMA 1201.

   1. Finish for Interior Screens: Baked-on organic coating in gray.

2.3 FABRICATION

A. Fabricate wood windows in sizes indicated. Include a complete system for installing and anchoring windows.

B. Glaze wood windows in the factory.

C. Weather strip each operable sash to provide weathertight installation.

D. Complete fabrication, assembly, finishing, hardware application, and other work in the factory to greatest extent possible. Disassemble components only as necessary for shipment and installation. Allow for scribing, trimming, and fitting at Project site.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with manufacturer's written instructions for installing windows, hardware, accessories, and other components. For installation procedures and requirements not addressed in manufacturer's written instructions, comply with installation requirements in ASTM E 2112.

B. Install windows level, plumb, square, true to line, without distortion, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction to produce weathertight construction.

C. Adjust operating sashes and hardware for a tight fit at contact points and weather stripping for smooth operation and weathertight closure.

D. Clean exposed surfaces immediately after installing windows. Remove excess sealants, glazing materials, dirt, and other substances.

E. Remove and replace sashes if glass has been broken, chipped, cracked, abraded, or damaged during construction period.

END OF SECTION 085200

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Mechanical door hardware for the following:

a. Swinging doors.

1.2 ACTION SUBMITTALS

A. Other Action Submittals:

1. Door Hardware Schedule: Prepared by or under the supervision of Installer, detailing fabrication and assembly of door hardware, as well as installation procedures and diagrams. Coordinate final door hardware schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

a. Format: Use same scheduling sequence and format and use same door numbers as in the Contract Documents.
b. Content: Include the following information:

1) Identification number, location, hand, size, and material of each door and frame.
2) Locations of each door hardware set, cross-referenced to Drawings on floor plans and to door and frame schedule.
3) Complete designations, including name and manufacturer, type, style, function, size, quantity, function, and finish of each door hardware product.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: Supplier of products and an employer of workers trained and approved by product manufacturers and an Architectural Hardware Consultant who is available during the course of the Work to consult with Contractor, Architect, and Owner about door hardware and keying.

B. Architectural Hardware Consultant Qualifications: A person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project.

C. Accessibility Requirements: Comply with applicable provisions in the DOJ's 2010 ADA and ICC A117 for door hardware on doors in an accessible route.

1. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lbf .
2. Comply with the following maximum opening-force requirements:

    a. Interior, Non-Fire-Rated Hinged Doors: 5 lbf applied perpendicular to door.
    b. Sliding or Folding Doors: 5 lbf applied parallel to door at latch.
    c. Fire Doors: Minimum opening force allowable by authorities having jurisdiction.

3. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than **1/2 inch**.
4. Closers: Adjust door and gate closer sweep periods so that, from an open position of 90 degrees, the time required to move the door to a position of 12 degrees from the latch is 5 seconds minimum.

1.4 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Three years from date of Substantial Completion, unless otherwise indicated.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

A. Provide door hardware for each door as scheduled on Drawings to comply with requirements in this Section.

1. Door Hardware Sets: Provide quantity, item, size, finish or color indicated, and named manufacturers' products or products equivalent in function and comparable in quality to named products and products complying with BHMA designations referenced.

B. Designations: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of door hardware are indicated in Part 3 "Door Hardware Schedule" Article. Products are identified by using door hardware designations, as follows:

1. Named Manufacturers' Products: Manufacturer and product designation are listed for each door hardware type required for the purpose of establishing minimum requirements. Manufacturers' names are abbreviated in Part 3 "Door Hardware Schedule" Article.
2. References to BHMA Designations: Provide products complying with these designations and requirements for description, quality, and function.

2.2 HINGES

A. Hinges: BHMA A156.1.

1. See Flush Wood Doors Specification 081416

2.3 MECHANICAL LOCKS AND LATCHES

A. Strikes: Provide manufacturer's standard strike for each lock bolt or latchbolt complying with requirements indicated for applicable lock or latch and with strike box and curved lip extended to protect frame; finished to match lock or latch.

B. Bored Locks: BHMA A156.2; Grade **2**; Series 4000.

1. Basis of Design: Corbin Russwin Architectural Hardware Series CL3800.

2. Finish; Satin Nickel clear coated.

3. Trim & Lever Handle design: “Newport NZD”

2.4 LOCK CYLINDERS

A. Lock Cylinders: Tumbler type, constructed from brass or bronze, stainless steel, or nickel silver.

1. Manufacturer: Same manufacturer as for locking devices.

B. Construction Master Keys: Provide cylinders with feature that permits voiding of construction keys without cylinder removal. Provide construction master keys.

C. Construction Cores: Provide construction cores that are replaceable by permanent cores.

2.5 KEYING

A. Keying System: Factory registered, complying with guidelines in BHMA A156.28, Appendix A. Incorporate decisions made in keying conference.
1. Master Key System: Change keys and a master key operate cylinders.

2. Keyed Alike: Key all cylinders to same change key.

B. Keys:Nickel silver.

1. Stamping: Permanently inscribe each key with a visual key control number and include the following notation:

a. Notation: "DO NOT DUPLICATE."

2. Quantity: In addition to one extra key blank for each lock, provide the following:

a. Cylinder Change Keys: Three.
b. Master Keys: Five.

2.6 OPERATING TRIM

A. Operating Trim: BHMA A156.6; stainless steel, unless otherwise indicated.

2.7 KICK PLATES

A. Two sided, .050 thick Stainless Steel screw mounted.

2.8 CORNER GUARDS

A. Two inch x two inch 90 degree bend, .050 thick stainless steel screw mounted.

2.9 SURFACE CLOSERS

A. Surface Closers: BHMA A156.4; rack-and-pinion hydraulic type with adjustable sweep and latch speeds controlled by key-operated valves and forged-steel main arm. Comply with manufacturer's written recommendations for size of door closers depending on size of door, exposure to weather, and anticipated frequency of use.

2.10 MECHANICAL STOPS AND HOLDERS

A. Wall- and Floor-Mounted Stops: BHMA A156.16; aluminum base metal.

2.11 OVERHEAD STOPS AND HOLDERS

A. Overhead Stops and Holders: BHMA A156.8.

2.12 DOOR GASKETING

A. Door Gasketing: BHMA A156.22; air leakage not to exceed 0.50 cfm per foot of crack length for gasketing other than for smoke control, as tested according to ASTM E 283; with resilient or flexible seal strips that are easily replaceable and readily available from stocks maintained by manufacturer.

2.13 THRESHOLDS

A. Thresholds: BHMA A156.21; fabricated to full width of opening indicated.

1. See Flush Wood Door Specifications 081416 for accessible thresholds at Greenhouse.

2. Provide accessible threshold at Root Storage Building Door.

2.14 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates prepared for machine, wood, and sheet metal screws. Provide screws that comply with commercially recognized industry standards for application intended, except aluminum fasteners are not permitted. Provide Phillips flat-head screws with finished heads to match surface of door hardware, unless otherwise indicated.

1. Concealed Fasteners: For door hardware units that are exposed when door is closed, except for units already specified with concealed fasteners. Do not use through bolts for installation where bolt head or nut on opposite face is exposed unless it is the only means of securely attaching the door hardware. Where through bolts are used on hollow door and frame construction, provide sleeves for each through bolt.

2.15 FINISHES

A. Provide finishes complying with BHMA A156.18 as indicated in door hardware schedule.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.

B. Wood Doors: Comply with DHI WDHS.5 "Recommended Hardware Reinforcement Locations for Mineral Core Wood Flush Doors."

C. Mounting Heights: Mount door hardware units at heights to comply with the following unless otherwise indicated or required to comply with governing regulations.
1. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."

D. Install each door hardware item to comply with manufacturer's written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work. Do not install surface-mounted items until finishes have been completed on substrates involved.

1. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
2. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.

E. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than the number recommended by manufacturer for application indicated or one hinge for every 30

inches of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.

F. Lock Cylinders: Install construction cores to secure building and areas during construction period.

1. Replace construction cores with permanent cores as directed by Owner.
2. Furnish permanent cores to Owner for installation.

G. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.

H. Thresholds: Set thresholds for exterior doors and other doors indicated in full bed of sealant complying with requirements specified in Section 079200 "Joint Sealants."

I. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they will impede traffic.

J. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.

K. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

L. Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.2 FIELD QUALITY CONTROL

A. Independent Architectural Hardware Consultant: Owner will engage a qualified independent Architectural Hardware Consultant to perform inspections and to prepare inspection reports.

3.3 DOOR HARDWARE SCHEDULE (See Drawings)

END OF SECTION 087100

SECTION 099100 - PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes surface preparation and the application of paint systems on the following substrates:
   1. Wood Framing and Plywood, interior.
   2. Galvanized Hollow metal door and frame.
   3. Fiberglass Protection Board.
   4. Exterior Wood Panel Siding and Battens.

PART 2 - PRODUCTS

2.1 Interior Vapor Retarding Paint;

A. Basis of Design; Mfg; Sherwin Williams; Product; “Moisture vapor barrier primer/ interior finish interior latex paint.”

2.2 Exterior Paint; Basis of Design Sherwin Williams;

A. Ferrous Metal, Galvanized-Metal, and Aluminum Substrates:

   1. Water-Based Light Industrial Coating System:

      a. Prime Coat: Primer, water based.

         1) S-W Pro Industrial Pro-Cryl Universal Primer, B66-310 Series.

      b. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.

      c. Topcoat: Light industrial coating, exterior, water based, semi-gloss.

         1) S-W Pro Industrial Acrylic Semi-Gloss Coating, B66-650 Series, at 2.5 to 4.0 mils dry, per coat.

B. Cementitious Protection Board, Non-traffic Surfaces:

   1. Latex System:

      a. Prime Coat: Primer sealer, latex.

1) S-W Loxon Concrete & Masonry Primer Sealer, A24W8300, at 8.0 mils wet, 3.2 mils dry.

b. Prime Coat: Latex, exterior, matching topcoat.
c. Intermediate Coat: Latex, exterior, matching topcoat.

d. Topcoat: Latex, exterior, low sheen.

1) S-W A-100 Exterior Latex Low Sheen, A12 Series, at 4.0 mils wet, 1.5 mils dry, per coat.

C. Wood Substrates: Including exposed wood items not indicated to receive shop-applied finish.

1. Latex System:

a. Prime Coat: Primer, latex for exterior wood.

1) S-W Exterior Latex Primer, B42, at 4.0 mils wet, 1.4 mils dry, per coat.

b. Intermediate Coat: Latex, exterior, matching topcoat.

c. Topcoat: Latex, exterior, satin:

1) S-W A-100 Exterior Latex Satin, A82 Series, at 4.0 mils wet, 1.5 mils dry, per coat.

PART 3 - EXECUTION

3.1 EXECUTION PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates and paint systems indicated.

B. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
1. Remove incompatible primers and re-prime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

PART 4 - END OF SECTION 099100

SECTION 103000 – GREEN HOUSE GLAZING

PART 1 - GENERAL

1.1 SUMMARY:

A. Section Includes:
   1. Green house glazing.
   2. Glazing sealants and Accessories.

1.2 WARRANTY:

A. Manufacturer's Special Warranty for polycarbonate glazing: Manufacturer agrees to replace units that deteriorate within specified warranty period. Deterioration of glazing is defined as defects developed from normal use that are not attributed to breakage or to maintaining and cleaning glazing contrary to manufacturer's written instructions. Defects include peeling, cracking, yellowing, and other indications of deterioration.

B. Warranty Period:
   1. Ten year warranty for Green house glazing from date of substantial completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

A. Basis for Design: Mfg: Greentek, 417 East Fulton Street, Edgerton Wisconsin
   1. Website: Green-tek.com
   2. Phone: 800.747.6440.

B. Product; ThermaGlas Multi-wall Polycarbonate Sheet designed and engineered specifically for commercial greenhouse use.

C. Physical characteristics:
   1. Thickness: 16 mm
   2. Light Transmission; 76%
   3. Weight: .55pounds/s.f.
   4. UV radiation resistant: Co-extruded protective layer.
   5. Color: Clear.
   6. U Value: .42

2.2 GLAZING SEALANTS

A. General:

1. Compatibility: Compatible with one another and with other materials they contact, including glazing products, seals, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
2. Suitability: Comply with sealant and glazing manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.

2.3 ACCESSORIES

A. Provide snap mullion caps, glazing channels, screws and washers required for a complete installation.

B. Before using any accessory or product with polycarbonate glazing, confirm with the manufacturer that it is compatible.

PART 3 - EXECUTION

3.1 GLAZING, GENERAL

A. Comply with combined written instructions of manufacturers of glazing, sealants, gaskets, and other glazing materials.

3.2 STORAGE AND HANDLING

A. Adhere to manufacturer’s recommendations to protect panels from damage for exterior storage of units and regarding protection from rain, snow, and to guard against excessive loading during stacking of units.

B. Follow manufacturer’s recommendations to protect panels from damage while moving stacks of panels.

C. Do not step or walk on panels.

3.3 INSTALLATION

A. Install with UV protected surface on side exposed to the weather.

B. Tape panel ends to protect interior of panels from dust intrusion.

C. Allow for condensation drainage by drilling into bottom support channels per mfg. recommendations.

D. Install panel channels and mullions.

3.4 CLEANING AND PROTECTION

A. Immediately after installation remove nonpermanent labels and clean surfaces.

B. Protect glazing from contact with contaminating substances resulting from construction operations. Examine glazing surfaces adjacent to exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains.

1. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glazing manufacturer. Remove and replace glazing that cannot be cleaned without damage to coatings.

C. Remove and replace glazing that is damaged during construction period.

END OF SECTION 103000

SECTION 133400 – HIGH TUNNEL HOOP HOUSE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. High Tunnel Frame package.
2. Lumber assembly hardware.
3. Roll up side package.
4. End Wall package.
5. Poly package.
6. Slide Door Kit.
7. Truss Kit.
8. Exhaust Fan/Shutter package.
9. Inflation package.

1.2 PREINSTALLATION MEETINGS

A. Pre-installation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of High Tunnel system component.

B. Delegated-Design Submittal: For High Tunnel systems.

1. Include analysis data indicating compliance with performance requirements and design data signed and sealed by the qualified professional engineer responsible for their preparation.

1.4 INFORMATIONAL SUBMITTALS

A. Letter of Design Certification: Signed and sealed by a qualified professional engineer. Include the following:

1. Name and location of Project.

2. Order number.
3. Name of manufacturer.
4. Name of Contractor.
5. Building dimensions including width, length, height, and roof slope.
6. Governing building code and year of edition.
7. Design Loads: Include dead load, roof live load, collateral loads, roof snow load, deflection, wind loads/speeds and exposure.
8. Building-Use Category: Indicate category of building use and its effect on load importance factors.

B. Sample warranties.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: A qualified manufacturer.

B. Erector Qualifications: An experienced erector who specializes in erecting and installing work similar in material, design, and extent to that indicated for this Project and who is acceptable to manufacturer.

1.7 WARRANTY

A. Warranty on product to be free of defects for a one year period from the time of substantial completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: Poly-Tex Inc. Product: FieldPro-High Tunnel

B. Or approved equal.

C. Location: 27725 Danville Avenue, Castle Creek, Mn. 55010

D. Phone number: 800.852.3443.

2.2 MATERIALS

A. Structure:
1. Gothic Shape.
2. Width: 24 feet.

3. Length: 60 feet.
4. Frame spacing: 4 feet.
5. Door Quantity: Two.

B. High Tunnel Frame Package:
1. 2 in- 14 gauge galvanized steel tube hoop frame structure.
2. 1.163 in – 17 gauge galvanized tube steel purlins.
3. 2 in x 3 ft. 14 gauge galvanized tube steel ground stands.
4. 1.5 in – 18 gauge galvanized roll-form steel u-channel wind brace with hardware.
5. 1.25 in. uni-pipe clamp roll-form purlin attachment.
6. 1.66 x 1.315 in cross connectors.
7. Installation hardware.

C. Lumber Assembly Hardware:

1. Galvanized U – clamp lumber to frame attachments.
2. Galvanized steel flat brackets.
3. Galvanized steel corner brackets.
4. Installation Hardware.

D. Roll-up side package:
1. 1.315 – 17 gauge galvanized steel roll-up tube.
2. Galvanized steel cradles.
3. Wiggle wire and base.
4. Roll-up poly clip.
5. 6 mil poly roll-up curtain.
6. ¼” polyester rope.
7. Installation Hardware.

E. End-Wall package:
1. Galvanized steel u-bracket.
2. Galvanized steel spike anchor bracket.
3. 18 in anchor spike.

F. Poly-package Roof and end Walls: Each end:
1. 6 mil 4 year clear poly roof cover – 2 layers.
2. 8mm clear polycarbonate structural front wall cover.
3. 8mm clear polycarbonate structural rear wall cover.
4. Snap H profile 8mm base and cap 24 feet.
5. Installation hardware.

G. Sliding Door kit: Each end:

1. Steel framed doors covered with 8mm clear PCSS.

2. Openings to be 6’ x 6’ 8” with 2 -3’2” x 6’8” sliding doors.

3. Includes brush sweeps, latches and installation hardware.

H. Truss kit:

1. 1.315 in – 17 gauge galvanized tube steel trussing chords.
2. 1.163 in- 17 gauge galvanized tube steel truss struts.
3. 1.66 – 12 gauge galvanized truss connection c-brackets.
4. 1.375 – 12 gauge galvanized truss connection brace bands
5. Installation hardware.

I. Exhaust Fan/shutter package:

1. 1 – 365S34-36” Schaefer Galvanized slant wall exhaust fan, ¾ hp motor, one speed belt.
2. 42” Schaefer Heavy duty aluminum intake shutter.
3. 1 – fan frame.
4. 1 – shutter frame.
5. 1 – shutter motor
6. 1 – thermostat for single speed fans.

J. Inflation package.

1. Pre-assembled inflation kit.
2. Foam strip white 3/16 x 50 ft.
3. 2” jumper kit.

2.3 ACCESSORIES

A. General: Provide accessories as standard with high tunnel system manufacturer and as specified.
   1. Provide required lumber to complete installation.

2.4 FABRICATION

A. General: Design components and field connections required for erection to permit easy assembly.

PART 3 - EXECUTION

3.1 SAFETY GUIDLINES

A. This structure is intended to be self-supporting provided all the components and hardware are in place and secured to the foundation as recommended by the manufacturer.

B. No part of this structure is engineered to function as an anchor point for a fall arrest system. Use a safety net or for from a safe work platform or scaffolding.

C. Select a calm day for erection.

D. Structure is designed for a tilt up assembly method.

E. Do not walk on polycarbonate sheets.

END OF SECTION 133400

SECTION 133401 – STORAGE SHED

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Prefabricated storage shed.
2. Modular saunas with infrared heaters.
3. Precut saunas with convection heaters.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 WARRANTY

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

1. Warranty Period: **Two** years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PRE MANUFACTURED STORAGE SHED

A. Basis of Design: Mfg. Duluth shed: Product: Std.ST Shed Model

1. Size: 8’ x 12’.
2. No Windows
3. 4’ wide door in middle of one eave side..
4. 4’ wide entry ramp.
5. Roof Ridge vent
6. Roseburg Duratemp siding.

PART 3 - EXECUTION

3.1 INSTALLATION OF PRE MANUFACTURED STORAGE SHED

A. Contractor shall supply shed and place on site.

B. Contractor to paint shed to match deep winter green house.

END OF SECTION 1334001 – STORAGE SHED

SECTION 23 0000 – IN SLAB RADIANT HEAT

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. In slab radiant heat in growing room.

1.2 ACTION SUBMITTALS

A. Product Data: Provide data for future radiant heating system proposed.

PART 2 - PRODUCTS

2.1 IN SLAB HEATING TUBING

A. Manufacturer: as proposed by Contractor. See plan note number two on Sheet A2.1. Provide the following for installation in this contract:
   1. In slab 7/8” pex heating tubing.
   2. Single zone manifold box.
   3. Single zone manifold with fittings connected to in-slab tubing.
   4. 10 foot long in slab sensor sleeve for future thermistor.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Lay out in slab heating tubing on 16 inch centers with 24” bends.

B. Construct manifold box for Pipe connections inside manifold “well” so that connections are free of concrete.

C. Install sensor sleeve from pex tubing for future slab thermistor.

D. Pressure test in slab tubing prior to pouring concrete and correct leaks if pressure drops below manufacturer’s recommendations in a 12 hour period.

E. Repair damage to tubing with pex repair couplings.

END OF SECTION 23 0000

SECTION 265000 – LIGHTING AND HEATING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. lighting fixtures.
2. Overhead electric heater.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of lighting fixture, arranged in order of fixture designation. Include data on features, accessories, and finishes.

1.3 QUALITY ASSURANCE

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

B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 MANUFACTURER LIGHTING

A. Manufacturer: Nuvo Lighting Product: Model SF76/616 White Single light.
1. Size: 11 inches.
2. Output: 100 watts
3. Style: Industrial Surface Mount Fixture
4. Shade: Caged Frosted Glass Shade.
5. Web site: LightingDirect.com

2.2 MANUFACTURER OVERHEAD HEATER

A. Manufacturer: NewAir, Product: NewAir G73 electric garage heater.
1. Web site: www.NewAir.com
2. Construction: steel painted.
3. Built in thermostat.
4. Output: 17,000 BTU or 5000 watts.
5. Wall or ceiling mounted.
6. 200 cfm.
7. Fan forced heating.

8. Mounting bracket.
9. Hardwired installation
10. Unit depth: 9 inches
11. Unit height: 14 inches
12. Unit width: 9 inches.
13. Unit weight: 15 pounds.
14.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Lighting fixtures: Set level, plumb, and square with ceilings and walls. Install lamps in each fixture.

END OF SECTION 265000

SECTION 312000 - EARTH MOVING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Excavating and backfilling for buildings and structures.
   2. Drainage course for concrete slabs-on-grade.
   3. Garden soil.

1.2 DEFINITIONS

A. Backfill: Soil material used to fill an excavation.

B. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

C. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

D. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

   1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
   2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.

E. Fill: Soil materials used to raise existing grades.

F. Structures: Buildings, footings, foundations and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

G. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.

H. Utilities: On-site underground pipes, conduits, ducts, and cables as well as underground services within buildings.

1.3 FIELD CONDITIONS

A. Utility Locator Service: Notify utility locator service for area where Project is located before beginning earth-moving operations.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: Soil Classification Groups GW, GP, GM, SW, SP, and SM according to ASTM D 2487. Groups A-1, A-2-4, A-2-5, and A-3 according to AASHTO M 145, or a combination of these groups; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487. Groups A-2-6, A-2-7, A-4, A-5, A-6, and A-7 according to AASHTO M 145, or a combination of these groups.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Sand Base: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940 / 2940M ; with at least 95 percent passing a 1-1/2-inch sieve and not more than 7 percent passing a No. 200 sieve.

E. Garden soil for Hoop house: 1/3 Top Soil, 1/3 compost, and 1/3 Black dirt with a structure conducive to gardening and a neutral PH.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth-moving operations.

B. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

3.2 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.3 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
2. Excavation for Underground Mechanical and Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch. Do not disturb bottom of excavations intended as bearing surfaces.

3.4 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, and depths.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit unless otherwise indicated.

1. Clearance: 6 inches each side of pipe or conduit.

C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit.

1. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

3.5 SUBGRADE INSPECTION

A. Proof-roll subgrade below the building slabs with a pneumatic-tired dump truck to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

B. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.6 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi, may be used when approved by Architect.

1. Fill unauthorized excavations under other construction, pipe, or conduit as directed by Architect.

3.7 STORAGE OF SOIL MATERIALS

A. Stock pile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations.

3.8 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.9 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 698:

1. Under structures, building slabs, steps, and pavements, scarify and re-compact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent.

3.10 DRAINAGE COURSE UNDER CONCRETE SLABS-ON-GRADE

A. Place drainage course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:

1. Place drainage course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
2. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

3.11 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.12 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION 312000

SECTION 322000 – TRAFFIC BOLLARDS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes precast concrete and cast iron bollards.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 SUBMITTALS

A. Shop drawings: Indicate dimensions, general construction component connections anchoring methods for each type of product.

1.4 WARRANTY

A. Manufacturer’s written warranty for precast products for the period of two years from time of substantial completion.

PART 2 - PRODUCTS

2.1 PRE CAST CONCRETE BOLLARDS

A. Manufacturer’s basis of design; Wausau Tile, Inc. Product; TF 6102 Sphere Bollard.

1. P.O. box 1520, Wausau, Wisconsin 54402-1520.

2. Phone: 715.359.3121 & 800.388.8728.

B. Anchoring Style: “B”

C. Options:
1. Color: Sand.
2. Material finish: “Weatherstone”
3. Size: 30” Dia.
4. Material: Reinforced Concrete.

2.2 CAST IRON BOLLARDS

A. Manufacturer’s basis of design; Neenah Foundary. Product; Model number R-8401-43AC.

1. 2121 Brooks Avenue, Brooks Wisconsin 54956.

2. Website:www.construction.sales@neenahenterprises.com.

3. Phone: 920.725.7000.

B. Anchoring Style: Standard Embedded Pipe Post for new concrete.

C. Options:
1. Color: 6020 Chrome green.
2. Material: Cast Iron
3. Length: 40.4”
4. Provide chain to connect two bollards.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Install bollards according to manufacturer's written instructions unless otherwise indicated.

END OF SECTION 32 20 00

SECTION 31 22 00

GRADING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Removal of topsoil.

B. Rough grading the site.

C. Finish grading.

1.02 RELATED REQUIREMENTS

A. Section 31 20 0 – Earth Moving.

B. Section 32 92 19 – Seeding.

1.03 QUALITY ASSURANCE

A. Perform Work in accordance with State of Minnesota, Highway Department standards.

1.04 PROJECT CONDITIONS

A. Protect plants, lawns, and other features to remain as a portion of final landscaping.

PART 2 PRODUCTS

2.01 MATERIALS

A. Erosion Control: Contractor shall conform to the requirements of MNDOT 1803.5 for Erosion control and shall furnish all materials necessary to conform to these requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that survey bench mark and intended elevations for the Work are as indicated.

3.02 PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Stake and flag locations of known utilities.

C. Locate, identify, and protect from damage above- and below-grade utilities to remain.

3.03 ROUGH GRADING

A. Remove topsoil from areas to be further excavated, re-landscaped, or re-graded, without mixing with foreign materials.

B. Do not remove topsoil when wet.

C. Remove subsoil from areas to be further excavated, re-landscaped, or re-graded.

D. Do not remove wet subsoil, unless it is subsequently processed to obtain optimum moisture content.

E. When excavating through roots, perform work by hand and cut roots with sharp axe.

F. Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.

3.04 SOIL REMOVAL

A. Stockpile topsoil to be re-used on site; remove remainder from site.

B. Stockpile subsoil to be re-used on site; remove remainder from site.

C. Stockpiles: Use areas designated on site; pile depth not to exceed 8 feet (2.5 m); protect from erosion.

3.05 FINISH GRADING

A. Before Finish Grading:

1. Verify building and trench backfilling have been inspected.
2. Verify subgrade has been contoured and compacted.

B. Remove debris, roots, branches, stones, in excess of 1/2 inch (13 mm) in size. Remove soil contaminated with petroleum products.

C. Where topsoil is to be placed, scarify surface to depth of 3 inches (75 mm).

D. In areas where vehicles or equipment have compacted soil, scarify surface to depth of 3 inches (75 mm).

E. Place topsoil where required to level finish grade.

F. Place topsoil to the following compacted thicknesses:
1. Areas to be seeded: 4 inches (____ mm).
2. Areas to be sodded: 4 inches (____ mm).

G. Place topsoil during dry weather.

H. Remove roots, weeds, rocks, and foreign material while spreading.

I. Near plants and buildings spread topsoil manually to prevent damage.

J. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.

K. Lightly compact placed topsoil.

3.06 TOLERANCES

A. Top Surface of Subgrade: Plus or minus 0.10 foot (1-3/16 inches) (30 mm) from required elevation.

B. Top Surface of Finish Grade: Plus or minus 0.04 foot (1/2 inch) (13 mm).

C. Top Surface of Subgrade: Plus or minus 1/10 foot (30 mm) from required elevation.

D. Top Surface of Finish Grade: Plus or minus 1/2 inch (13 mm).

3.07 CLEANING

A. Remove unused stockpiled topsoil and subsoil. Grade stockpile area to prevent standing water.

B. Leave site clean and raked, ready to receive landscaping.

END OF SECTION

SECTION 32 16 00
CONCRETE CURBS & WALKS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete Curbs and Walks.

1.02 RELATED SECTIONS

A. Section 03 30 00 - Cast-In-Place Concrete: Exterior concrete.

1.03 REFERENCES

A. Minnesota Department of Transportation Standard Specifications for Construction.

1.04 QUALITY ASSURANCE

A. Perform in accordance with Minnesota Department of Transportation standard, State of Minnesota.

PART 2 PRODUCTS

2.01 MATERIALS

A. Conform with the following materials: MnDOT Section
   1. Concrete Mix No. 3F52
   2. Preformed Joint Filler3702
   3. Concrete Joint Sealers - Hot-Poured, PVC Type3722
   4. Concrete Treating Oil3917
   5. Curing Materials - Plastic Sheeting3756
   6. Granular Materials - Granular Bedding3138

PART 3 EXECUTION

3.01 INSTALLATION

A. Conform with MnDOT Section 2531, Concrete Curbing; and Section 2521, Walks; and with the following requirements:
   1. Granular Materials: Refer to Plan Details for compacted granular bedding as base for all concrete curbing and walks. Assure uniform cross slope for walks with coarse broom finish.
   2. Control Joints - Control joints shall be located where indicated on the drawings. Where not indicated, locate control joints not over 5 feet on center each way. Extend reinforcing through control joints, and score joint with a finishing tool to a depth of 1/4 of the slab thickness.
   3. Expansion Joints: Expansion joints shall be located where indicated on the drawings. Where not indicated, locate expansion joint not over 25 feet on center each way and where exterior slabs abut walls or other fixed objects. Provide expansion joints where sidewalks abut curb and where sidewalks change direction. Do not run reinforcing through joints. Expansion joints not otherwise detailed shall be made with 1/2" thick asphalt impregnated joint filler extending through the concrete slab. Where indicated on the drawings, hold joints filler 3/8" back from face and seal joint with joint sealer.
   4. Control Joints For Curbs & Gutters: Control joints for curbs and gutters shall be located not over 10'-0" on center. Form 1/4" wide joints 2'-0" deep minimum. Expansion joints for curbs shall be located 40'-0" on center maximum. Expansion joints shall be made with 1/2" thick asphalt impregnated joint filler extending through the curb.

END OF SECTION

SECTION 32 92 19
SEEDING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preparation of subsoil.

B. Placing topsoil.

C. Hydroseeding, mulching and fertilizer.

1.02 RELATED REQUIREMENTS

A. Section 31 22 00 - Grading: Preparation of subsoil and placement of topsoil in preparation for the work of this section.

1.03 DELIVERY, STORAGE, AND HANDLING

A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable. Deliver seed mixture in containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging.

B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

PART 2 PRODUCTS

2.01 SEED MIXTURE

A. Seed Mixture:
   1. Seed shall be mixture 675 meeting the requirements of MnDOT Specification Section 3876.

2.02 ACCESSORIES

A. Fertilizer shall be a complete fertilizer containing a minimum basis percentage by weight of the following:
   1. Prior to Sodding 6-24-24:
      a. Nitrogen: 6%.
      b. Phosphorus: 24%.
      c. Potash: 24%.
   2. After Sodding 18-5-9:
      a. Nitrogen: 18%.
      b. Phosphorous: 5%.
      c. Potash: 9%.
   3. One-quarter of the nitrogen shall be in the form of nitrates, one-quarter in the form of ammonia salts, and one-half in the form of organic nitrogen.
   4. Available phosporic acid shall be derived from super-phosphate having a minimum guaranteed analysis of 20% available phosphate.
   5. The potash shall be in the form of sulfate of potash.
   6. The balance of the fertilizer shall be made up of materials usually present in such a product. It shall be free from dust, sticks, sand, stone, or other debris.

B. Mulching Material: Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable.

C. Fertilizer: recommended for grass, with fifty percent of the elements derived from organic sources; of proportion necessary to eliminate any deficiencies of topsoil, as indicated by analysis.

D. Water: Clean, fresh and free of substances or matter that could inhibit vigorous growth of grass.

PART 3 EXECUTION

3.01 PREPARATION

A. Prepare subgrade in accordance with Section 31 22 00.

B. Place topsoil in accordance with MnDOT Standard Specifications for Construction 2574-C

3.02 FERTILIZING

A. Apply fertilizer at a rate of 15 pounds per 1,000 square feet.

B. Apply after smooth raking of topsoil and prior to roller compaction.

C. Do not apply fertilizer at same time or with same machine as will be used to apply seed.

D. Mix thoroughly into upper 2 inches (50 mm) of topsoil.

E. Lightly water to aid the dissipation of fertilizer.

F. After completion of the required mowings, apply fertilizer at the rate of 15 pounds per 1,000 square feetusing a mechanicla spreader and by making two passes at right angles to each other.

3.03 SEEDING

A. All ground surfaces disturbed by construction activity shall be seeded in accordance with the provisions of MnDOT Specification Section 2575 and the following:
   1. The Contractor shall prepare areas to be seeded by placing a three (3) inch layer of salvaged topsoil material and applying fertilizer to the topsoil at a rate of 350 pounds per acre.
   2. The soil shall be raked and watered as necessary to provide a smooth, moist, evenly textured foundation.
   3. Finished, seeded surfaces shall be smooth in appearance and graded to allow drainage according to the Plan. The Contractor will be responsible for preparing these areas as necessary to provide for proper drainage and allow for the three (3) inch layer of topsoil and seed.
   4. Seed shall be applied at a rate of 120 pounds per acre. Type 1 mulch shall be applied at a rate of 2 tons per acre. Disk anchoring shall be required on slopes 5:1 or steeper.
   5. Furnishing and spreading fertilizer, mulching and disk anchoring is considered to be incidental to the cost of seeding.

B. Following germination, immediately re-seed areas without germinated seeds that are larger than 4 by 4 inches (100 by 100 mm).

3.04 MAINTENANCE

A. Mow grass at regular intervals to maintain at a maximum height of 2-1/2 inches (65 mm). Do not cut more than 1/3 of grass blade at any one mowing.

B. Neatly trim edges and hand clip where necessary.

C. Immediately remove clippings after mowing and trimming.

D. Water to prevent grass and soil from drying out.

E. Roll surface to remove minor depressions or irregularities.

F. Immediately reseed areas that show bare spots.

G. Protect seeded areas with warning signs during maintenance period.

END OF SECTION

WEST DULUTH DEEP WINTER GREEN HOUSE

N 45TH AVENUE WEST & GRAND AVENUE

SHEET INDEX

COMPONENT ONE" WEST DULUTH DEEP WINTER GREEN HOUSE"

BUILDING CODE INFORMATION:

Building Areas
Deep Winter Greenhouse: 576 s.f.
Hoop House 1,440 s.f.
Root Cellar 144 s.f. (Under threshold for building permit)
Hoop House 1,440 s.f.
Storage Shed 80 s.f.

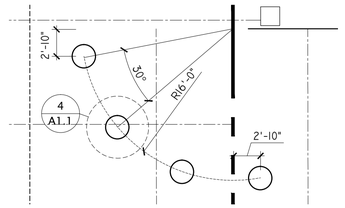
Use and Occupancy
Deep Winter Greenhouse: Utility Use "U"
Hoop House: Utility Use "U"
Root Cellar: Accessory use
Height and Area:
Construction Type: V-B
Allowable Area: 5,500 s.f. Allowable "U" Use and One Story

Occupancy Loading; Agricultural building: 300 Gross s.f/Occupant
Occupancy Calculations:
Greenhouse 576s.f./300 = 2 people
Hoophouse 1440s.f./300 = 5 people
Root Cellar 1 person

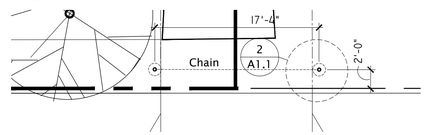
Accessibility
Accessible access will be required at the Greenhouse, Root Storage Building and Hoophouse.
Plumbing Systems:
Greenhouse and hoophouse - no toilet facilities required.

ZONING INFORMATION:

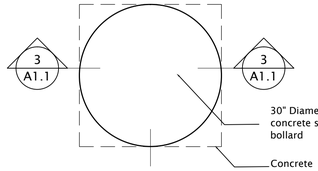
Existing Zoning: R1
Allowed Use: Commerical/Agricultural, Urban per Table 50-19 .8/Use Table
Easements:
Building not allowed over existing storm-water pipe easements running diagonal across the site.
Storm water main and manhole at south end of the site running east-west requires access be maintained
Front Yard: Grand Avenue, set back 25'
Side Yards: N. 45th Ave West & Along Denfeld, set back 6'
Back yard: set back 25'
Parking requirements: none



6 A1.1 SPHERICAL BOLLARD PLAN
1/8" = 1'-0"

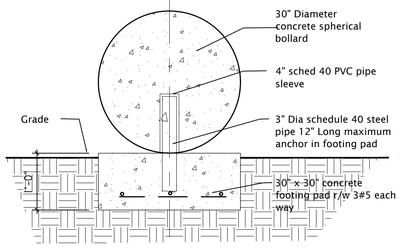


5 A1.1 CAST IRON BOLLARD PLAN
1/8" = 1'-0"

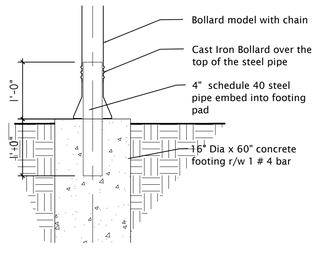


4 A1.1 SPHERICAL BOLLARD PLAN
3/4" = 1'-0"

4 Thus

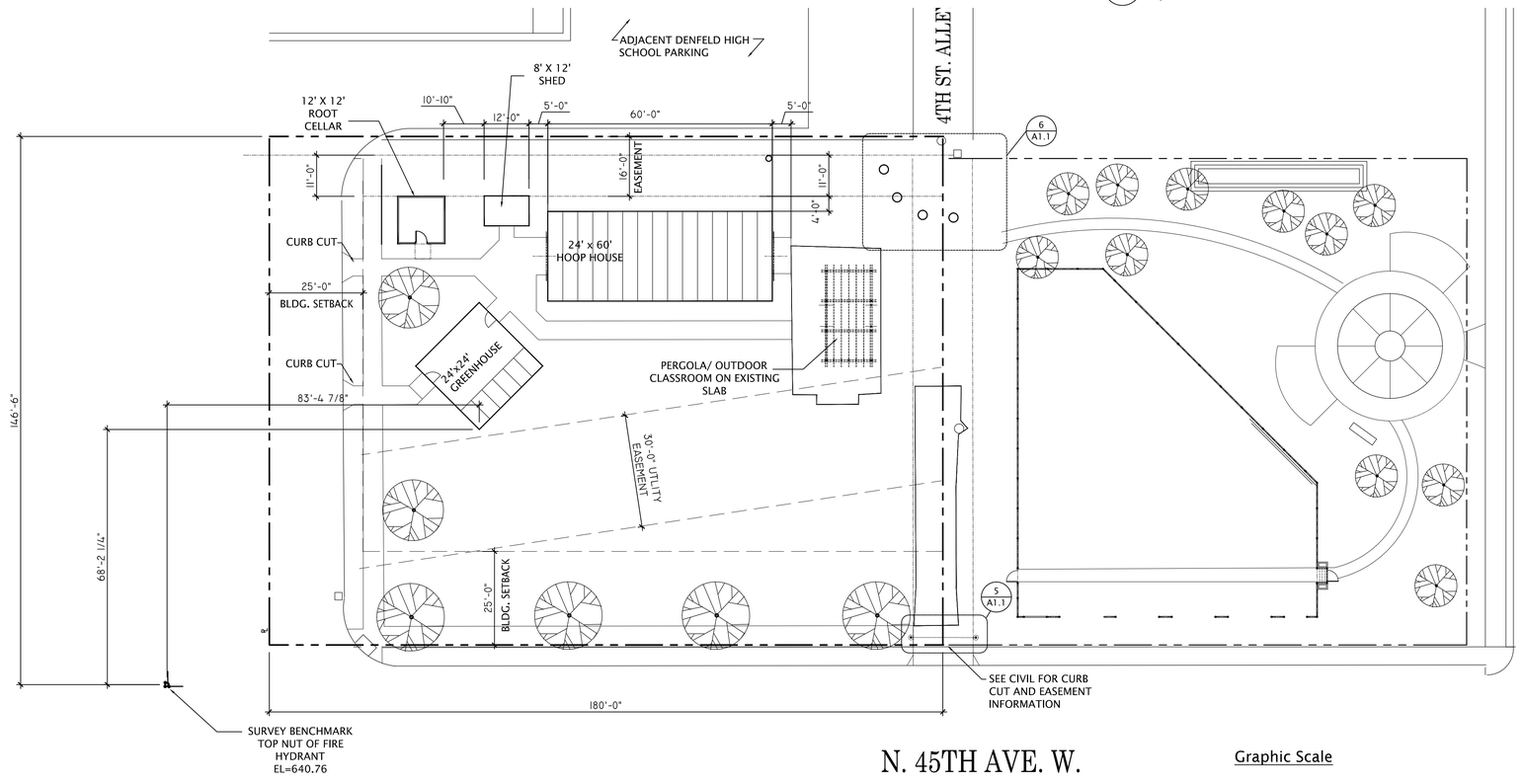


3 A1.1 SPHERICAL BOLLARD SECTION
3/4" = 1'-0"



2 A1.1 CAST IRON EMBEDDED BOLLARD SECTION
3/4" = 1'-0"

2 Thus



1 A1.1 ARCHITECTURAL SITE PLAN
1" = 20'

Graphic Scale

0' 20' 40'

Wagner Zaun ARCHITECTURE

17 N. Lake Avenue
Duluth, MN 55802

(218) 733-0690

www.wagnerzaun.com

dzaun@wagnerzaun.com
rwagner@wagnerzaun.com

STRUCTURAL ENGINEER:
Northland Structural Engineers
102 S. 21st Ave. W., Suite 1
Duluth, MN 55806
(218) 727-5995

CERTIFICATION:

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

21630
REGISTRATION #

DOUG ZAUN
NAME

SIGNATURE 5/4/2017 DATE

IF PRINTED TO SCALE

THIS LINE WILL BE 2" LONG

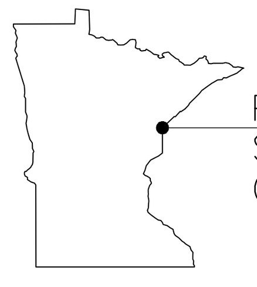
PROJECT #: 1517

West Duluth Deep Winter Greenhouse
N 45th Ave West and Grand Avenue
Duluth, Minnesota

REVISION/ISSUE	DATE
ISSUE Bidding Doc	DATE 5.4.17
ISSUE	DATE

SHEET NAME:
SITE PLAN & INDEX

SHEET #:
A1.1



DEEP WINTER

GREEN HOUSE

N 45TH AVE WEST

GSOC
1-800-252-1166

VICINITY MAP

GENERAL NOTES

GENERAL NOTES:

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CURRENT EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" CONCURRENT WITH THE PERMIT DATE. (AVAILABLE AT: http://www.dot.state.mn.us/pre-letting/spec/)

2. ALL WORK SHALL ADHERE TO THE MUNICIPALITY WITH JURISDICTION OF PUBLIC WORKS AND UTILITIES STANDARD CONSTRUCTION DOCUMENTS AND SPECIFICATIONS, SUPPLEMENTS OR ADDENDUMS SHALL APPLY.

3. CONTRACTOR SHALL ACQUIRE ALL NECESSARY PERMITS.

4. ANY DIFFERENCES BETWEEN PLANS AND SPECIFICATIONS AND QUESTIONS REGARDING INTERPRETATIONS OF PLANS AND SPECIFICATIONS SHALL BE RESOLVED BY THE ENGINEER OR OWNER. THE CONTRACTOR WILL NOT BE PERMITTED TO TAKE ADVANTAGE OF ANY ERRORS OR OMISSIONS IN THE PLANS AND SPECIFICATIONS. THE GENERAL INTENT AND MEANING WILL GOVERN. THE ENGINEER OR OWNER WILL PROVIDE FULL INSTRUCTIONS WHEN CHANGED CONDITIONS, ERRORS OR OMISSIONS ARE DISCOVERED BY THE CONTRACTOR.

5. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING "GSOC" AT (1-800-252-1166) TWO WORKING DAYS PRIOR TO ANY EXCAVATION OR CONSTRUCTION.

6. ALTHOUGH SUCH WORK MAY NOT BE SPECIFICALLY NOTED ON THESE PLANS. CONTRACTOR SHALL FURNISH AND INSTALL ALL SUPPLEMENTARY OR MISCELLANEOUS FITTINGS, APPURTENANCES AND DEVICES INCIDENTAL TO OR NECESSARY FOR A SOUND, SECURE AND COMPLETE INSTALLATION.

7. ALL CONCRETE STRUCTURES SHALL CONFORM TO SPEC 2461 STRUCTURAL CONCRETE OF MINNESOTA STANDARD SPECIFICATIONS FOR CONSTRUCTION CURRENT EDITION CONCURRENT WITH THE PERMIT DATE. (AVAILABLE AT: http://www.dot.state.mn.us/pre-letting/spec

8. ALL CONCRETE CURB SHALL CONFORM TO SPEC 2531 CONCRETE CURBING OF MINNESOTA STANDARD SPECIFICATIONS FOR CONSTRUCTION CURRENT EDITION. CONCURRENT WITH THE PERMIT DATE. (AVAILABLE AT: http://www.dot.state.mn.us/pre-letting/spec

9. EQUIPMENT OR MATERIALS SPECIFIED IN THESE PLANS HAVE BEEN SPECIFIED BECAUSE THEY MEET THE PARAMETERS NEEDED TO PERFORM A CERTAIN FUNCTION. THERE MAY BE OTHER MANUFACTURERS OF SIMILAR EQUIPMENT OR MATERIALS THAT CAN BE USED IN LIEU OF THE ONES SPECIFIED HEREIN. ANY MODIFICATIONS TO SAID EQUIPMENT OR MATERIALS NEED TO BE APPROVED IN WRITING BY THE ENGINEER PRIOR TO THEIR BEING CONSIDERED FOR USE.

10. BY SUBMISSION OF HIS BID PROPOSAL THE CONTRACT ACKNOWLEDGES THAT HE\SHE HAS THOROUGHLY EXAMINED THE LOCATION OF THE WORK TO BE PERFORMED, IS FAMILIAR WITH LOCAL CONDITIONS, AND HAS THE RESOURCES TO LAYOUT AND CONSTRUCT THESE PLANS.

11. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL SURVEY CONTROL STAKES SET FOR LINE, GRADE, OR CONTROL IN THEIR ORIGINAL LOCATIONS. ANY EXPENSES INCURRED IN REPLACING ANY SUCH SURVEY STAKES WHICH THE CONTRACTOR OR HIS SUBCONTRACTORS MAY HAVE FAILED TO PRESERVE SHALL BE THE FINANCIAL RESPONSIBILITY OF THE CONTRACTOR.

12. THE CONTRACTOR IS RESPONSIBLE FOR UNCOVERING ALL EXISTING UTILITY LINES BEING CONNECTED TO BY VIRTUE OF THESE PLANS. HE/SHE SHALL BE RESPONSIBLE FOR VERIFYING THEIR ELEVATION AND LOCATION. THE CONTRACTOR IS ALSO RESPONSIBLE FOR PROTECTING ALL UTILITIES WHETHER BEING CONNECTED TO OR NOT.

13 ALL WORKMANSHIP AND MATERIALS THROUGHOUT THE JOB SHALL BE OF THE HIGHEST QUALITY. ALL MATERIALS SHALL BE NEW, UNLESS APPROVED BY THE ENGINEER.

14. CONTRACTOR SHALL AT ALL TIMES COORDINATE WORK WITH OTHER CONTRACTORS INVOLVED WITH ONGOING CONSTRUCTION OF THIS PROJECT.

15. ALL WORK AND MATERIALS WHICH DO NOT CONFORM TO THE SPECIFICATIONS AND / OR PLANS ARE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.

16. ALL WORK IS TO BE COMPLETED IN A SAFE MANNER IN ACCORDANCE WITH THESE CONSTRUCTION SPECIFICATIONS. ANY DEVIATION THEREFROM MUST BE APPROVED IN WRITING BY THE ENGINEER. INSTALLATION MUST CONFORM WITH THE REQUIREMENTS OF ALL GOVERNMENTAL REGULATING AGENCIES AND THE COST OF CONFORMING TO SUCH REGULATIONS MUST BE INCLUDED IN THE UNIT BID PRICES. EXAMPLES OF SUCH REGULATIONS, WITHOUT ATTEMPTING TO BE INCLUSIVE, ARE:

    A. SPECIAL COMPACTION AND PAVING FOR STREET CROSSINGS.

    B. SHORING WHEN REQUIRED BECAUSE OF THE TRENCH DEPTH.

    C. CLOSING A TRENCH IN THOSE AREAS WHERE NO OPEN TRENCH IS ALLOWED OVERNIGHT.

    D. BARRICADING AND TRAFFIC CONTROL AS REQUIRED.

17. ALL REVISIONS TO THE APPROVED CONSTRUCTION DRAWINGS AND SPECIFICATIONS MUST BE APPROVED BY THE OWNER PRIOR TO CONSTRUCTION. ANY UNAPPROVED REVISIONS ARE SUBJECT TO REMOVAL AND/OR REPLACEMENT AT THE CONTRACTOR'S EXPENSE.

18. THE QUANTITIES AND SITE CONDITIONS DEPICTED IN THESE PLANS ARE FOR INFORMATIONAL PURPOSES ONLY AND ARE SUBJECT TO ERROR AND OMISSION. CONTRACTORS SHALL SATISFY THEMSELVES AS TO ACTUAL QUANTITIES AND SITE CONDITIONS PRIOR TO BIDDING THE WORK FOR THE CONSTRUCTION COVERED BY THESE PLANS.

19. A REASONABLE EFFORT HAS BEEN MADE TO SHOW THE LOCATIONS OF EXISTING UNDERGROUND FACILITIES AND UTILITIES IN THE CONSTRUCTION AREA. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO UTILITIES AND/OR FACILITIES CAUSED DURING THEIR CONSTRUCTION OPERATIONS. CONTRACTOR SHALL CALL "GSOC" AT (1-800-252-1166) PRIOR TO ANY EXCAVATION.

20. THE CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION OF CONSTRUCTION AFFECTING UTILITIES AND THE COORDINATION OF ANY NECESSARY UTILITY RELOCATION WORK.

21. THESE PLANS ARE SUBJECT TO THE INTERPRETATION OF INTENT BY THE ENGINEER. ALL QUESTIONS REGARDING THESE PLANS SHALL BE PRESENTED TO THE ENGINEER. ANYONE WHO TAKES UPON THEMSELVES THE INTERPRETATION OF THE DRAWINGS OR MAKES REVISIONS TO THEM WITHOUT CONFERRING WITH THE DESIGN ENGINEER SHALL BE RESPONSIBLE FOR THE CONSEQUENCES THEREOF.

22. NOTHING CONTAINED IN THE CONTRACT DOCUMENTS SHALL CREATE, NOR SHALL BE CONSTRUED TO CREATE ANY CONTRACTUAL RELATIONSHIP BETWEEN THE ENGINEER AND THE CONTRACTOR OR ANY SUBCONTRACTOR.

23. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OR SAFETY PRECAUTIONS OR PROGRAMS UTILIZED IN CONNECTION WITH THE WORK. THE ENGINEER WILL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

24. PRIOR TO BIDDING THE WORK, THE CONTRACTOR SHALL THOROUGHLY SATISFY HIMSELF AS TO THE ACTUAL CONDITIONS, EARTHWORK QUANTITIES AND REQUIREMENTS OF WORK AND EXCESS OR DEFICIENCY IN EARTHWORK QUANTITIES, IF ANY. NO CLAIM SHALL BE MADE AGAINST THE OWNER/DEVELOPER OR ENGINEER FOR ANY EXCESS OR DEFICIENCY THEREIN, ACTUAL OR RELATIVE.

25. ALL MATERIALS ARE TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS UNLESS OTHERWISE DIRECTED BY THE PROJECT SPECIFICATIONS.

26. ALL PAVING AND GRADING CONSTRUCTION WORK WITHIN THE PUBLIC RIGHT OF WAY, ON PRIVATE STREETS, ACCESS WAYS, PARKING AREAS, EASEMENTS AND LOT GRADING SHALL CONFORM TO THE GOVERNING MUNICIPALITY MINIMUM STANDARDS AND SPECIFICATIONS, MINNESOTA DEPARTMENT OF TRANSPORTATION STANDARD PLATES WILL CONTINUE TO APPLY WHERE NOT ADOPTED OR INCLUDED BY THE GOVERNING MUNICIPALITY. THE REFERENCE DOCUMENTS AND SPECIFICATIONS INCLUDED WITHIN THIS PLAN ARE HEREBY MADE A PART OF THE CONTRACT DOCUMENTS AND PROJECTS MANUAL. WHERE THERE IS A CONFLICT BETWEEN THESE NOTES AND THE PROJECT MANUAL, THE MORE STRINGENT OF THE REQUIREMENTS SHALL GOVERN UNLESS PRIOR CLARIFICATION FROM THE DESIGN ENGINEER HAS BEEN GIVEN IN WRITING TO THE CONTRACTOR.

27. CONTRACTOR TO PROVIDE ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY TO COMPLETE ALL PROJECT SITE WORK, SITE CLEARING, DEMOLITION, ROADWAY EXCAVATION, RELOCATIONS, STRUCTURE EXCAVATION, TRENCHING/BACKFILLING, ALL BORING, DRILLING, SITE GRADING AND EARTHWORK INCLUDING ALL PAVING, PIPING, UTILITY LINE CONSTRUCTION, CURBS, SIDEWALKS, SITE CONCRETE WORK AND OTHER MISCELLANEOUS SITE WORK STRUCTURES AND ITEMS INDICATED ON THE PLANS AND IN THE CONTRACT DOCUMENTS.

28. THE ENGINEER OR OWNER SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION.

29. ALL OBSTRUCTIONS IN RIGHT OF WAY SHALL BE REMOVED BEFORE ANY CONSTRUCTION IS PERMITTED.

30. ANY QUANTITIES SHOWN ON PLANS ARE NOT VERIFIED BY THE ENGINEER. QUANTITIES ARE APPROXIMATE ONLY AND INTENDED AS A GUIDE FOR ESTIMATING PURPOSES. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING HIS OWN QUANTITY TAKE OFFS. THE OWNER DOES NOT VERIFY ANY CUT/FILL QUANTITIES IF SHOWN ON THE PLANS.

31. ALL WORK DONE UNDER THIS CONTRACT SHALL BE DONE TO THE SATISFACTION OF THE OWNER AND ENGINEER. THE OWNER AND ENGINEER SHALL MAKE DECISIONS REGARDING QUESTIONS THAT MAY ARISE WITH RESPECT TO THE MEANING OF THE PLANS AND SPECIFICATIONS. THE OWNER'S AND ENGINEER'S DETERMINATIONS AND DECISIONS THEREON SHALL BE FINAL AND CONCLUSIVE.

32. THE CONTRACTOR OR SUBCONTRACTORS SHALL NOT DEVIATE FROM THESE PLANS OR MAKE FIELD CHANGES WITHOUT NOTIFYING IN WRITING, THE OWNER AND ENGINEER REQUESTING APPROVAL OF THESE MODIFICATIONS. ANY CHANGES MADE WITHOUT EXPRESS WRITTEN APPROVAL OF THE OWNER AND ENGINEER ARE SUBJECT TO REMOVAL AT THE EXPENSE OF THE CONTRACTOR OR SUBCONTRACTOR.

33. THE 2360 PLANT MIXED ASPHALT PAVEMENT COMBINED 2360/2350 (GYRATORY/MARSHALL DESIGN) SPECIFICATION FOR 2012 CONSTRUCTION SEASON SHALL APPLY. BITUMINOUS MIX QUANTITIES BASED ON 115 LBS / SY-IN. (AVAILABLE AT: http://www.mrr.dot.state.mn.us/pavement/bituminous/bituminous.asp)

34. ALL CONSTRUCTION REMOVAL ITEMS SHALL BE DISPOSED OF AT AN APPROVED WASTE SITE.

35. CONTRACTOR IS REQUIRED TO POSSESS & FOLLOW THE GOVERNING SPECIFICATIONS REFERENCED IN THIS PLAN.

APPROVALS:

1. THE CONTRACTOR IS TO USE THE OFFICIAL CONSTRUCTION SET OF PLANS AND DRAWINGS FOR CONSTRUCTION. IT IS THE CONTRACTORS DUTY TO ACQUIRE AN OFFICIAL SET OF APPROVED PLANS AND SHALL HAVE A SET OF THESE PLANS WITH HIM/HER ON SITE AT ALL TIMES DURING THE DURATION OF THIS PROJECT.

INSPECTION:

1. ALL MATERIALS USED AND ALL WORK DONE BY THE CONTRACTOR SHALL BE SUBJECT AT ALL TIMES TO THE INSPECTION, TESTING, AND APPROVAL OF THE OWNER OR HIS REPRESENTATIVE AND THE ENGINEER.

2. THE OWNER OR HIS REPRESENTATIVE WILL MAKE PERIODIC INSPECTIONS OF THE DIFFERENT PHASES OF THE SITE WORK.

3. THE CONTRACTOR SHALL CONTACT THE APPROPRIATE PUBLIC UTILITY COMPANIES FOR COORDINATION AND INSPECTION OF TRENCHING, BEDDING AND BACKFILLING DONE IN CONJUNCTION WITH THE INSTALLATION OF THOSE UTILITIES ASSOCIATED WITH THIS PROJECT

FIELD ENGINEERING:

1. THE CONTRACTOR SHALL CAREFULLY PRESERVE ALL STAKES, REFERENCE AND CONTROL POINTS, ETC. AGAINST DESTRUCTION AND SHALL PROMPTLY NOTIFY HIS ENGINEER/SURVEYOR OF ANY STAKES WHICH HAVE BEEN DISTURBED. IN CASE OF RESTAKING DUE TO TIMING LAG CAUSED BY THE CONTRACTOR'S WILLFUL OR CARELESS DESTRUCTION, THE CONTRACTOR MAY BE CHARGED BY THE OWNER WITH THE RESULTING EXPENSE FOR THE RESTAKING.

2. ENGINEER/SURVEYOR SHALL BE NOTIFIED TWO WORKING DAYS (48 HOURS) MINIMUM PRIOR TO THE FIELD STAKING SCHEDULING.

3. ANY QUESTIONS RAISED RELATIVE TO THE ACCURACY OF IMPROVEMENT INSTALLATION SHALL NOT BE RAISED SUBSEQUENT TO COMPLETION OF THE WORK UNLESS ALL SURVEY STAKES ARE MAINTAINED INTACT. SHOULD SUCH STAKES NOT BE PRESENT AND VERIFIED AS TO THEIR ORIGIN, NO CLAIM FOR ADDITIONAL COMPENSATION FOR CORRECTION SHALL BE PRESENTED TO ANY PARTY AND SUCH WORK SHALL BE CORRECTED BY THE CONTRACTOR AT HIS EXPENSE.

4. ALL CONSTRUCTION STAKING FOR GRADE, ALIGNMENT AND CONTROLS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AS SPECIFIED BELOW.

5. THE CONTRACTOR'S ENGINEER/SURVEYOR AND THE DESIGN ENGINEER CANNOT GUARANTEE THE ACCURACY OF CONSTRUCTION STAKES FOR GRADE OR ALIGNMENT AFTER THE SURVEY CREW HAS LEFT THE SITE DUE TO VANDALISM AND CONSTRUCTION OPERATIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW IN THE FIELD ALL CONSTRUCTION STAKING DONE PRIOR TO BEGINNING THE PLACEMENT OF FORMS OR BEGINNING CONSTRUCTION FOR THAT PHASE OF THE WORK. THE CONTRACTOR SHALL NOTIFY HIS ENGINEER/SURVEYOR IMMEDIATELY FOR VERIFICATION OF GRADE AND ALIGNMENT SHOULD A PROBLEM ARISE IN THE FIELD. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE COMPENSATION TO HIS ENGINEER/SURVEYOR FOR PRECHECKS AND RESTAKING.

GOVERNING SPECIFICATIONS

THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION 'STANDARD SPECIFICATIONS FOR CONSTRUCTION' SHALL GOVERN. AVAILABLE AT: http://www.dot.state.mn.us/pre-letting/spec/index.html

UTILITY DETAIL LEVEL

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

WARNING:
LOCATION OF UNDERGROUND UTILITIES TO BE VERIFIED BY CONTRACTOR. CALL BEFORE DIGGING. GOPHER STATE ONE CALL 1-800-252-1166 REQUIRED BY LAW.

BASIS OF BEARING/CONTROL

CONTROL BASED ON THE ST. LOUIS COUNTY TRANSVERSE MERCATOR COORDINATE SYSTEM OF 1996

NAME:	NORTHING:	EASTING:	ELEV:
TNH	3328630.72	4830060.33	640.76
____	______.__	______.__	____.__
____	______.__	______.__	____.__

GENERAL LEGEND

DESCRIPTION	PROPOSED	EXISTING
SITE PROPERTY LINE		
SECTION LINE		
RIGHT OF WAY LINE		
EASEMENT LINE		
LOT LINE		
CONTROL / BENCHMARK		
RLS MONUMENT		
T-BAR	N/A	
CHISELED X	N/A	
CALCULATED MONUMENT	N/A	
REBAR / NAIL	N/A	
CENTERLINE		
PAVEMENT		
PAVERS		
CONCRETE		
SIDEWALK		
GRAVEL		
RIP RAP		
CURB & GUTTER		
CURB & GUTTER (SPILL CURB)		N/A
STRIPING		
TRUNCATED DOMES		N/A
FLAG POLE		
MAIL BOX		
POST		
BOLLARD		
PARKING METER		
SIGN		
CHAIN LINK FENCE		
BARB WIRE FENCE		
MISCELLANEOUS FENCE		
GUARD RAIL		
VEGETATION		
TREE		
WETLAND	N/A	
BUILDING		
RETAINING WALL		
DOORS		
OVERHANG		
STOOP / FOOTING		N/A
DOWN DRAIN		N/A
MAJOR CONTOUR LINE		
MINOR CONTOUR LINE		
TOP OF SLOPE	TOP	TOP
TOE OF SLOPE	TOE	TOE
SLOPE CATCH LINE (FILL)	F	N/A
SLOPE CATCH LINE (CUT)	C	N/A
FLOW LINE		
OVERHEAD UTILITY LINE	OH	OH
UTILITY POLE		
GUY WIRE		
VALVE		
UTILITY BOX		
METER		
CLEANOUT		
STORM PIPE		
DRAINAGE MANHOLE		
CB - SQUARE GRATE		
CB - ROUND GRATE		
APRON / END SECTION		
FORCEMAIN PIPE	FM	FM
SANITARY PIPE		
SANITARY MANHOLE		
WATER LINE	W	W
WATER MANHOLE		
HYDRANT		
WELL		
GAS PIPE	G	G
GAS MANHOLE		
REGULATOR		
ELECTRICAL LINE	E	E
ELECTRICAL MANHOLE		
LIGHT POLE		
TRAFFIC SIGNAL		
ELECTRICAL LINE		
ELECTRICAL OUTLET		
FIBER OPTIC LINE	FO	FO
TELECOM LINE	T	T
CABLE TV LINE	CBL	CBL
COMMUNICATION MH		

SHEET INDEX

----THIS PLAN CONTAINS 6 SHEETS----

Northland
Consulting Engineers L.L.P.
102 South 21st. Ave. West Suite #1
Duluth, Minnesota 55806
Tele: 218.727.5995
Fax: 218.727.7779
www.nce-engineers.com

DEEP WINTER
GREEN HOUSE
N 45TH AVE WEST

Sheet Title
TITLE

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

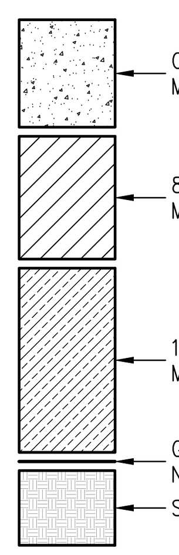
Engineer: David G. Bolf   5/04/17   Lic. No: 40926

REVISIONS:

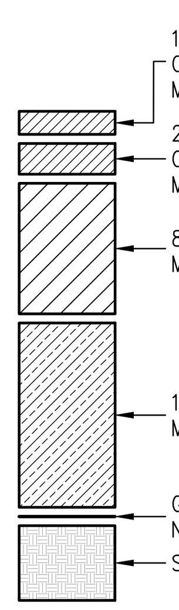
PROJECT: 17-149
CHECKED: TPD
DRAWN: JDO
DATE: 5/04/17

Sheet Title
TITLE

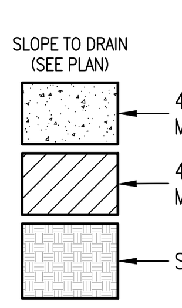
Sheet Number
C1.0



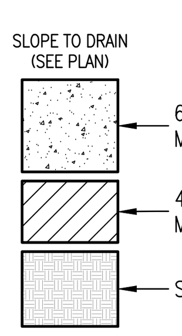
1 C2.0 CONCRETE PAVEMENT (RESTORATION) SECTION DETAIL NTS.



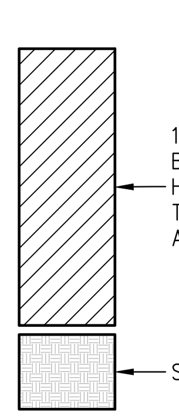
2 C2.0 BITUMINOUS PAVEMENT (RESTORATION) SECTION DETAIL NTS.



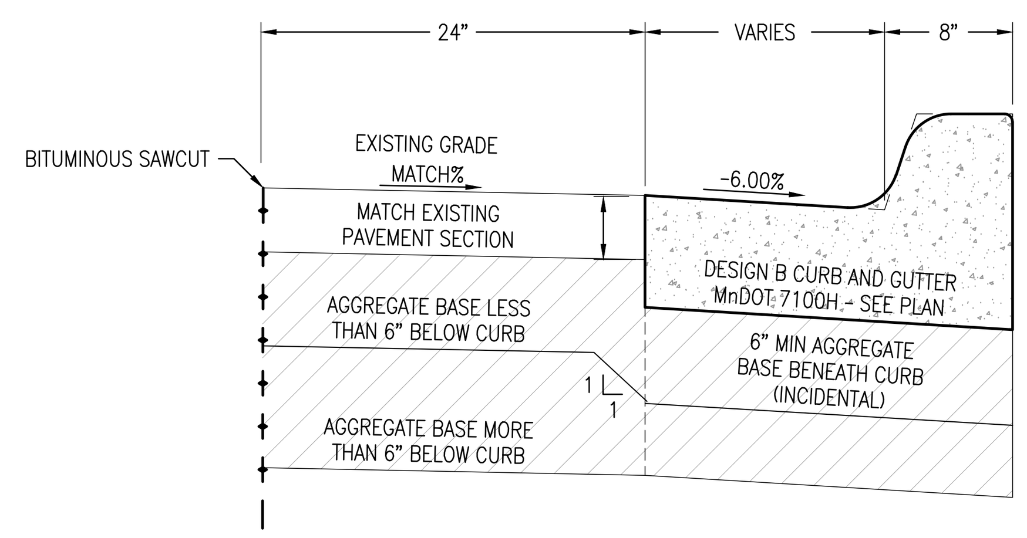
3 C2.0 CONCRETE SIDEWALK SECTION DETAIL NTS.



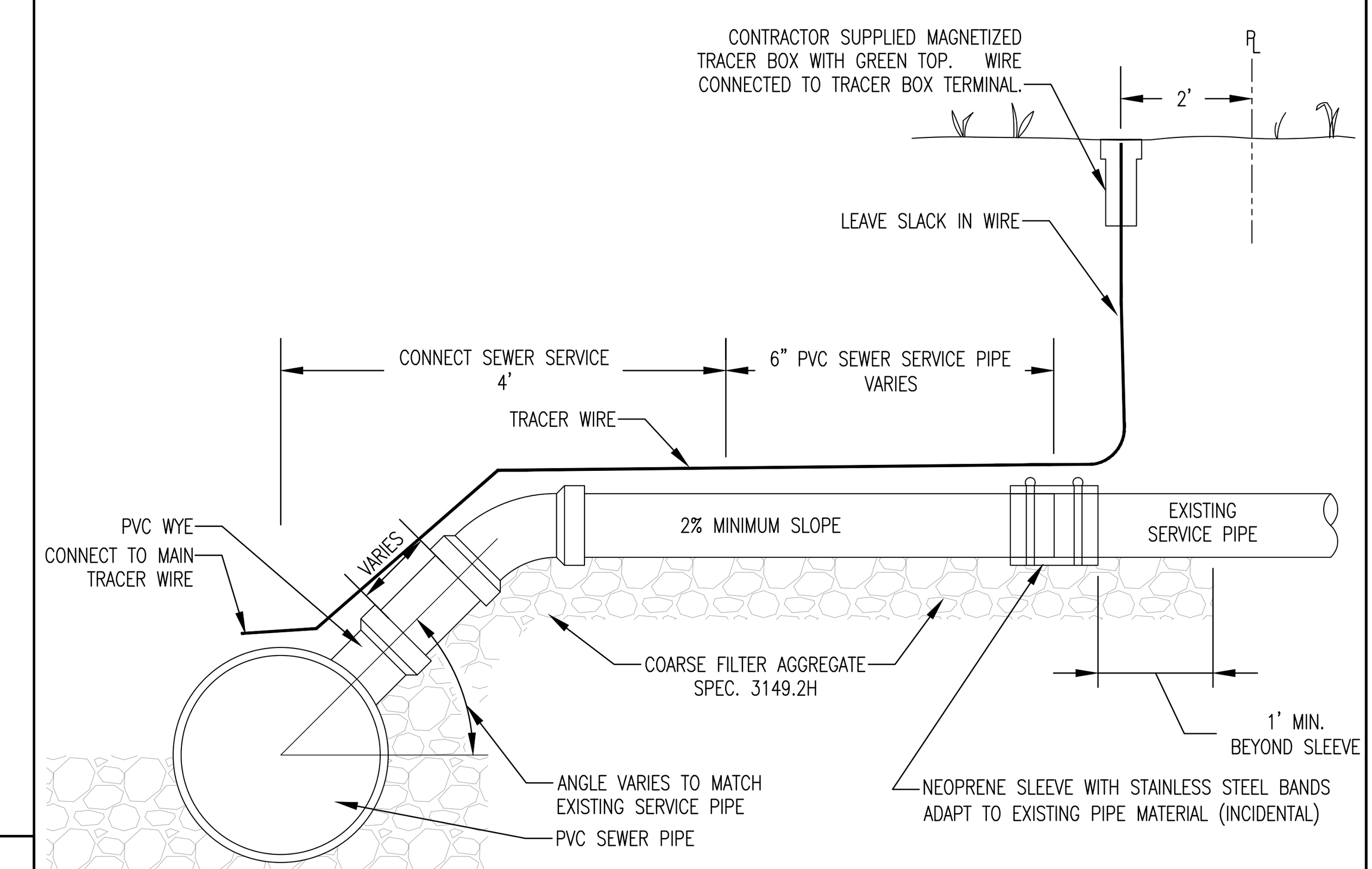
4 C2.0 ADA CONCRETE SIDEWALK SECTION DETAIL NTS.

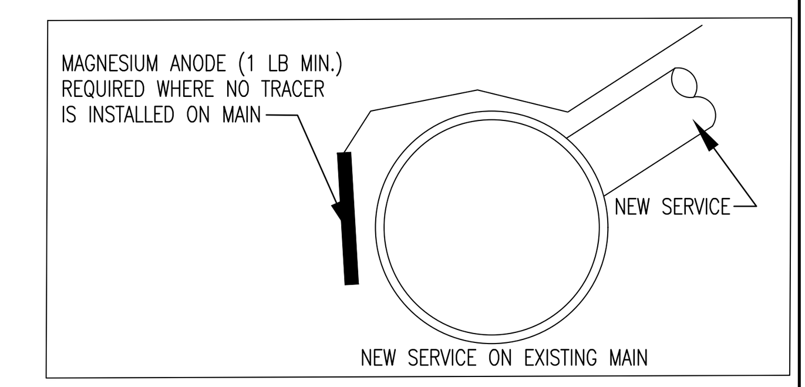


5 C2.0 GARDEN SOIL SECTION DETAIL



6 C2.0 RESTORATION - CURB & GUTTER (CATCH) NTS.

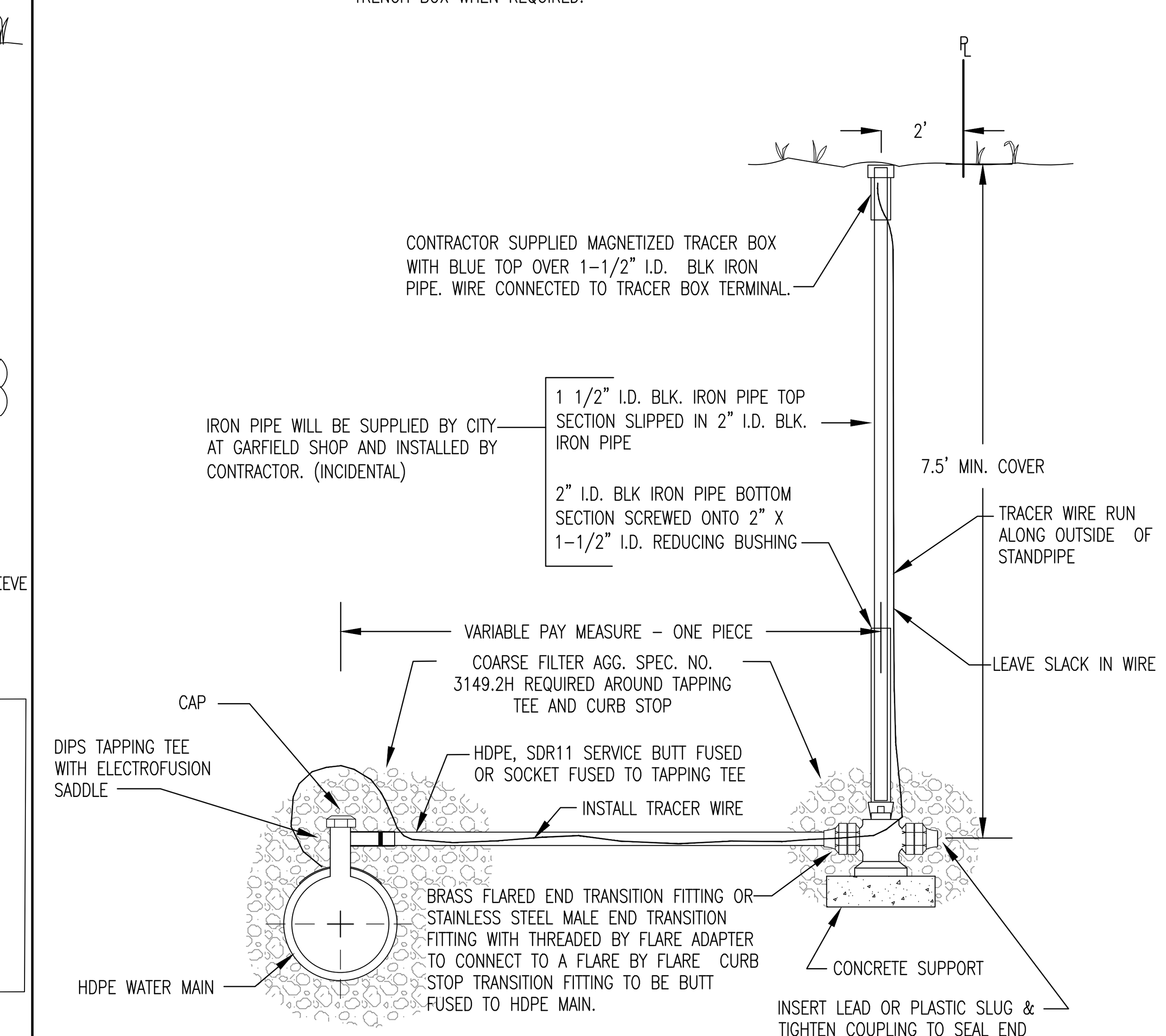




NOTES
1. BID ITEM FOR PVC WYE INCLUDES FURNISHING AND INSTALLING WYE IN SEWER MAIN.
2. CONNECT SEWER SERVICE INCLUDES 6" PVC SEWER SERVICE PIPE (TO 4' FROM C/L) AND ALL FITTINGS
3. 6" PVC SEWER SERVICE PIPE IS INTENDED FOR THE RECONSTRUCTION OF SEWER SERVICES (WHEN FOUND TO BE IN NEED BY THE ENGINEER) COMPLETE IN PLACE FROM 4.0' BEYOND THE C/L OF THE SEWER MAIN TO A POINT DESIGNATED BY THE ENGINEER
4. FOR NEW SERVICES, PIPE TO STOP AT RIGHT OF WAY
5. #12 GAUGE GREEN INSULATED COPPER TRACER WIRE SHALL BE INSTALLED WITH SANITARY SEWER MAINS AND SERVICES. TRACER WIRE TERMINAL BOXES SHALL BE INSTALLED DIRECTLY ABOVE THE SEWER SERVICE OR AS DETERMINED BY THE ENGINEER
6. FOR SERVICES, TRACER WIRE SHALL RUN FROM THE WYE AND TERMINATE IN A FLUSH MOUNTED TRACER BOX WITH A GREEN CAST IRON LOCKABLE TOP.
7. THE TRACER WIRE SHALL REMAIN CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. SPLICES IN THE TRACER WIRE SHOULD BE MADE WITH SPLIT BOLT CONNECTORS. WIRE NUTS SHALL NOT BE USED. A WATER-PROOF CONNECTION IS NECESSARY TO PREVENT CORROSION.

TYPICAL SEWER SERVICE CONNECTION		SAN-2
REVISED/APPROVED 02/19/2015	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES (7 C2.0)	NO SCALE

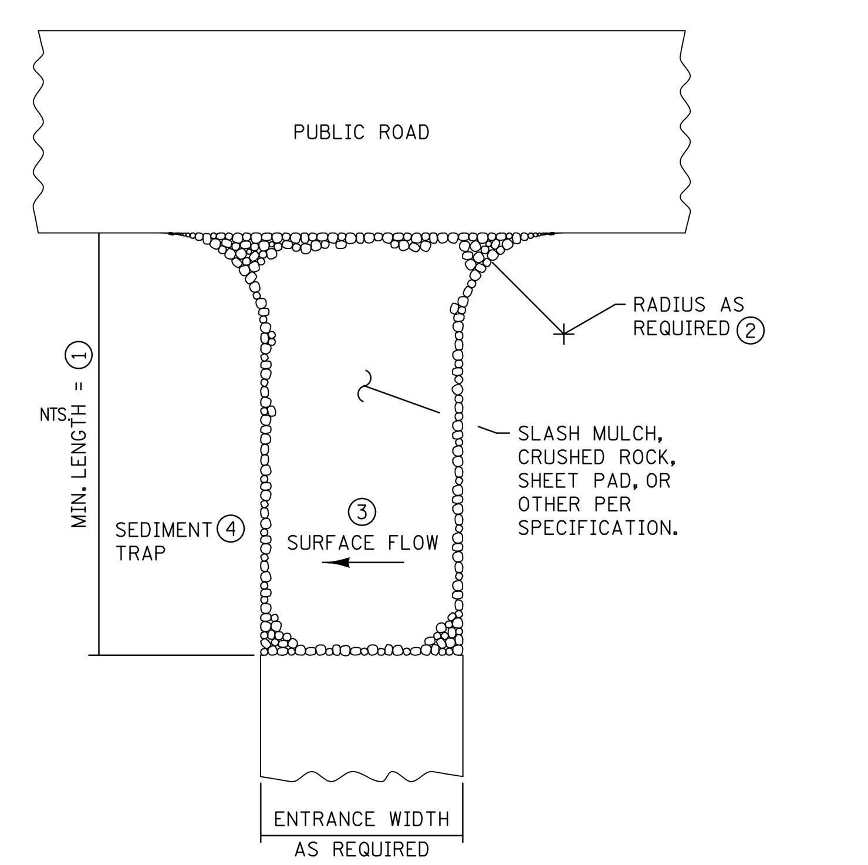
NOTE: EXCAVATE 6" UNDER IN-PLACE MAIN AND BACKFILL WITH COURSE FILTER AGGREGATE MNDOT SPEC. # 3149.2H. CONTRACTOR SHALL PROVIDE & PLACE A TRENCH BOX WHEN REQUIRED.

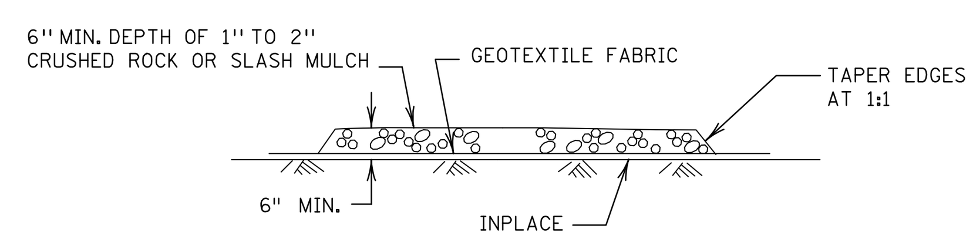


NOTE: SERVICE TO BE AIR TESTED PRIOR TO TAPPING MAIN

THE TRACER WIRE SHALL REMAIN CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. SPLICES IN THE TRACER WIRE SHOULD BE MADE WITH SPLIT BOLT CONNECTORS. WIRE NUTS OR CLIP TYPE CONNECTOR SHALL NOT BE USED. A WATER-PROOF CONNECTION IS NECESSARY TO PREVENT CORROSION.

TYPICAL HDPE WATER SERVICE – 1", 1-1/4", AND 2"		W-5A
REVISED/APPROVED 1/8/2016	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES (8 C2.0)	NO SCALE

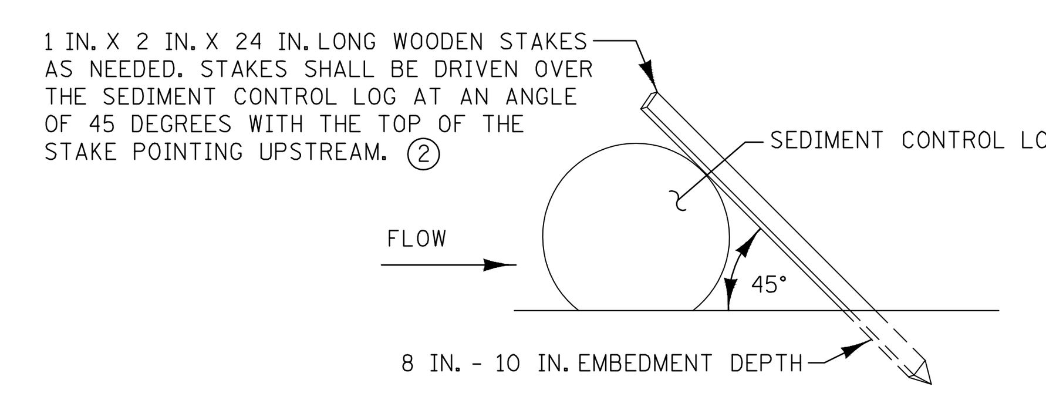




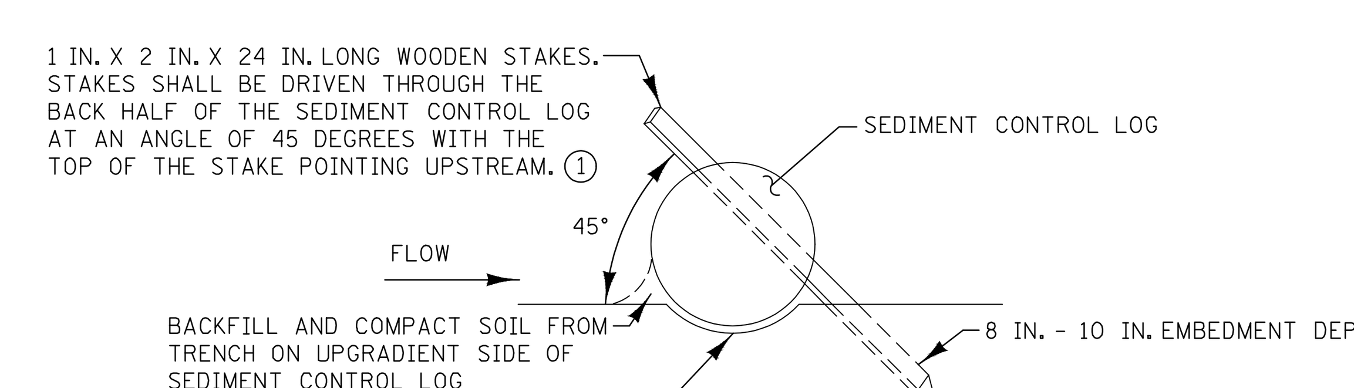
SLASH MULCH OR CRUSHED ROCK

NOTES:
SEE MNDOT SPECS. 2573 & 3882.
(1) MINIMUM LENGTH SHALL BE THE GREATER OF 50 FEET OR A LENGTH SUFFICIENT TO ALLOW A MINIMUM OF 5 TIRE ROTATIONS ON THE PROVIDED PAD. MINIMUM LENGTH SHALL BE CALCULATED USING THE LARGEST TIRE WHICH WILL BE USED IN TYPICAL OPERATIONS.
(2) PROVIDE RADIUS OR WIDEN PAD SUFFICIENTLY TO PREVENT VEHICLE TIRES FROM TRACKING OFF OF PAD WHEN LEAVING SITE.
(3) IF RUNOFF FROM DISTURBED AREAS FLOWS TOWARD CONSTRUCTION EXITS, PREVENT RUNOFF FROM DRAINING DIRECTLY TO PUBLIC ROAD OVER CONSTRUCTION EXIT BY CROWNING THE EXIT OR SLOPING TO ONE SIDE. IF SURFACE GRADING IS INSUFFICIENT, PROVIDE OTHER MEANS OF INTERCEPTING RUNOFF.
(4) IF RUNOFF FROM CONSTRUCTION EXITS WILL DRAIN OFF OF PROJECT SITE, PROVIDE SEDIMENT TRAP WITH STABILIZED OVERFLOW.
(5) IF A TIRE WASH OFF IS REQUIRED THE CONSTRUCTION EXITS SHALL BE GRADED TO DRAIN THE WASH WATER TO A SEDIMENT TRAP.
(6) MAINTENANCE OF CONSTRUCTION EXITS SHALL OCCUR WHEN THE EFFECTIVENESS OF SEDIMENT REMOVAL HAS BEEN REDUCED. MAINTENANCE SHALL CONSIST OF REMOVING SEDIMENT AND CLEANING THE MATERIALS OR PLACING ADDITIONAL MATERIAL (SLASH MULCH OR CRUSHED ROCK) OVER SEDIMENT FILLED MATERIAL TO RESTORE EFFECTIVENESS.

9 C2.0 TEMPORARY SEDIMENT CONTROL CONSTRUCTION EXIT (5)(6) NTS.



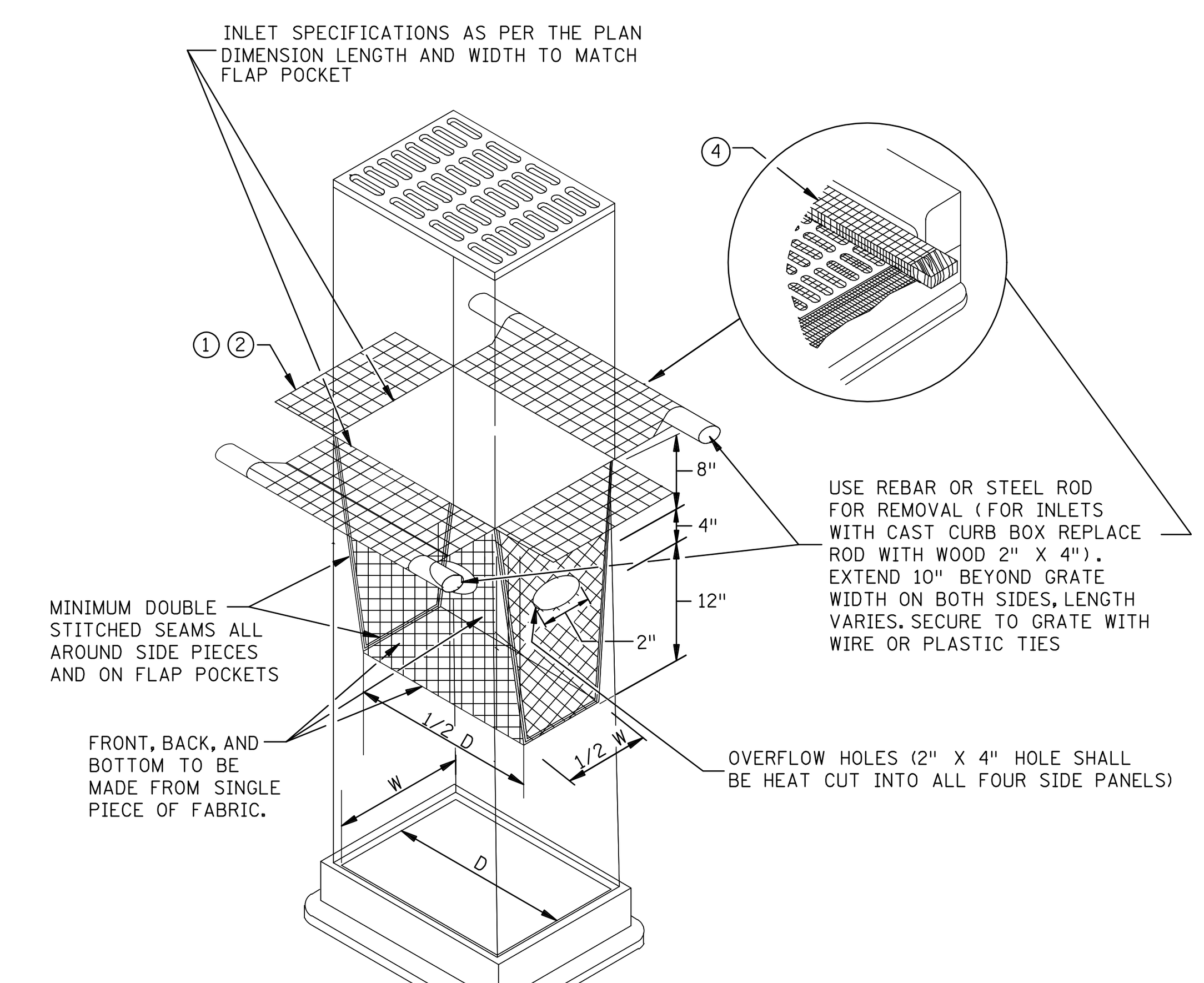
TYPES: WOOD CHIP, COMPOST, OR ROCK



TYPES: STRAW, WOOD FIBER, OR COIR

NOTES:
SEE MNDOT SPECS. 2573, 3149, 3874, 3882, 3886, & 3897.
(1) SPACE BETWEEN STAKES SHALL BE A MAXIMUM OF 1 FOOT FOR DITCH CHECKS OR 2 FEET FOR OTHER APPLICATIONS.
(2) PLACE STAKES AS NEEDED TO PREVENT MOVEMENT OF SEDIMENT CONTROL LOGS PLACED ON SLOPES OR AS NEEDED DUE TO OTHER FACTORS. STAKES SHALL BE INCIDENTAL.

10 C2.0 TEMPORARY SEDIMENT CONTROL SEDIMENT CONTROL LOGS NTS.



FILTER BAG INSERT (3)
(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX)

NOTES:
SEE MNDOT SPECS. 2573, 3137, & 3886.
DEVICES MUST BE ADJUSTED ACCORDINGLY AS TO NOT CAUSE FLOODING ON ROADWAY THAT WOULD IMPEED TRAFFIC FLOW.
(1) ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.
(2) FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
(3) INSTALLATION NOTES:
DO NOT PLACE FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE PLACED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE OF 3 INCHES BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES. WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCH SIDE CLEARANCE.
(4) FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 INCH X 4 INCH OR USE A ROCK SOCK OR SAND BAGS IN PLACE OF THE FLAP POCKETS.

11 C2.0 TEMPORARY SEDIMENT CONTROL STORM DRAIN INLET PROTECTION NTS.

Northland Consulting Engineers L.L.P.
102 South 21st Ave. West Suite #1
Duluth, Minnesota 55806
Tele: 218.727.5995
Fax: 218.727.7779
www.nce-engineers.com

DEEP WINTER
GREEN HOUSE
N 45TH AVE WEST

Sheet Title
DETAILS

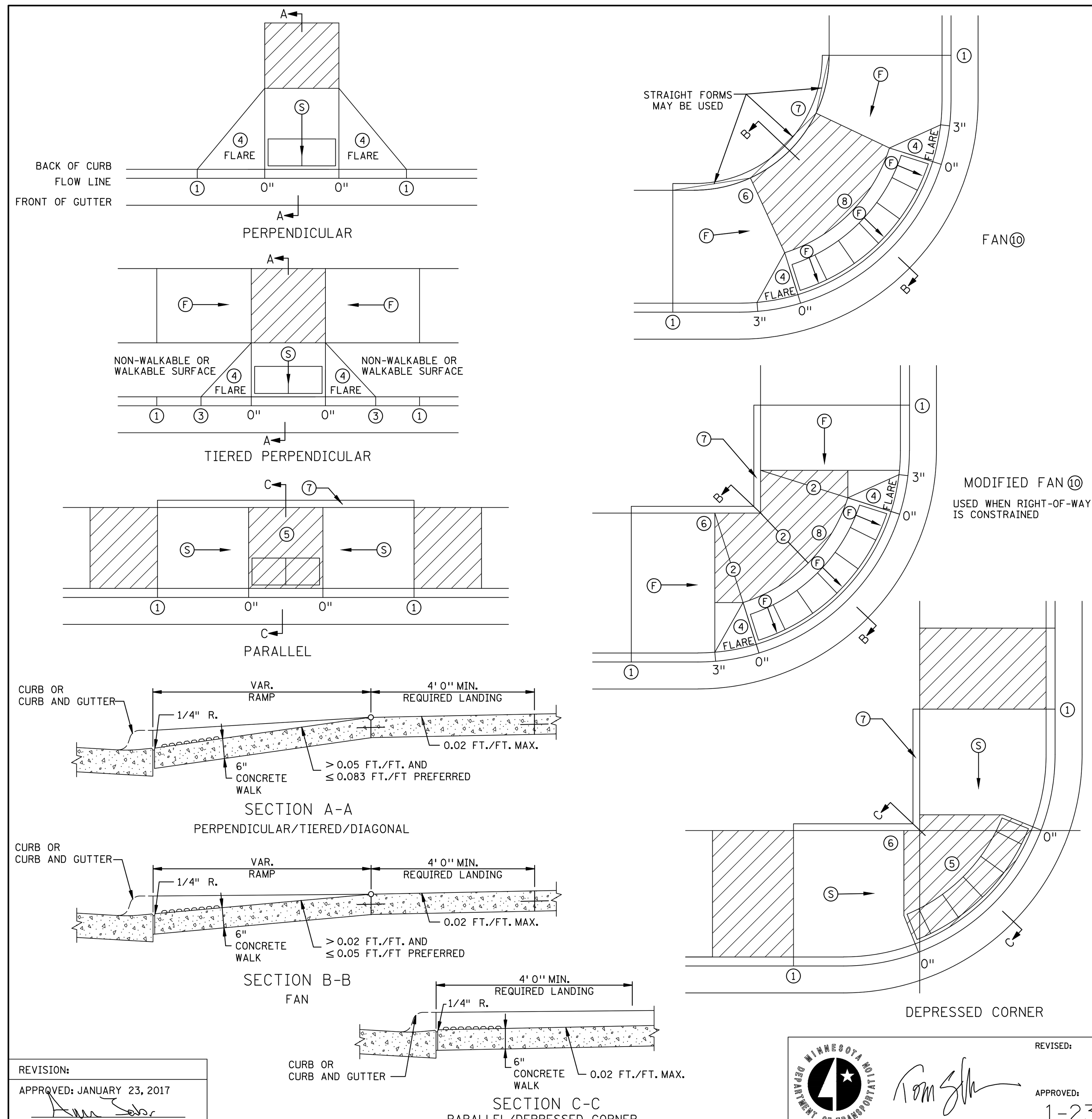
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.
Engineer: David G. Bolf
5/04/17
Lic. No. 40926

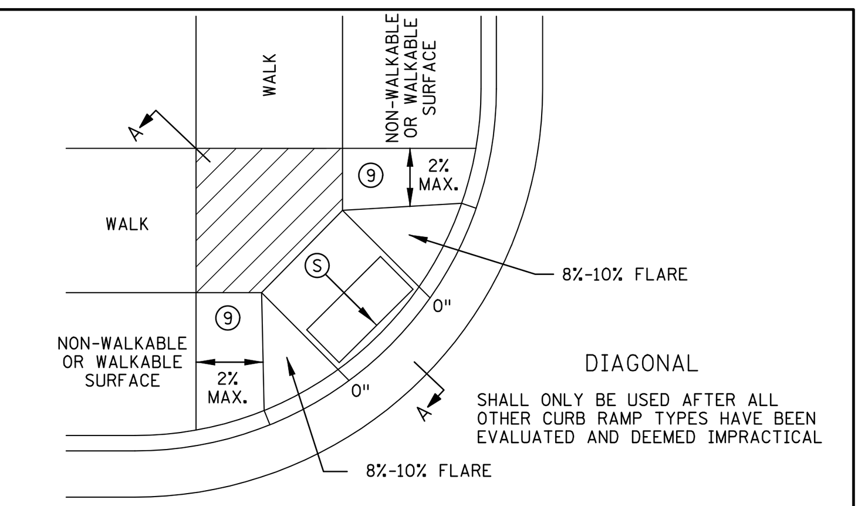
REVISIONS:

PROJECT: 17-149
CHECKED: TPD
DRAWN: JDO
DATE: 5/04/17

Sheet Title
DETAILS

Sheet Number
C2.0





NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE GREATER THAN 2%.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL RUNNING SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOPS OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH. (EXCEPT AS STATED IN ⑥ BELOW.

TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISIONS - PROSECUTION OF WORK (ADA).

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.

ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER ENTIRE WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK. DETECTABLE WARNING SHOULD BE 6" LESS THAN THE PAR/TRAIL WIDTH. ARC LENGTH OF RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.

RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.

① MATCH FULL HEIGHT CURB.
② 4' MINIMUM DEPTH LANDING REQUIRED ACROSS TOP OF RAMP.
③ 3" HIGH CURB WHEN USING A 3' LONG RAMP, 4" HIGH CURB WHEN USING A 4' LONG RAMP.
④ SEE SHEET 4 OF 6, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS, WHEN INITIAL LANDING IS AT FULL CURB HEIGHT.
⑤ DETECTABLE WARNINGS MAY BE PART OF THE 4' X 4' MIN. LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.
⑥ THE GRADE BREAK SHALL BE PERPENDICULAR TO THE BACK OF WALK. THIS WILL ENSURE THAT THE GRADE BREAK IS PERPENDICULAR TO THE DIRECTION OF TRAVEL. (TYPICAL FOR ALL)
⑦ WHEN ADJACENT TO GRASS, GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
⑧ A 7' MIN TOP RADIUS GRADE BREAK REQUIRED TO BE CONSTRUCTIBLE.
⑨ PAVE FULL WALK WIDTH.
⑩ "S" SLOPES ON FANS SHALL ONLY BE USED WHEN ALL OTHER FEASIBLE OPTIONS HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.

LEGEND

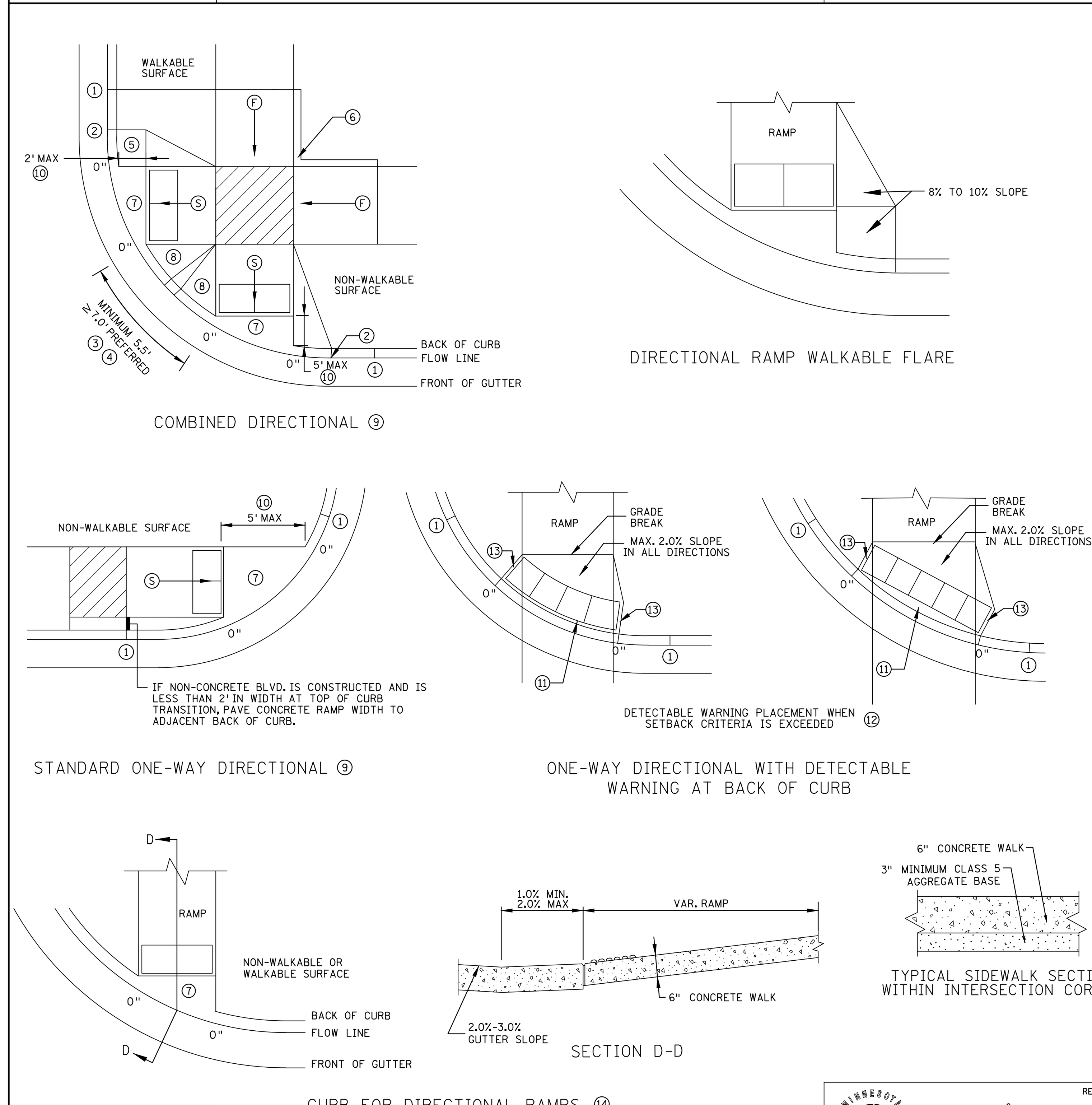
THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

- (S) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
- (F) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
- LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.
- X" CURB HEIGHT

STATE DESIGN ENGINEER | REVISED: | APPROVED: 1-23-2017

PEDESTRIAN CURB RAMP DETAILS (1/C2.1)

STANDARD PLAN 5-297.250 | 1 OF 6



NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.

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CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOP GRADE BREAK OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH.

TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISION (PROSECUTION OF WORK).

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RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB. SEE NOTES ⑩ & ⑪ FOR INFORMATION REGARDING RECTANGULAR DETECTABLE WARNING PLACEMENT.

① MATCH FULL CURB HEIGHT.
② 3" HIGH CURB WHEN USING A 3' LONG RAMP
4" HIGH CURB WHEN USING A 4' LONG RAMP.
③ 3" MINIMUM CURB HEIGHT (5.5' MIN. DISTANCE REQUIRED BETWEEN DOMES)
4" PREFERRED (7' MIN. DISTANCE REQUIRED BETWEEN DOMES).
④ THE "BUMP" IN BETWEEN THE RAMPS SHOULD NOT BE IN THE PATH OF TRAVEL FOR COMBINED DIRECTIONAL RAMPS. IF THIS OCCURS MODIFY THE RAMP LOCATION OR SWITCH RAMP TO A FAN/DEPRESSED CORNER.
⑤ WHEN USING CONCRETE PAVED FLARES ON THE OUTSIDE OF DIRECTIONAL RAMPS, AND ADJACENT TO A WALKABLE SURFACE, DIRECTIONAL RAMP FLARES SHOULD BE USED. SEE THE DETAIL ON THIS SHEET.
⑥ GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
⑦ MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.
⑧ 8% TO 10% WALKABLE FLARE.
⑨ PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.
⑩ FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.
⑪ RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK UP TO 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.
⑫ FOR DIRECTIONAL RAMPS WITH THE DETECTABLE WARNINGS PLACED AT THE BACK OF CURB, THE DETECTABLE WARNINGS SHALL COVER THE ENTIRE WIDTH OF THE WALK/PATH. THIS ENSURES A DETECTABLE EDGE AND HELPS ELIMINATE THE CURB TAPER OBSTRUCTING THE PATH OF PEDESTRIAN TRAVEL.
⑬ THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
⑭ TO BE USED FOR ALL DIRECTIONAL RAMPS, EXCEPT WHERE DOMES ARE PLACED ALONG THE BACK OF CURB.

LEGEND

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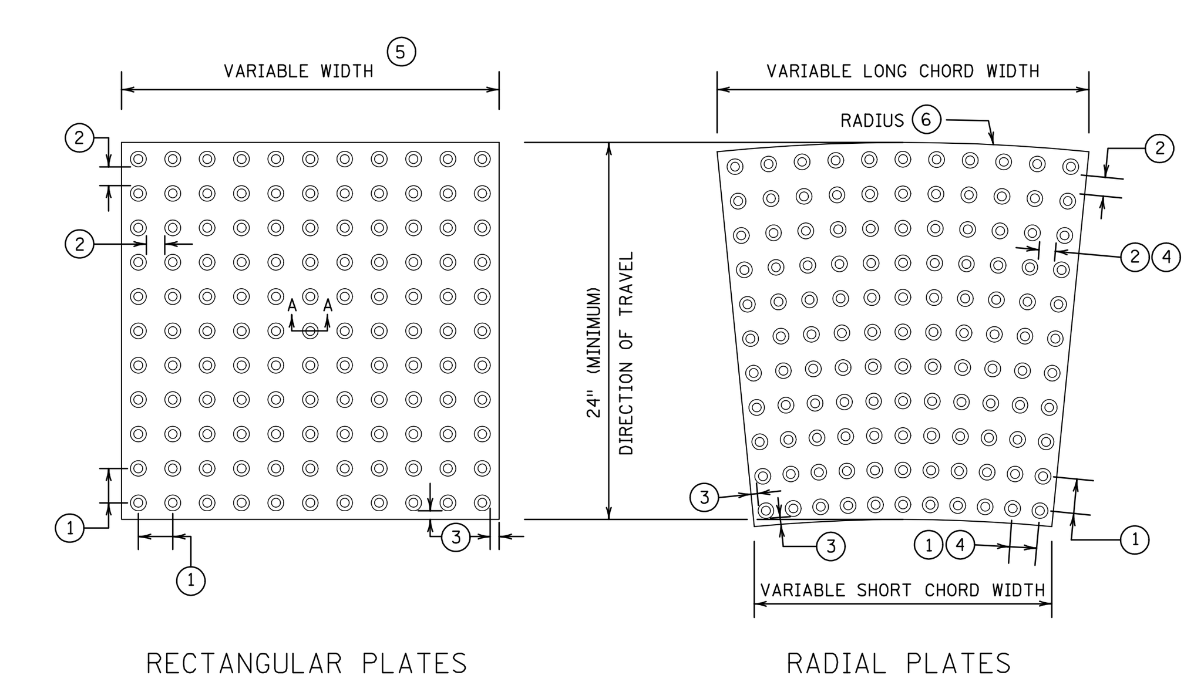
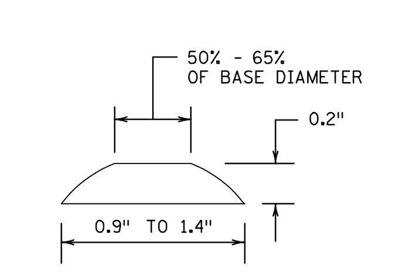
- (F) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
- LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.
- X" CURB HEIGHT

STATE DESIGN ENGINEER | REVISED: | APPROVED: 1-23-2017

PEDESTRIAN CURB RAMP DETAILS (2/C2.1)

STANDARD PLAN 5-297.250 | 2 OF 6





SECTION A-A
TRUNCATED DOME

TYPICAL RADIAL TRUNCATED DOME PLATES			
RADIUS (FEET) ⑦	LONG CHORD WIDTH (INCHES)	SQ. FT. PER PLATE	PLATES REQUIRED FOR 90 DEGREE TURN
10	23-1/2	3.53	8
15	18-13/16	2.93	15
15	23-1/2	3.67	12
20	18-13/16	3.00	20
20	18-7/8	2.98	20
25	20-1/2	3.28	23
25	23-9/16	3.77	20
30	22-5/8	3.65	25
35	22	3.56	30

NOTES:

DETECTABLE WARNING SURFACES SHALL FOLLOW THE PUBLIC RIGHTS-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG).

DETECTABLE WARNINGS CONSIST OF TRUNCATED DOMES ALIGNED IN A SQUARE OR RADIAL GRID PATTERN.

DETECTABLE WARNINGS ARE REQUIRED:
- -WHERE RAMPS, LANDINGS, OR BLENDED TRANSITIONS PROVIDE A FLUSH PEDESTRIAN CONNECTION TO THE ROADWAY.
- -WHERE PEDESTRIAN ACCESS ROUTES CROSS COMMERCIAL DRIVEWAYS THAT ARE PROVIDED WITH TRAFFIC CONTROL DEVICES OR OTHERWISE PERMITTED TO OPERATE LIKE A PUBLIC ROADWAY.
- -AT PEDESTRIAN RAILWAY CROSSINGS.
- -ON RAIL PLATFORMS WHERE BOARDING EDGES ARE NOT PROTECTED.

DETECTABLE WARNINGS SHALL EXTEND:
- -A MINIMUM OF 24" IN THE DIRECTION OF TRAVEL.
- -THE FULL WIDTH OF THE RAMP, LANDING, OR BLENDED TRANSITION, WITHIN 3" OF FULL WIDTH ON EITHER END.
- -THE FULL LENGTH OF THE PUBLIC USE AREA OF A RAIL PLATFORM.

DETECTABLE WARNING SURFACES SHALL CONTRAST VISUALLY WITH ADJACENT GUTTER, ROADWAY, OR WALKWAY, EITHER A LIGHT-ON-DARK OR DARK-ON-LIGHT. CONTRAST MAY BE PROVIDED ON THE FULL RAMP SURFACE, EXCLUDING THE FLARED SIDES.

FOR MN/DOT PROJECTS, SEE MN/DOT'S APPROVED/QUALIFIED PRODUCT LISTS.

DETECTABLE WARNING SURFACE SHALL BE PAID FOR AS TRUNCATED DOMES BY THE SQUARE FOOT.

ALL TRUNCATED DOME SYSTEMS SHALL BE PLACED IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER.

① CENTER TO CENTER DOME SPACING: 1.6" MINIMUM, 2.4" MAXIMUM.
② BASE TO BASE DOME SPACING: 0.65" MINIMUM.
③ DOME BASE TO PLATE EDGE SPACING: 0.35" MINIMUM, 0.75" MAXIMUM.
④ SPACING VARIES ON RADIAL PLATES.
⑤ TYPICAL WIDTHS AVAILABLE: 12", 18", 24", 30", 36". CHECK WITH MANUFACTURERS FOR AVAILABLE WIDTHS.
⑥ ON RADIAL PLATE, RADIUS DEFINED AT BACK OF CURB.
⑦ TYPICAL RADII. CHECK WITH MANUFACTURERS FOR AVAILABLE RADII.

(3/C2.1)

APPROVED AUGUST 23, 2010
STATE DESIGN ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

DETECTABLE WARNING SURFACE
TRUNCATED DOMES

SPECIFICATION REFERENCE 2531

STANDARD PLATE NO. 7038A

Northland Consulting Engineers L.L.P.
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Fax: 218.727.7779
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DEEP WINTER
GREEN HOUSE
N 45TH AVE WEST

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

5/04/17
Engineer: David G. Bolf
Lic. No: 40926

REVISIONS:

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CHECKED: TPD
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DATE: 5/04/17

Sheet Title
DETAILS

Sheet Number
C2.1

REMOVE CURB & GUTTER

REMOVE CURB & GUTTER

REMOVE CURB & GUTTER

REMOVE CONCRETE

REMOVE BITUMINOUS PAVEMENT

16'

11'

EXISTING GRAVEL TO REMAIN

REMOVE RAILROAD TIES

EXISTING CONCRETE SLAB TO REMAIN

SAWCUT
N=3328549.18
E=4830259.01

30' UTILITY EASEMENT

EXISTING BITUMINOUS TO REMAIN

16'

SAWCUT
N=3328510.22
E=4830221.68

REMOVALS LEGEND	
DESCRIPTION	SYMBOL
SAWING CONCRETE (FULL DEPTH)	
SAWING BITUMINOUS PAVEMENT	
REMOVE ITEM	
REMOVE CONCRETE	
REMOVE BITUMINOUS PAVEMENT	

PRIVATE
PUBLIC
SEE CITY OF DULUTH PLAN
PROJECT # 1650

ROW

PRIVATE
PUBLIC
SEE CITY OF DULUTH PLAN
PROJECT # 1650

ROW

BENCHMARK
TOP NUT OF HYDRANT
N=3328630.72
E=4830060.33
EL=640.76

25'

25'

24.82'

N 45TH AVE W

W 4TH ST

ROW

16'

GSOC
1-800-252-1166

0' 5' 10'

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Sheet Title
EXISTING CONDITIONS & REMOVALS

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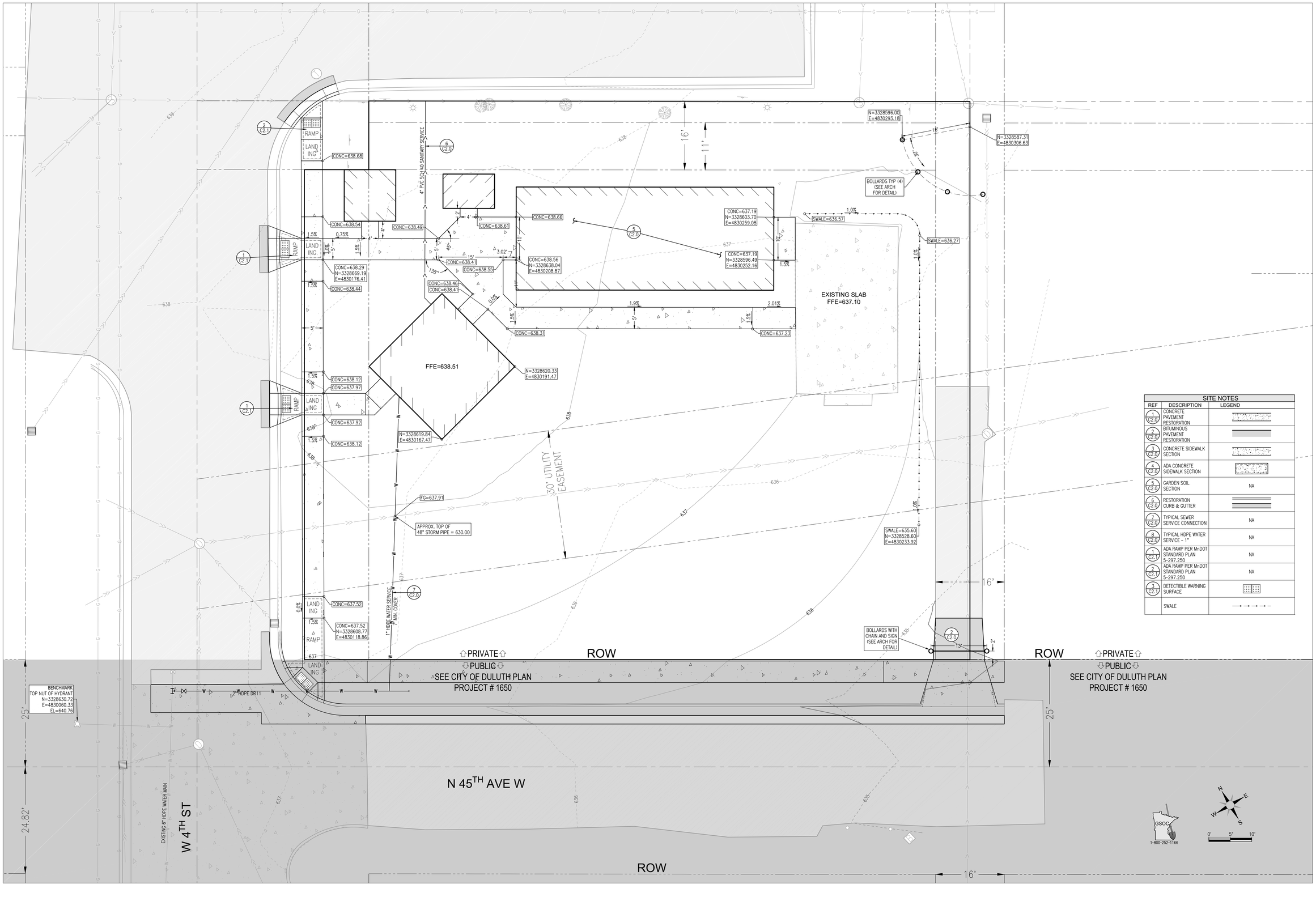
EXISTING CONDITIONS & REMOVALS

Sheet Number
C3.0



SITE NOTES		
REF	DESCRIPTION	LEGEND
1 C2.0	CONCRETE PAVEMENT RESTORATION	
2 C2.0	BITUMINOUS PAVEMENT RESTORATION	
3 C2.0	CONCRETE SIDEWALK SECTION	
4 C2.0	ADA CONCRETE SIDEWALK SECTION	
5 C2.0	GARDEN SOIL SECTION	NA
6 C2.0	RESTORATION CURB & GUTTER	
7 C2.0	TYPICAL SEWER SERVICE CONNECTION	NA
8 C2.0	TYPICAL HDPE WATER SERVICE - 1"	NA
1 C2.1	ADA RAMP PER MnDOT STANDARD PLAN 5-297.250	NA
2 C2.1	ADA RAMP PER MnDOT STANDARD PLAN 5-297.250	NA
3 C2.1	DETECTIBLE WARNING SURFACE	
	SWALE	

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Sheet Title
SITE & GRADING PLAN

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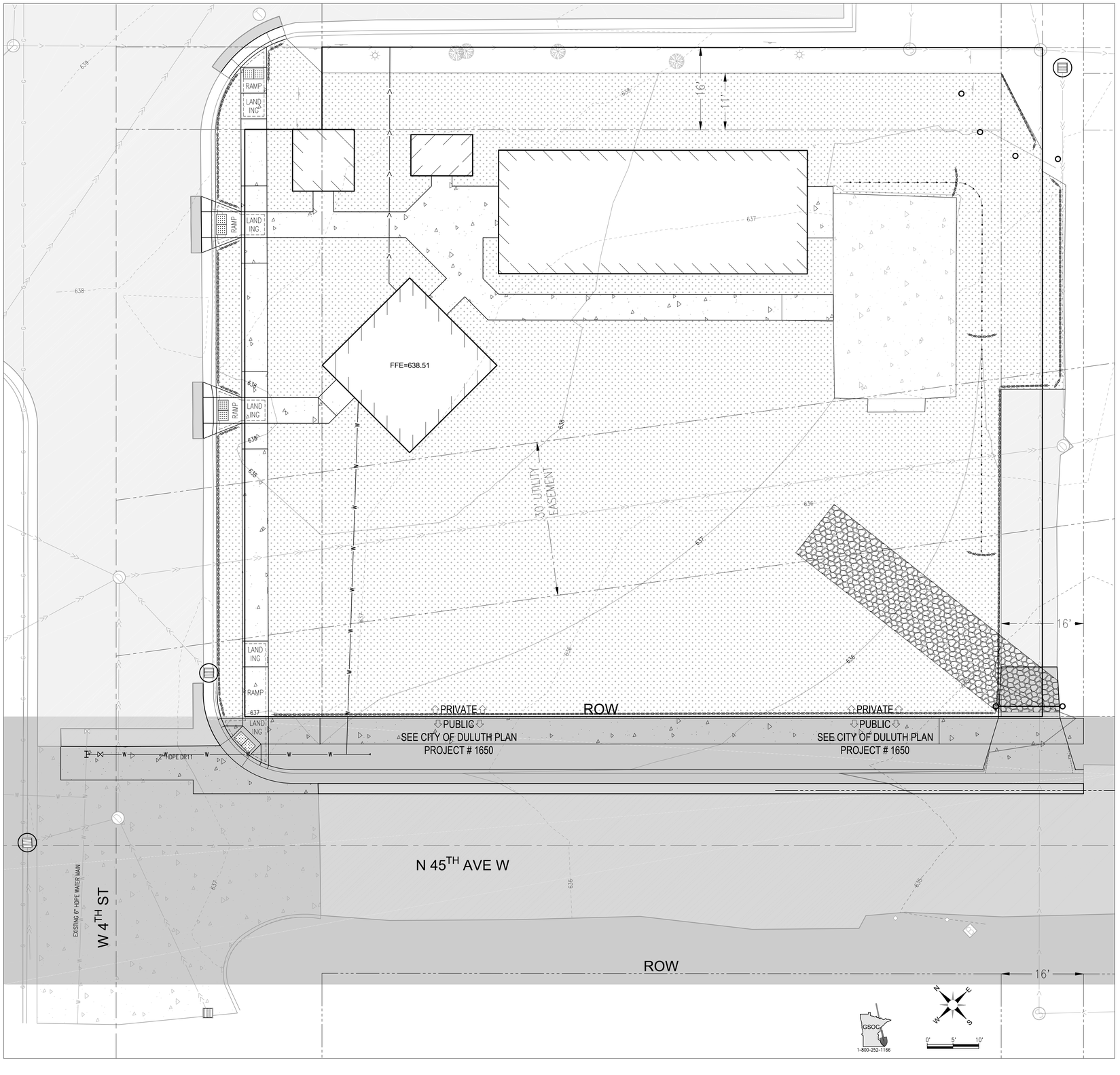
Sheet Title
SITE & GRADING PLAN

Sheet Number
C4.0



EROSION PREVENTION PRACTICES

THE CONTRACTOR MUST PLAN FOR AND IMPLEMENT APPROPRIATE BMPs SUCH AS CONSTRUCTION PHASING, VEGETATIVE BUFFER STRIPS, HORIZONTAL SLOPE GRADING, INSPECTION AND MAINTENANCE, AND OTHER CONSTRUCTION PRACTICES TO MINIMIZE EROSION AS NECESSARY.

THE CONTRACTOR MUST STABILIZE ALL EXPOSED SOIL AREAS (INCLUDING STOCK PILES.)

STABILIZATION MUST BE INITIATED IMMEDIATELY TO LIMIT SOIL EROSION WHENEVER ANY CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS.

ALL EXPOSED SOIL AREAS WITHIN 200 FEET THAT DRAIN TO THE WATER'S EDGE AND NORMAL WETTED PERIMETERS MUST HAVE STABILIZATION ACTIVITIES COMPLETED WITHIN 24 HOURS.

TEMPORARY STOCK PILES WITHOUT SIGNIFICANT SILT, CLAY, OR ORGANIC COMPONENTS (E.G., CLEAN AGGREGATE STOCKPILES, DEMOLITION CONCRETE STOCKPILES, SAND STOCKPILES) AND CONSTRUCTED BASE COMPONENTS OF ROADS, PARKING LOTS AND SIMILAR SURFACES ARE EXEMPT FROM THIS REQUIREMENT BUT MUST BE HAVE SILT FENCE OR OTHER EFFECTIVE SEDIMENT CONTROLS ESTABLISHED AROUND ITS PERIMETER AND CANNOT BE PLACED IN ANY NATURAL BUFFERS, SURFACE WATERS, OR STORM WATER CONVEYANCE SYSTEMS.

IF USING STORMWATER CONVEYANCE CHANNELS, BMPs AND VELOCITY DISSIPATION DEVICES MUST BE ESTABLISHED TO PROVIDE A NON-EROSIVE FLOW VELOCITY TO MINIMIZE EROSION OF CHANNELS AND THEIR EMBANKMENTS, OUTLETS, ADJACENT STREAM BANKS, SLOPES, AND DOWNSTREAM WATERS DURING DISCHARGE CONDITIONS.

TEMPORARY OR PERMANENT DITCHES OR SWALES THAT ARE BEING USED AS SEDIMENT CONTAINMENT SYSTEMS DURING CONSTRUCTION MUST BE STABILIZED WITHIN 24 HOURS AFTER NO LONGER BEING USED AS A SEDIMENT CONTAINMENT SYSTEM.

APPLYING MULCH, HYDROMULCH, TACKIFIER, POLYACRYLAMIDE OR SIMILAR EROSION PREVENTION PRACTICES IS NOT ACCEPTABLE STABILIZATION IN ANY PART OF A TEMPORARY OR PERMANENT DRAINAGE DITCH OR SWALE.

PIPE OUTLETS MUST BE PROVIDED WITH TEMPORARY OR PERMANENT ENERGY DISSIPATION WITHIN 24 HOURS AFTER CONNECTION TO A SURFACE WATER.

SEDIMENT PREVENTION PRACTICES

THE CONTRACTOR MUST EMPLOY SEDIMENT CONTROL PRACTICES AS NECESSARY TO MINIMIZE SEDIMENT FROM ENTERING SURFACE WATERS AND INCLUDING CONVEYANCE SYSTEMS SUCH AS CURB AND GUTTER OR STORM SEWER INLETS.

IF DOWN GRADIENT SEDIMENT CONTROL AS OVERLOADED (BASE ON FREQUENT FAILURE OR EXCESSIVE MAINTENANCE REQUIREMENT), THE CONTRACTOR MUST INSTALL ADDITIONAL UPGRADIENT BMPs TO ELIMINATE THE OVERLOADING.

BMPs MUST BE ESTABLISHED ON ALL DOWN GRADIENT PERIMETERS AND BE LOCATED UPGRADIENCT OF ANY BUFFER ZONES. BMPs MUST BE IN PLACE BEFORE ANY UPGRADIENT LAND-DISTURBING ACTIVITIES BEGIN. THESE BMPs MUST REMAIN IN PLACE UNTIL FINAL STABILIZATION HAS BEEN ESTABLISHED.

THE CONTRACTOR SHALL RE-INSTALL ALL BMPs THAT HAVE BEEN ADJUSTED OR REMOVED TO ACCOMMODATE SHORT-TERM ACTIVITIES IMMEDIATELY AFTER THE SHORT-TERM ACTIVITY HAS BEEN COMPLETED.

ALL STORM DRAIN INLETS MUST BE PROTECTED BY APPROPRIATE BMPs DURING CONSTRUCTION UNTIL ALL SOURCES WITH POTENTIAL FOR DISCHARGING TO THE INLET HAVE BEEN STABILIZED. INLET PROTECTION MAY BE REMOVED FOR A PARTICULAR INLETS IF A SPECIFIC SAFETY CONCERN (STREET FLOODING/FREEZING) HAS BEEN IDENTIFIED BY THE OWNER.

VEHICLE TRACKING BMPs MUST BE INSTALLED TO MINIMIZE THE TRACK OUT OF SEDIMENT FROM THE CONSTRUCTION SITE. STREET SWEEPING MUST BE USED IF SUCH VEHICLE TRACKING BMPs ARE NOT ADEQUATE TO PREVENT SEDIMENT FROM BEING TRACKED ONTO THE STREET.

IF TEMPORARY DEWATERING BASINS ARE TO BE USED, THE CONTRACTOR SHALL GET ENGINEER APPROVAL PRIOR TO IMPLEMENTING TEMPORARY DEWATERING BASIN.

IF NOT SPECIFIED IN THE CONTRACT, THE CONTRACTOR MUST MINIMIZE SOIL, UNLESS INFEASIBLE, COMPACTION AND PRESERVE TOPSOIL.

THE CONTRACTOR MUST PRESERVE A 50 FOOT NATURAL BUFFER OR PROVIDE REDUNDANT BMPs WHEN A SURFACE WATER IS LOCATED WITHIN 50 FEET OF THE PROJECTS CONSTRUCTION LIMITS AND STORMWATER FLOWS TO THE SURFACE WATER.

DEWATERING AND TEMPORARY DEWATERING BASIN DRAINING

THE CONTRACTOR SHALL EVALUATE SITE CONDITIONS AND CONSTRAINTS TO SUPPLY A TEMPORARY DEWATERING BASIN THAT BEST SUITS THE CONSTRUCTION SITE.

THE CONTRACTOR MUST DISCHARGE TURBID OR SEDIMENT-LADEN WATERS RELATED TO DEWATERING TO A TEMPORARY OR PERMANENT SEDIMENTATION BASIN ON THE PROJECT SITE. THE CONTRACTOR MAY DISCHARGE FROM THE BASINS TO SURFACE WATERS IF THE BASIN WATER HAS BEEN VISUALLY CHECK TO ENSURE ADEQUATE TREATMENT HAS BEEN OBTAINED IN THE BASIN AND THAT NUISANCE CONDITIONS (SEE MINN. R. 7050.0210, SUBP.2) WILL NOT RESULT FROM THE DISCHARGE. IF THE WATER CANNOT BE DISCHARGED TO A BASIN PRIOR TO ENTERING THE SURFACE WATER, IT MUST BE TREATED WITH THE APPROPRIATE BMPs SUCH THAT THE DISCHARGE DOES NOT ADVERSELY AFFECT THE RECEIVING WATER OR DOWNSTREAM PROPERTIES. DISCHARGE POINTS SHALL BE ADEQUATELY PROTECT FROM EROSION AND SCOUR AND BE DISPERSED OVER ENERGY DISSIPATION MEASURES.

INSPECTIONS AND MAINTENANCE

THE CONTRACTOR MUST ENSURE THAT A TRAINED PERSON WILL ROUTINELY INSPECT THE ENTIRE CONSTRUCTION SITE AT LEAST ONCE EVERY 7 DAYS DURING ACTIVE CONSTRUCTION.

THE CONTRACTOR IS RESPONSIBLE FOR THE INSPECTION AND MAINTENANCE OF TEMPORARY AND PERMANENT WATER QUALITY MANAGEMENT BMPs AS WELL AS ALL EROSION PREVENTION AND SEDIMENT CONTROL BMPs UNTIL PERMANENT VEGETATIVE COVER WITH A DENSITY OF 70 PERCENT OF ITS EXPECTED FINAL GROWTH OR OTHERWISE APPROVED BY THE ENGINEER.

THE CONTRACTOR MUST INSPECT ALL BMPs TO ENSURE INTEGRITY AND EFFECTIVENESS. ALL NONFUNCTIONAL BMPs MUST BE REPAIRED, REPLACED, OR SUPPLEMENTED WITH FUNCTIONAL BMPs BY THE END OF THE NEXT BUSINESS DAY AFTER DISCOVERY, OR AS SOON AS FIELD CONDITIONS ALL. THE CONTRACTOR MUST INVESTIGATE AND COMPLY WITH THE FOLLOWING INSPECTION AND MAINTENANCE REQUIREMENTS:

A. ALL PERIMETER CONTROL DEVICES MUST BE REPAIRED, REPLACED, OR SUPPLEMENTED WHEN THEY BECOME NONFUNCTIONAL OR THE SEDIMENT REACHES 1/2 THE HEIGHT OF THE DEVICE.

B. DEWATERING BASINS MUST BE DRAINED AND THE SEDIMENTS REMOVED WHEN THE DEPTH OF SEDIMENT COLLECTED IN THE BASIN REACHES 1/2 THE STORAGE VOLUME.

C. SURFACE WATERS, INCLUDING CONVEYANCE SYSTEMS, MUST BE INSPECTED FOR EVIDENCE OF EROSION AND SEDIMENT DEPOSITION DURING EACH INSPECTION. THE REMOVAL AND STABILIZATION MUST TAKE PLACE WITHIN 7 DAYS OF DISCOVERY

D. CONSTRUCTION SITE VEHICLE EXIT LOCATIONS MUST BE INSPECTED FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING ONTO PAVED SURFACES. TRACKED SEDIMENT MUST BE REMOVED FROM ALL PAVED SURFACES BOTH ON AND OFF SITE WITHIN 24 HOURS OF DISCOVERY.

E. STREETS AND OTHER AREAS ADJACENT TO THE PROJECT MUST BE INSPECTED FOR EVIDENCE OF OFF-SITE ACCUMULATIONS OF SEDIMENT AND BE REMOVED IN A MANNER AND AT A FREQUENCY SUFFICIENT TO MINIMIZE OFF-SITE IMPACTS.

ALL INFILTRATION AREAS MUST BE INSPECTED TO ENSURE THAT NO SEDIMENT FROM ONGOING CONSTRUCTION ACTIVITY IS REACHING THE INFILTRATION AREA. ALL INFILTRATION AREAS MUST BE INSPECTED TO ENSURE THAT EQUIPMENT IS NOT BEING DRIVEN ACROSS THE INFILTRATION AREA.

POLLUTION PREVENTION MANAGEMENT MEASURES

STORAGE, HANDLING, AND DISPOSAL OF CONSTRUCTION PRODUCTS, MATERIALS, AND WASTES:

THE CONTRACTOR SHALL COMPLY WITH THE FOLLOWING TO MINIMIZE THE EXPOSURE TO STORMWATER OF ANY OF THE PRODUCTS, MATERIALS, OR WASTES. PRODUCTS OR WASTES WHICH ARE EITHER NOT A SOURCE OF CONTAMINATION TO STORMWATER OR ARE DESIGNED TO BE EXPOSED TO STORMWATER ARE NOT HELD TO THIS REQUIREMENT:

A. BUILDING PRODUCTS THAT HAVE THE POTENTIAL TO LEACH POLLUTANTS MUST BE UNDER COVER TO PREVENT THE DISCHARGE OF POLLUTANTS OR PROTECTED BY A SIMILARLY EFFECTIVE MEAN DESIGNED TO MINIMIZE CONTACT WITH STORMWATER.

B. PESTICIDES, HERBICIDES, INSECTICIDES, FERTILIZERS TREATMENT CHEMICALS, AND LANDSCAPE MATERIALS MUST BE UNDER COVERT TO PREVENT DISCHARGE OF POLLUTANTS.

C. HAZARDOUS MATERIALS AND TOXIC WASTE MUST BE PROPERLY STORED IN SEALED CONTAINERS TO PREVENT SPILLS, LEAKS, OR OTHER DISCHARGE. RESTRICTED ACCESS STORAGE AREAS MUST BE PROVIDED TO PREVENT VANDALISM. STORAGE AND DISPOSAL OF HAZARDOUS WASTE OR MATERIALS MUST BE IN COMPLIANCE WITH MINN. R. CH. 7045

D. SOLID WASTE MUST BE STORED, COLLECTED AND DISPOSED OF PROPERLY IN COMPLIANCE WITH MINN R. CH. 7035

E. PORTABLE TOILETS MUST BE POSITIONED SO THAT THEY ARE SECURE AND WILL NOT BE TIPPED OR KNOCKED OVER. SANITARY WASTE MUST BE DISPOSED OF PROPERLY IN ACCORDANCE WITH MINN. R. CH. 7041

F. THE CONTRACTOR SHALL TAKE REASONABLE STEPS TO PREVENT DISCHARGE OF SPILLED OR LEAKED CHEMICALS FROM ANY AREA WHERE CHEMICALS WILL BE LOADED OR UNLOADED.

G. THE CONTRACTOR MUST ENSURE ADEQUATE SUPPLIES ARE AVAILABLE AT ALL TIMES TO CLEAN UP DISCHARGED MATERIALS AND AN APPROPRIATE DISPOSAL METHOD IS AVAILABLE. THE PERMITTEE(S) MUST REPORT AND CLEAN UP SPILLS IMMEDIATELY.

H. THE CONTRACTOR MUST PROVIDE EFFECTIVE CONTAINMENT FOR ALL LIQUID AND SOLID WASTES GENERATED BY WASHOUT OPERATIONS. THE LIQUID AND SOLID WASHOUT WASTES MUST NOT CONTACT THE GROUND, AND THE CONTAINMENT MUST BE DESIGNED SO THAT IT DOES NOT RESULT IN RUNOFF FROM WASHOUT OPERATIONS. A SIGN MUST BE INSTALLED ADJACENT TO EACH WASHOUT FACILITY THAT REQUIRES SITE PERSONNEL TO UTILIZE THE PROPER FACILITIES FOR DISPOSAL OF CONCRETE AND OTHER WASHOUT WASTES.

FINAL STABILIZATION

THE CONTRACTOR MUST ENSURE FINAL STABILIZATION OF THE SITE. FINAL STABILIZATION IS NOT COMPLETE UNTIL ALL REQUIREMENTS:

1. ALL SOIL DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED AND ALL SOILS ARE STABILIZED BY A UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70 PERCENT OF ITS EXPECTED FINAL GROWTH OVER THE ENTIRE PERVIOUS SURFACE AREA.
2. PERMANENT STROMWATER MANAGEMENT SYSTEM IS CONSTRUCTED AND ALL SEDIMENT HAS BEEN REMOVED FROM CONVEYANCE SYSTEMS AND STABILIZED WITH PERMANENT COVER.
3. ALL TEMPORARY BMPs HAVE BEEN REMOVED.
4. FOR CONSTRUCTION PROJECTS ON AGRICULTURAL LAND THE DISTURBED LAND HAS BEEN RETURNED TO ITS RECONSTRUCTION AGRICULTURAL USE.

ESTIMATED QUANTITIES & LEGEND

DESCRIPTION	QUANTITY	SYMBOL
STORM DRAIN INLET PROTECTION	3 EA	
SEDIMENT CONTROL LOG TYPE STRAW	430 LF	
STABILIZED CONSTRUCTION EXIT	1 EA	
SEED & MULCH	1700 SY	
FLOW DIRECTION	NA	

Northland Consulting Engineers L.L.P.
103 South 21st Ave. West Suite #1
Duluth, Minnesota 55806
Phone: 218.727.5000
Fax: 218.727.7779
www.northlandengineers.com

DEEP WINTER
GREEN HOUSE
N 45TH AVE WEST

EROSION CONTROL PLAN

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

5/04/17
Lic. No: 40926
Engineer: David G. Boll

REVISIONS:

PROJECT: 17-149
CHECKED: TPD
DRAWN: JDO
DATE: 5/04/17

Sheet Title
EROSION CONTROL PLAN

Sheet Number
C5.0

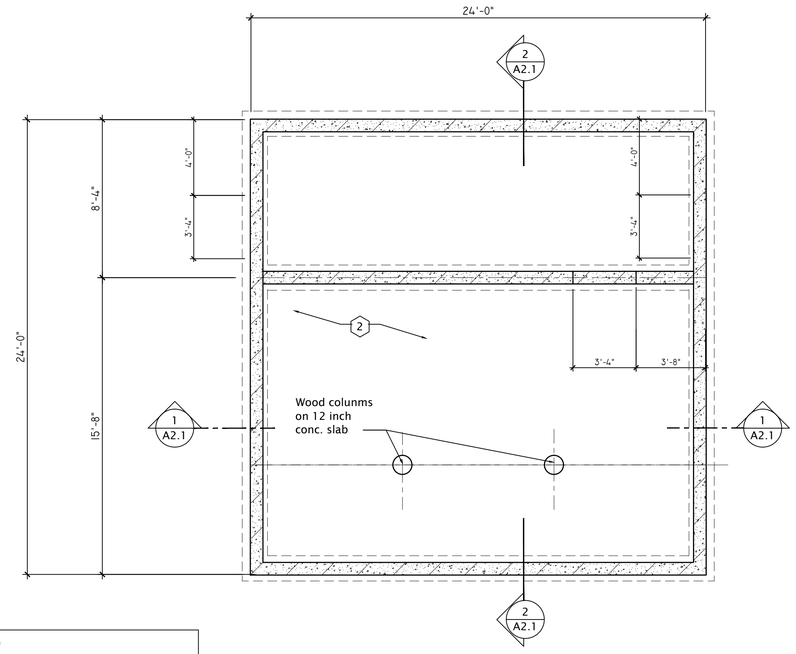
PLAN NOTES:

1. Divider wall shall be Plywood both sides with 2x6 wood framing at 16" o.c.. Insulate wall with R21 Batts.

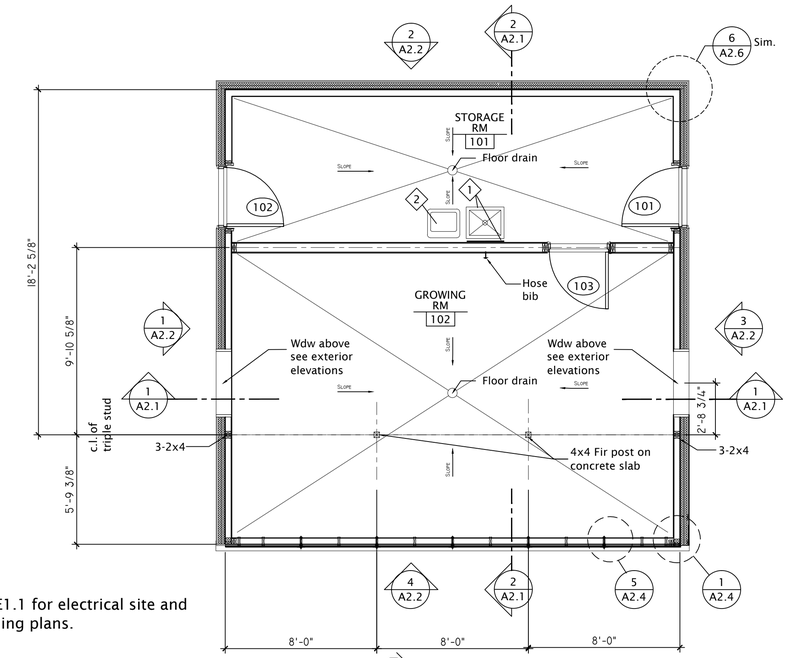
2. Install radiant tubing and manifold for future slab heat at mid-slab depth in Growing Room 102. Test tubing for potential leaks prior to installation of concrete slab.

ROOM FINISH SCHEDULE

ROOM NO.	ROOM NAME	FLOOR			NORTH WALL		EAST WALL		SOUTH WALL		WEST WALL		CEILING			
		MAT	FINISH	BASE	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	MATERIAL	FINISH	HEIGHT	REMARKS
101	STORAGE	CONC	SEALANT	NA	PLYWOOD	PAINT	PLYWOOD	PAINT	PLYWOOD	PAINT	PLYWOOD	PAINT	WOOD	PAINT	VARIES	SEE NOTES
102	GROWING RM	CONC	NA	NA	PLYWOOD	PAINT	PLYWOOD	PAINT	GLAZING	NA	PLYWOOD	PAINT	WOOD	PAINT	VARIES	SEE NOTES



4 A2.1 FOUNDATION and AIR CIRCULATION PLAN
1/4" = 1'-0"
Dimensions are from exterior face cmu - UNO.



See E1.1 for electrical site and building plans.

3 A2.1 FLOOR PLAN
1/4" = 1'-0"
Plan north
Dimensions are from exterior face of stud - UNO.

PLUMBING FIXTURES NOTES:

1. Provide Mop service basin as mfg by E.L. Mustee and Sons Company Product; Model M63
   a. One peice molded from high impact "Durastone" structural fiberglass.
   b. Molded-in drain for connection to 3" ABS, PVC (schedule 80) or cast iron.
   c. Color: White.

   Wall mounted utility faucet as mfg. by Mustee Manufacturing. Product: Model "M 63.600A"
   a. two handle, center set, wall mounted, utility faucet.
   b. Faucet consists of brass construction with rough chrome finish.
   c. Pail hook with 9 ¼" reach, wall brace, threaded spout and ½" NPFT supply inlets.

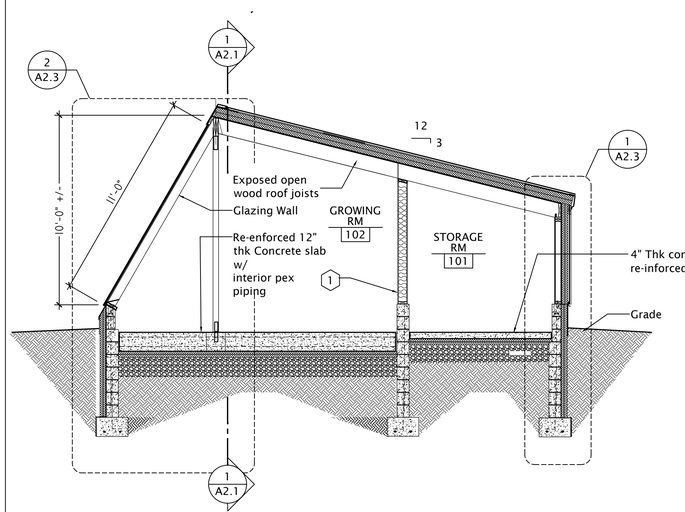
   Provide Wall mounted Mop Holder; supplied by Mustee; Product; Model 65.600
   a. three spring-loaded rubber holders mounted to a 3" x 24" Stainless Steel wall Plate.

2. Accessible ADA compliant Wall hung hand wash sink as mfg by Just Manufacturing Company
   9233 King Street Franklin Park Illinois 60131
   phone 847.678.5150
   Web site: justmfg.com.
   Product: A-33338T wall hung lavatory with fittings
   a. Seamless weld construction fabricated from corrosion resistant 18 guage 316 stainless steel with integral formed apron and backsplash.
   b. Drain punch for standard lavatory drain "Just J-115-FS with overflow.
   c. Provide ADA compliant Trap Cover as Mfg. by "Proflow" Product: PF200 Series.
   d. Provide gooseneck faucet with 6" wrist blades.

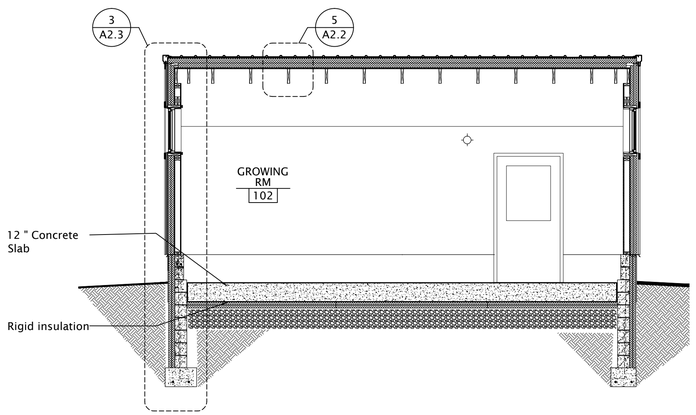
KEY:

- DRAWING NUMBER TYP. / SECTION CUT / SHEET NUMBER TYP.
- DETAIL CUT
- ELEVATION VIEW
- WINDOW
- DOOR
- WALL TYPE

ACB	ACOUSTICAL CEILING BOARD
A.F.F.	ABOVE FINISHED FLOOR
B.O.	BOTTOM OF
CL	CENTER LINE
CONT.	CONTINUOUS
ELEV.	ELEVATION
ETR	EXISTING TO REMAIN
F.D.	FLOOR DRAIN
FDN.	FOUNDATION
F.F.	FINISHED FLOOR
F.F.E.	FINISHED FLOOR ELEVATION
FIN.	FINISH OR FINISHED
FL	FLOOR
F.O.	FACE OF
FTG.	FOOTING
GWB	GYPSUM WALL BOARD
MFR	MANUFACTURER
O/	OVER
O.C.	ON CENTER
OPG.	OPENING
P.T.	PRESSURE TREATED
R/W	REINFORCED WITH
REQ.	REQUIRED
SIM.	SIMILAR
TYP.	TYPICAL
V.B.	VAPOR BARRIER
W/	WITH



2 A2.1 SHORT SECTION
1/4" = 1'-0"



1 A2.1 LONG SECTION
1/4" = 1'-0"

Wagner Zaun ARCHITECTURE

17 N. Lake Avenue
Duluth, MN 55802

(218) 733-0690

www.wagnerzaun.com

dzaun@wagnerzaun.com
rwagner@wagnerzaun.com

STRUCTURAL ENGINEER:
Northland Structural Engineers
102 S. 21st Ave. W., Suite 1
Duluth, MN 55806
(218) 727-5995

CERTIFICATION:

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

21630
REGISTRATION #

DOUG ZAUN
NAME

SIGNATURE 5/4/2017 DATE

IF PRINTED TO SCALE
THIS LINE WILL BE 2" LONG

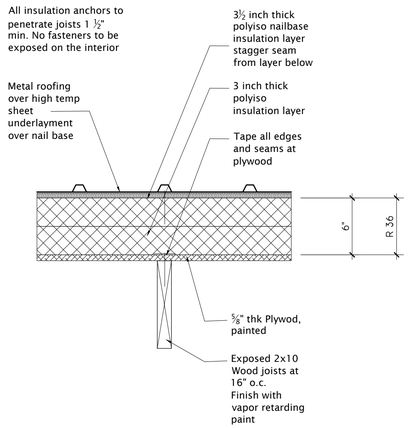
PROJECT #: 1517

West Duluth Deep Winter Greenhouse
N 45th Ave West and Grand Avenue
Duluth, Minnesota

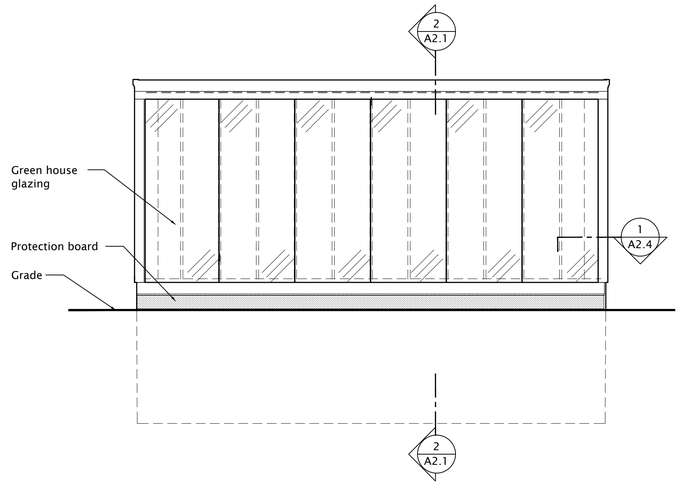
REVISION/ISSUE	DATE
BID SET	5.4.2017
ISSUE	DATE

SHEET NAME:
GREEN HOUSE FLOOR PLAN AND BUILDING SECTIONS

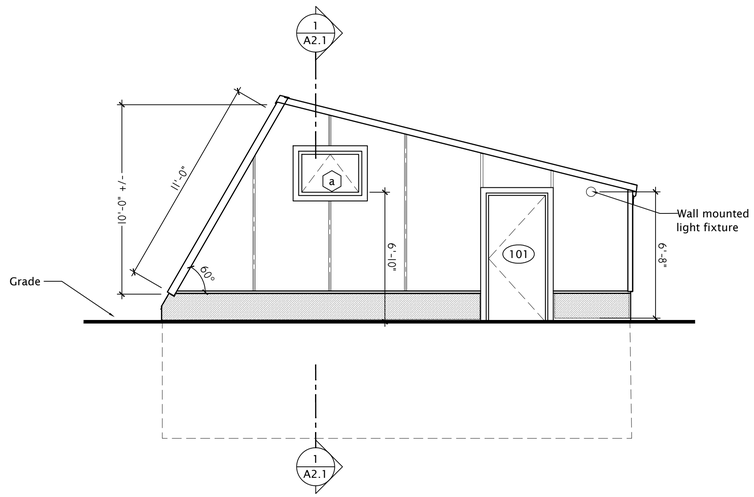
SHEET #:
A 2.1



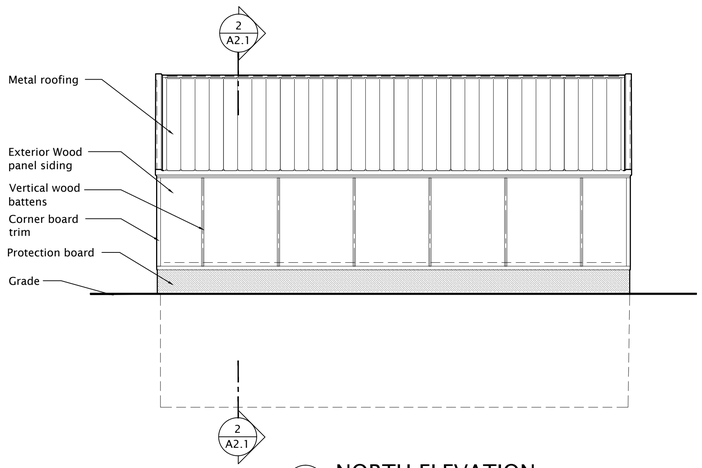
5 A2.2 TYPICAL ROOF CONSTRUCTION
1 1/2 " = 1'-0"



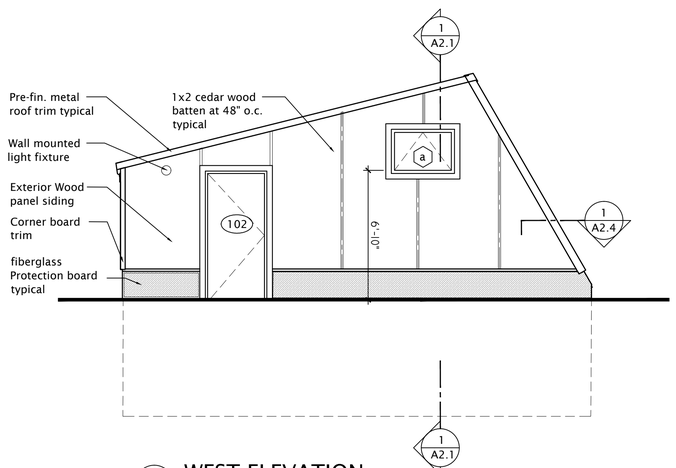
4 A2.2 SOUTH ELEVATION
1/4" = 1'-0"



3 A2.2 EAST ELEVATION
1/4" = 1'-0"



2 A2.2 NORTH ELEVATION
1/4" = 1'-0"



1 A2.2 WEST ELEVATION
1/4" = 1'-0"

Wagner Zaun ARCHITECTURE

17 N. Lake Avenue
Duluth, MN 55802

(218) 733-0690

www.wagnerzaun.com

dzaun@wagnerzaun.com
rwagner@wagnerzaun.com

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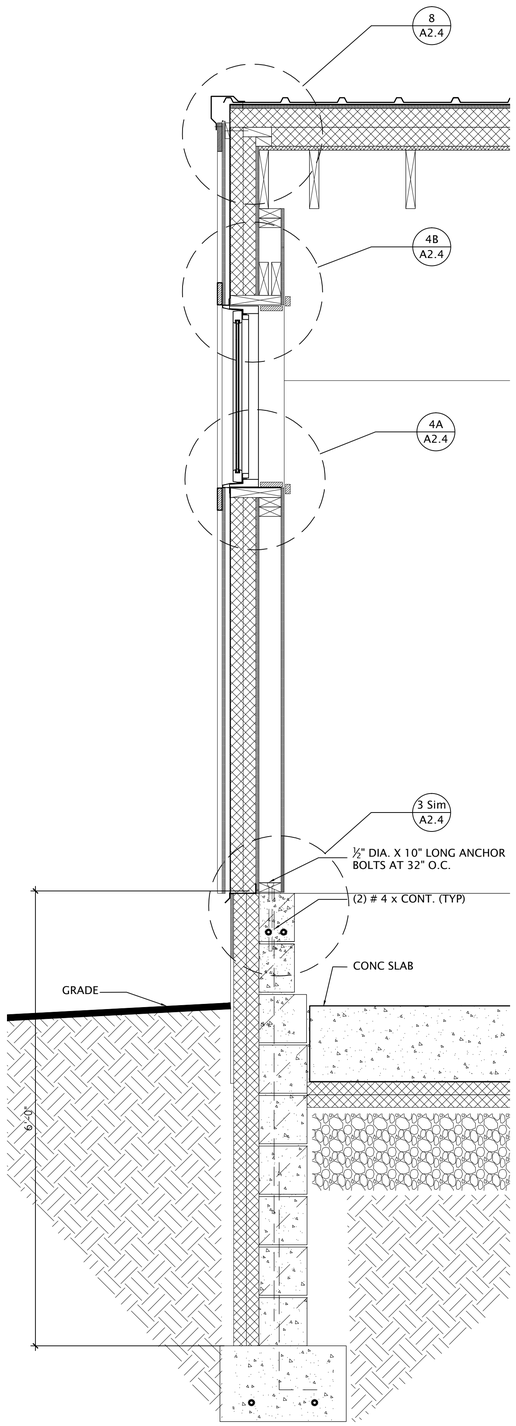
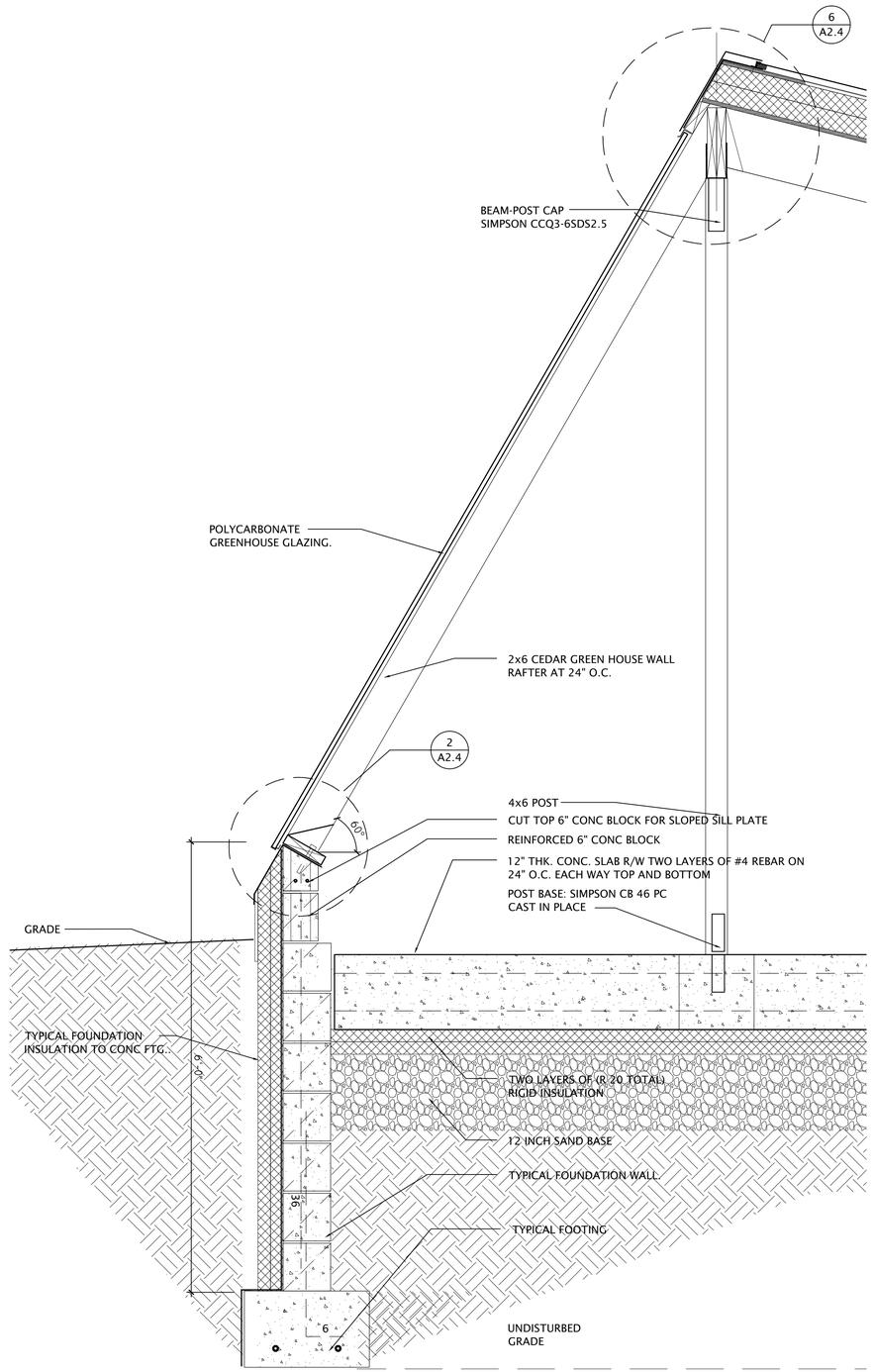
REVISION/ISSUE	DATE
BID SET ISSUE	5.4.2017 DATE

SHEET NAME:
GREEN HOUSE EXTERIOR ELEVATIONS

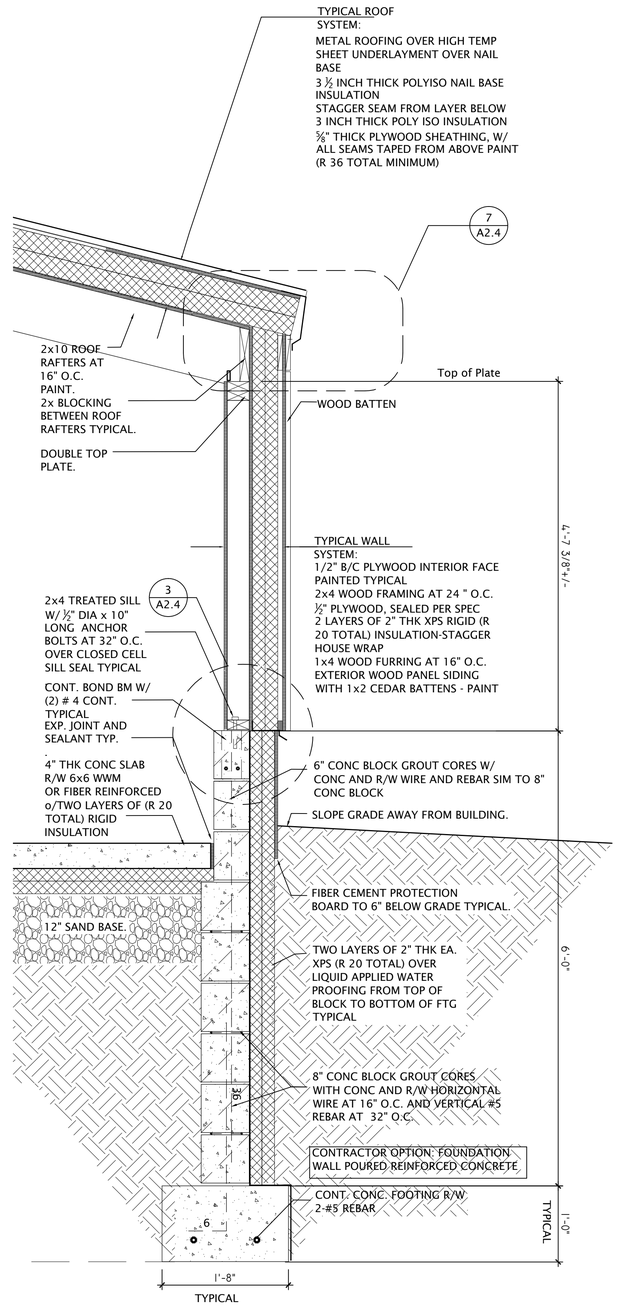
SHEET #:
A 2.2



3 WALL SECTION
A2.3 1" = 1'-0"



2 WALL SECTION
A2.3 1" = 1'-0"



1 WALL SECTION
A2.3 1" = 1'-0"

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dzaun@wagnerzaun.com
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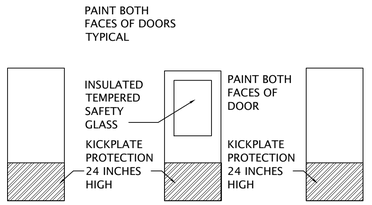
SHEET NAME:
GREENHOUSE WALL SECTIONS AND DETAILS
SHEET #:
A2.3

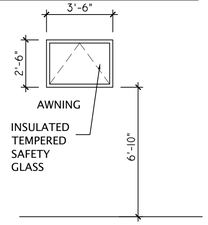
GREEN HOUSE ROOM OPENING SCHEDULE

OPENING						FRAME DETAILS				REMARKS
NO.	SIZE	TYPE	FIRE	HDW.	GLASS	ELEV.	HEAD	JAMB	SILL	
101	3'0x6' 8"	ONE	--	ONE	NA	NA	10/A2.4	11-12/A2.4	9/A2.4	Wall stop
102	3'0x6' 8"	ONE	--	ONE	NA	NA	10/A2.4	11-12/A2.4	9/A2.4	Wall stop
103	3'0x6' 8"	TWO	--	TWO	22x36	NA	NA	NA	NA	Overhead stop
a	See Elevation	a	--	See Spec	See Elevation	NA	4B/A2.4	4A/A2.4	4A/A2.4	

DOOR ELEVATIONS



WINDOW ELEVATIONS



HARDWARE SCHEDULE

Type One:
- Butts
- Lockset (Entrance Function) ANSI F109
- Closer
- Weather stripping
- Accessible threshold
- Kick plate both sides

Type Two:
- Butts
- Latchset (Passage) ANSI F75
- Closer
- Accessible threshold
- Push Plate
- Kick protection Plate both sides

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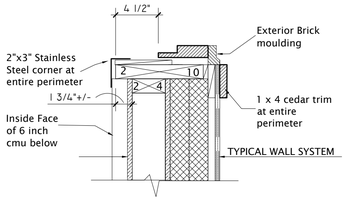
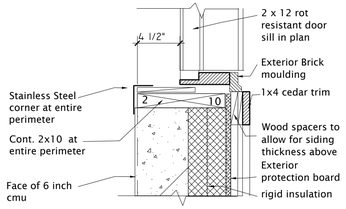
SHEET NAME:
GREENHOUSE DETAILS

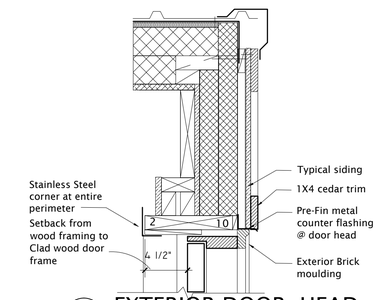
SHEET #:
A2.4



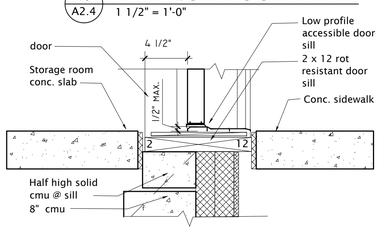
12 A2.4 EXTERIOR DOOR JAMB @ FRAMING
1 1/2" = 1'-0"



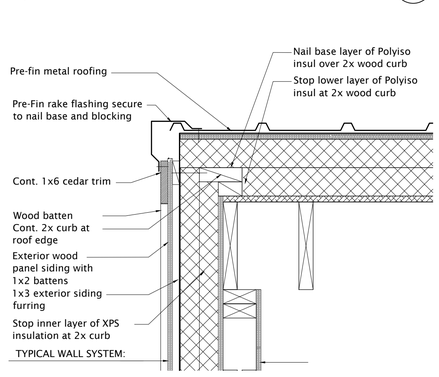
11 A2.4 EXTERIOR DOOR JAMB @ CMU
1 1/2" = 1'-0"



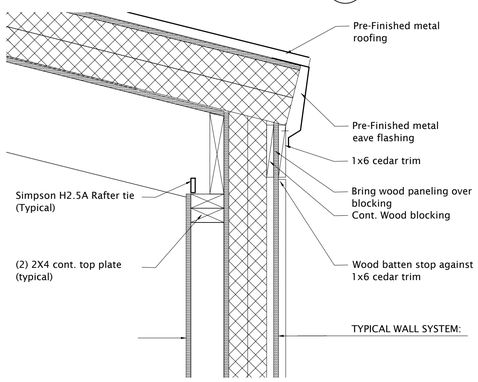
10 A2.4 EXTERIOR DOOR HEAD
1 1/2" = 1'-0"



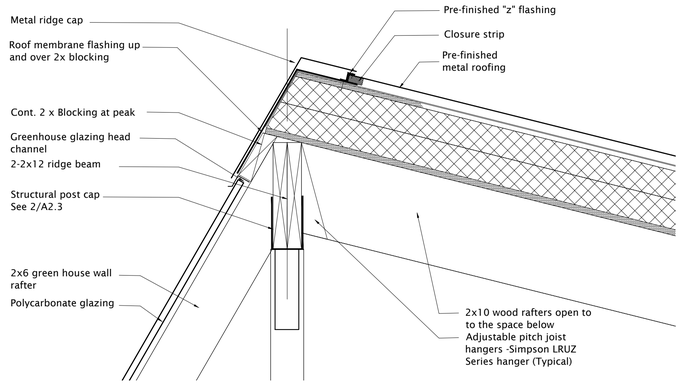
9 A2.4 EXTERIOR DOOR THRESHOLD
1 1/2" = 1'-0"



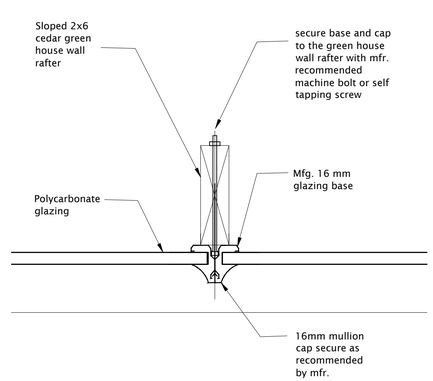
8 A2.4 WEST WALL ROOF EDGE
1 1/2" = 1'-0"



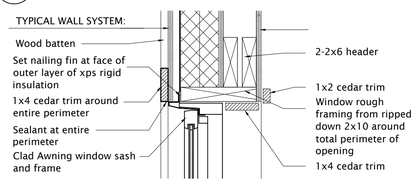
7 A2.4 NORTH WALL FASCIA
1 1/2" = 1'-0"



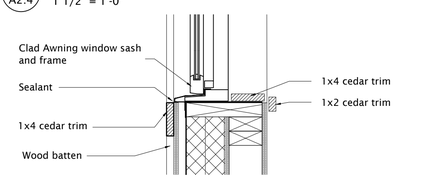
6 A2.4 SOUTH WALL PEAK
1 1/2" = 1'-0"



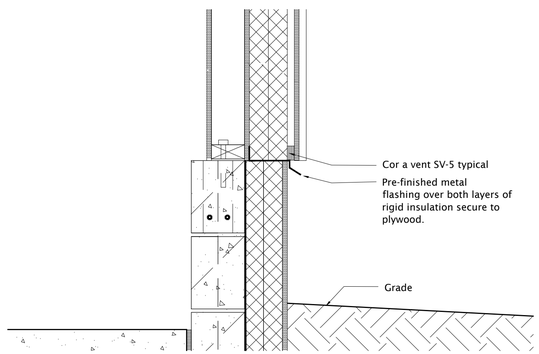
5 A2.4 GLAZING AT MULLION
3" = 1'-0"



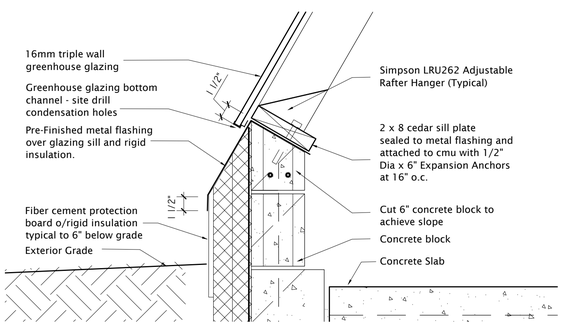
4 B A2.4 AWNING WINDOW HEAD
1 1/2" = 1'-0"



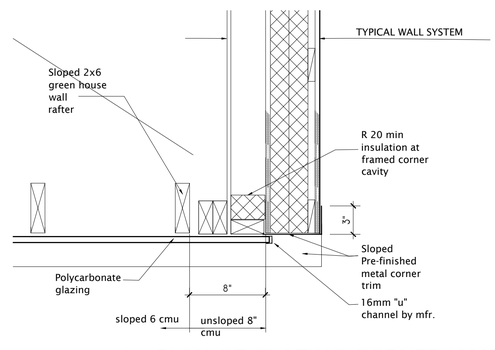
4 A A2.4 AWNING WINDOW SILL JAMB SIM.
1 1/2" = 1'-0"



3 A2.4 NORTH WALL BASE
1 1/2" = 1'-0"

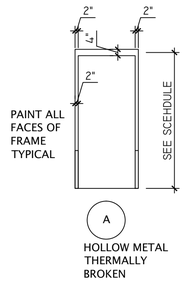


2 A2.4 SOUTH WALL BASE
1 1/2" = 1'-0"

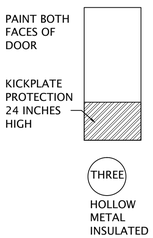


1 A2.4 PLAN OF GLAZING CORNER JAMB
1 1/2" = 1'-0"

FRAME



DOOR

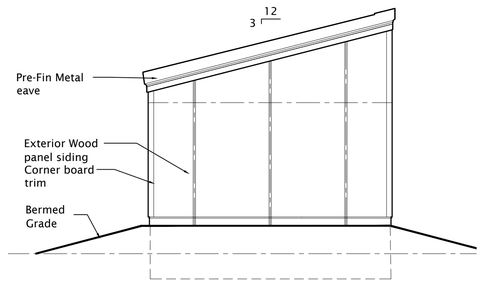


HARDWARE SCHEDULE

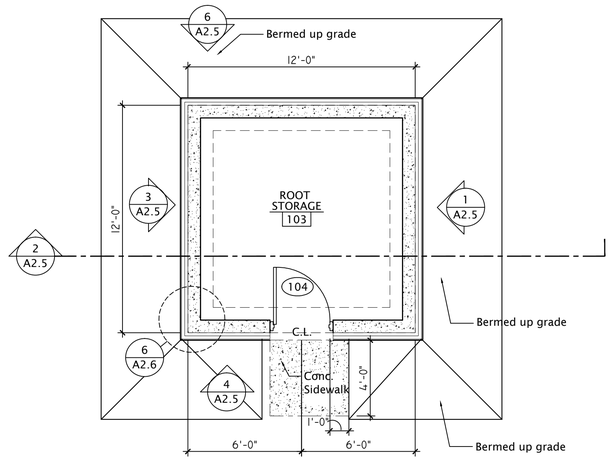
Type Three
Butts
Lockset (Storage Function)
Stop
Weather stripping
Accessible threshold
Kick plate on outside face of door

ROOT STORAGE ROOM OPENING SCHEDULE

DOOR						FRAME DETAILS				REMARKS
NO.	SIZE	TYPE	FIRE	HDW.	GLASS	ELEV.	HEAD	JAMB	SILL	
104	3'0x7'0"	THREE	--	THREE	NA	A	4/A2.6	5/A2.6	3/A2.6	Overhead stop



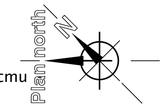
6 A2.5 EAST ELEVATION
1/4" = 1'-0"

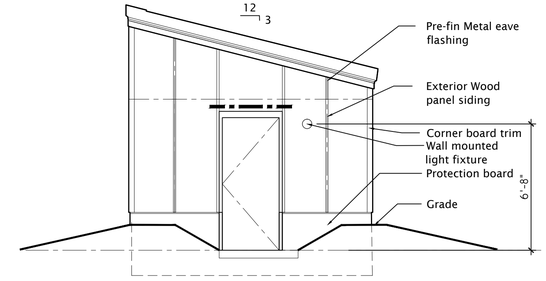


5 A2.5 ROOT STORAGE PLAN
1/4" = 1'-0"

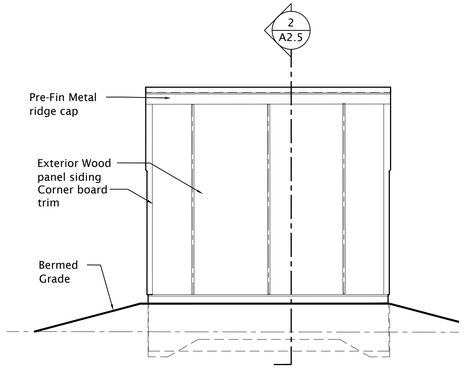
Dimensions are from exterior face cmu UNO.

See E1.1 for electrical site and building plans.

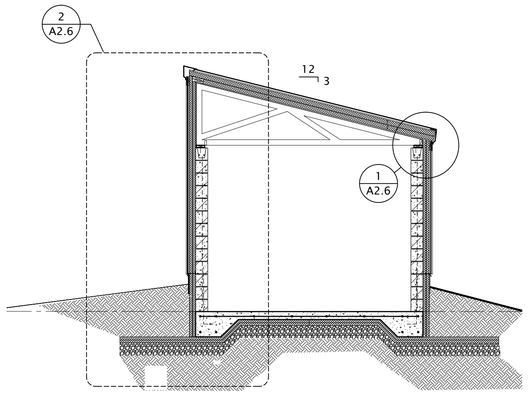




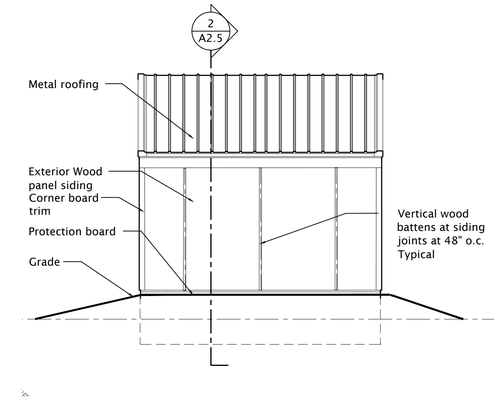
4 A2.5 WEST ELEVATION
1/4" = 1'-0"



3 A2.5 NORTH ELEVATION
1/4" = 1'-0"



2 A2.5 BUILDING SECTION
1/4" = 1'-0"



1 A2.5 SOUTH ELEVATION
1/4" = 1'-0"

Wagner Zaun ARCHITECTURE

17 N. Lake Avenue
Duluth, MN 55802

(218) 733-0690

www.wagnerzaun.com

dzaun@wagnerzaun.com
rwagner@wagnerzaun.com

STRUCTURAL ENGINEER:
Northland Structural Engineers
102 S. 21st Ave. W., Suite 1
Duluth, MN 55806
(218) 727-5995

CERTIFICATION:

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

21630
REGISTRATION #

DOUG ZAUN
NAME

DZaun 5/4/2017
SIGNATURE DATE

IF PRINTED TO SCALE
THIS LINE WILL BE 2" LONG

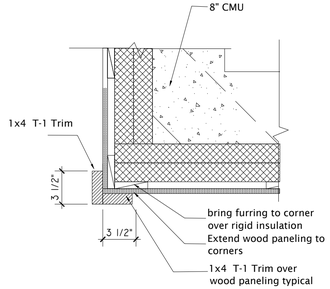
PROJECT #: 1517

West Duluth Deep Winter Greenhouse
N 45th Ave West and Grand Avenue
Duluth, Minnesota

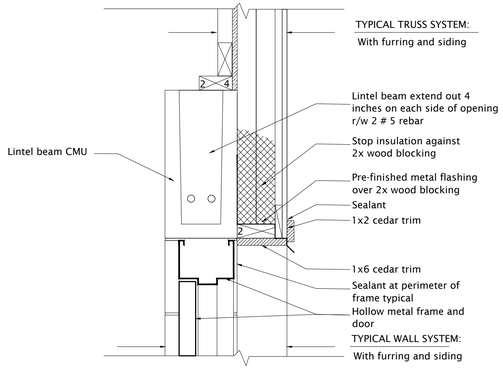
REVISION/ISSUE	DATE
BID SET	5.4.2017
ISSUE	DATE

SHEET NAME:
ROOT STORAGE BLDG PLAN & ELEVATIONS

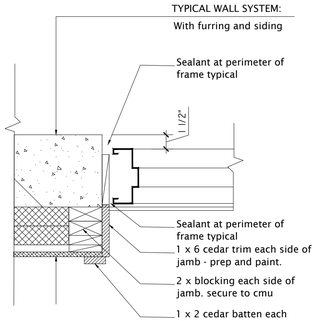
SHEET #:
A 2.5



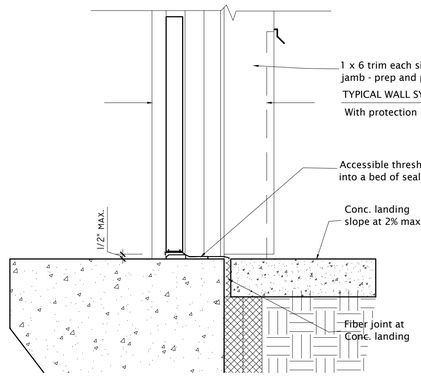
6 A2.6 **TYPICAL EXTERIOR CORNER** 1 1/2" = 1'-0" Green house corner similar



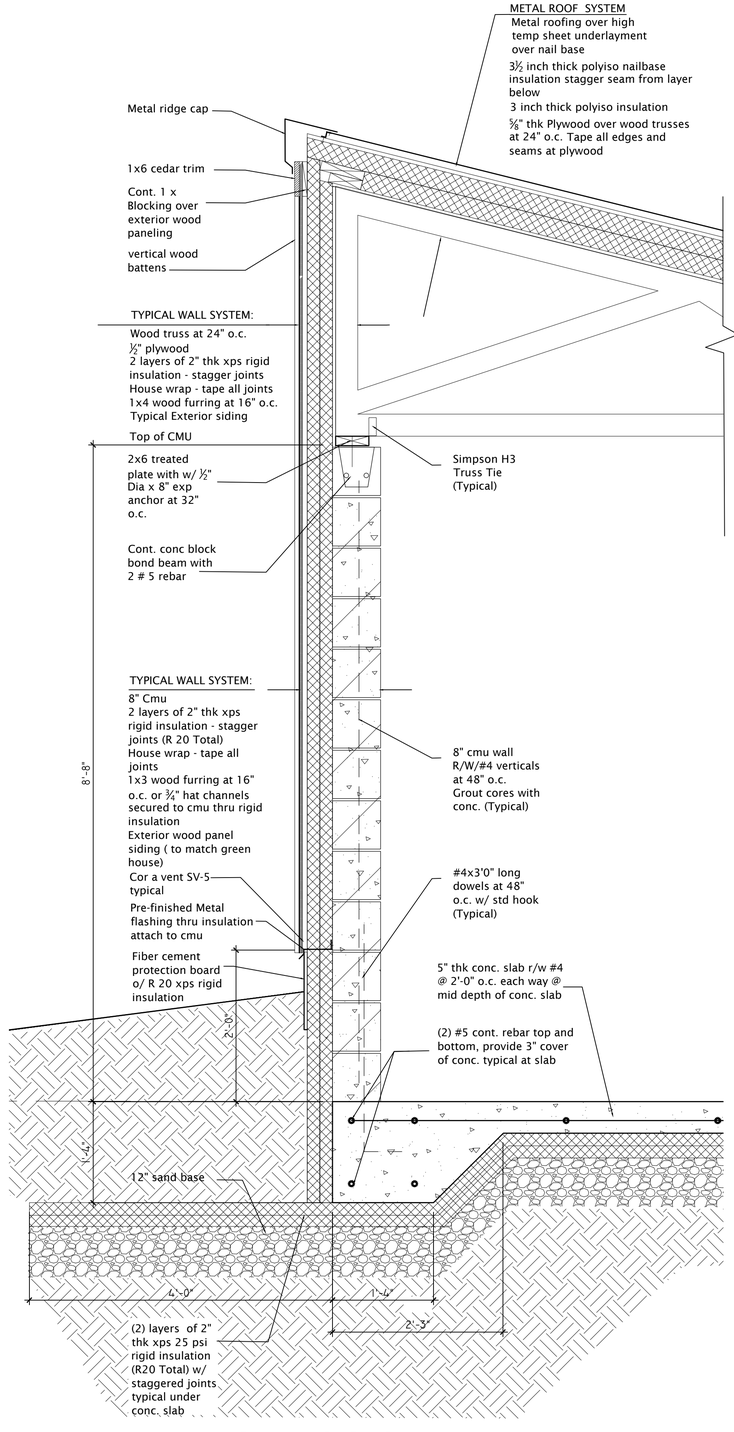
4 A2.6 **HM DOOR HEAD** 1 1/2" = 1'-0"



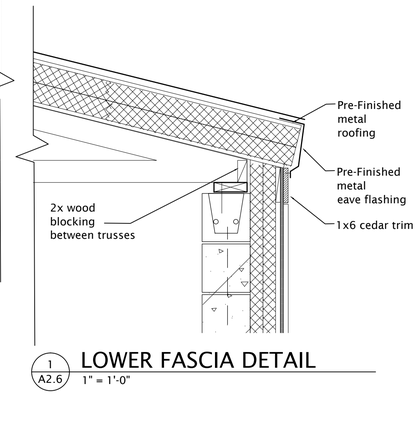
5 A2.6 **HM DOOR JAMB** 1 1/2" = 1'-0"



3 A2.6 **HM DOOR SILL** 1 1/2" = 1'-0"



2 A2.6 **BUILDING WALL SECTION** 1" = 1'-0"



1 A2.6 **LOWER FASCIA DETAIL** 1" = 1'-0"

Wagner Zaun ARCHITECTURE

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Duluth, MN 55802

(218) 733-0690

www.wagnerzaun.com

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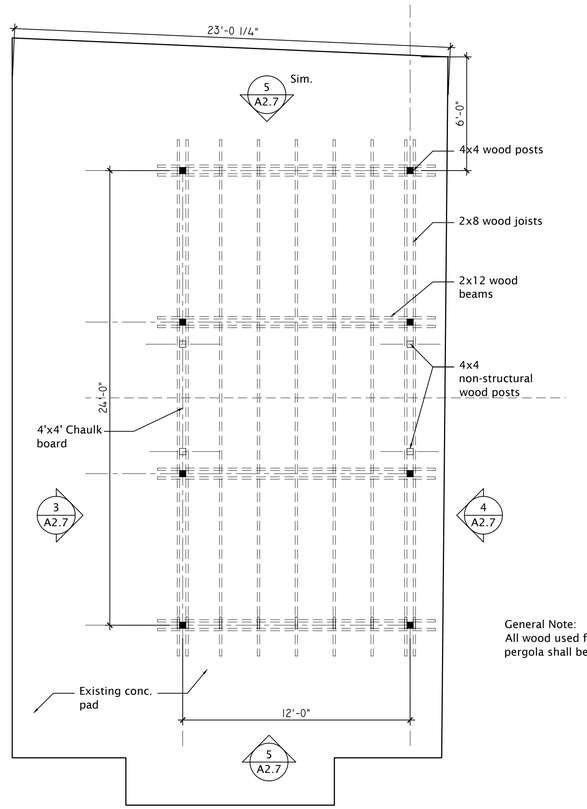
ISSUE	DATE

SHEET NAME:

ROOT STORAGE BLDG DETAILS

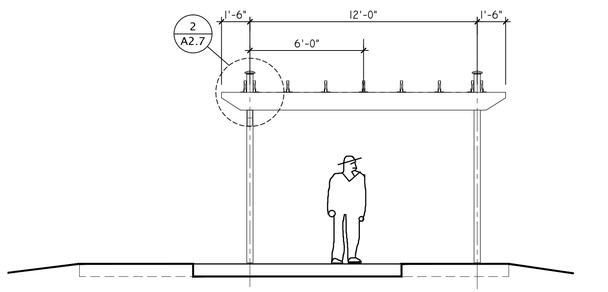
SHEET #:

A 2.6

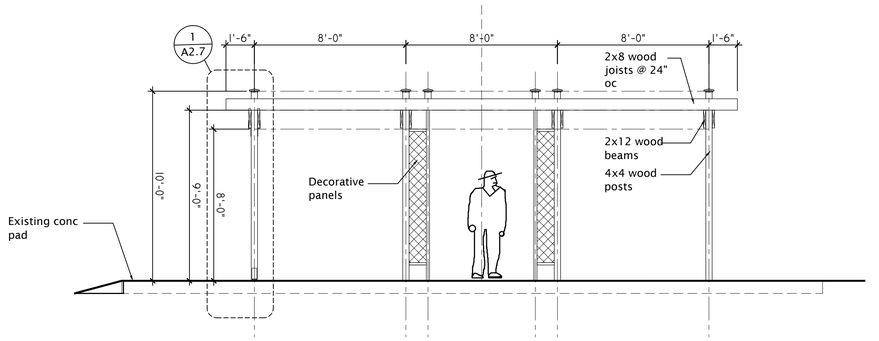


General Note:
All wood used for construction of the pergola shall be treated wood.

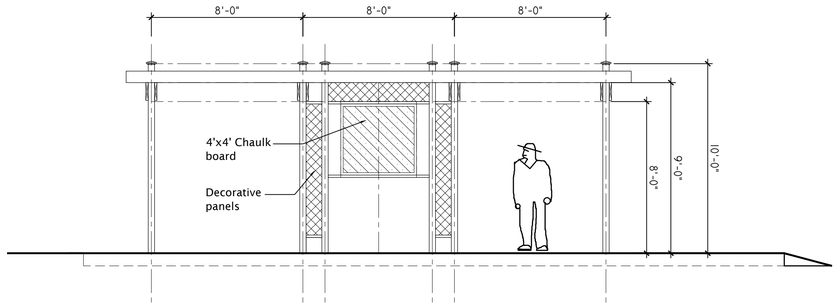
6 A2.7 PLAN OF PERGOLA
1/4" = 1'-0"



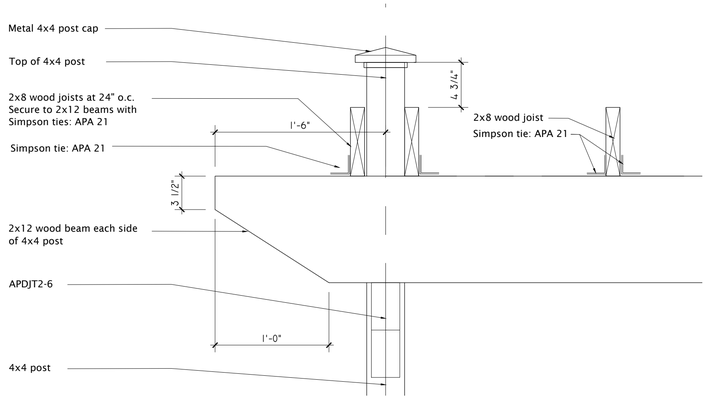
5 A2.7 WEST ELEVATION
1/4" = 1'-0"



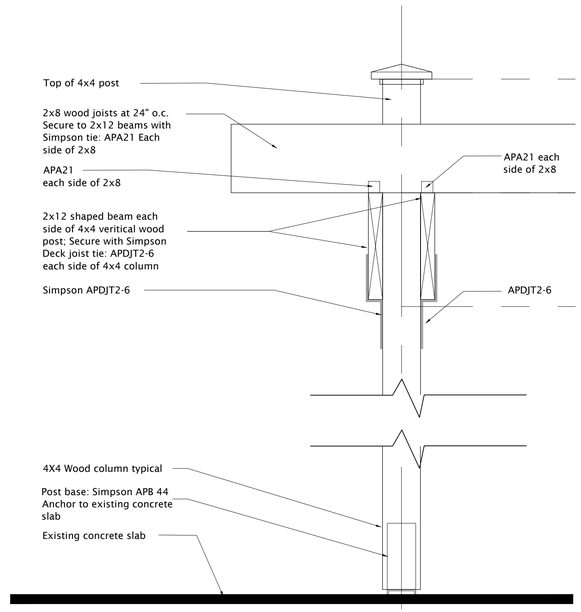
4 A2.7 SOUTH ELEVATION
1/4" = 1'-0"



3 A2.7 NORTH ELEVATION
1/4" = 1'-0"



2 A2.7 STRUCTURAL CANOPY END VIEW
1 1/2" = 1'-0"



1 A2.7 STRUCTURAL CANOPY SECTION
1 1/2" = 1'-0"

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West Duluth Deep Winter Greenhouse
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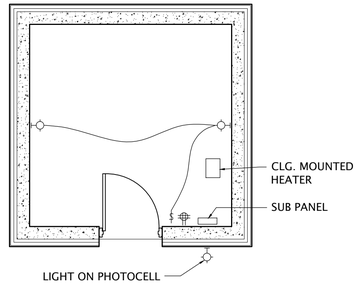
Duluth, Minnesota

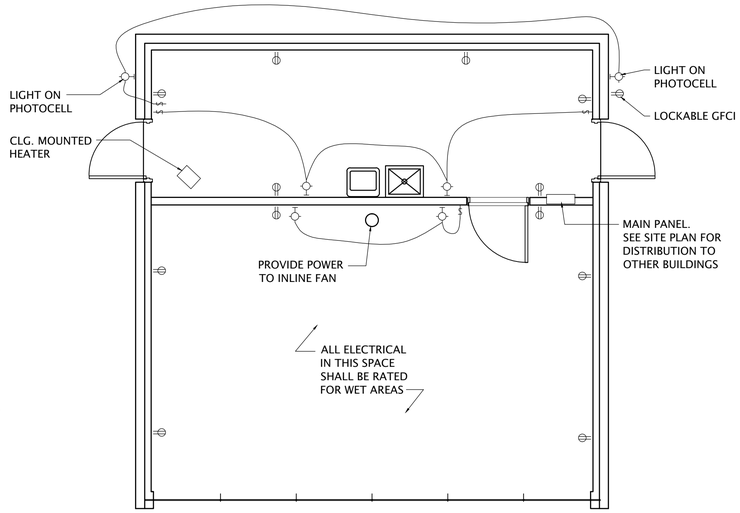
REVISION/ISSUE	DATE
BID SET	5.4.2017
ISSUE	DATE

SHEET NAME:
OUTDOOR CLASSROOM

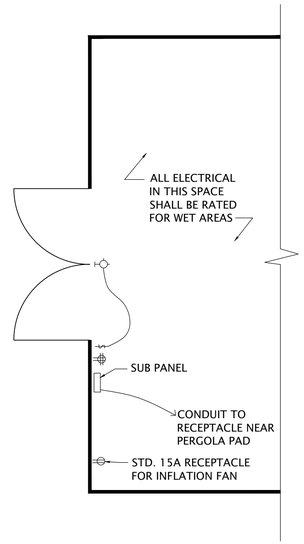
SHEET #:
A 2.7



4 E1.1 ROOT CELLAR ELECTRICAL
1/4" = 1'-0"

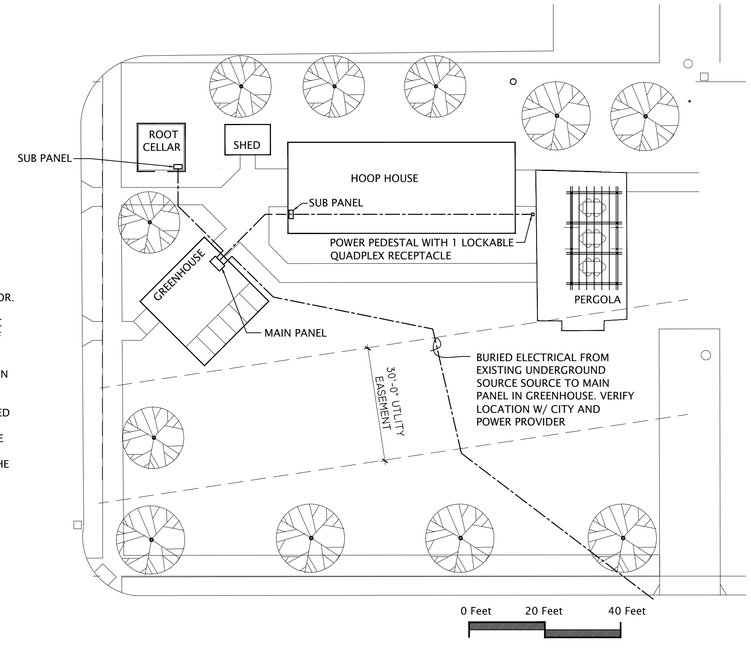


3 E1.1 GREENHOUSE ELECTRICAL
1/4" = 1'-0"



2 E1.1 HOOP HOUSE ELECTRICAL
1/4" = 1'-0"

ELECTRICAL NARRATIVE SCOPE:
- ELECTRICAL SERVICE ON THE SITE SHALL BE DESIGN/BUILD BY THE ELECTRICAL CONTRACTOR. PROVIDE ALL ELECTRICAL PER CODE. THE ATTACHED ELECTRICAL PLANS ARE SCHEMATIC TO SHOW INTENT, AND SUBJECT TO CHANGE IF CODE REQUIRES.
- ELECTRICAL CONTRACTOR TO PROVIDE ALL PERMITS AND NECESSARY DRAWINGS TO OBTAIN PERMITS.
- ELECTRICAL CONTRACTOR TO CONFIRM PLACEMENT OF SERVICE LINES IN THE INDICATED UTILITY EASEMENT.
- PROVIDE NEW ELECTRICAL SERVICE TO THE SITE AND BUILDINGS.
- THE MAIN SERVICE AND METER SHALL BE AT THE GREENHOUSE BUILDING, AND ALL OTHER BUILDINGS WILL BE FED OFF OF THAT.
- ALL SITE WIRING SHALL BE RUN IN CONDUIT BELOW GRADE.
- ALL EXTERIOR RECEPTACLES SHALL BE IN LOCKABLE BOXES.
- SEE SPECIFICATIONS FOR LIGHT FIXTURES AND HEATERS.



1 E1.1 SITE ELECTRICAL
1" = 20'

Wagner Zaun ARCHITECTURE

17 N. Lake Avenue
Duluth, MN 55802

(218) 733-0690

www.wagnerzaun.com

dzaun@wagnerzaun.com
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SIGNATURE 5/4/2017 DATE

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West Duluth Deep Winter Greenhouse
N 45th Ave West and Grand Avenue
Duluth, Minnesota

REVISION/ISSUE	DATE
ISSUE Bidding Doc	DATE 5.4.17
ISSUE	DATE

SHEET NAME:
ELECTRICAL SITE & BUILDING PLANS

SHEET #:
E1.1

CITY OF DULUTH

DEPARTMENT OF PUBLIC WORKS AND UTILITIES
ENGINEERING DIVISION

CONSTRUCTION PLANS FOR:

DEEP WINTER GREEN HOUSE

N 45TH AVE WEST

CITY PROJECT NO. 1650

VICINITY MAP

DEFINITIONS	
ABBREVIATION	DESCRIPTION
EG	EXISTING GRADE
FFE	FINISH FLOOR ELEVATION
FG	FINISH GRADE
N/A	NOT AVAILABLE
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENT

GOVERNING SPECIFICATIONS

THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION 'STANDARD SPECIFICATIONS FOR CONSTRUCTION' SHALL GOVERN. AVAILABLE AT: http://www.dot.state.mn.us/pre-letting/spec/index.html

THE 2017 EDITION OF THE CITY OF DULUTH PUBLIC WORKS AND UTILITIES DEPARTMENT STANDARD CONSTRUCTION SPECIFICATIONS AND SUPPLEMENTS OR ADDENDUMS SHALL APPLY. AVAILABLE AT: http://www.duluthmn.gov/engineering/standard-construction-specifications/

UTILITY DETAIL LEVEL

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

WARNING:
LOCATION OF UNDERGROUND UTILITIES TO BE VERIFIED BY CONTRACTOR. CALL BEFORE DIGGING. GOPHER STATE ONE CALL 1-800-252-1166 REQUIRED BY LAW.

BASIS OF BEARING/CONTROL

CONTROL BASED ON THE ST. LOUIS COUNTY TRANSVERSE MERCATOR COORDINATE SYSTEM OF 1996

POINT NAME:	NORTHING:	EASTING:	ELEVATION:
TNH	3328630.72	4830060.33	640.76
____	____	____	____
____	____	____	____

SHEET INDEX

---THIS PLAN CONTAINS 10 SHEETS---

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

DAVID G. BOLF P.E.
PROJECT ENGINEER

PROJECT ENGINEER	DATE	40926 LIC. NO.

CITY APPROVAL

APPROVED CHIEF ENGINEER OF TRANSPORTATION DATE

APPROVED CHIEF ENGINEER OF UTILITIES DATE

APPROVED CITY ENGINEER DATE

CITY OF DULUTH PROJECT NO. 1650

Northland Consulting Engineers L.L.P.
Structural, Civil and Forensic Engineering Services
www.nce-engineers.com
Voice: (218)727-5995
Fax: (218)727-7779

DEEP WINTER
GREEN HOUSE
N 45TH AVE WEST

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota. XX/XX/XX
Engineer: David G. Bolf Lic. No: 40926

revision
.
.
.

Proj: 17-149
Date: 4/20/17
Drawn: JDO
Checked: TPD

TITLE
Sheet Title

Sheet Number
1

LEGEND		
DESCRIPTION	PROPOSED	EXISTING
SITE PROPERTY		
SECTION		
RIGHT OF WAY		
EASEMENT		
LOT		
BENCHMARK	△	△
SURVEY MONUMENT	◎	◎ ⊤ • ✕
CENTERLINE		
PAVEMENT		
PAVERS		
CONCRETE		
SIDEWALK		
GRAVEL		
RIP RAP		
CURB & GUTTER		
CURB & GUTTER		N/A
STRIPING		
ADA DOMES		
FLAG POLE		
MAIL BOX		
POST		
BOLLARD		
PARKING METER		
SIGN		
CHAIN LINK FNC		
BARB WIRE FNC		
FNC		
GUARD RAIL		
VEGETATION		
TREE		
WETLAND	N/A	
BUILDING		
WALL		
DOORS		
OVERHANG		
STOOP		N/A
FOOTING		
DOWN DRAIN		
MJR CONTOUR	500	500
MNR CONTOUR	499	499
TOP OF SLOPE	TOP	TOP
TOE OF SLOPE	TOE	TOE
DAYLIGHT FILL	F	N/A
DAYLIGHT CUT	C	N/A
FLOW LINE		
OVERHEAD	OH	OH
UTILITY POLE		
GUY WIRE		
VALVE		
UTILITY BOX	B	B
METER	M	M
CLEANOUT	Ⓒ	Ⓒ
STORM PIPE		
STORM MH	Ⓓ	Ⓓ
CB - SQUARE		
CB - ROUND		
APRON		
FORCEMAIN	FM	FM
SANITARY		
SANITARY MH	Ⓢ	Ⓢ
WATER LINE	W	W
WATER MH	Ⓦ	Ⓦ
HYDRANT		
WELL	Ⓦ	Ⓦ
GAS PIPE	G	G
GAS MH	Ⓖ	Ⓖ
REGULATOR	Ⓡ	Ⓡ
ELECTRICAL	E	E
ELEC MH	Ⓔ	Ⓔ
LIGHT POLE		
TRANSFORMER	X	X
OUTLET		
FIBER OPTIC	FO	FO
TELECOM	T	T
CABLE	CBL	CBL
COMM MH	Ⓣ	Ⓣ

GENERAL NOTES:

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CURRENT EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" CONCURRENT WITH THE PERMIT DATE. (AVAILABLE AT: http://www.dot.state.mn.us/pre-letting/spec/)

2. ALL WORK SHALL ADHERE TO THE MUNICIPALITY WITH JURISDICTION OF PUBLIC WORKS AND UTILITIES STANDARD CONSTRUCTION DOCUMENTS AND SPECIFICATIONS, SUPPLEMENTS OR ADDENDUMS SHALL APPLY.

3. CONTRACTOR SHALL ACQUIRE ALL NECESSARY PERMITS.

4. ANY DIFFERENCES BETWEEN PLANS AND SPECIFICATIONS AND QUESTIONS REGARDING INTERPRETATIONS OF PLANS AND SPECIFICATIONS SHALL BE RESOLVED BY THE ENGINEER OR OWNER. THE CONTRACTOR WILL NOT BE PERMITTED TO TAKE ADVANTAGE OF ANY ERRORS OR OMISSIONS IN THE PLANS AND SPECIFICATIONS. THE GENERAL INTENT AND MEANING WILL GOVERN. THE ENGINEER OR OWNER WILL PROVIDE FULL INSTRUCTIONS WHEN CHANGED CONDITIONS, ERRORS OR OMISSIONS ARE DISCOVERED BY THE CONTRACTOR.

5. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN AND ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING "GSOC" AT (1-800-252-1166) TWO WORKING DAYS PRIOR TO ANY EXCAVATION OR CONSTRUCTION.

6. ALTHOUGH SUCH WORK MAY NOT BE SPECIFICALLY NOTED ON THESE PLANS. CONTRACTOR SHALL FURNISH AND INSTALL ALL SUPPLEMENTARY OR MISCELLANEOUS FITTINGS, APPURTENANCES AND DEVICES INCIDENTAL TO OR NECESSARY FOR A SOUND, SECURE AND COMPLETE INSTALLATION.

7. ALL CONCRETE STRUCTURES SHALL CONFORM TO SPEC 2461 STRUCTURAL CONCRETE OF MINNESOTA STANDARD SPECIFICATIONS FOR CONSTRUCTION CURRENT EDITION CONCURRENT WITH THE PERMIT DATE. (AVAILABLE AT: http://www.dot.state.mn.us/pre-letting/spec

8. ALL CONCRETE CURB SHALL CONFORM TO SPEC 2531 CONCRETE CURBING OF MINNESOTA STANDARD SPECIFICATIONS FOR CONSTRUCTION CURRENT EDITION. CONCURRENT WITH THE PERMIT DATE. (AVAILABLE AT: http://www.dot.state.mn.us/pre-letting/spec

9. EQUIPMENT OR MATERIALS SPECIFIED IN THESE PLANS HAVE BEEN SPECIFIED BECAUSE THEY MEET THE PARAMETERS NEEDED TO PERFORM A CERTAIN FUNCTION. THERE MAY BE OTHER MANUFACTURERS OF SIMILAR EQUIPMENT OR MATERIALS THAT CAN BE USED IN LIEU OF THE ONES SPECIFIED HEREIN. ANY MODIFICATIONS TO SAID EQUIPMENT OR MATERIALS NEED TO BE APPROVED IN WRITING BY THE ENGINEER PRIOR TO THEIR BEING CONSIDERED FOR USE.

10. BY SUBMISSION OF HIS BID PROPOSAL THE CONTRACTOR ACKNOWLEDGES THAT HE\SHE HAS THOROUGHLY EXAMINED THE LOCATION OF THE WORK TO BE PERFORMED, IS FAMILIAR WITH LOCAL CONDITIONS, AND HAS THE RESOURCES TO LAYOUT AND CONSTRUCT THESE PLANS.

11. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL SURVEY CONTROL STAKES SET FOR LINE, GRADE, OR CONTROL IN THEIR ORIGINAL LOCATIONS. ANY EXPENSES INCURRED IN REPLACING ANY SUCH SURVEY STAKES WHICH THE CONTRACTOR OR HIS SUBCONTRACTORS MAY HAVE FAILED TO PRESERVE SHALL BE THE FINANCIAL RESPONSIBILITY OF THE CONTRACTOR.

12. THE CONTRACTOR IS RESPONSIBLE FOR UNCOVERING ALL EXISTING UTILITY LINES BEING CONNECTED TO BY VIRTUE OF THESE PLANS. HE/SHE SHALL BE RESPONSIBLE FOR VERIFYING THEIR ELEVATION AND LOCATION. THE CONTRACTOR IS ALSO RESPONSIBLE FOR PROTECTING ALL UTILITIES WHETHER BEING CONNECTED TO OR NOT.

13 ALL WORKMANSHIP AND MATERIALS THROUGHOUT THE JOB SHALL BE OF THE HIGHEST QUALITY. ALL MATERIALS SHALL BE NEW, UNLESS APPROVED BY THE ENGINEER.

14. CONTRACTOR SHALL AT ALL TIMES COORDINATE WORK WITH OTHER CONTRACTORS INVOLVED WITH ONGOING CONSTRUCTION OF THIS PROJECT.

15. ALL WORK AND MATERIALS WHICH DO NOT CONFORM TO THE SPECIFICATIONS AND / OR PLANS ARE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.

16. ALL WORK IS TO BE COMPLETED IN A SAFE MANNER IN ACCORDANCE WITH THESE CONSTRUCTION SPECIFICATIONS. ANY DEVIATION THEREFROM MUST BE APPROVED IN WRITING BY THE ENGINEER. INSTALLATION MUST CONFORM WITH THE REQUIREMENTS OF ALL GOVERNMENTAL REGULATING AGENCIES AND THE COST OF CONFORMING TO SUCH REGULATIONS MUST BE INCLUDED IN THE UNIT BID PRICES. EXAMPLES OF SUCH REGULATIONS, WITHOUT ATTEMPTING TO BE INCLUSIVE, ARE:

    A. SPECIAL COMPACTION AND PAVING FOR STREET CROSSINGS.

    B. SHORING WHEN REQUIRED BECAUSE OF THE TRENCH DEPTH.

    C. CLOSING A TRENCH IN THOSE AREAS WHERE NO OPEN TRENCH IS ALLOWED OVERNIGHT.

    D. BARRICADING AND TRAFFIC CONTROL AS REQUIRED.

17. ALL REVISIONS TO THE APPROVED CONSTRUCTION DRAWINGS AND SPECIFICATIONS MUST BE APPROVED BY THE OWNER PRIOR TO CONSTRUCTION. ANY UNAPPROVED REVISIONS ARE SUBJECT TO REMOVAL AND/OR REPLACEMENT AT THE CONTRACTOR'S EXPENSE.

18. THE QUANTITIES AND SITE CONDITIONS DEPICTED IN THESE PLANS ARE FOR INFORMATIONAL PURPOSES ONLY AND ARE SUBJECT TO ERROR AND OMISSION.
CONTRACTORS SHALL SATISFY THEMSELVES AS TO ACTUAL QUANTITIES AND SITE CONDITIONS PRIOR TO BIDDING THE WORK FOR THE CONSTRUCTION COVERED BY THESE PLANS.

19. A REASONABLE EFFORT HAS BEEN MADE TO SHOW THE LOCATIONS OF EXISTING UNDERGROUND FACILITIES AND UTILITIES IN THE CONSTRUCTION AREA. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO UTILITIES AND/OR FACILITIES CAUSED DURING THEIR CONSTRUCTION OPERATIONS. CONTRACTOR SHALL CALL "GSOC" AT (1-800-252-1166) PRIOR TO ANY EXCAVATION.

20. THE CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION OF CONSTRUCTION AFFECTING UTILITIES AND THE COORDINATION OF ANY NECESSARY UTILITY RELOCATION WORK.

21. THESE PLANS ARE SUBJECT TO THE INTERPRETATION OF INTENT BY THE ENGINEER. ALL QUESTIONS REGARDING THESE PLANS SHALL BE PRESENTED TO THE ENGINEER. ANYONE WHO TAKES UPON THEMSELVES THE INTERPRETATION OF THE DRAWINGS OR MAKES REVISIONS TO THEM WITHOUT CONFERRING WITH THE DESIGN ENGINEER SHALL BE RESPONSIBLE FOR THE CONSEQUENCES THEREOF.

22. NOTHING CONTAINED IN THE CONTRACT DOCUMENTS SHALL CREATE, NOR SHALL BE CONSTRUED TO CREATE ANY CONTRACTUAL RELATIONSHIP BETWEEN THE ENGINEER AND THE CONTRACTOR OR ANY SUBCONTRACTOR.

23. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OR SAFETY PRECAUTIONS OR PROGRAMS UTILIZED IN CONNECTION WITH THE WORK. THE ENGINEER WILL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

24. PRIOR TO BIDDING THE WORK, THE CONTRACTOR SHALL THOROUGHLY SATISFY HIMSELF AS TO THE ACTUAL CONDITIONS, EARTHWORK QUANTITIES AND REQUIREMENTS OF WORK AND EXCESS OR DEFICIENCY IN EARTHWORK QUANTITIES, IF ANY. NO CLAIM SHALL BE MADE AGAINST THE OWNER/DEVELOPER OR ENGINEER FOR ANY EXCESS OR DEFICIENCY THEREIN, ACTUAL OR RELATIVE.

25. ALL MATERIALS ARE TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS UNLESS OTHERWISE DIRECTED BY THE PROJECT SPECIFICATIONS.

26. ALL PAVING AND GRADING CONSTRUCTION WORK WITHIN THE PUBLIC RIGHT OF WAY, ON PRIVATE STREETS, ACCESS WAYS, PARKING AREAS, EASEMENTS AND LOT GRADING SHALL CONFORM TO THE GOVERNING MUNICIPALITY MINIMUM STANDARDS AND SPECIFICATIONS, MINNESOTA DEPARTMENT OF TRANSPORTATION STANDARD PLATES WILL CONTINUE TO APPLY WHERE NOT ADOPTED OR INCLUDED BY THE GOVERNING MUNICIPALITY. THE REFERENCE DOCUMENTS AND SPECIFICATIONS INCLUDED WITHIN THIS PLAN ARE HEREBY MADE A PART OF THE CONTRACT DOCUMENTS AND PROJECTS MANUAL. WHERE THERE IS A CONFLICT BETWEEN THESE NOTES AND THE PROJECT MANUAL, THE MORE STRINGENT OF THE REQUIREMENTS SHALL GOVERN UNLESS PRIOR CLARIFICATION FROM THE DESIGN ENGINEER HAS BEEN GIVEN IN WRITING TO THE CONTRACTOR.

27. CONTRACTOR TO PROVIDE ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY TO COMPLETE ALL PROJECT SITE WORK, SITE CLEARING, DEMOLITION, ROADWAY EXCAVATION, RELOCATIONS, STRUCTURE EXCAVATION, TRENCHING/BACKFILLING, ALL BORING, DRILLING, SITE GRADING AND EARTHWORK INCLUDING ALL PAVING, PIPING, UTILITY LINE CONSTRUCTION, CURBS, SIDEWALKS, SITE CONCRETE WORK AND OTHER MISCELLANEOUS SITE WORK STRUCTURES AND ITEMS INDICATED ON THE PLANS AND IN THE CONTRACT DOCUMENTS.

28. THE ENGINEER OR OWNER SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION.

29. ALL OBSTRUCTIONS IN RIGHT OF WAY SHALL BE REMOVED BEFORE ANY CONSTRUCTION IS PERMITTED.

30. ANY QUANTITIES SHOWN ON PLANS ARE NOT VERIFIED BY THE ENGINEER. QUANTITIES ARE APPROXIMATE ONLY AND INTENDED AS A GUIDE FOR ESTIMATING PURPOSES. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING HIS OWN QUANTITY TAKE OFFS. THE OWNER DOES NOT VERIFY ANY CUT/FILL QUANTITIES IF SHOWN ON THE PLANS.

31. ALL WORK DONE UNDER THIS CONTRACT SHALL BE DONE TO THE SATISFACTION OF THE OWNER AND ENGINEER. THE OWNER AND ENGINEER SHALL MAKE DECISIONS REGARDING QUESTIONS THAT MAY ARISE WITH RESPECT TO THE MEANING OF THE PLANS AND SPECIFICATIONS. THE OWNER'S AND ENGINEER'S DETERMINATIONS AND DECISIONS THEREON SHALL BE FINAL AND CONCLUSIVE.

32. THE CONTRACTOR OR SUBCONTRACTORS SHALL NOT DEVIATE FROM THESE PLANS OR MAKE FIELD CHANGES WITHOUT NOTIFYING IN WRITING, THE OWNER AND ENGINEER REQUESTING APPROVAL OF THESE MODIFICATIONS. ANY CHANGES MADE WITHOUT EXPRESS WRITTEN APPROVAL OF THE OWNER AND ENGINEER ARE SUBJECT TO REMOVAL AT THE EXPENSE OF THE CONTRACTOR OR SUBCONTRACTOR.

33. THE 2360 PLANT MIXED ASPHALT PAVEMENT COMBINED 2360/2350 (GYRATORY/MARSHALL DESIGN) SPECIFICATION FOR 2017 CONSTRUCTION SEASON SHALL APPLY. BITUMINOUS MIX QUANTITIES BASED ON 115 LBS / SY-IN.
(AVAILABLE AT: http://www.mrr.dot.state.mn.us/pavement/bituminous/bituminous.asp)

34. ALL CONSTRUCTION REMOVAL ITEMS SHALL BE DISPOSED OF AT AN APPROVED WASTE SITE.

35. CONTRACTOR IS REQUIRED TO POSSESS & FOLLOW THE GOVERNING SPECIFICATIONS REFERENCED IN THIS PLAN.

APPROVALS:

1. THE CONTRACTOR IS TO USE THE OFFICIAL CONSTRUCTION SET OF PLANS AND DRAWINGS FOR CONSTRUCTION. IT IS THE CONTRACTORS DUTY TO ACQUIRE AN OFFICIAL SET OF APPROVED PLANS AND SHALL HAVE A SET OF THESE PLANS WITH HIM/HER ON SITE AT ALL TIMES DURING THE DURATION OF THIS PROJECT.

INSPECTION:

1. ALL MATERIALS USED AND ALL WORK DONE BY THE CONTRACTOR SHALL BE SUBJECT AT ALL TIMES TO THE INSPECTION, TESTING, AND APPROVAL OF THE OWNER OR HIS REPRESENTATIVE AND THE ENGINEER.

2. THE OWNER OR HIS REPRESENTATIVE WILL MAKE PERIODIC INSPECTIONS OF THE DIFFERENT PHASES OF THE SITE WORK.

3. THE CONTRACTOR SHALL CONTACT THE APPROPRIATE PUBLIC UTILITY COMPANIES FOR COORDINATION AND INSPECTION OF TRENCHING, BEDDING AND BACKFILLING DONE IN CONJUNCTION WITH THE INSTALLATION OF THOSE UTILITIES ASSOCIATED WITH THIS PROJECT

FIELD ENGINEERING:

1. THE CONTRACTOR SHALL CAREFULLY PRESERVE ALL STAKES, REFERENCE AND CONTROL POINTS, ETC. AGAINST DESTRUCTION AND SHALL PROMPTLY NOTIFY HIS ENGINEER/SURVEYOR OF ANY STAKES WHICH HAVE BEEN DISTURBED. IN CASE OF RESTAKING DUE TO TIMING LAG CAUSED BY THE CONTRACTOR'S WILLFUL OR CARELESS DESTRUCTION, THE CONTRACTOR MAY BE CHARGED BY THE OWNER WITH THE RESULTING EXPENSE FOR THE RESTAKING.

2. ENGINEER/SURVEYOR SHALL BE NOTIFIED TWO WORKING DAYS (48 HOURS) MINIMUM PRIOR TO THE FIELD STAKING SCHEDULING.

3. ANY QUESTIONS RAISED RELATIVE TO THE ACCURACY OF IMPROVEMENT INSTALLATION SHALL NOT BE RAISED SUBSEQUENT TO COMPLETION OF THE WORK UNLESS ALL SURVEY STAKES ARE MAINTAINED INTACT. SHOULD SUCH STAKES NOT BE PRESENT AND VERIFIED AS TO THEIR ORIGIN, NO CLAIM FOR ADDITIONAL COMPENSATION FOR CORRECTION SHALL BE PRESENTED TO ANY PARTY AND SUCH WORK SHALL BE CORRECTED BY THE CONTRACTOR AT HIS EXPENSE.

4. ALL CONSTRUCTION STAKING FOR GRADE, ALIGNMENT AND CONTROLS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AS SPECIFIED BELOW.

5. THE CONTRACTOR'S ENGINEER/SURVEYOR AND THE DESIGN ENGINEER CANNOT GUARANTEE THE ACCURACY OF CONSTRUCTION STAKES FOR GRADE OR ALIGNMENT AFTER THE SURVEY CREW HAS LEFT THE SITE DUE TO VANDALISM AND CONSTRUCTION OPERATIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW IN THE FIELD ALL CONSTRUCTION STAKING DONE PRIOR TO BEGINNING THE PLACEMENT OF FORMS OR BEGINNING CONSTRUCTION FOR THAT PHASE OF THE WORK. THE CONTRACTOR SHALL NOTIFY HIS ENGINEER/SURVEYOR IMMEDIATELY FOR VERIFICATION OF GRADE AND ALIGNMENT SHOULD A PROBLEM ARISE IN THE FIELD. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE COMPENSATION TO HIS ENGINEER/SURVEYOR FOR PRECHECKS AND RESTAKING.

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Fax: (218)727-7779

DEEP WINTER
GREEN HOUSE
N 45TH AVE WEST

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.
XX/XX/XX
Lic. No: 40926
Engineer: David C. Bolf

revision
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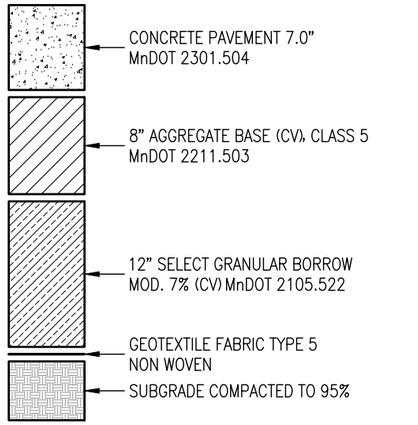
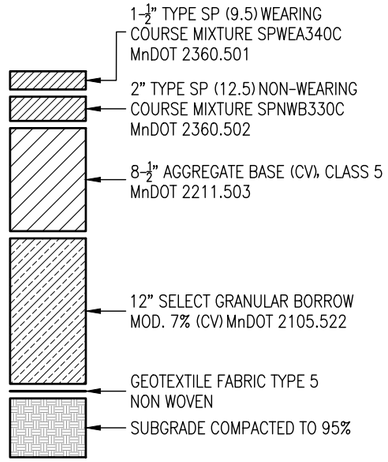
Proj: 17-149
Date: 4/20/17
Drawn: JDO
Checked: TPD

GENERAL NOTES
Sheet Title

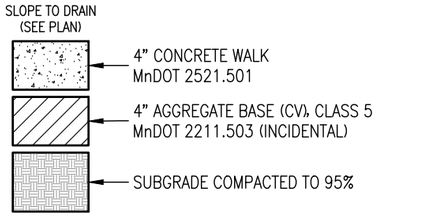
Sheet Number
2



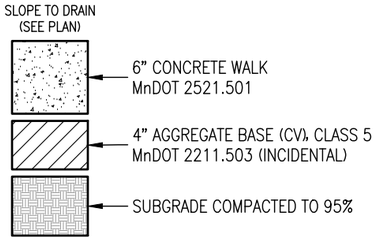
1/3 CONCRETE PAVEMENT (RESTORATION) SECTION DETAIL NTS.



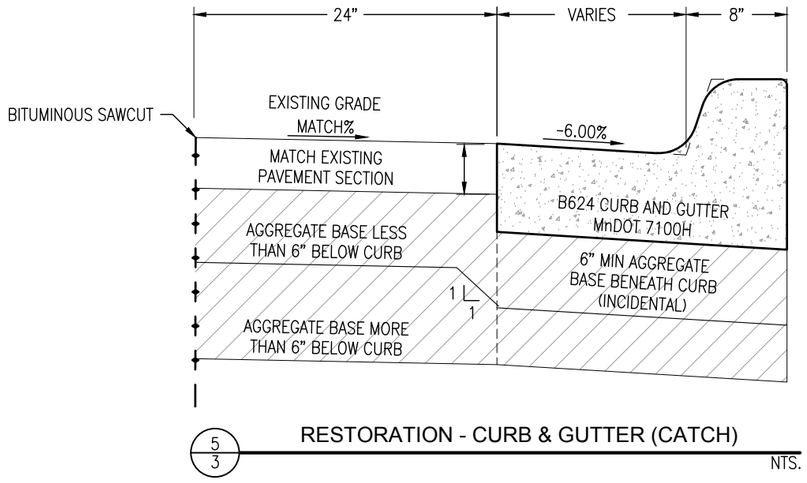
2/3 BITUMINOUS PAVEMENT (RESTORATION) SECTION DETAIL NTS.



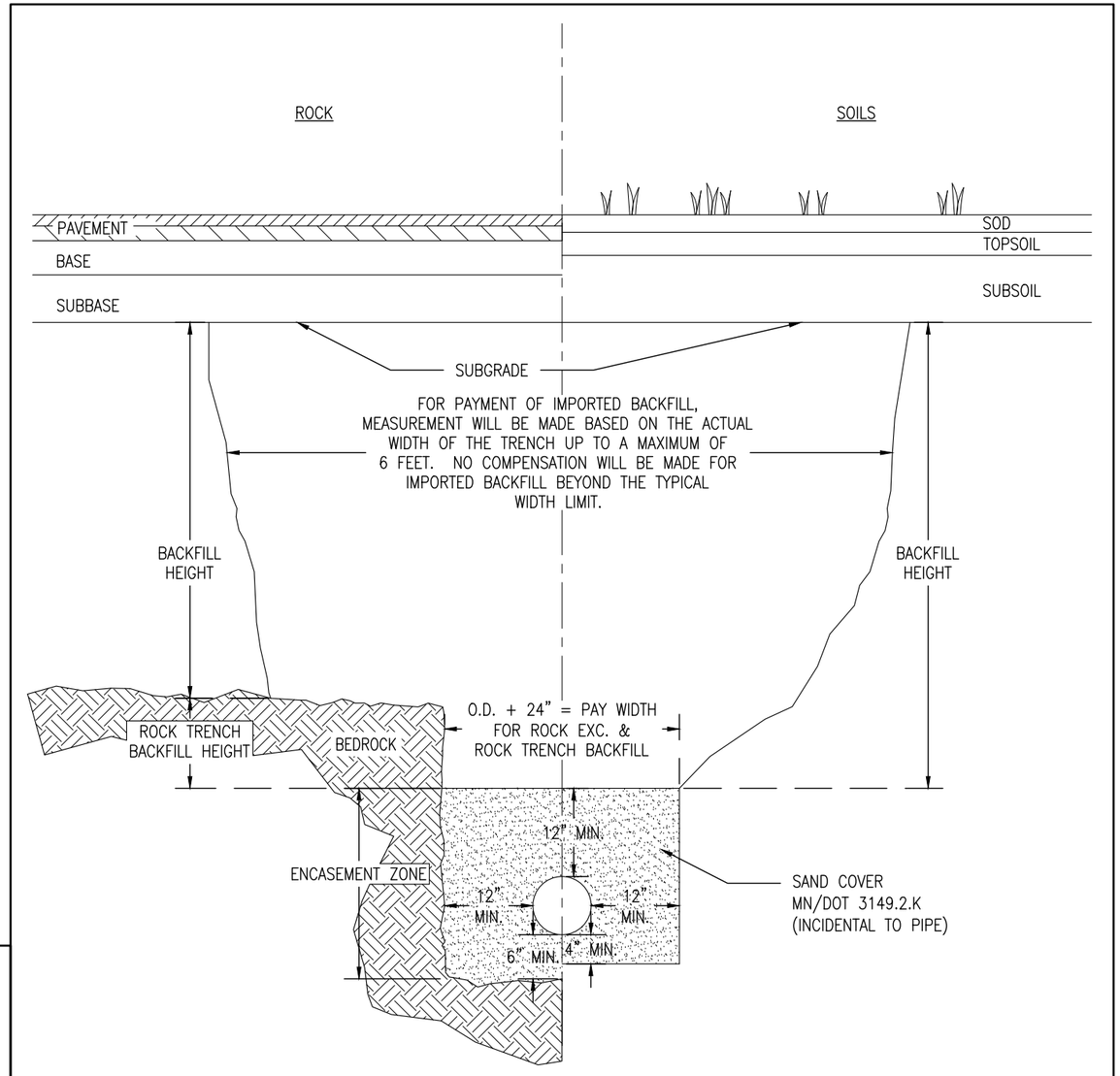
3/3 CONCRETE SIDEWALK SECTION DETAIL NTS.



4/3 ADA CONCRETE SIDEWALK SECTION DETAIL NTS.



5/3 RESTORATION - CURB & GUTTER (CATCH) NTS.



NOTES:

1. EXCESS EXCAVATION MATERIAL SHALL BE DISPOSED OF OFF PROJECT R.O.W. (INCIDENTAL)
2. PAY WIDTH FOR ROCK EXCAVATION SHALL BE BASED ON OUTSIDE DIAMETER OF PIPE PLUS 24".
3. A MINIMUM OF 1 CUBIC YARD OF STRUCTURE EXCAVATION, CLASS R, WILL BE PAID FOR EVERY 10' OF PIPE WHERE ROCK REMOVAL IS REQUIRED.
4. TRENCH STABILIZATION BEDDING MATERIAL MAY BE USED IN AREAS AS DETERMINED BY THE ENGINEER.
5. ENCASEMENT ZONE MATERIAL SHALL BE COMPACTED TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY.
6. BACKFILL SHALL BE SELECT GRADING MATERIAL FOUND ON-SITE WHEN DEEMED SUITABLE BY THE ENGINEER OR AS OTHERWISE DEFINED IN THE PROJECT SPECIAL PROVISIONS. WHEN ON-SITE MATERIAL IS NOT SUITABLE AND WHEN BACKFILL MATERIAL IS NOT SPECIFIED, IMPORTED MATERIAL MEETING MN/DOT 3149.2.D.1 GRANULAR BACKFILL SHALL BE PROVIDED. USE OF NATIVE ON-SITE MATERIAL IS INCIDENTAL.
7. COMPACT BACKFILL MATERIALS TO 100% OF MAXIMUM STANDARD PROCTOR DENSITY FOR THE UPPER 3' BELOW THE SUBGRADE, AND TO 95% OF MAXIMUM STANDARD PROCTOR DENSITY BELOW THE UPPER 3'.

DUCTILE IRON, PE WATERMAIN, PRESSURE SEWER, & FORCEMAIN BEDDING | EX-1

REVISED/APPROVED 01/20/2017 | CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES | 6/3 | NO SCALE

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www.nce-engineers.com
Voice: (218)727-5995
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XX/XX/XX
Lic. No: 40926
Engineer: David C. Boff

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DETAILS
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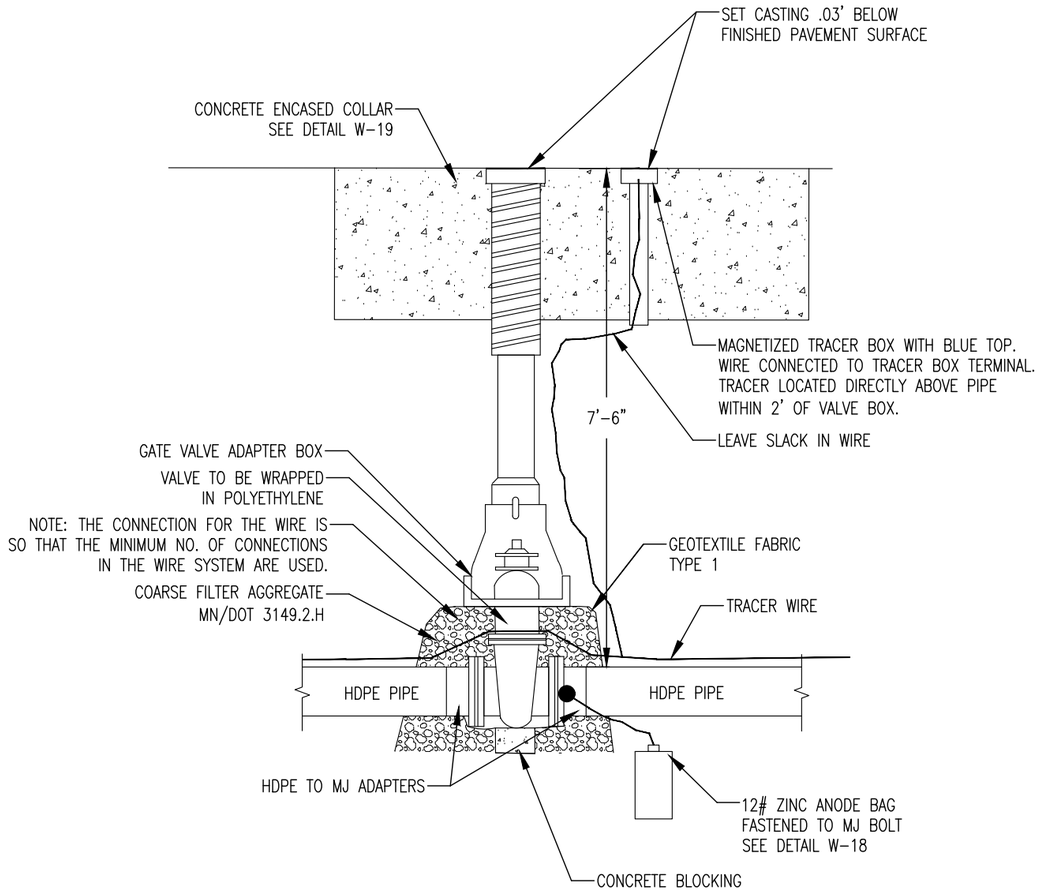
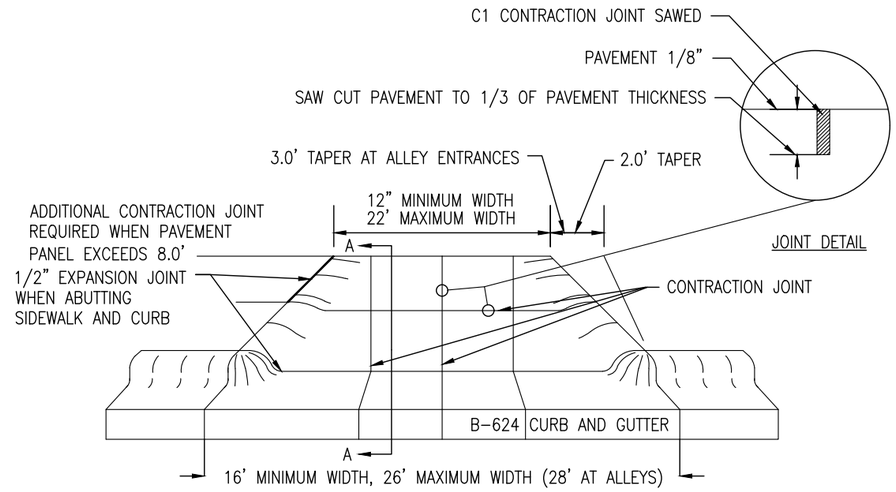
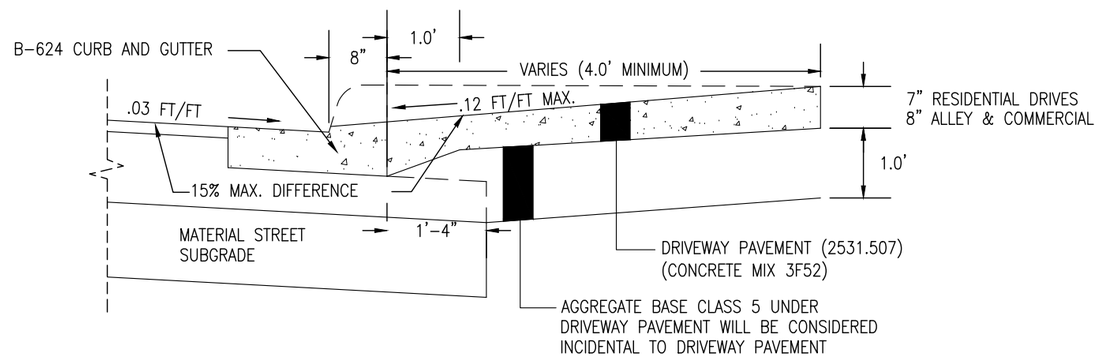
3



NOTES:
1. VALVES SHALL BE CONNECTED DIRECTLY TO HDPE WITH HDPE TO MECHANICAL JOINT ADAPTERS.
2. USE EPOXY COATING ON EXTERIOR OF VALVES.
3. ALL BOLTS SHALL BE COR-TEN WITH 6 OUNCE ZINC ANODE CAPS CONFORMING TO ASTM B-418 FOR ALL MECHANICAL JOINT FITTINGS.
4. FOR OPEN CUT PIPE INSTALLATIONS, ELECTROFUSION COUPLINGS ARE NOT ALLOWED FOR CONNECTION OF HDPE TO MJ ADAPTERS. FOR DIRECTIONAL DRILLED INSTALLATIONS, ONE ELECTROFUSION COUPLING MAY BE USED PER VALVE.
5. GATE VALVES WITH HDPE STUBS MAY BE USED IN LIEU OF MJ VALVES. ANODE SHALL BE CONNECTED DIRECTLY TO THE VALVE BONNET BOLTS.

WATER VALVE BOX – HDPE MAIN		W-17A
REVISED/APPROVED 02/08/2017	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES (1/4)	NO SCALE





SECTION A-A

NOTES:
1. WHERE THERE IS NO SIDEWALK OR THERE IS A GRASS BOULEVARD BETWEEN THE SIDEWALK AND THE BACK OF CURB THE CREST OF THE DRIVEWAY MUST BE AT LEAST 6" ABOVE GUTTER TO CONTAIN RUNOFF.
2. WHERE THERE IS SIDEWALK DIRECTLY BEHIND THE CURB, DRIVEWAY PROFILE SLOPE SHALL BE FLATTENED TO MEET ADA ACCESSIBLE ROUTE STANDARDS

DRIVEWAY & ALLEY ENTRANCES		STR-5
REVISED/APPROVED 01/20/2017	CITY OF DULUTH STANDARD DETAIL DEPT. OF PUBLIC WORKS AND UTILITIES (2/4)	NO SCALE

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Lic. No: 40926
Engineer: David C. Bolf

revision
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DETAILS
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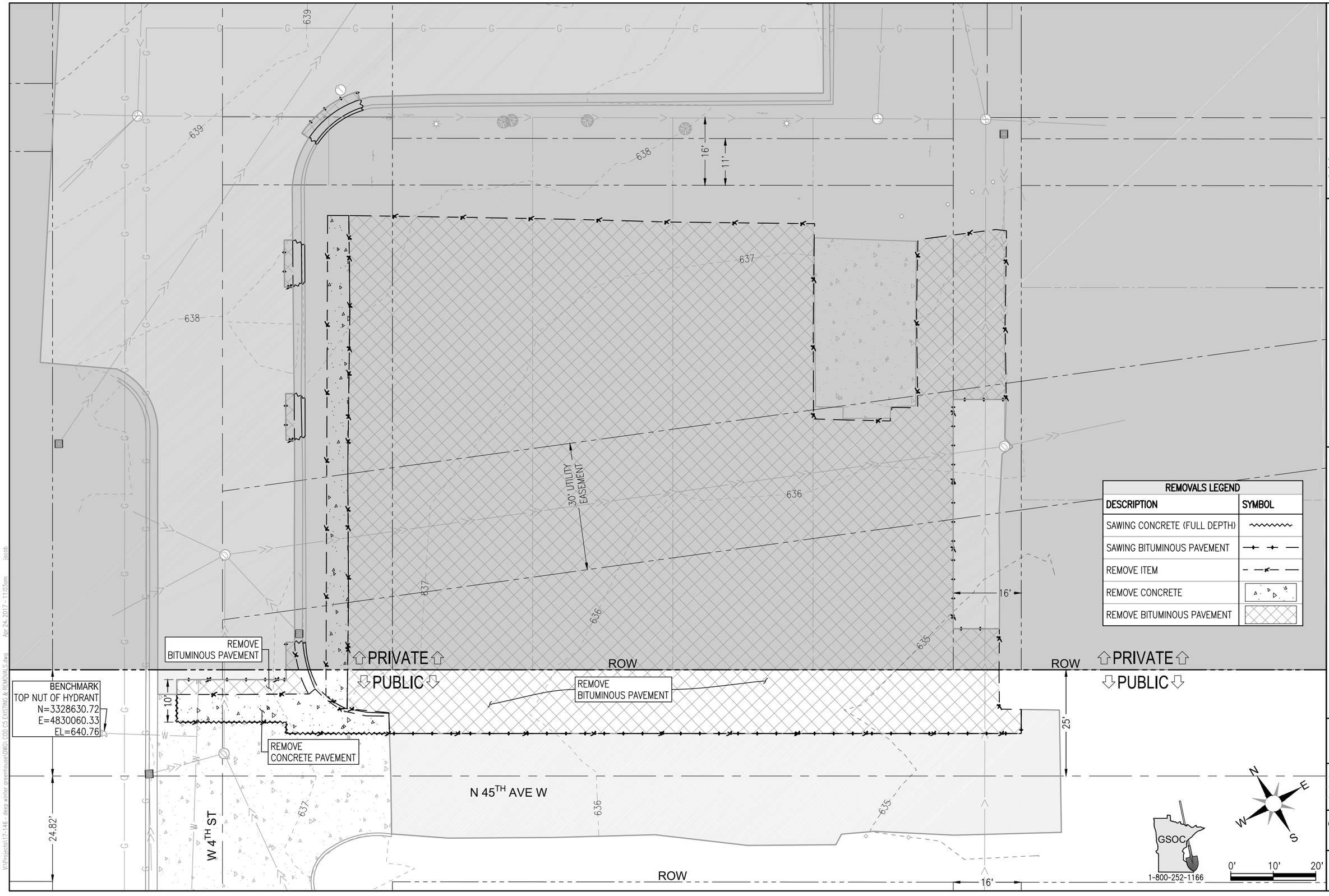
4



REMOVALS LEGEND	
DESCRIPTION	SYMBOL
SAWING CONCRETE (FULL DEPTH)	
SAWING BITUMINOUS PAVEMENT	
REMOVE ITEM	
REMOVE CONCRETE	
REMOVE BITUMINOUS PAVEMENT	

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1 :
2 :
3 :

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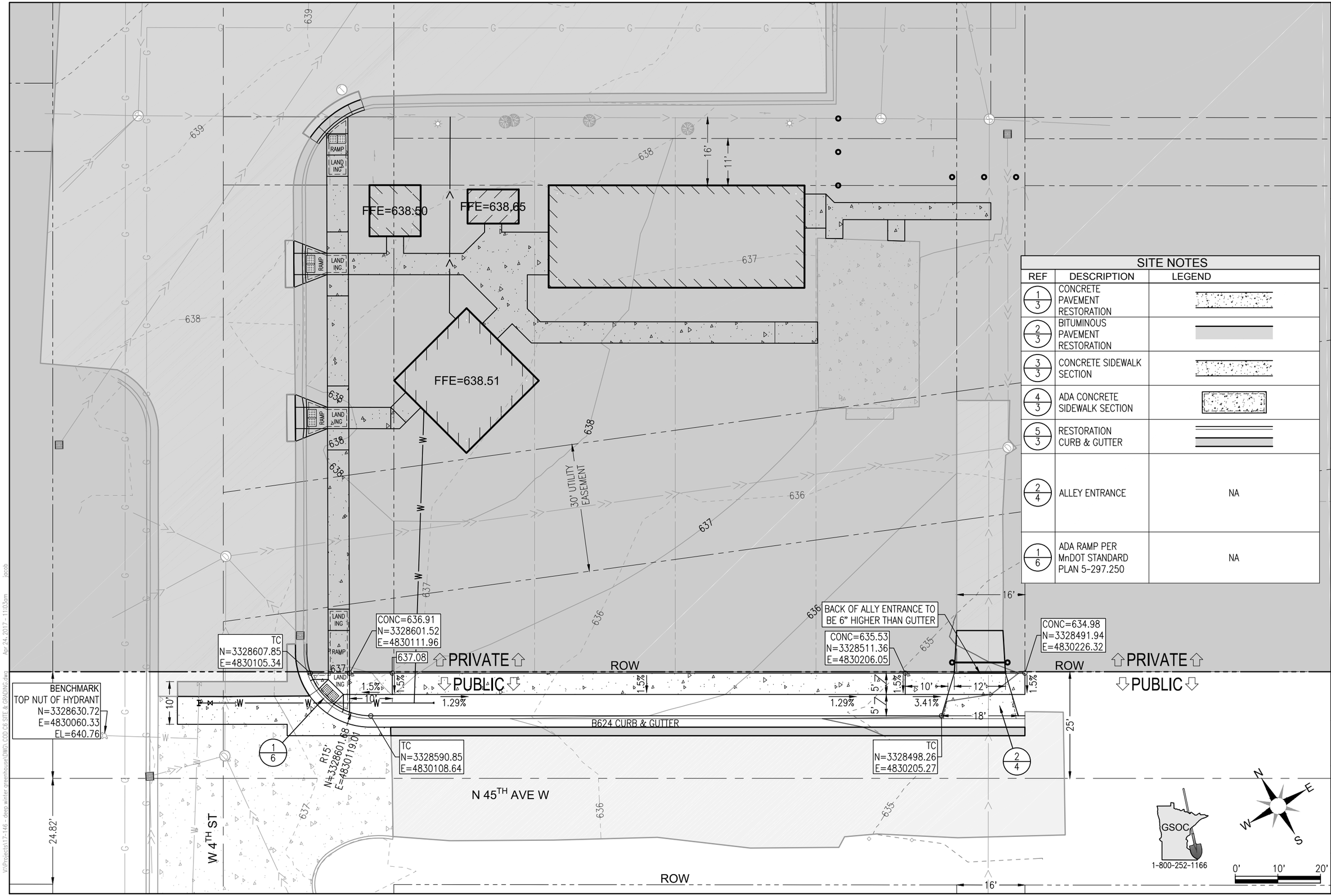
EXISTING CONDITIONS & REMOVALS
Sheet Title

Sheet Number
5



SITE NOTES

REF	DESCRIPTION	LEGEND
1/3	CONCRETE PAVEMENT RESTORATION	
2/3	BITUMINOUS PAVEMENT RESTORATION	
3/3	CONCRETE SIDEWALK SECTION	
4/3	ADA CONCRETE SIDEWALK SECTION	
5/3	RESTORATION CURB & GUTTER	
2/4	ALLEY ENTRANCE	NA
1/6	ADA RAMP PER MnDOT STANDARD PLAN 5-297.250	NA

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N 45TH AVE WEST

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Engineer: David G. Bolf
Lic. No: 40926

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SITE & GRADING
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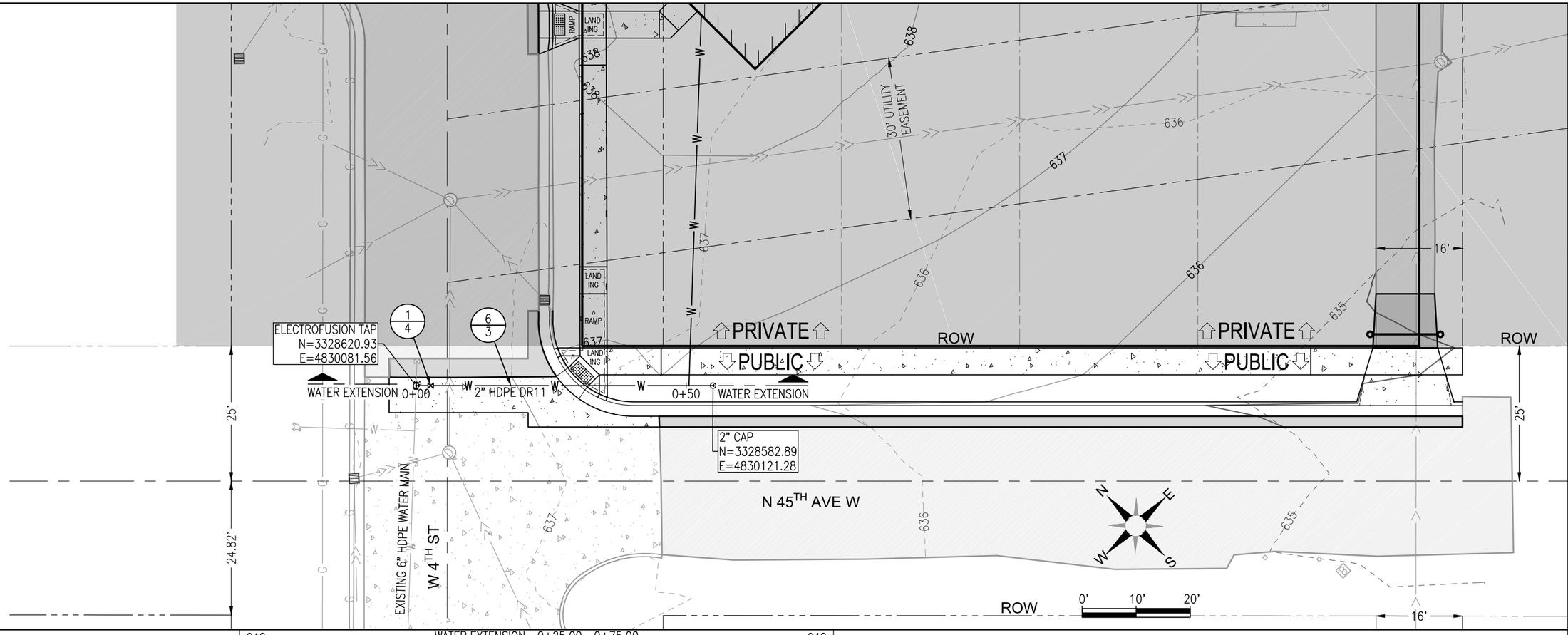
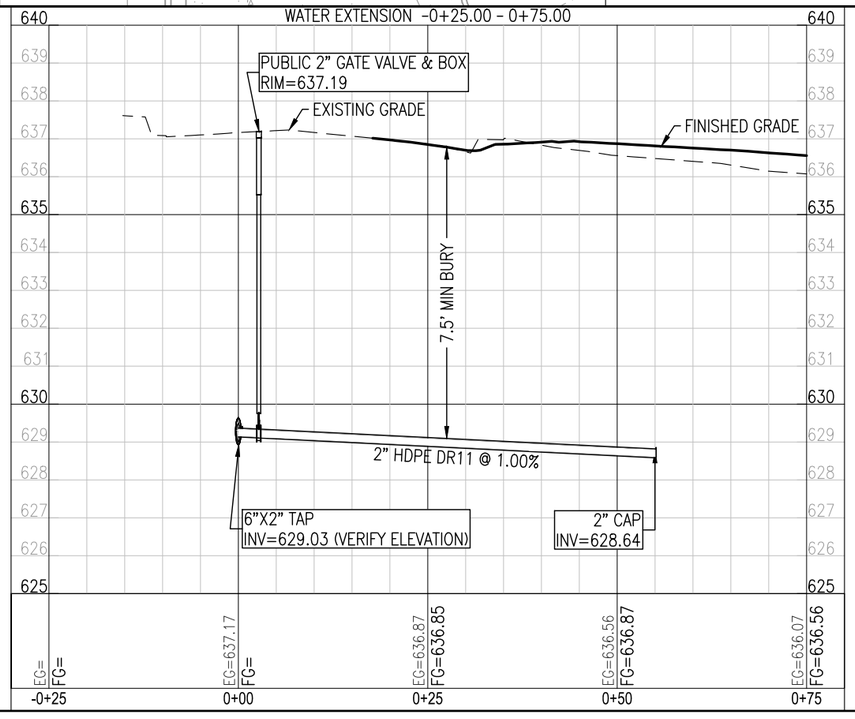
6





UTILITY NOTES	
REF	DESCRIPTION
6/3	PE WATERMAIN BEDDING
1/4	WATER VALVE BOX HDPE MAIN

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Structural, Civil and Forensic Engineering Services
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Voice: (218)727-5995
Fax: (218)727-7779

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WATER MAIN PLAN & PROFILE
Sheet Title

Sheet Number
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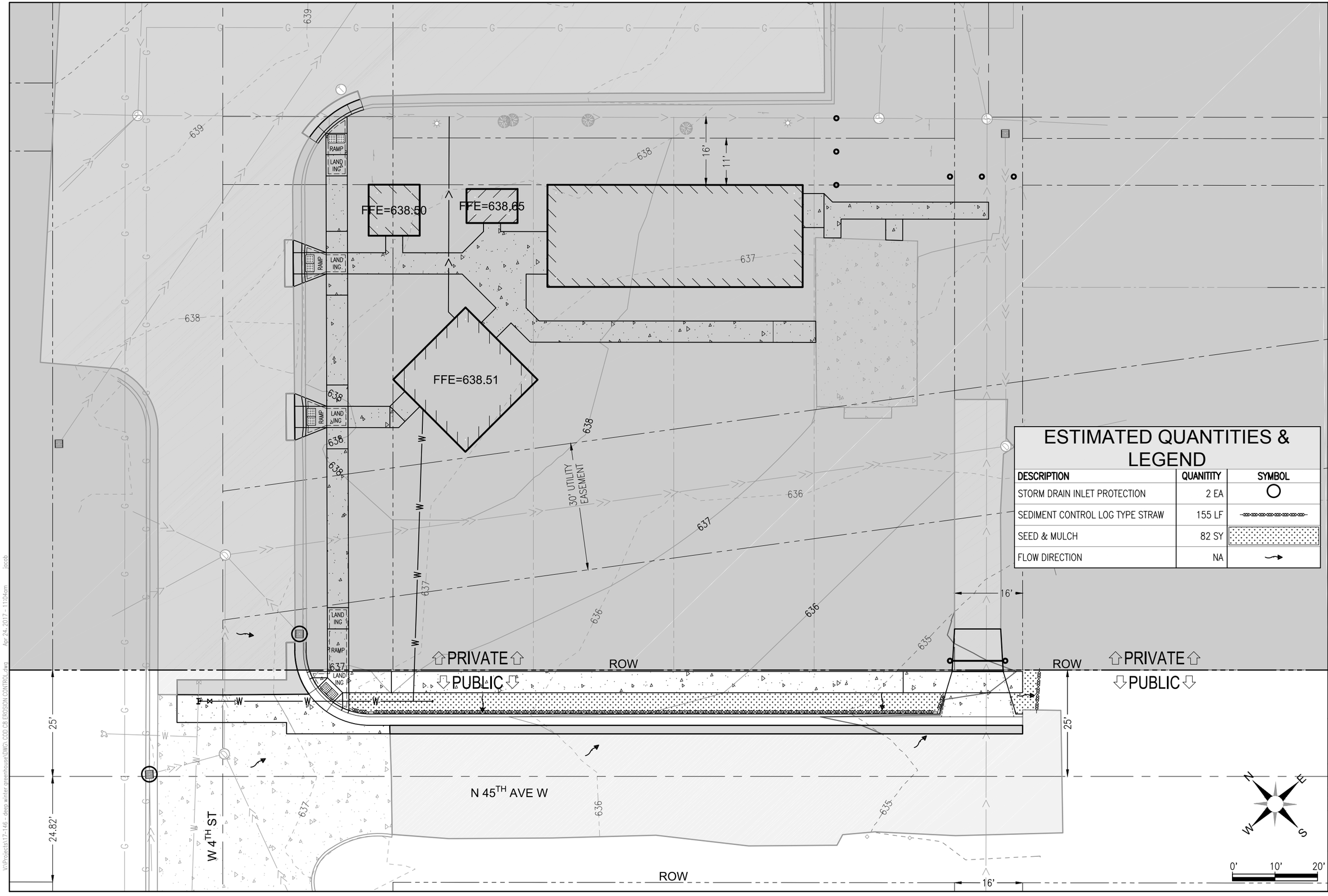

ESTIMATED QUANTITIES & LEGEND

DESCRIPTION	QUANITITY	SYMBOL
STORM DRAIN INLET PROTECTION	2 EA	
SEDIMENT CONTROL LOG TYPE STRAW	155 LF	
SEED & MULCH	82 SY	
FLOW DIRECTION	NA	

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EROSION CONTROL
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EROSION PREVENTION PRACTICES

THE CONTRACTOR MUST PLAN FOR AND IMPLEMENT APPROPRIATE BMPs SUCH AS CONSTRUCTION PHASING, VEGETATIVE BUFFER STRIPS, HORIZONTAL SLOPE GRADING, INSPECTION AND MAINTENANCE, AND OTHER CONSTRUCTION PRACTICES TO MINIMIZE EROSION AS NECESSARY.

THE CONTRACTOR MUST STABILIZE ALL EXPOSED SOIL AREAS (INCLUDING STOCK PILES.)

STABILIZATION MUST BE INITIATED IMMEDIATELY TO LIMIT SOIL EROSION WHENEVER ANY CONSTRUCTION ACTIVITY HAS PERMANENTLY OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS.

ALL EXPOSED SOIL AREAS WITHIN 200 FEET THAT DRAIN TO THE WATER'S EDGE AND NORMAL WETTED PERIMETERS MUST HAVE STABILIZATION ACTIVITIES COMPLETED WITHIN 24 HOURS.

TEMPORARY STOCK PILES WITHOUT SIGNIFICANT SILT, CLAY, OR ORGANIC COMPONENTS (E.G., CLEAN AGGREGATE STOCKPILES, DEMOLITION CONCRETE STOCKPILES, SAND STOCKPILES) AND CONSTRUCTED BASE COMPONENTS OF ROADS, PARKING LOTS AND SIMILAR SURFACES ARE EXEMPT FROM THIS REQUIREMENT BUT MUST BE HAVE SILT FENCE OR OTHER EFFECTIVE SEDIMENT CONTROLS ESTABLISHED AROUND ITS PERIMETER AND CANNOT BE PLACED IN ANY NATURAL BUFFERS, SURFACE WATERS, OR STORM WATER CONVEYANCE SYSTEMS.

IF USING STORMWATER CONVEYANCE CHANNELS, BMPs AND VELOCITY DISSIPATION DEVICES MUST BE ESTABLISHED TO PROVIDE A NON-EROSIVE FLOW VELOCITY TO MINIMIZE EROSION OF CHANNELS AND THEIR EMBANKMENTS, OUTLETS, ADJACENT STREAM BANKS, SLOPES, AND DOWNSTREAM WATERS DURING DISCHARGE CONDITIONS.

TEMPORARY OR PERMANENT DITCHES OR SWALES THAT ARE BEING USED AS SEDIMENT CONTAINMENT SYSTEMS DURING CONSTRUCTION MUST BE STABILIZED WITHIN 24 HOURS AFTER NO LONGER BEING USED AS A SEDIMENT CONTAINMENT SYSTEM.

APPLYING MULCH, HYDROMULCH, TACKIFIER, POLYACRYLAMIDE OR SIMILAR EROSION PREVENTION PRACTICES IS NOT ACCEPTABLE STABILIZATION IN ANY PART OF A TEMPORARY OR PERMANENT DRAINAGE DITCH OR SWALE.

PIPE OUTLETS MUST BE PROVIDED WITH TEMPORARY OR PERMANENT ENERGY DISSIPATION WITHIN 24 HOURS AFTER CONNECTION TO A SURFACE WATER.

SEDIMENT PREVENTION PRACTICES

THE CONTRACTOR MUST EMPLOY SEDIMENT CONTROL PRACTICES AS NECESSARY TO MINIMIZE SEDIMENT FROM ENTERING SURFACE WATERS AND INCLUDING CONVEYANCE SYSTEMS SUCH AS CURB AND GUTTER OR STORM SEWER INLETS.

IF DOWN GRADIENT SEDIMENT CONTROL AS OVERLOADED (BASE ON FREQUENT FAILURE OR EXCESSIVE MAINTENANCE REQUIREMENT), THE CONTRACTOR MUST INSTALL ADDITIONAL UPGRADIENT BMPs TO ELIMINATE THE OVERLOADING.

BMPs MUST BE ESTABLISHED ON ALL DOWN GRADIENT PERIMETERS AND BE LOCATED UPGRADIENCT OF ANY BUFFER ZONES. BMPs MUST BE IN PLACE BEFORE ANY UPGRADIENT LAND-DISTURBING ACTIVITIES BEGIN. THESE BMPs MUST REMAIN IN PLACE UNTIL FINAL STABILIZATION HAS BEEN ESTABLISHED.

THE CONTRACTOR SHALL RE-INSTALL ALL BMPs THAT HAVE BEEN ADJUSTED OR REMOVED TO ACCOMMODATE SHORT-TERM ACTIVITIES IMMEDIATELY AFTER THE SHORT-TERM ACTIVITY HAS BEEN COMPLETED.

ALL STORM DRAIN INLETS MUST BE PROTECTED BY APPROPRIATE BMPs DURING CONSTRUCTION UNTIL ALL SOURCES WITH POTENTIAL FOR DISCHARGING TO THE INLET HAVE BEEN STABILIZED. INLET PROTECTION MAY BE REMOVED FOR A PARTICULAR INLETS IF A SPECIFIC SAFETY CONCERN (STREET FLOODING/FREEZING) HAS BEEN IDENTIFIED BY THE OWNER.

VEHICLE TRACKING BMPs MUST BE INSTALLED TO MINIMIZE THE TRACK OUT OF SEDIMENT FROM THE CONSTRUCTION SITE. STREET SWEEPING MUST BE USED IF SUCH VEHICLE TRACKING BMPs ARE NOT ADEQUATE TO PREVENT SEDIMENT FROM BEING TRACKED ONTO THE STREET.

IF TEMPORARY DEWATERING BASINS ARE TO BE USED, THE CONTRACTOR SHALL GET ENGINEER APPROVAL PRIOR TO IMPLEMENTING TEMPORARY DEWATERING BASIN.

IF NOT SPECIFIED IN THE CONTRACT, THE CONTRACTOR MUST MINIMIZE SOIL, UNLESS INFEASIBLE, COMPACTION AND PRESERVE TOPSOIL.

THE CONTRACTOR MUST PRESERVE A 50 FOOT NATURAL BUFFER OR PROVIDE REDUNDANT BMPs WHEN A SURFACE WATER IS LOCATED WITHIN 50 FEET OF THE PROJECTS CONSTRUCTION LIMITS AND STORMWATER FLOWS TO THE SURFACE WATER.

DEWATERING AND TEMPORARY DEWATERING BASIN DRAINING

THE CONTRACTOR SHALL EVALUATE SITE CONDITIONS AND CONSTRAINTS TO SUPPLY A TEMPORARY DEWATERING BASIN THAT BEST SUITS THE CONSTRUCTION SITE.

THE CONTRACTOR MUST DISCHARGE TURBID OR SEDIMENT-LADEN WATERS RELATED TO DEWATERING TO A TEMPORARY OR PERMANENT SEDIMENTATION BASIN ON THE PROJECT SITE. THE CONTRACTOR MAY DISCHARGE FROM THE BASINS TO SURFACE WATERS IF THE BASIN WATER HAS BEEN VISUALLY CHECK TO ENSURE ADEQUATE TREATMENT HAS BEEN OBTAINED IN THE BASIN AND THAT NUISANCE CONDITIONS (SEE MINN. R. 7050.0210, SUBP.2) WILL NOT RESULT FROM THE DISCHARGE. IF THE WATER CANNOT BE DISCHARGED TO A BASIN PRIOR TO ENTERING THE SURFACE WATER, IT MUST BE TREATED WITH THE APPROPRIATE BMPs SUCH THAT THE DISCHARGE DOES NOT ADVERSELY AFFECT THE RECEIVING WATER OR DOWNSTREAM PROPERTIES. DISCHARGE POINTS SHALL BE ADEQUATELY PROTECT FROM EROSION AND SCOUR AND BE DISPERSED OVER ENERGY DISSIPATION MEASURES.

INSPECTIONS AND MAINTENANCE

THE CONTRACTOR MUST ENSURE THAT A TRAINED PERSON WILL ROUTINELY INSPECT THE ENTIRE CONSTRUCTION SITE AT LEAST ONCE EVERY 7 DAYS DURING ACTIVE CONSTRUCTION.

THE CONTRACTOR IS RESPONSIBLE FOR THE INSPECTION AND MAINTENANCE OF TEMPORARY AND PERMANENT WATER QUALITY MANAGEMENT BMPs AS WELL AS ALL EROSION PREVENTION AND SEDIMENT CONTROL BMPs UNTIL PERMANENT VEGETATIVE COVER WITH A DENSITY OF 70 PERCENT OF ITS EXPECTED FINAL GROWTH OR OTHERWISE APPROVED BY THE ENGINEER.

THE CONTRACTOR MUST INSPECT ALL BMPs TO ENSURE INTEGRITY AND EFFECTIVENESS. ALL NONFUNCTIONAL BMPs MUST BE REPAIRED, REPLACED, OR SUPPLEMENTED WITH FUNCTIONAL BMPs BY THE END OF THE NEXT BUSINESS DAY AFTER DISCOVERY, OR AS SOON AS FIELD CONDITIONS ALL. THE CONTRACTOR MUST INVESTIGATE AND COMPLY WITH THE FOLLOWING INSPECTION AND MAINTENANCE REQUIREMENTS;

A. ALL PERIMETER CONTROL DEVICES MUST BE REPAIRED, REPLACED, OR SUPPLEMENTED WHEN THEY BECOME NONFUNCTIONAL OR THE SEDIMENT REACHES 1/2 THE HEIGHT OF THE DEVICE.

B. DEWATERING BASINS MUST BE DRAINED AND THE SEDIMENTS REMOVED WHEN THE DEPTH OF SEDIMENT COLLECTED IN THE BASIN REACHES 1/2 THE STORAGE VOLUME.

C. SURFACE WATERS, INCLUDING CONVEYANCE SYSTEMS, MUST BE INSPECTED FOR EVIDENCE OF EROSION AND SEDIMENT DEPOSITION DURING EACH INSPECTION. THE REMOVAL AND STABILIZATION MUST TAKE PLACE WITHIN 7 DAYS OF DISCOVERY

D. CONSTRUCTION SITE VEHICLE EXIT LOCATIONS MUST BE INSPECTED FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING ONTO PAVED SURFACES. TRACKED SEDIMENT MUST BE REMOVED FROM ALL PAVED SURFACES BOTH ON AND OFF SITE WITHIN 24 HOURS OF DISCOVERY.

E. STREETS AND OTHER AREAS ADJACENT TO THE PROJECT MUST BE INSPECTED FOR EVIDENCE OF OFF-SITE ACCUMULATIONS OF SEDIMENT AND BE REMOVED IN A MANNER AND AT A FREQUENCY SUFFICIENT TO MINIMIZE OFF-SITE IMPACTS.

ALL INFILTRATION AREAS MUST BE INSPECTED TO ENSURE THAT NO SEDIMENT FROM ONGOING CONSTRUCTION ACTIVITY IS REACHING THE INFILTRATION AREA. ALL INFILTRATION AREAS MUST BE INSPECTED TO ENSURE THAT EQUIPMENT IS NOT BEING DRIVEN ACROSS THE INFILTRATION AREA.

POLLUTION PREVENTION MANAGEMENT MEASURES

STORAGE, HANDLING, AND DISPOSAL OF CONSTRUCTION PRODUCTS, MATERIALS, AND WASTES;

THE CONTRACTOR SHALL COMPLY WITH THE FOLLOWING THE MINIMIZE THE EXPOSURE TO STORMWATER OF ANY OF THE PRODUCTS, MATERIALS, OR WASTES. PRODUCTS OR WASTES WHICH ARE EITHER NOT A SOURCE OF CONTAMINATION TO STORMWATER OR ARE DESIGNED TO BE EXPOSED TO STORMWATER ARE NOT HELD TO THIS REQUIREMENT;

A. BUILDING PRODUCTS THAT HAVE THE POTENTIAL TO LEACH POLLUTANTS MUST BE UNDER COVER TO PREVENT THE DISCHARGE OF POLLUTANTS OR PROTECTED BY A SIMILARLY EFFECTIVE MEAN DESIGNED TO MINIMIZE CONTACT WITH STORMWATER.
B. PESTICIDES, HERBICIDES, INSECTICIDES, FERTILIZERS TREATMENT CHEMICALS, AND LANDSCAPE MATERIALS MUST BE UNDER COVERT TO PREVENT DISCHARGE OF POLLUTANTS.
C. HAZARDOUS MATERIALS AND TOXIC WASTE MUST BE PROPERLY STORED IN SEALED CONTAINERS TO PREVENT SPILLS, LEAKS, OR OTHER DISCHARGE. RESTRICTED ACCESS STORAGE AREAS MUST BE PROVIDED TO PREVENT VANDALISM. STORAGE AND DISPOSAL OF HAZARDOUS WASTE OR MATERIALS MUST BE IN COMPLIANCE WITH MINN. R. CH. 7045
D. SOLID WASTE MUST BE STORED, COLLECTED AND DISPOSED OF PROPERLY IN COMPLIANCE WITH MINN R. CH. 7035
E. PORTABLE TOILETS MUST BE POSITIONED SO THAT THEY ARE SECURE AND WILL NOT BE TIPPED OR KNOCKED OVER. SANITARY WASTE MUST BE DISPOSED OF PROPERLY IN ACCORDANCE WITH MINN. R. CH. 7041
F. THE CONTRACTOR SHALL TAKE REASONABLE STEPS TO PREVENT DISCHARGE OF SPILLED OR LEAKED CHEMICALS FROM ANY AREA WHERE CHEMICALS WILL BE LOADED OR UNLOADED.
G. THE CONTRACTOR MUST ENSURE ADEQUATE SUPPLIES ARE AVAILABLE AT ALL TIMES TO CLEAN UP DISCHARGED MATERIALS AND AN APPROPRIATE DISPOSAL METHOD IS AVAILABLE. THE PERMITTEE(S) MUST REPORT AND CLEAN UP SPILLS IMMEDIATELY.
H. THE CONTRACTOR MUST PROVIDE EFFECTIVE CONTAINMENT FOR ALL LIQUID AND SOLID WASTES GENERATED BY WASHOUT OPERATIONS. THE LIQUID AND SOLID WASHOUT WASTES MUST NOT CONTACT THE GROUND, AND THE CONTAINMENT MUST BE DESIGNED SO THAT IT DOES NOT RESULT IN RUNOFF FROM WASHOUT OPERATIONS. A SIGN MUST BE INSTALLED ADJACENT TO EACH WASHOUT FACILITY THAT REQUIRES SITE PERSONNEL TO UTILIZE THE PROPER FACILITIES FOR DISPOSAL OF CONCRETE AND OTHER WASHOUT WASTES.

FINAL STABILIZATION

THE CONTRACTOR MUST ENSURE FINAL STABILIZATION OF THE SITE. FINAL STABILIZATION IS NOT COMPLETE UNTIL ALL REQUIREMENTS;

1. ALL SOIL DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED AND ALL SOILS ARE STABILIZED BY A UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70 PERCENT OF ITS EXPECTED FINAL GROWTH OVER THE ENTIRE PERVIOUS SURFACE AREA.

2. PERMANENT STROMWATER MANAGEMENT SYSTEM IS CONSTRUCTED AND ALL SEDIMENT HAS BEEN REMOVED FROM CONVEYANCE SYSTEMS AND STABILIZED WITH PERMANENT COVER.

3. ALL TEMPORARY BMPs HAVE BEEN REMOVED.

4. FOR CONSTRUCTION PROJECTS ON AGRICULTURAL LAND THE DISTURBED LAND HAS BEEN RETURNED TO ITS RECONSTRUCTION AGRICULTURAL USE.

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EROSION CONTROL NOTES
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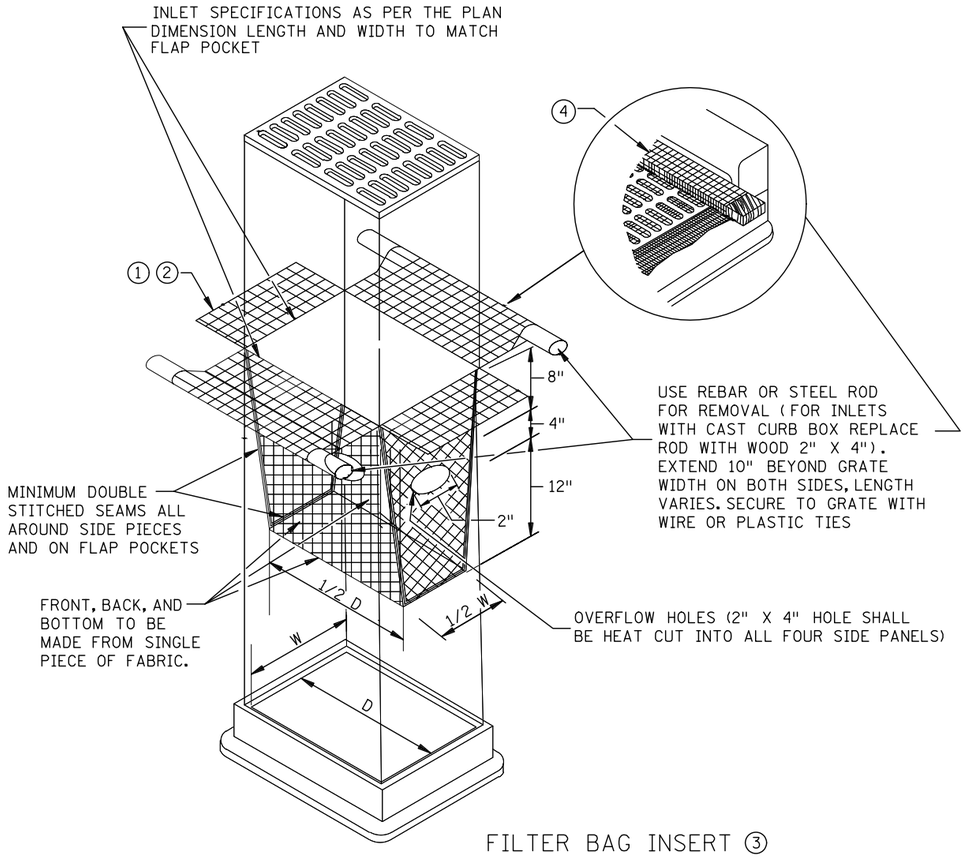


FILTER BAG INSERT ③

(CAN BE INSTALLED IN ANY INLET TYPE
WITH OR WITHOUT A CURB BOX)

NOTES:

SEE MNDOT SPECS. 2573, 3137, & 3886.

DEVICES MUST BE ADJUSTED ACCORDINGLY AS TO NOT CAUSE FLOODING ON ROADWAY THAT WOULD IMPEED TRAFFIC FLOW.

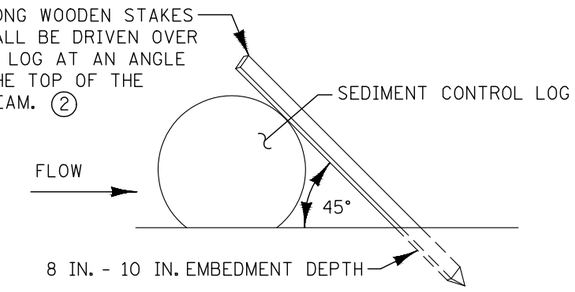
① ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.

② FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

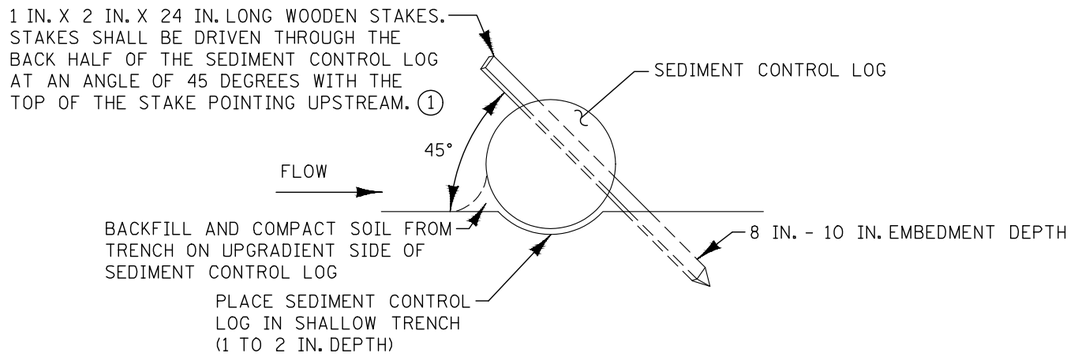
③ INSTALLATION NOTES:
DO NOT PLACE FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE PLACED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE OF 3 INCHES BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES. WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCH SIDE CLEARANCE.

④ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 INCH X 4 INCH OR USE A ROCK SOCK OR SAND BAGS IN PLACE OF THE FLAP POCKETS.

TEMPORARY SEDIMENT CONTROL
STORM DRAIN INLET PROTECTION NTS.



TYPES: WOOD CHIP, COMPOST, OR ROCK



TYPES: STRAW, WOOD FIBER, OR COIR

NOTES:

SEE MNDOT SPECS. 2573, 3149, 3874, 3882, 3886, & 3897.

① SPACE BETWEEN STAKES SHALL BE A MAXIMUM OF 1 FOOT FOR DITCH CHECKS OR 2 FEET FOR OTHER APPLICATIONS.

② PLACE STAKES AS NEEDED TO PREVENT MOVEMENT OF SEDIMENT CONTROL LOGS PLACED ON SLOPES OR AS NEEDED DUE TO OTHER FACTORS. STAKES SHALL BE INCIDENTAL.

TEMPORARY SEDIMENT CONTROL
SEDIMENT CONTROL LOGS NTS.

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EROSION CONTROL DETAILS
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