RFB NO. 316031

CONSTRUCTION DOCUMENTS
PROJECT MANUAL

DANE COUNTY DEPARTMENT OF PUBLIC WORKS,
HIGHWAY AND TRANSPORTATION

PUBLIC WORKS SOLID WASTE DIVISION
1919 ALLIANT ENERGY CENTER WAY
MADISON, WISCONSIN 53713

REQUEST FOR BIDS NO. 316031
CONSTRUCT GENERATOR BUILDING
DANE COUNTY LANDFILL SITE #1
6718 EAST VERONA AVENUE
VERONA, WISCONSIN

Due Date / Time: **THURSDAY, AUGUST, 11, 2016 / 2:00 P.M.**

Location: **PUBLIC WORKS OFFICE**

Performance / Payment Bond: **100% OF CONTRACT AMOUNT**

Bid Deposit: **5% OF BID AMOUNT**

FOR INFORMATION ON THIS REQUEST FOR BIDS, PLEASE CONTACT:

JOHN WELCH, PROJECT MANAGER
TELEPHONE NO.: 608/516-4154
FAX NO.: 608/267-1533
E-MAIL: WELCH@COUNTYOFDANE.COM

TABLE OF CONTENTS FOR RFB NO. 316031

31 10 00 - Site Clearing
31 20 00 - Excavating Backfilling and Compaction

DRAWINGS

Drawings for RFB 316031 are a separate document entitled “Dane County No. 1 (Verona) Landfill Bid # 316031 – Construct Generator Building”, dated June 2016, prepared by Dane County and Engineering 370, LLC (16 pages).

FIGURES

Figure 1 – Transformer pad specifications
Figure 2 – Floor openings under equipment boxes
Figure 3 – Floor openings under generator boxes
Figure 4 – Floor openings under Master UCB

NOTE

All HVAC Specifications and Drawings were designed and prepared by Engineering 370, LLC.

LEGAL NOTICE

INVITATION TO BID

Dane County Public Works, Highway & Transportation Dept., 1919 Alliant Energy Center Way, Madison, WI 53713, will receive sealed Bids until:

2:00 P.M., THURSDAY, AUGUST 11, 2016

REQUEST FOR BIDS NO. 316031

CONSTRUCT GENERATOR BUILDING

DANE COUNTY LANDFILL SITE #1

6718 EAST VERONA AVENUE

VERONA, WISCONSIN

Dane County is inviting Bids for construction services at Dane County Landfill Site #1. The project will consist of providing a pre-engineered metal building of approximately 1,104 square feet including associated site, concrete, and HVAC work. Only firms with capabilities, experience & expertise with similar projects should obtain this Request for Bids document & submit Bids.

Request for Bids document may be obtained after **2:00 p.m. on July 21, 2016** by downloading it from countyofdane.com/pwbids. Please call John Welch, Project Manager, at 608/516-4154 or our office at 608/266-4018, for any questions or additional information.

All Bidders must be a registered vendor with Dane County & pay an annual registration fee & must be pre-qualified as a Best Value Contractor before award of Contract. Complete Vendor Registration Form at danepurchasing.com/Account/Login? or obtain one by calling 608/266-4131. Complete Pre-qualification Application for Contractors at countyofdane.com/pwht/BVC_Application.aspx or obtain one by calling 608/266-4029.

A pre-bid site tour will be held August 2, 2016 at 12:00 p.m. at Dane County Landfill Site #1, starting at the landfill gas to energy facility. Bidders are encouraged to attend this optional tour.

PUBLISH: **THURSDAY JULY 21TH & JULY 28TH, 2016 - WISCONSIN STATE JOURNAL**
THURSDAY JULY 21TH & JULY 28TH, 2016 - THE DAILY REPORTER

DANE COUNTY DEPARTMENT of PUBLIC WORKS, HIGHWAY and TRANSPORTATION

County Executive
Joseph T. Parisi

1919 Alliant Energy Center Way ◆ Madison, Wisconsin 53713
Phone: (608) 266-4018 ◆ FAX: (608) 267-1533

Commissioner / Director
Gerald J. Mandli

BEST VALUE CONTRACTING APPLICATION

CONTRACTORS / LICENSURE APPLICANTS

The Dane County Department of Public Works requires all contractors to be pre-qualified as a best value contractor with the County prior to being awarded a contract. In addition, the County pre-qualifies potential contractors and sub-contractors who wish to work on County contracts. Subcontractors must become pre-qualified ten (10) days prior to commencing work under any Dane County Public Works Contract. Potential subcontractors are urged to become pre-qualified as early as possible. This document shall be completed, properly executed, along with the necessary attachments and additional information that the County requires for the protection and welfare of the public in the performance of a County contract.

Contractors or subcontractors of any tier who attain pre-qualification status will retain that status for a period of two (2) years from the date of qualification. Contractors shall notify the Dane County Department of Public Works, Highway & Transportation within fifteen (15) days of any changes to its business or operations that are relevant to the pre-qualification application. Failure to do so could result in suspension, revocation of the contractor's pre-qualification, debarment from County contracts for up to three (3) years and / or other sanctions available under the law.

No contracts will be awarded for construction work performed on Dane County projects unless the contractor is currently approved as a Wisconsin Trade Trainer or has applied for approval as an Apprenticeship Trade Trainer to the Wisconsin Department of Workforce Development and agrees to an acceptable apprenticeship program. If you are not currently approved as a Wisconsin Trade Trainer, or have not applied for approval as an Apprenticeship Trade Trainer, please contact the Department of Workforce Development - Bureau of Apprenticeship Standards at 608/266-3133 or visit their web site at: dwd.wisconsin.gov/apprenticeship/.

EXEMPTIONS

- Contractors who employ less than five (5) apprenticeable trade workers are not required to pre-qualify.
- Contractors performing work that does not apply to an apprenticeable trade, as outlined in Appendix A.
- The contractor / subcontractor provides sufficient documentation to demonstrate one or more of the following:
    - apprentices are not available in a specific geographic area;
    - the applicable apprenticeship program is unsuitable or unavailable; or
    - there is a documented depression of the local construction market which prevents compliance.

SEC.	PROOF OF RESPONSIBILITY	CHECK IF APPLICABLE
1	Does your firm possesses all technical qualifications and resources, including equipment, personnel and financial resources, necessary to perform the work required for any project or obtain the same through the use of responsible, pre-qualified subcontractors?	Yes: ☐ No: ☐
2	Will your firm possess all valid, effective licenses, registrations or certificates required by federal, state, county, or local law, which are necessary for the type of work to be performed including, but not limited to, those for any type of trade work or specialty work?	Yes: ☐ No: ☐
3	Will your firm meet all bonding requirements as required by applicable law or contract specifications?	Yes: ☐ No: ☐
4	Will your firm meet all insurance requirements as required by applicable law or specifications, including general liability insurance, workers compensation insurance and unemployment insurance requirements?	Yes: ☐ No: ☐
5	Will your firm maintain a substance abuse policy for employees hired for public works contracts that comply with Wis. Stats. Sec. 103.503?	Yes: ☐ No: ☐
6	Does your firm acknowledge that it must pay all craft employees on public works projects the wage rates and benefits required under Section 66.0903 of the Wisconsin Statutes?	Yes: ☐ No: ☐
7	Will your firm fully abide by the equal opportunity and affirmative action requirements of all applicable laws, including County ordinances?	Yes: ☐ No: ☐
8	In the past three (3) years, has your firm had control or has another corporation, partnership or other business entity operating in the construction industry controlled it? If so, please attach a statement explaining the nature of the firm relationship?	Yes: ☐ No: ☐ If Yes, attach details.
9	In the past three (3) years, has your firm had any type of business, contracting or trade license, certification or registration revoked or suspended?	Yes: ☐ No: ☐ If Yes, attach details.
10	In the past three (3) years, has your firm been debarred by any federal, state or local government agency?	Yes: ☐ No: ☐ If Yes, attach details.
11	In the past three (3) years, has your firm defaulted or failed to complete any contract?	Yes: ☐ No: ☐ If Yes, attach details.
12	In the past three (3) years, has your firm committed a willful violation of federal, state or local government safety laws as determined by a final decision of a court or government agency authority.	Yes: ☐ No: ☐ If Yes, attach details.
13	In the past three (3) years, has your firm been in violation of any law relating to your contracting business where the penalty for such violation resulted in the imposition of a penalty greater than $10,000?	Yes: ☐ No: ☐ If Yes, attach details.
14	Is your firm Executive Order 108 precertified with the State of Wisconsin?	Yes: No: ☐
15	Is your firm an active Wisconsin Trade Trainer as determined by the Wisconsin Bureau of Apprenticeship Standards?	Yes: ☐ No: ☐
16	Is your firm exempt from being pre-qualified with Dane County?	Yes: ☐ No: ☐ If Yes, attach reason for exemption.
17	Does your firm acknowledge that in doing work under any County Public Works Contract, it will be required to use as subcontractors only those contractors that are also pre-qualified with the County or become so ten days prior to commencing work?	Yes: ☐ No: ☐
18	Contractor has been in business less than one year?	Yes: ☐ No: ☐
19	Is your firm a first time Contractor requesting a one time exemption, but, intend to comply on all future contracts and are taking steps typical of a “good faith” effort?	Yes: ☐ No: ☐
20	Not applicable. My firm does not intend to work on Best Value Contracts. Note: Best Value Contracting is required to bid on most Public Works Contracts (if unclear, please call Jan Neitzel Knox 608-266-4029).	Yes: ☐ No: ☐

SIGNATURE SECTION

Your firm's Officer, or the individual who would sign a bid and / or contract documents must sign this document.

I do hereby certify that all statements herein contained are true and correct to the best of my knowledge:

Signature _____ Date _____

Printed or Typed Name and Title _____

NAME AND ADDRESS OF CONTRACTOR	
Name of Firm:	
Address:	
City, State, Zip:	
Telephone Number:	
Fax Number:	
E-mail Address:	

REMEMBER!

Return all to forms and attachments, or questions to:

JAN NEITZEL KNOX
EMAIL: NEITZEL-KNOX@COUNTYOFDANE.COM
OFFICE: (608)266-4029, FAX: (608)267-1533

DANE COUNTY DEPARTMENT OF PUBLIC WORKS,
HGHWAY & TRANSPORTATION
1919 ALLIANT ENERGY CENTER WAY
MADISON, WI 53713

APPENDIX A

APPRENTICEABLE TRADES

Bricklayer
Carpenter
Cement Mason (Concrete Finisher)
Cement Mason (Heavy Highway)
Construction Craft Laborer
Data Communications Installer
Electrician
Elevator Mechanic / Technician
Environmental Systems Technician / HVAC Service Technician / HVAC Install & Service
Glazier
Heavy Equipment Operator / Operating Engineer
Insulation Worker (Heat & Frost)
Iron Worker (Assembler, Metal Buildings)
Painter / Decorator
Plasterer
Plumber
Roofer / Waterproofer
Sheet Metal Worker
Sprinkler Fitter
Steamfitter (Service & Refrigeration)
Taper & Finisher
Telecommunications (Voice, Data & Video) Installer / Technician
Tile Setter

INSTRUCTIONS TO BIDDERS

TABLE OF CONTENTS

1. GENERAL

A. Before submitting Bid, bidder shall thoroughly examine all Construction Documents. Successful Bidder shall be required to provide all the Work that is shown on Drawings, set forth in Specifications, or reasonably implied as necessary to complete Contract for this project.

B. Bidder shall visit site to become acquainted with adjacent areas, means of approach to site, conditions of actual site and facilities for delivering, storing, placing, and handling of materials and equipment.

C. Pre-bid meeting is scheduled on August 2, 2016 at 12:00 PM at Dane County Landfill Site #1, 6718 East Verona Avenue, Verona, Wisconsin. Attendance by all bidders is optional, however bidders and subcontractors are strongly encouraged to attend.

D. Visits at other times can also be arranged. Coordinate site access activities with Projects Manager, John Welch, 608/516-4154.

E. Failure to visit site or failure to examine any and all Construction Documents will in no way relieve successful Bidder from necessity of furnishing any necessary materials or equipment, or performing any work, that may be required to complete the Work in accordance with Drawings and Specifications. Neglect of above requirements will not be accepted as reason for delay in the Work or additional compensation.

2. DRAWINGS AND SPECIFICATIONS

A. Drawings and Specifications that form part of this Contract, as stated in Article 1 of General Conditions of Contact, are enumerated in Document Index of these Construction Documents.

B. Complete sets of Drawings and Specifications for all trades will be issued to all Bidders, irrespective of category of work to be bid on, in order that all Bidders may be familiar with work of other trades as they affect their bid.

C. For deposit refund, return complete sets of Drawings and Specifications to same location they were picked up within ninety (90) days after Bid Due Date. After that time, deposit will be forfeited.

3. INTERPRETATION

A. No verbal explanation or instructions will be given in regard to meaning of Drawings or Specifications before Bid Due Date. Bidders shall bring inadequacies, omissions or conflicts to Owner or Architect / Engineer's attention at least ten (10) days before Bid Due Date. Prompt clarification will be available to all bidders by Addendum.

B. Failure to so request clarification or interpretation of Drawings and Specifications will not relieve successful Bidder of responsibility. Signing of Contract will be considered as implicitly denoting that Contractor has thorough understanding of scope of the Work and comprehension of Construction Documents.

C. Owner or Architect / Engineer will not be responsible for verbal instructions.

4. QUALIFICATIONS OF BIDDER (CONTRACTOR AND SUBCONTRACTOR)

A. Before award of Contract can be approved, Owner shall be satisfied that Bidder involved meets following requirements:

1. Has completed at least one (1) project of at least fifty percent (50%) of size or value of Division of work being bid and type of work completed is similar to that being bid. If greater magnitude of experience is deemed necessary, other than size or value of work, such requirements will be described in appropriate section of Specifications.

2. Maintains permanent place of business.

3. Can be bonded for terms of proposed Contract.

4. Has record of satisfactorily completing past projects. Criteria which will be considered in determining satisfactory completion of projects by bidder will include:

    a. Completed contracts in accordance with drawings and specifications.
    b. Diligently pursued execution of work and completed contracts according to established time schedule unless Owner grants extensions.
    c. Fulfilled guarantee requirements of construction documents.
    d. Is not presently on ineligible list maintained by County's Department of Administration for noncompliance with equal employment opportunities and affirmative action requirements.
    e. Authorized to conduct business in Wisconsin. By submitting Bid, bidder warrants that it has: complied with all necessary requirements to do business in State of Wisconsin; that persons executing contract on its behalf are authorized to do so; and, if corporation, that name and address of bidder's registered agent are as set forth in Contract. Bidder shall notify Owner immediately, in writing, of any change in its

registered agent, their address, and bidder's legal status. For partnership, term "registered agent" shall mean general partner.

B. County's Public Works Project Engineer will make such investigations as are deemed necessary to determine ability of bidder to perform the Work, and bidder shall furnish to County's Public Works Project Engineer or designee all such information and data for this purpose as County's Public Works Project Engineer may request. Owner reserves right to reject Bid if evidence submitted by, or investigation of, bidder fails to satisfy Owner that bidder is responsible and qualified to carry out obligations of Contract and to complete the Work contemplated therein.

5. BID GUARANTEE

A. Bank certified check, cashier's check or Bid Bond, payable to County in amount not less than five percent (5%) of maximum bid, shall accompany each Bid as guarantee that if Bid is accepted, Bidder will execute and return proposed Contract and Performance and Payment Bonds within ten (10) days after being notified of acceptance of Bid. Company issuing bonds must be licensed to do business in Wisconsin.

B. Any bid, which is not accompanied by bid guarantee, will be considered "No Bid" and will not be read at Bid Due Date.

C. If successful Bidder so delivers Contract, Certificate of Insurance, and Performance and Payment Bonds, check will be returned to Bidder. In case Bidder fails to deliver such Contract, insurance, and bond, amount of bid guarantee will be forfeited to County as liquidated damages.

D. All checks tendered as bid guarantee, except those of three (3) lowest qualified, responsible bidders, will be returned to their makers within three (3) days after Bid Due Date. All such retained checks will be returned immediately upon signing of Contract and Performance and Payment Bonds by successful Bidder.

6. WITHDRAWAL OF BIDS

A. Bids may be withdrawn by written request received from bidder or authorized representative thereof prior to time fixed for Bid Due Date, without prejudice to right of bidder to file new Bid. Withdrawn Bids will be returned unopened. Negligence on part of bidder in preparing their Bid confers no right for withdrawal of Bid after it has been opened.

B. No Bid may be withdrawn for period of sixty (60) days after Bid Due Date.

C. If Bid contains error, omission or mistake, bidder may limit liability to amount of bidder's guarantee by giving written Notice of Intent not to execute Contract to Owner within seventy-two (72) hours of Bid Due Date.

7. CONTRACT FORM

A. Sample copy of contract that successful Bidder will be required to enter into is included in these Construction Documents and bidders are required to familiarize themselves with all conditions contained therein.

8. CONTRACT INTERESTS BY COUNTY PUBLIC OFFICIALS

A. In accordance with Wisconsin Statute 946.13, county official may not bid for or enter into any contract involving receipts or disbursements of more than $15,000.00 in a year, in which

they have private pecuniary interest, direct or indirect if at same time they are authorized to take official action with respect to making of this Contract. Any contract entered into in violation of this Statute is void and County incurs no liability thereon. This subsection does not affect application and enforcement of Wisconsin Statute 946.13 by state prosecutors in criminal courts of this state.

9. EMERGING SMALL BUSINESS PROVISIONS

A. **Emerging Small Business Definition.** For purposes of this provision, ESB is defined as:

1. Independent business concern that has been in business minimum of one year;

2. Business located in State of Wisconsin;

3. Business comprised of less than twenty-five (25) employees;

4. Business must not have gross sales in excess of three million dollars ($3,000,000.00) over past three years; and

5. Business does not have history of failing to complete projects.

B. **Emerging Small Business (ESB) Involvement.** Bidder shall make good faith effort to award minimum of ten percent (10%) of the Work to ESBs. Bidder shall submit report to Dane County Contract Compliance Officer within twenty-four (24) hours after Bid Due Date demonstrating such efforts. Good faith efforts means significant contact with ESBs for purposes of soliciting bids from them. Failure to make or demonstrate good faith efforts will be grounds for disqualification.

C. **Emerging Small Business Report.** Emerging Small Business Enterprise Report is to be submitted by Bidder in separate envelope marked "Emerging Small Business Report". This report is due by 2:00 p.m. following specified twenty-four (24) hours after Bid Due Date. Bidder who fails to submit Emerging Small Business Report shall be deemed not responsive.

D. **ESB Goal.** Goal of this project is ten percent (10%) ESB participation. ESB utilizations are shown as percentage of total Bid. If Bidder meets or exceeds specified goal, Bidder is only required to submit Form A - Certification, and Form B - Involvement. Goal shall be met if Bidder qualifies as ESB.

E. **Report Contents.** Following award of Contract, Bidder shall submit copies of executed contracts for all Emerging Small Businesses. Emerging Small Business Report shall consist of these:

1. Form A - Certification;

2. Form B - Involvement;

3. Form C - Contacts;

4. Form D - Certification Statement (if appropriate); and

5. Supportive documentation (i.e., copies of correspondence, telephone logs, copies of advertisements).

F. **ESB Listing.** Bidders will solicit bids from ESB listing provided by Dane County. An ESB listing is available on the Dane County Targeted Business Directory at http://pdf.countyofdane.com/commissions/2013-2015_Targeted_Business_Directory.pdf

An additional listing of potential ESBs can be found on the Wisconsin Department of Transportation web site at http://www.dot.wisconsin.gov/business/engrserv/dbe-firms.htm.

G. **ESB Certification.** All contractors, subcontractors and suppliers seeking ESB certification must complete and submit Emerging Small Business Certification Application to Dane County Contract Compliance Program.

H. **Certification Statement.** If ESB firm has not been certified by County as ESB prior to submittal of this Bid, ESB Report cannot be used to fulfill ESB goal for this project unless firm provides "Form D - Certification Statement". Certification statement must be completed and signed by ESB firm.

I. **Questions.** Questions concerning Emerging Small Business provisions shall be directed to:

Dane County Contract Compliance Officer
City-County Building, Room 421
210 Martin Luther King, Jr. Blvd.
Madison, WI 53703
608/266-5623

J. **Substituting ESBs.** In event of any significant changes in subcontract arrangements or if need arises to substitute ESBs, Bidder shall report such proposed changes to Contract Compliance Officer to making any official changes and request authorization to substitute ESB firm. Bidder further agrees to make every possible effort to replace ESB firm with another qualified ESB firm.

K. **Good Faith Efforts.** Good faith efforts can be demonstrated by meeting all of these obligations:

1. Selecting portions of the Work to be performed by ESBs in order to increase likelihood of meeting ESB goal including, where appropriate, breaking down Contract into smaller units to facilitate ESB participation.

2. Advertising in general circulation, trade associations and women / minority focus media concerning subcontracting opportunities.

3. Providing written notices to reasonable number of specific ESBs that their interest in Contract was being solicited in sufficient time to allow ESBs to participate effectively.

4. Following up on initial solicitations of interest by contacting ESBs within five (5) working days prior to Bid Due Date to determine with certainty whether ESB were interested, to allow ESBs to prepare bids.

5. Providing interested ESB with adequate information about Drawings, Specifications and requirements of Contract.

6. Using services of available minority, women and small business organizations and other organizations that provide assistance in recruitment of MBEs / WBEs / ESBs.

7. Negotiating in good faith with interested ESBs, not rejecting ESBs as unqualified without sound reason based on thorough investigation of their capabilities.

8. Submitting required project reports and accompanying documents to County's Contract Compliance Officer within twenty-four (24) hours after Bid Due Date.

L. **Appeals Disqualification of Bid.** Bidder who is disqualified may appeal to Public Works & Transportation Committee and Equal Opportunity Commission.

10. METHOD OF AWARD - RESERVATIONS

A. Following will be basis of award of Contract, providing cost does not exceed amount of funds then estimated by County as available to finance Contract(s):

1. Lowest dollar amount submitted by qualified responsible bidder on Base Bid for all work comprising project, combined with such additive Owner accepted alternates.

2. Owner reserves right to reject all bids or any bid, to waive any informality in any bid, and to accept any bid that will best serve interests of County.

3. Unit Prices and Informational Bids will not be considered in establishing low bidder.

11. SECURITY FOR PERFORMANCE AND PAYMENTS

A. Simultaneous with delivery of signed Contract, Bidder shall be required to furnish Performance and Payment Bonds as specified in Article 29 of General Conditions of Contract, "Contract Security". Surety Company shall be licensed to do business in Wisconsin. Performance and Payment Bonds must be dated same date or subsequent to date of Contract. Performance and Payment Bonds must emulate information in Sample Performance and Payment Bonds in Construction Documents.

B. Provide certified copy of power of attorney from Surety Company showing that agent who signs Bond has power of attorney to sign for Surety Company. Secretary or Assistant Secretary of company must sign this certification, not attorney-in-fact. Certification must bear same or later date as Bond. Power of Attorney must emulate model power of attorney information detailed in Sample Performance and Payment Bonds.

C. If Bidder is partnership or joint venture, State certified list, providing names of individuals constituting partnership or joint venture must be furnished. Contract itself may be signed by one partner of partnership, or one partner of each firm comprising joint venture, but Performance and Payment Bonds must be signed by all partners.

D. If Bidder is a corporation, it is necessary that current certified copy of resolution or other official act of directors of corporation be submitted showing that person who signs Contract is authorized to sign contracts for corporation. It is also necessary that corporate seal be affixed to resolution, contract, and performance and payment bonds. If your corporation has no seal, it is required that above documents include statement or notation to effect that corporation has no seal.

12. TAXES

A. Bidder shall include in Bid, all Sales, Consumer, Use and other similar taxes required by law.

B. In accordance with Wisconsin Statute 71.80(16)(a),successful nonresident bidder, whether incorporated or not, and not otherwise regularly engaged in business in this state, shall file surety bond with State of Wisconsin Department of Revenue payable to Department of Revenue, to guarantee payment of income taxes, required unemployment compensation contributions, sales and use taxes and income taxes withheld from wages of employees, together with any penalties and interest thereon. Amount of bond shall be three percent (3%) of Contract or subcontract price on all contracts of $50,000 or more.

13. SUBMISSION OF BIDS

A. All Bids shall be submitted on standard Bid Form bound herein and only Bids that are made on this Bid Form will be considered. Entire Bid Form and other supporting documents, if any, shall be removed or copied from Construction Documents, filled out, and submitted in manner specified hereinafter. Submit completed Bid Bond with Bid as well.

B. No bids for any subdivision or any sub-classification of this Work, except as indicated, will be accepted. Any conditional Bid, amendment to Bid Form or appended item thereto, or inclusion of any correspondence, written or printed matter, or details of any nature other than that specifically called for, which would alter any essential provision of Construction Documents, or require consideration of unsolicited material or data in determining award of Contract, will disqualify Bid. Telecommunication alterations to Bid will not be accepted.

C. Bidders must submit single Bid for all the Work.

D. Bid amounts shall be inserted in words and in figures in spaces provided on Bid Form; in case of conflict, written word amounts will govern.

E. Addenda issued after Bid Letting shall become part of Construction Documents. Bidders shall acknowledge receipt of such addenda in appropriate space provided on Bid Form. Bid may be rejected if receipt of any particular addendum applicable to award of Contract has not been acknowledged on Bid Form.

F. Bids shall be signed, placed in envelope, sealed and delivered before due time to place designated in Invitation to Bid, and identified with project name, bid number, location, category of work being bid upon, Bid Due Date, name and address of bidder.

G. Bidder shall be responsible for sealed Bid being delivered to place designated for Bid Due Date on or before date and time specified. Bids received after time of closing will be rejected and returned to bidder unopened.

H. Bid will be considered invalid and will be rejected if bidder has not signed it.

I. Faxed Bids will not be accepted.

J. Bidder's organization shall submit completed with Bid, Fair Labor Practices Certification form, included in these Construction Documents.

14. SUBCONTRACTOR LISTING

A. Bidders shall be required to submit list of major subcontractors for General Construction, Plumbing, HVAC, and Electrical work proposed for this project to include committed prices for each subcontractor. List shall be placed in separate sealed envelope that must be clearly identified as "Major Subcontractor List", for named project and name of Bidder submitting it. County must receive envelope no later than date by which successful Bidder is required to submit his or her signed Contract, as established in Construction Documents.

15. ALTERNATE BIDS

A. Not Applicable.

16. INFORMATIONAL BIDS

A. Not Applicable.

17. UNIT PRICES

A. Not Applicable.

18. COMMENCEMENT AND COMPLETION

A. Successful Bidder shall commence work when schedule and weather permit, but no later than stated in Bid Form. Contractor shall pursue the Work regularly and continuously at reasonable rate to insure completion of the Work within time stated in Bid.

B. Should it be found impossible to complete the Work on or before time specified for completion, written request may be submitted for extension of time setting forth reasons believed to justify granting of such request. Refer to Article 20 of General Conditions of Contract, titled "Time for Completion".

19. WORK BY OWNER

A. This work will be accomplished by Owner or will be let under separate contracts and will not be included under this Contract:

   1. All electrical Work and utility relocation shall be done separately by Owner at a later date. Contractor is required to locate and verify all utility lines within the vicinity of the Work as to not disrupt existing operations.

20. SPECIAL HAZARDS COVERAGE

A. Not Applicable.

FORM A

DANE COUNTY
EMERGING SMALL BUSINESS REPORT - CERTIFICATION

In accordance with General Conditions of Contract, submit this Emerging Small Business Report within 24 hours after Bid Due Date.

PROJECT NAME: _____

_____

BID NO.: _____ BID DUE DATE: _____

BIDDER INFORMATION

COMPANY NAME: _____

ADDRESS: _____

_____

TELEPHONE NO.: _____

CONTACT PERSON: _____

FORM B

DANE COUNTY
EMERGING SMALL BUSINESS REPORT - INVOLVEMENT

Page ___ of ___
(Copy this Form as necessary to provide complete information)

COMPANY NAME: ____________________

PROJECT NAME: ____________________ BID NO.: ____________________

ESB NAME: ____________________ CONTACT PERSON: ____________________

ADDRESS: ____________________ PHONE NO.: ____________________

CITY: ____________________ STATE: __________ ZIP: __________

Indicate percentage of financial commitment to this ESB: __________ % Amount: $ __________

ESB NAME: ____________________ CONTACT PERSON: ____________________

ADDRESS: ____________________ PHONE NO.: ____________________

CITY: ____________________ STATE: __________ ZIP: __________

Indicate percentage of financial commitment to this ESB: __________ % Amount: $ __________

ESB NAME: ____________________ CONTACT PERSON: ____________________

ADDRESS: ____________________ PHONE NO.: ____________________

CITY: ____________________ STATE: __________ ZIP: __________

Indicate percentage of financial commitment to this ESB: __________ % Amount: $ __________

FORM C

DANE COUNTY
EMERGING SMALL BUSINESS REPORT - CONTACTS

(Copy this Form as necessary to provide complete information)

COMPANY NAME: _____

PROJECT NAME: _____ BID NO.: _____

	ESB FIRM NAME CONTACTED	DATE	PERSON CONTACTED	DID ESB BID?	DID YOU ACCEPT BID?	REASON FOR REJECTION
1)						
2)						
3)						
4)						
5)						
6)						
7)						

FORM D

DANE COUNTY
EMERGING SMALL BUSINESS REPORT - CERTIFICATION STATEMENT

I, _____ , _____ of
Name Title

_____ certify to best of my knowledge and
Company

belief that this business meets Emerging Small Business definition as indicated in Article 9 and that information contained in this Emerging Small Business Report is true and correct.

_____ _____
Bidder's Signature Date

Name of Bidding Firm: _____

BID FORM

BID NO. 316031
PROJECT: CONSTRUCT GENERATOR BUILDING
DANE COUNTY LANDFILL SITE #1

TO: DANE COUNTY DEPARTMENT OF PUBLIC WORKS, HIGHWAY & TRANSPORTATION PROJECT MANAGER
1919 ALLIANT ENERGY CENTER WAY
MADISON, WISCONSIN 53713

BASE BID - LUMP SUM:
Construction of a generator building. The project includes providing a pre-engineered metal building of approximately 1,104 square feet including associated site, concrete, and HVAC work. The undersigned, having examined the site where the Work is to be executed and having become familiar with local conditions affecting the cost of the Work and having carefully examined the Drawings and Specifications, all other Construction Documents and Addenda thereto prepared by Dane County Department of Public Works, Highway & Transportation hereby agrees to provide all labor, materials, equipment and services necessary for the complete and satisfactory execution of the entire Work, as specified in the Construction Documents, for the Base Bid stipulated sum of:

_____ and _____ /100 Dollars
Written Price

$_____
Numeric Price

ADDENDA:
Receipt of the following addenda and inclusion of their provisions in this Bid is hereby acknowledged:

Addendum No(s). _____ through _____

Dated _____

COMPLETION:
Dane County Public Works, Highways, & Transportation / Solid Waste Division must have this project completed no later than December 16, 2016. Assuming this Work can be started by September 20, 2016, what dates can you commence and complete this job?

Commencement Date: _____ Completion Date: _____
(final, not substantial)

I hereby certify that all statements herein are made on behalf of:

_____

(Name of Corporation, Partnership or Person submitting Bid)

Select one of the following:
1. A corporation organized and existing under the laws of the State of _____, or

2. A partnership consisting of _____, or

3. A person conducting business as _____;

Of the City, Village, or Town of _____ of the State of _____.

I have examined and carefully prepared this Bid from the associated Construction Documents and have checked the same in detail before submitting this Bid; that I have full authority to make such statements and submit this Bid in (its) (their) (my) behalf; and that the said statements are true and correct. In signing this Bid, we also certify that we have not, either directly or indirectly, entered into any agreement or participated in any collusion or otherwise taken any action in restraint of free competition; that no attempt has been made to induce any other person or firm to submit or not to submit a Bid; that this Bid has been independently arrived at without collusion with any other bidder, competitor, or potential competitor; that this Bid has not been knowingly disclosed prior to the Bids Due Date to another bidder or competitor; that the above statement is accurate under penalty of perjury.

The undersigned further agrees to honor the Base Bid and the Alternate Bid(s) for sixty (60) days from date of Award of Contract.

SIGNATURE: _____

(Bid is invalid without signature)

Print Name: _____ Date: _____

Title: _____

Address: _____

Telephone No.: _____ Fax No.: _____

Email Address: _____

Contact Person: _____

THIS PAGE IS FOR BIDDERS' REFERENCE AND NEED NOT BE SUBMITTED WITH BID FORM.

BID CHECK LIST:
These items **must** be included with Bid:
☐ Bid Form ☐ Bid Bond ☐ Fair Labor Practices Certification

BIDDERS SHOULD BE AWARE OF THE FOLLOWING:

DANE COUNTY VENDOR REGISTRATION PROGRAM

Any person bidding on any County contract must be registered with the Dane County Purchasing Division & pay an annual registration fee. A contract will not be awarded to an unregistered vendor. Obtain a *Vendor Registration Form* by calling 608/266-4131 or complete a new form or renewal online at:
www.danepurchasing.com/registration

DANE COUNTY BEST VALUE CONTRACTING PRE-QUALIFICATION

Contractors must be pre-qualified as a Best Value Contractor with the Dane County Public Works Engineering Division before the award of contract. Obtain a *Best Value Contracting Application* by calling 608/266-4018 or complete one online at:
www.countyofdane.com/pwht/BVC_Application.aspx

EQUAL BENEFITS REQUIREMENT

By submitting a Bid, the contractor acknowledges that a condition of this contract is to provide equal benefits as required by Dane County Code of Ordinances Chapter 25.016. Contractor shall provide equal benefits as required by that Ordinance to all required employees during the term of the contract. Equal Benefits Compliance Payment Certification shall be submitted with final pay request. For more information:
www.danepurchasing.com/partner_benefit.aspx

FAIR LABOR PRACTICES CERTIFICATION

The undersigned, for and on behalf of the BIDDER, APPLICANT or PROPOSER named herein, certifies as follows:

A. That he or she is an officer or duly authorized agent of the above-referenced BIDDER, APPLICANT or PROPOSER, which has a submitted a bid, application or proposal for a contract or agreement with the county of Dane.

B. That BIDDER, APPLICANT or PROPOSER has (check one):

_____ not been found by the National Labor Relations Board ("NLRB") or the Wisconsin Employment Relations Commission ("WERC") to have violated any statute or regulation regarding labor standards or relations in the seven years prior to the signature date of this Certification.

_____ been found by the National Labor Relations Board ("NLRB") or the Wisconsin Employment Relations Commission ("WERC") to have violated any statute or regulation regarding labor standards or relations in the seven years prior to the signature date of this Certification.

Officer or Authorized Agent Signature _____ Date _____

Printed or Typed Name and Title _____

Printed or Typed Business Name _____

NOTE: You can find information regarding the violations described above at: www.nlrb.gov and werc.wi.gov.

For reference, Dane County Ordinance 25.11(28)(a) is as follows:

(28) BIDDER RESPONSIBILITY. (a) Any bid, application or proposal for any contract with the county, including public works contracts regulated under chapter 40, shall include a certification indicating whether the bidder has been found by the National Labor Relations Board (NLRB) or the Wisconsin Employment Relations Committee (WERC) to have violated any statute or regulation regarding labor standards or relations within the last seven years. The purchasing manager shall investigate any such finding and make a recommendation to the committee, which shall determine whether the conduct resulting in the finding affects the bidder's responsibility to perform the contract.

If you indicated that the NLRB or WERC have found you to have such a violation, you must include copies of any relevant information regarding such violation with your proposal, bid or application.

Include this completed Certification with your bid, application or proposal.

COUNTY OF DANE

PUBLIC WORKS CONSTRUCTION CONTRACT

Contract No. _____ Bid No. 316031

Authority: 2015 RES -_____

THIS CONTRACT, made and entered into as of the date by which authorized representatives of both parties have affixed their signatures, by and between the County of Dane (hereafter referred to as "COUNTY") and _____ (hereafter, "CONTRACTOR"), and

W I T N E S S E T H :

WHEREAS, COUNTY, whose address is c/o Assistant Public Works Director, 1919 Alliant Energy Center Way, Madison, WI 53713, desires to have CONTRACTOR provide Construction of Generator Building at Dane County Landfill Site #1, 6718 East Verona Avenue, Verona, Wisconsin ("the Project"); and

WHEREAS, CONTRACTOR, whose address is _____ _____ is able and willing to construct the Project, in accordance with the Construction Documents;

NOW, THEREFORE, in consideration of the above premises and the mutual covenants of the parties hereinafter set forth, the receipt and sufficiency of which is acknowledged by each party for itself, COUNTY and CONTRACTOR do agree as follows:

1. CONTRACTOR agrees to construct, for the price of $_____ the Project and at the CONTRACTOR'S own proper cost and expense to furnish all materials, supplies, machinery, equipment, tools, superintendence labor, insurance, and other accessories and services necessary to complete the Project in accordance with the conditions and prices stated in the Bid Form, General Conditions of Contract, the drawings which include all maps, plats, plans, and other drawings and printed or written explanatory matter thereof, and the specifications therefore as prepared by Dane County Public Works (hereinafter referred to as "the Architect / Engineer"), and as enumerated in the Project Manual Table of Contents, all of which are made a part hereof and collectively evidence and constitute the Contract.

2. COUNTY agrees to pay the CONTRACTOR in current funds for the performance of the Contract subject to additions and deductions, as provided in the General Conditions of Contract and to make payments on account thereof as provided in Article entitled, "Payments to Contractor" of the General Conditions of Contract.

3. During the term of this Contract, CONTRACTOR agrees to take affirmative action to ensure equal employment opportunities. The CONTRACTOR agrees in accordance with Wisconsin Statute 111.321 and Chapter 19 of the Dane County Code of Ordinances not to discriminate on the basis of age, race, ethnicity, religion, color, gender, disability, marital status, sexual orientation, national origin, cultural differences, ancestry, physical appearance, arrest record or conviction record, military participation or membership in the national guard, state defense force or any other reserve component of the military forces of the United States, or political beliefs. Such equal opportunity shall include, but not be limited to, the following: employment,

upgrading, demotion, transfer, recruitment, advertising, layoff, termination, training, rates of pay, and any other form of compensation. CONTRACTOR agrees to post in conspicuous places, available to all employees and applicants for employment, notices setting forth the provisions of this paragraph.

4. CONTRACTOR shall file an Affirmative Action Plan with the Dane County Contract Compliance Officer in accord with Chapter 19 of the Dane County Code of Ordinances. CONTRACTOR must file such plan within fifteen (15) days of the effective date of this Contract. During the term of this Contract CONTRACTOR shall also provide copies of all announcements of employment opportunities to COUNTY'S Contract Compliance Office, and shall report annually the number of persons, by race, ethnicity, gender, and disability status, which apply for employment and, similarly classified, the number hired and number rejected.

5. During the term of this Contract, all solicitations for employment placed on CONTRACTOR'S behalf shall include a statement to the effect that CONTRACTOR is an "Equal Opportunity Employer."

6. CONTRACTOR agrees to comply with provisions of Chapter 25.016 of the Dane County Code of Ordinances, which pertains to domestic partnership benefits.

7. CONTRACTOR agrees to furnish all information and reports required by COUNTY'S Contract Compliance Officer as the same relate to affirmative action and nondiscrimination, which may include any books, records, or accounts deemed appropriate to determine compliance with Chapter 19, Dane County Code of Ordinances, and the provisions of this Contract.

8. CONTRACTOR agrees that all persons employed by CONTRACTOR or any subcontractor shall be paid no less than the minimum wage established under Chapter 40, Subchapter II, Dane County Code of Ordinances. CONTRACTOR agrees to abide by and comply with the provisions of Chapter 40, Subchapter II of the Dane County Code of Ordinances, and said Subchapter is fully incorporated herein by reference.

9. This Contract is intended to be a Contract solely between the parties hereto and for their benefit only. No part of this Contract shall be construed to add to, supplement, amend, abridge or repeal existing rights, benefits or privileges of any third party or parties including, but not limited to, employees of either of the parties.

10. The entire agreement of the parties is contained herein and this Contract supersedes any and all oral agreements and negotiations between the parties relating to the subject matter hereof. The parties expressly agree that the express terms of this Contract shall not be amended in any fashion except in writing, executed by both parties.

11. CONTRACTOR must be pre-qualified as a Best Value Contractor with Dane County Public Works Engineering Division before award of Contract. Subcontractors must be pre-qualified ten (10) days prior to commencing Work under this Contract.

IN WITNESS WHEREOF, COUNTY and CONTRACTOR, by their respective authorized agents, have caused this Contract and its Schedules to be executed, effective as of the date by which all parties hereto have affixed their respective signatures, as indicated below.

* * * * * * *

FOR CONTRACTOR:

Signature | Date

Printed or Typed Name and Title

Signature | Date

Printed or Typed Name and Title

NOTE: If CONTRACTOR is a corporation, Secretary should attest. In accordance with IRS Regulations, unincorporated entities are required to provide either their Social Security or Employer Number in order to receive payment for services rendered.

* * * * * * *

This Contract is not valid or effectual for any purpose until approved by the appropriate authority designated below, and no work is authorized until the CONTRACTOR has been given notice to proceed by COUNTY'S Assistant Public Works Director.

FOR COUNTY:

Joseph T. Parisi, County Executive | Date

Scott McDonell, County Clerk | Date

AIA® Document A310™ – 2010

Bid Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

OWNER:
(Name, legal status and address)

BOND AMOUNT:

PROJECT:
(Name, location or address, and Project number, if any)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this day of

(Witness)	*(Contractor as Principal)* *(Seal)*
	(Title)
(Witness)	*(Surety)* *(Seal)*
	(Title)

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

Init.
/

AIA® Document A312™ – 2010

Performance Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

OWNER:
(Name, legal status and address)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

AIA Document A312–2010 combines two separate bonds, a Performance Bond and a Payment Bond, into one form. This is not a single combined Performance and Payment Bond.

CONSTRUCTION CONTRACT
Date:

Amount:

Description:
(Name and location)

BOND
Date:
(Not earlier than Construction Contract Date)

Amount:

Modifications to this Bond: ☐ None ☐ See Section 16

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:	Name	Name and Title:	

(Any additional signatures appear on the last page of this Performance Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or **BROKER:**

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

§ 2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after

.1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

.2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

.3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

§ 4 Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

§ 5 When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

§ 5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

§ 5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

§ 5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Section 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

§ 5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

§ 6 If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

§ 7 If the Surety elects to act under Section 5.1, 5.2 or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for

.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

.2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and

.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

§ 8 If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

§ 9 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors and assigns.

§ 10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 11 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

§ 13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 14 Definitions

§ 14.1 Balance of the Contract Price. The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

§ 14.2 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

§ 14.3 Contractor Default. Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

§ 14.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 14.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 16 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	
Address		Address	

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

AIA® Document A312™ – 2010

Payment Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

OWNER:
(Name, legal status and address)

CONSTRUCTION CONTRACT
Date:

Amount:

Description:
(Name and location)

BOND
Date:
(Not earlier than Construction Contract Date)

Amount:

Modifications to this Bond: ☐ None ☐ See Section 18

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:	Name	Name and Title:	

(Any additional signatures appear on the last page of this Payment Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)
AGENT or **BROKER:**

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

AIA Document A312–2010 combines two separate bonds, a Performance Bond and a Payment Bond, into one form. This is not a single combined Performance and Payment Bond.

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

§ 2 If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

§ 4 When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

§ 5 The Surety's obligations to a Claimant under this Bond shall arise after the following:

§ 5.1 Claimants, who do not have a direct contract with the Contractor,

.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and

.2 have sent a Claim to the Surety (at the address described in Section 13).

§ 5.2 Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

§ 6 If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

§ 7 When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

§ 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

§ 7.2 Pay or arrange for payment of any undisputed amounts.

§ 7.3 The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

§ 8 The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ 9 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

§ 10 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

§ 11 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 12 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 13 Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

§ 14 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 15 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

§ 16 Definitions

§ 16.1 Claim. A written statement by the Claimant including at a minimum:

- **.1** the name of the Claimant;
- **.2** the name of the person for whom the labor was done, or materials or equipment furnished;
- **.3** a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- **.4** a brief description of the labor, materials or equipment furnished;
- **.5** the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- **.6** the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- **.7** the total amount of previous payments received by the Claimant; and
- **.8** the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

§ 16.2 Claimant. An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

§ 16.3 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

§ 16.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	
Address		Address	

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

EQUAL BENEFITS COMPLIANCE PAYMENT CERTIFICATION FORM

PURPOSE

25.016(8) of the Dane County Ordinance requires that each contractor receiving payment for contracted services must certify that he or she has complied fully with the requirements of Chapter 25.016 "Equal Benefits Requirement" of the Dane County Ordinances. Such certification must be submitted prior to the final payment on the contract.

This form should be included with a copy of the final contract invoice forwarded to your contract representative at Dane County.

CERTIFICATION

I, _____ certify that
Printed or Typed Name and Title

_____
Printed or Typed Name of Contractor

has complied fully with the requirements of Chapter 25.016 of the Dane County Ordinances "Equal Benefits Requirements".

Signed _____

Date _____

For questions on this form, please contact Chuck Hicklin at 608-266-4109 or your contract representative at Dane County.

GENERAL CONDITIONS OF CONTRACT

TABLE OF CONTENTS

1. CONSTRUCTION DOCUMENTS

A. Construction Documents, listed in Table of Contents of this Specification volume shall form part of this Contract and provisions of Construction Documents shall be as binding upon parties as if they were fully set forth in Contract itself.

B. These shall also be considered as part of Construction Documents: Addenda, including additions and modifications incorporated in such addenda before execution of Contract; requests for information; construction bulletins; change orders; and written interpretations by Architect / Engineer or Public Works Project Manager that are made after execution of Contract.

C. Construction Documents are complementary, and what is required by one shall be as binding as if required by all. Intent of Construction Documents is to include all labor, materials and equipment necessary for proper execution of the Work.

2. DEFINITIONS

A. These terms as used in this Contract are respectively defined as follows:
   1. All uses of term "County" in Construction Documents shall mean Dane County.
   2. All uses of term "Department" in Construction Documents shall mean Department of Public Works, Highway & Transportation, which is a unit of Dane County government. Department is County agency overseeing Contract with Contractor.
   3. All uses of term "Architect / Engineer" or "A / E" in Construction Documents shall mean Engineering 370, LLC.
   4. Public Works Project Manager is appointed by and responsible to Department. Public Works Project Manager has authority to act on behalf of Department and will sign change orders, payment requests and other administrative matters related to projects.
   5. Public Works Project Manager is responsible for supervision, administration and management of field operations involved in construction phase of this Work.
   6. Term "Work" includes all labor, equipment and materials necessary to produce project required by Construction Documents.
   7. Term "Substantial Completion" is date when project or specified area of project is certified by Architect / Engineer that construction is sufficiently completed, in accordance with Construction Documents, and as modified by any subsequent changes agreed to by parties, so that County may occupy project or specified area of project for use for which it was intended subject to permit approval for occupancy.
   8. Contractor is person, firm, or corporation with whom County makes Contract. Though multiple contracts may be involved, Construction Documents treat them throughout as if each were of singular number.

3. ADDITIONAL INSTRUCTIONS AND DRAWINGS

A. Contractor may be furnished additional instructions and detail drawings as necessary to carry out the Work included in Contract. Additional drawings and instructions thus supplied to Contractor will coordinate with Construction Documents and will be so prepared that they can be reasonably interpreted as part thereof. Contractor shall carry out the Work in accordance with additional detail drawings and instructions.

4. SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

A. Unless otherwise specified, Contractor shall submit three (3) copies of all Shop Drawings for each submission, until receiving final approval. After final approval, provide five (5) additional copies for distribution and such other copies as may be required.

B. Contractor shall submit, on an on-going basis and as directed, Product Data such as brochures that shall contain catalog cuts and specifications of all furnished mechanical and electrical equipment. After Architect / Engineer's approval, one (1) copy shall remain in Architect / Engineer's file, one (1) kept at Department's office and one (1) kept at job site by Contractor for reference purposes.

C. Samples shall consist of physical examples furnished by Contractor in sufficient size and quantity to illustrate materials, equipment or workmanship, and to establish standards to compare the Work.
   1. Submit Samples in sufficient quantity (minimum of two (2)) to permit Architect / Engineer to make all necessary tests and of adequate size showing quality, type, color range, finish, and texture. Label each Sample stating material, type, color, thickness, size, project name, and Contractor's name.
   2. Submit transmittal letter requesting approval, and prepay transportation charges to Architect / Engineer's office on samples forwarded.
   3. Materials installed shall match approved Samples.

D. Contractor shall review Shop Drawings and place their dated stamp thereon to evidence their review and approval and shall submit with reasonable promptness and in orderly sequence to cause no delay in the Work or in work of any other contractor. At time of submission, Contractor shall inform Architect / Engineer in writing of any deviation in Shop Drawings or Samples from requirements of Construction Documents. Architect / Engineer will not consider partial lists.

E. Architect / Engineer will review and approve or reject Shop Drawings with reasonable promptness to cause no delay. Architect / Engineer's approval shall not relieve Contractor from responsibility for errors or omissions in Shop Drawings.

F. Contractor shall not commence any work requiring Shop Drawing, Product Data or Sample submission until Architect / Engineer has approved submission. All such work shall be in accordance with approved Shop Drawings, Product Data and Samples.

G. Contractor shall keep on site of the Work, approved or conformed copy of Shop Drawings and shall at all time give Department access thereto.

H. By stamping and submitting Shop Drawings, Product Data and Samples, Contractor thereby represents that he or she has or will determine and verify all field measurements, field construction criteria, materials, catalog numbers, and similar data and that he or she has checked and coordinated each Shop Drawing, Product Data and Sample with requirements of the Work and of Construction Documents. Architect / Engineer shall return without examination, Shop Drawings, Product Data and Samples not so noted.

I. All Shop Drawings from any one Contractor should be numbered consecutively and on cover sheet shall bear name and location of project, name of Contractor, date of submittal and date of each correction or revision and associated Specification section and page number.

5. CUTTING AND PATCHING

A. Contractor shall be responsible for all cutting, fitting or patching required to complete the Work or to make its parts fit together properly.

B. Contractor shall not damage or endanger portion of the Work or fully or partially completed construction of County or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. Contractor shall not cut or otherwise alter such construction by County or separate contractor except with written consent of County and of such separate contractor; such consent shall not be unreasonably withheld. Contractor shall not withhold unreasonably from County or separate contractor, Contractor's consent to cutting or otherwise altering the Work.

6. CLEANING UP

A. Contractor shall keep premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under Contract. Contractor shall remove from and about the Work waste materials, rubbish, Contractor's tools, construction equipment, machinery, and surplus materials at completion of the Work. Contractor shall maintain streets and sidewalks around the Work site in clean condition. Contractor shall remove all spillage and prevent tracking of spillage arising from performance of the Work, into, out of, and within the Work site. Contractor shall establish regular maintenance program of sweeping, vacuuming and / or hosing to minimize accumulation of dirt and dust upon such areas.

B. If Contractor fails to clean up as directed in Construction Documents, County may do so and shall charge Contractor cost thereof.

C. Contractor shall be responsible for broken windows and glass, and at completion of the Work shall replace such damaged or broken windows and glass. After replacing damaged or broken windows and glass, Contractor shall remove all labels, wash and polish both sides of all windows and glass.

D. In addition to general cleaning (sweeping, vacuuming and / or hosing, as is appropriate to work surface), Contractor shall perform following final cleaning for all trades at completion of the Work:
   1. Remove temporary protections;
   2. Remove marks, stains, fingerprints and other soil or dirt from painted, decorated and finished woodwork and wall surfaces;
   3. Remove spots, plaster, soil and paint from ceramic tile, marble and other finished materials, and wash or wipe clean;
   4. Clean fixtures, cabinet work and equipment, removing stains, paint, dirt and dust, and leave same in undamaged, new condition;
   5. Clean aluminum in accordance with recommendations of manufacturer; and
   6. Clean resilient floors thoroughly with well-rinsed mop containing only enough moisture to clean off any surface dirt or dust and buff dry by machine to bring surfaces to sheen.

7. USE OF SITE

A. Contractor shall provide County and Architect / Engineer access to the Work under all circumstances.

B. Contractor shall confine operations at site to areas permitted by County, law, ordinance, permits and Construction Documents and shall not unreasonably encumber site with materials

or equipment. Contractor shall assure free, convenient, unencumbered, direct and safe access to all properties adjacent to the Work for County, its employees, invitees and guests.

8. MATERIALS AND WORKMANSHIP

A. Contractor shall perform all work and furnish all supplies and materials, machinery, equipment, facilities and means, necessary to complete the Work required by this Contract, within time specified, in accordance with provisions of Construction Documents.

B. All equipment and materials incorporated in the Work covered by this Contract are to be new; use recycled and / or recovered materials to extent that such use is technically and economically feasible. Recovered materials are products recovered from solid waste in form identical to original form for use that is same as, or similar to original use. Recycled materials are products manufactured from solid waste.

C. If requested, Contractor shall furnish satisfactory evidence as to kind and quality of construction materials proposed or used. Contractor shall furnish to Architect / Engineer, for approval, manufacturer name and model, performance capacities and other pertinent information of machinery, mechanical, electrical or other types of equipment, which Contractor plans to install.

D. If not otherwise provided, materials and labor called for in this Contract shall be provided and performed in accordance with established practice and standards recognized by Architects, Engineers, Department, and construction industry.

E. Reference to "Standard" specifications of any association or manufacturer, or codes of County authorities, intends most recent printed edition or catalog in effect on date that corresponds with date of Construction Documents.

F. Whenever reference is made in Specifications that work shall be "performed", "applied", in accordance with "manufacturer's directions or instructions", Contractor to whom those instructions are directed shall furnish three (3) printed copies of such instructions to Architect / Engineer before execution of the Work.

9. CONTRACTOR'S TITLE TO MATERIALS

A. Contractor or any subcontractor shall not purchase materials or supplies for the Work subject to any chattel mortgage or under conditional sale contract or other agreement by which seller retains interest. Contractor warrants that all materials and supplies used in the Work are free from all liens, claims or encumbrances and Contractor has good title to them.

10. "OR EQUAL" CLAUSE

A. Whenever equipment or materials are identified on Drawings or in Specifications by reference to manufacturer's or vendor's name, trade name, catalog number, and other identifying information, it is intended to establish standards; and any equipment or material of other manufacturers and vendors which will perform adequately duties imposed by general design will be considered equally accepted provided equipment or material so proposed is, in opinion of Architect / Engineer, of equal substance and function. Architect / Engineer and Department shall provide written approval before Contractor may purchase or install it.

B. Equipment or materials of manufacturers, other than those named, may be used only upon following conditions:
   1. That, in opinion of Architect / Engineer and Department, proposed material or equipment item is fully equal or superior (in design, materials, construction, workmanship, performance, finish, etc.) to named item. No compromise in quality level, however small, is acceptable.
   2. That, in substituting materials or equipment, Contractor assumes responsibility for any changes in system or for modifications required in adjacent or related work to accommodate such substitution despite Architect / Engineer's and Department's approval, and all costs growing out of approval of "or equal" items shall be responsibility of Contractor. No extra costs resulting from such approval shall become responsibility of Department, Architect / Engineer or any other separate Contractor.
   3. It shall be understood that use of materials or equipment other than those specified, or approved equal by Architect / Engineer and Department, shall constitute violation of Contract, and that Architect / Engineer and Department shall have right to require removal of such materials or equipment and their replacement with specified materials or equipment at Contractor's expense.
   4. Product and manufacturer named first in Specifications or on information shown on Drawings is basis of selection of manufactured items and equipment, particularly mechanical equipment. In using other than first named products or manufacturers, including those specified as additionally approved or acceptable, Contractor assumes responsibility for any changes in system and for modifications in any work required to accommodate them. Architect / Engineer's approval of such additionally acceptable products or manufacturers, either in Specifications or in Addendum, does not relieve Contractor from obligation to coordinate such optional products with other Contractors, whose work may be affected by them, and to pay all additional costs resulting from their inclusion into the Work. Contractor's liability shall include payment of Architect / Engineer's fees for any additional services made necessary by or directly connected to such product changes. No extra costs resulting from such changes shall become responsibility of Department, Architect / Engineer or any other separate Contractor.

C. No request for approval of "or equal" materials will be entertained except from Contractor. Identify any request for substitution as substitution on Contractor's letter of transmittal and give reasons for substitution. Department may in its sole discretion allow substitutions of materials.

11. PATENTS AND ROYALTIES

A. If Contractor uses any design, device or material covered by letters, patent or copyright, it is mutually agreed and understood, that, without exception, contract prices shall include all royalties or costs arising from use of such design, device or materials, in any way involved in the Work.

B. Contractor shall indemnify and save harmless County from any and all claims for infringement by reason of use of such patent or copyright in connection with the Work agreed to be performed under this Contract, and shall indemnify County for any cost, expense or damage which it may be obliged to pay by reason of such infringement at any time during prosecution of the Work or after completion of the Work.

12. SURVEYS, PERMITS, REGULATIONS AND TAXES

A. Department will furnish to Contractor all site, topography and property surveys necessary for execution of the Work.

B. Contractor shall procure all permits, licenses and approvals necessary for execution of this Contract.

C. Contractor shall give all notices and comply with all State of Wisconsin, Federal and local laws, codes, rules and regulations relating to performance of the Work, protection of adjacent property, and maintenance of passageways, guard fences or other protective facilities.

D. Contractor shall pay all Sales, Consumer, Use and other similar taxes required by law.

E. Contractor shall promptly notify Architect / Engineer of any variances of Drawings or Specifications with that of any State of Wisconsin, federal or local law, code, rule or regulation. Upon such notification, Architect / Engineer will require correction of variance to comply with applicable law, code, rule or regulation at no additional cost to Contractor.

F. Work under this Contract shall comply with all applicable State of Wisconsin, Federal and local laws, codes and regulations.

G. Contractor shall pay charges for water, sewer and other utility connections made by municipalities where required by Specifications.

13. CONTRACTOR'S OBLIGATIONS AND SUPERINTENDENCE

A. Contractor shall provide and pay for all materials, labor, tools, equipment, transportation and superintendence necessary to execute, complete and deliver the Work within specified time. Contractor agrees to secure at their own expense all personnel necessary to carry out the Work. Such personnel shall not be deemed County employees nor shall they have or be deemed to have any direct contractual relationship with County.

B. Performance of any work necessary after regular working hours, on Sundays or Legal Holidays shall be without additional expense to County. Performance of any work at site at other than normal working hours must be coordinated with Public Works Project Manager.

C. Contractor shall furnish, erect, maintain and remove such temporary works as may be required.

D. Contractor shall observe, comply with, and be subject to all terms, conditions, requirements and limitations of Construction Documents.

E. At the Work site, Contractor shall give personal superintendence to the Work or shall employ construction superintendent or foreman, experienced in character of work covered by Contract, who shall have full authority to act for Contractor. Understand that such superintendent or foreman shall be acceptable to Architect / Engineer and Department.

F. Remove from project or take other corrective action upon notice from Architect / Engineer or Department for Contractor's employees whose work is considered by Architect / Engineer or Department to be unsatisfactory, careless, incompetent, unskilled or otherwise objectionable.

G. Contractor and subcontractors shall be required to conform to Labor Laws of State of Wisconsin and various acts amendatory and supplementary thereto and to other laws, ordinances and legal requirements applicable to the Work.

H. Presence and observation of the Work by Architect / Engineer or Public Works Project Manager shall not relieve Contractor of any obligations.

14. WEATHER CONDITIONS

A. In event of temporary suspension of work, or during inclement weather, or whenever Architect / Engineer shall direct, Contractor shall, and shall cause subcontractors to protect carefully all work and materials against damage or injury from weather. If, in opinion of Architect / Engineer or Department, any work or materials that have been damaged or injured due to failure on part of Contractor or any subcontractors so to protect the Work, such materials shall be removed and replaced at expense of Contractor.

15. PROTECTION OF WORK AND PROPERTY

A. Contractor shall at all times safely guard County's property from injury or loss in connection with this Contract. Contractor shall at all times safely guard and protect the Work, and adjacent property, from damage. Contractor shall replace or make good any such damage, loss or injury unless such is caused directly by errors contained in Contract, or by County, or County's duly authorized representative.

B. Contractor may act diligently, without previous instructions from Architect / Engineer and / or Department, in emergency that threatens loss or injury of property, or safety of life. Contractor shall notify Architect / Engineer and / or Department immediately thereafter. Promptly submit any claim for compensation by Contractor due to such extra work to Architect / Engineer and / or Department for approval as provided for in Article 18 herein.

16. INSPECTION AND TESTING OF MATERIALS

A. Authorized representatives and agents of County government shall have access at all times to the Work wherever it is in preparation or progress and Contractor shall provide facilities for such access and for inspection.

B. Should it be considered necessary or advisable at any time before final acceptance of the Work to make examination of work already completed, by removing or tearing out same, Contractor shall upon request, promptly furnish all necessary facilities, labor and materials. If such work is found to be defective in any aspect, due to fault of Contractor or subcontractors thereof, Contractor shall assume all expenses of such examination and of satisfactory reconstruction. Contractor will be reimbursed for such examination and replacement in accordance with Article 18 - A.3., of these General Conditions of Contract if such work is found to meet requirements of Contract.

C. If Specifications, Architect / Engineer's, or Public Works Project Manager's instructions require any work to be specially tested or approved, Contractor shall give Architect / Engineer and Public Works Project Manager timely notice of its readiness for testing or inspection. Test all materials and equipment requiring testing in accordance with accepted or specified standards, as applicable. Architect / Engineer shall recommend laboratory or inspection agency and Department will select and pay for all initial laboratory inspection services. Should retesting be required, due to failure of initial testing, cost of such retesting shall be borne by Contractor.

D. Cost of any testing performed by manufacturers or Contractor for substantiating acceptability of proposed substitution of materials and equipment, or necessary conformance testing in

conjunction with manufacturing processes or factory assemblage, shall be borne by Contractor or manufacturer responsible.

17. REPORTS, RECORDS AND DATA

A. Contractor shall submit to Architect / Engineer and Public Works Project Manager such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, invoices, records and other data as either may request concerning work performed or to be performed under this Contract.

18. CHANGES IN THE WORK

A. Make no changes, except in cases of emergency, in the Work covered by approved Construction Documents without having prior written approval of Department. Charges or credits for the Work covered by approved change shall be determined by one of these methods:
   1. Unit bid prices previously approved.
   2. Agreed lump sum based on actual cost of:
      a) Labor, including foremen, and all fringe benefits that are associated with their wages.
      b) Materials entering permanently into the Work.
      c) Ownership or rental cost of construction tools and equipment during time of use on extra work.
      d) Power and consumable supplies for operation of power equipment.
      e) Workmen's Compensation Insurance, Contractor's Public Liability and Property Damage Insurance, and Comprehensive Automobile Liability Insurance.
      f) Social Security and old age and unemployment contributions.
      g) Add to cost under (2), fixed fee to be agreed upon, but not to exceed fifteen percent (15%) of actual cost of work performed with their own labor force. Fee shall be compensation to cover cost of supervision, overhead, bond, profit and any other general expense.
      h) On that portion of the Work under (2) done under subcontract, Contractor may include not over seven and one-half percent (7½%) for supervision, overhead, bond, profit and any other general expense.
      i) Department may require correct amount of costs with supporting vouchers; Contractor shall keep and present in such form as directed.
   3. Cost-plus work, with not-to-exceed dollar limit, based on actual cost of:
      a) Labor, including foremen, and all fringe benefits that are associated with their wages.
      b) Materials entering permanently into the Work.
      c) Ownership or rental cost of construction tools and equipment during time of use on extra work. Rental cost cannot exceed fifty percent (50%) replacement value of rented equipment.
      d) Power and consumable supplies for operation of power equipment.
      e) Workmen's Compensation Insurance, Contractor's Public Liability and Property Damage Insurance, and Comprehensive Automobile Liability Insurance.
      f) Social Security and old age and unemployment contributions.
      g) To cost under (3), there shall be added fixed fee to be agreed upon but not to exceed fifteen percent (15%) of actual cost of work performed with their own labor force. Fee shall be compensation to cover cost of supervision, overhead, bond, profit, and any other general expense.
      h) On that portion of the Work under (3) done under subcontract, Contractor may include not over seven and one-half percent (7½%) for supervision, overhead, bond, profit, and any other general expense.

i) Contractor shall keep and present, in such form as directed, correct amount of cost together with such supporting vouchers as may be required by Department.

B. If Contractor claims that by any instructions given by Architect / Engineer, Department, by drawings or otherwise, regarding performance of the Work or furnishing of material under Contract, involves extra cost, Contractor shall give Department written notice of cost thereof within two (2) weeks after receipt of such instructions and in any event before proceeding to execute work, unless delay in executing work would endanger life or property.

C. No claim for extra work or cost shall be allowed unless it was done in pursuance of written Change Order from Architect / Engineer and approved by Department, as previously mentioned, and claim presented with payment request submitted after changed or extra work is completed.

D. Negotiation of cost for change in the Work shall not be cause for Contractor to delay prosecution of the Work if Contractor has been authorized in writing by Public Works Project Manager to proceed.

19. EXTRAS

A. Without invalidating Contract, Department may order extra work or make changes by altering, adding to or deducting from the Work, contract sum being adjusted in accordance with Article 18 herein.

20. TIME FOR COMPLETION

A. Contractor agrees that the Work shall be prosecuted regularly and diligently and complete the Work as stated in Construction Documents.

21. CORRECTION OF WORK

A. All work, all materials whether incorporated in the Work or not, and all processes of manufacture shall at all times and places be subject to inspection of Architect / Engineer and Public Works Project Manager who shall be judge of quality and suitability of the Work, materials, and processes of manufacture for purposes for which they are used. Should they fail to meet Architect / Engineer's and Public Works Project Manager's approval they shall be reconstructed, made good, replaced or corrected, by Contractor at Contractor's expense. Immediately remove all rejected material from site.

B. If Contractor defaults or neglects to carry out the Work in accordance with Construction Documents or fails to perform any provision of Contract, Department may, after ten (10) days' written notice to Contractor and without prejudice to any other remedy County may have, make good such deficiencies. In such case, appropriate Change Order shall be issued deducting from Contractor's payments then or thereafter, cost of correcting such deficiencies, including cost of Architect / Engineer's additional services made necessary by such default, neglect or failure.

22. SUBSURFACE CONDITIONS FOUND DIFFERENT

A. If Contractor encounters subsurface or latent conditions at site materially differing from those shown on Drawings or indicated in Specifications, Contractor shall immediately give notice to Architect / Engineer and Public Works Project Manager of such conditions before they are

disturbed. Architect / Engineer will thereupon promptly investigate conditions, and if Architect / Engineer finds that they materially differ from those shown on Drawings or indicated in Specifications, Architect / Engineer will at once make such changes as necessary, any increase or decrease of cost resulting from such changes to be adjusted in manner provided in above Article 18 entitled "Changes in the Work".

23. RIGHT OF DEPARTMENT TO TERMINATE CONTRACT

A. In event that any provisions of this Contract are violated by Contractor or by any subcontractors, County may serve written notice upon Contractor and Surety of its intention to terminate Contract, such notice to contain reasons for such intention to terminate Contract, and unless within ten (10) days after serving of such notice upon Contractor, such violation or delay shall cease and satisfactory arrangement or correction be made, Contract shall, upon expiration of said ten (10) days, cease and terminate.

B. In event of any such termination, County shall immediately serve notice thereof upon Surety and Contractor, and Surety shall have right to take over and perform Contract subject to County's approval; provided, however, that if Surety does not commence performance thereof within ten (10) days from date of mailing to such Surety of notice of termination, County may take over the Work and prosecute same to completion by contract, or by force account, at expense of Contractor; Contractor and Surety shall be liable to County for any excess cost occasioned County thereby, and in such event County may take possession of and utilize in completing the Work, such materials and equipment as may be on the Work site and therefore necessary.

24. CONSTRUCTION SCHEDULE AND PERIODIC ESTIMATES

A. Contractor shall be responsible for Construction Schedule and coordination. Immediately after execution and delivery of Contract and before making first payment, Contractor shall notify all subcontractors to furnish all required information to develop Construction Schedule. Contractor and all subcontractors associated with the Work shall furnish following information from each Division of Specifications:
   1. List of construction activities;
   2. Start, finish and time required for completion of each activity;
   3. Sequential relationships between activities;
   4. Identify all long lead-time items, key events, meetings or activities such as required submittals, fabrication and delivery, procurement of materials, installation and testing;
   5. Weekly definition of extent of work and areas of activity for each trade or Subcontract; and
   6. Other information as determined by Public Works Project Manager.

B. In addition to above requested items, Contractor shall request delivery dates for all County-furnished equipment, materials or labor. This shall include any work handled by Department under separate contracts such as asbestos abatement, air and water balancing, etc. Indicate on Construction Schedule these associated delivery and installation dates.

C. Progress Reporting:
   1. Contractor shall update and publish Construction Schedule on monthly basis. Revisions to Schedule shall be by Contractor and made in same detail as original Schedule and accompanied by explanation of reasons for revision; and shall be subject to approval by Department.

2. Failure of Contractor to keep Schedule in updated format shall result in County hiring firm specializing in construction schedule development and deducting those costs associated with updating process from payments due Contractor.
3. Contractor shall submit show actual percentage of each activity completed, estimated future progress, and anticipated completion time.

D. Responsibility for timely completion requires:
   1. Contractor and subcontractors understand that performance of each is interdependent upon performance of others.
   2. Whenever it becomes apparent from current schedule, that phasing or progress completion dates will not be met, Contractor must take some or all following actions at no additional cost to County:
      a) Increase construction labor in such quantities and crafts as will eliminate backlog of work.
      b) Increase number of working hours per shift, shifts per working day, working days per week, amount of construction equipment, or any combination of foregoing to eliminate backlog of work.
      c) Reschedule work (yet remain in conformance with Drawings and Specifications).
   3. Prior to proceeding with any of above actions, Contractor shall notify Public Works Project Manager.

E. Maintain current Construction Schedule at all times. Revise Construction Schedule in same detail as original and accompany with explanation of reasons for revision. Schedule shall be subject to approval by Architect / Engineer and Public Works Project Manager.

25. PAYMENTS TO CONTRACTOR

A. Contractor shall provide:
   1. Detailed estimate giving complete breakdown of contract price by Specification Division; and
   2. Periodic itemized estimates of work done for purpose of making partial payments thereon.

   Submit these estimates for approval first to Architect / Engineer, then to Public Works Project Manager. Costs employed in making up any of these schedules are for determining basis of partial payments and not considered as fixing basis for additions to or deductions from Contract price.

B. County will make partial payments to Contractor for value, proportionate to amount of Contract, of all labor and material incorporated in the Work during preceding calendar month upon receipt of Application and Certificate for Payment form from Architect / Engineer and approval of Department.

C. Contractor shall submit for approval first to Architect / Engineer, and then to Public Works Project Manager all Application and Certificate for Payment forms. If requested, Application and Certificate for Payment shall be supported by such additional evidence as may be required, showing Contractor's right to payment claimed.

D. Application and Certificate for Payment for preparatory work and materials delivered and suitably stored at site to be incorporated into the Work at some future period, will be given due consideration. Requesting payment for materials stored off site, may be rejected, however, if deemed essential for reasons of job progress, protection, or other sufficient cause, requests will be considered, conditional upon submission by Contractor of bills of sale, photographs and such other procedures as will adequately protect County's interest such as

storage in bonded warehouse with adequate coverage. If there is any error in payment, Contractor is obligated to notify Department immediately, but no longer than ten (10) days from receipt of payment.

E. Payments by County will be due within forty-five (45) days after receipt by Department of Application and Certificate for Payment.

F. County will retain five percent (5%) of each Application and Certificate for Payment until final completion and acceptance of all the Work covered by Contract. However, any time after fifty percent (50%) of the Work has been furnished and installed at site, County will make remaining payments in full if Architect / Engineer and Public Works Project Manager find that progress of the Work corresponds with Construction Schedule. If Architect / Engineer and Public Works Project Manager find that progress of the Work does not correspond with Construction Schedule, County may retain up to ten percent (10%) of each Application and Certificate for Payment for the Work completed.

G. All material and work covered by partial payments made shall become sole property of County, but this provision shall not be construed as relieving Contractor from sole responsibility for care and protection of materials and work upon which payments have been made, or restoration of any damaged work, or as waiver of right of County to require fulfillment of all of terms of Contract.

H. County will make final payment within sixty (60) days after final completion of the Work, and will constitute acceptance thereof. Submit Equal Benefits Compliance Payment Certification with final pay request. Payment may be denied if Certification is not included.

I. County may make payment in full, including retained percentages and less authorized deductions, upon completion and acceptance of each Division where price is stated separately in Contract.

J. Every contractor engaged in performance of any contract for Department of Public Works, Highway & Transportation shall submit to this Department, as requested and with final application for payment for work under said contract, affidavit(s) as required to prove that all debts and claims against this Work are paid in full or otherwise satisfied, and give final evidence of release of all liens against the Work and County. If Wisconsin Prevailing Wage Rate Determination is required for this Work, use "Prime Contractor Affidavit of Compliance with Prevailing Wage Rate Determination" and "Agent or Subcontractor Affidavit of Compliance with Prevailing Wage Rate Determination" (if applicable). If Wisconsin Prevailing Wage Rate Determination is not required for this Work, use "Dane County, Wisconsin Contractor Wage Affidavit". Forms of such affidavits are included in Supplementary Conditions.

26. WITHHOLDING OF PAYMENTS

A. County, after having served written notice on said Contractor, may either pay directly any unpaid bills of which Department has written notice, or withhold from Contractor's unpaid compensation sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged; whereupon, payment to Contractor shall be resumed in accordance with terms of this Contract, but in no event shall these provisions be construed to impose any obligations upon County to either Contractor or Contractor's Surety.

B. In paying any unpaid bills of Contractor, County shall be deemed agent of Contractor, and any payment so made by County, shall be considered as payment made under Contract by County to Contractor and County shall not be liable to Contractor for any such payment made in good faith.

C. Contractor shall indemnify, hold harmless and defend Dane County, its boards, commissions, agencies, officers, employees and representatives from all claims growing out of lawful demands of subcontractors, laborers, workers, mechanics, material men, and furnishers of machinery and parts thereof, equipment, power tools, and all supplies, including commissary, incurred in performance of this Contract.

D. At Department's request, Contractor shall furnish satisfactory evidence that all obligations of nature designated above have been paid, discharged or waived.

27. ACCEPTANCE OF FINAL PAYMENT AS RELEASE

A. Making of final payment shall constitute waiver of all claims by County except those arising from:
   1. Unsettled lien;
   2. Faulty or defective work appearing after substantial completion;
   3. Failure of the Work to comply with requirements of Construction Documents; or
   4. Terms of any special guarantees required by Construction Documents.

B. Acceptance of final payment shall constitute waiver of all claims by Contractor.

28. PAYMENTS BY CONTRACTOR

A. Contractor shall pay following not later than fifth (5^{th}) day following each payment received from County:
   1. All transportation and utility services rendered;
   2. All materials, tools, and other expendable equipment that have been delivered at site of the Work to extent of ninety percent (90%) of cost thereof, and balance of cost thereof when said balance is paid to Contractor; and
   3. Each subcontractor, respective amount allowed Contractor because of work performed by subcontractor to extent of subcontractor's interest therein.

29. CONTRACT SECURITY

A. Contractor shall furnish Performance and Payment Bonds in amount at least equal to one hundred percent (100%) of Contract price as security for faithful performance of this Contract and payment of all persons performing labor on project under this Contract and furnishing materials in connection with this Contract.

B. Sample Performance and Payment Bonds that Contractor will be required to execute is bound into these Construction Documents. Before construction Contract is consummated, completed Performance and Payment Bonds must be approved by Department.

30. ASSIGNMENTS

A. Contractor shall not assign whole or any part of this Contract or any moneys due or to become due hereunder without written consent of Department. In case Contractor assigns all or any part of any moneys due or to become due under this Contract, instrument of

assignment shall contain clause substantially to effect that it is agreed that right of assignee in and to any moneys due or to become due to Contractor shall be subject to prior claims of all persons, firms and corporations for services rendered or materials supplied for performance of the Work called for in this Contract.

31. MUTUAL RESPONSIBILITY OF CONTRACTORS

A. If, through acts of neglect on part of Contractor or any subcontractor shall suffer loss or damage on the Work, Contractor agrees to settle with such subcontractor by agreement or arbitration if such other subcontractor will so settle. If such subcontractor shall assert any claim against County on account of any damage alleged to have been sustained, Department shall notify Contractor, who shall indemnify, hold harmless and defend Dane County, its boards, commissions, agencies, officers, employees and representatives against any such claim.

32. SEPARATE CONTRACTS

A. Department may award other contracts for the Work and all Contractors shall fully cooperate with each other and carefully adjust their work to that provided under other contracts as may be directed by Department. No Contractor shall commit or permit any act that will interfere with performance of the Work by any other Contractor.

B. Contractor shall coordinate the Work with those of other Contractors. Cooperation will be required in arrangement for storage of materials and in detailed execution of the Work. Contractor, including subcontractors, shall keep informed of progress and detail work of others and shall notify Architect / Engineer or Department immediately of lack of progress or defective workmanship on part of others. Failure of Contractor to keep informed of the Work progressing on site and failure to give notice of lack of progress or defective workmanship by others shall be construed as acceptance by Contractor of status of the Work as being satisfactory for proper coordination with Contractor's own work.

33. SUBCONTRACTS

A. Contractor may use services of specialty subcontractors on those parts of the Work that, under normal contracting practices, are performed by specialty subcontractors.

B. Contractor shall not award any work to any subcontractor without prior approval of Department. Qualifications of subcontractors shall be same as qualifications of Contractor. Request for subcontractor approval shall be submitted to Department fifteen (15) days before start of subcontractor's work. If subcontractors are changed or added, Contractor shall notify Department in writing.

C. Contractor shall be as fully responsible to County for acts and omissions of subcontractors, and of persons either directly or indirectly employed by them, as Contractor is for acts and omissions of persons directly employed by Contractor.

D. Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the Work to bind subcontractors to Contractor by terms of General Conditions of Contract and other Construction Documents insofar as applicable to work of subcontractors and to give Contractor same power as regards terminating any subcontract that Department may exercise over Contractor under any provision of Construction Documents.

E. Nothing contained in this Contract shall create any contractual relation between any subcontractor and County.

F. Contractor shall insert in all subcontracts, Articles 26, 33, 43 and 45, respectively entitled: "Withholding of Payments", "Subcontracts", "Affirmative Action Provision and Minority / Women / Disadvantaged Business Enterprises", and "Minimum Wages", and shall further require all subcontractors to incorporate physically these same Articles in all subcontracts.

34. PUBLIC WORKS PROJECT MANAGER'S AUTHORITY

A. Public Works Project Manager shall:
   1. Administer and ensure compliance with Construction Documents;
   2. Provide responsible on-site observations of construction and have authority to request work and to stop work whenever necessary to insure proper enforcement of Construction Documents;
   3. Convene and chair project meetings and foreman's coordination meetings when necessary to coordinate resolution of conflicts between Contractors, Architects, Engineers, Consultants, and Department; and
   4. Check and inspect material, equipment and installation procedures of all trades for proper workmanship and for compliance with Drawings, Specifications and Shop Drawings, permit no material on project site that is not satisfactory and reject work not in compliance with Construction Documents.

35. ARCHITECT / ENGINEER'S AUTHORITY

A. Architect / Engineer is retained by, and is responsible to Department acting for County.

B. Architect / Engineer shall determine amount, quality, acceptability, and fitness of several kinds of work and materials that are provided under this Contract and shall decide all questions that may arise in relation to said work and construction thereof.

C. Architect / Engineer shall decide meaning and intent of any portion of Specifications and of any Drawings where they may be found obscure or be in dispute.

D. Architect / Engineer shall provide responsible observation of construction. Architect / Engineer has authority to stop the Work whenever such stoppage may be necessary to insure proper execution of Construction Documents.

E. Architect / Engineer shall be interpreter of conditions of Construction Documents and judge of its performance.

F. Within reasonable time, Architect / Engineer shall make decisions on all matters relating to progress of the Work or interpretation of Construction Documents.

G. Architect / Engineer's decisions are subject to review by Public Works Project Manager.

36. STATED ALLOWANCES

A. Not Applicable.

37. ESTIMATES OF QUANTITIES

A. Whenever estimated quantities of work to be done and materials to be furnished under this Contract are shown in any of Construction Documents, they are given for use in comparing bids and right is especially reserved to increase or diminish them as they may be deemed reasonably necessary or desirable by Department to complete the Work included in this Contract, and cost for such increase or diminution shall be adjusted in manner provided for in General Conditions of Contract Article 18 entitled "Changes in the Work".

38. LANDS AND RIGHTS-OF-WAY

A. Prior to start of construction, County shall furnish all land and rights-of-way necessary for carrying out and completion of the Work to be performed under this Contract.

39. GENERAL GUARANTEE

A. Neither final certificate of payment nor any provision in Construction Documents nor partial or entire occupancy of premises by County shall constitute acceptance of work not done in accordance with Construction Documents or relieve Contractor of liability in respect to any expressed warranties or responsibility for faulty materials or workmanship.
   1. In no event shall making of any payment required by Contract constitute or be construed as waiver by County of any breach of covenants of Contract or waiver of any default of Contractor and making of any such payment by County while any such default or breach shall exist shall in no way impair or prejudice right of County with respect to recovery of damages or other remedy as result of such breach or default.

B. Contractor shall remedy and make good all defective workmanship and materials and pay for any damage to other work resulting there from, which appear within period of one (1) year from date of substantial completion, providing such defects are not clearly due to abuse or misuse by County. Department will give notice of observed defects with reasonable promptness.

C. Guarantee on work executed after certified date of substantial completion will begin on date when such work is inspected and approved by Architect / Engineer and Public Works Project Manager.

D. Where guarantees or warrantees are required in sections of Specifications for periods in excess of one (1) year, such longer terms shall apply; however, Contractor's Performance and Payment Bonds shall not apply to any guarantee or warranty period in excess of one (1) year.

40. CONFLICTING CONDITIONS

A. Any provision in any of Construction Documents which may be in conflict or inconsistent with any Articles in these General Conditions of Contract or Supplementary Conditions shall be void to extent of such conflict or inconsistency.

B. In case of ambiguity or conflict between Drawings and Specifications, Specifications shall govern.

C. Printed dimensions shall be followed in preference to measurements by scale. Large-scale drawings take precedence over small-scale drawings. Dimensions on Drawings and details are subject to field measurements of adjacent work.

41. NOTICE AND SERVICE THEREOF

A. Any notice to Contractor from Department relative to any part of this Contract shall be in writing and considered delivered and service thereof completed, when said notice is posted, by certified or registered mail, to Contractor at Contractor's last given address, or delivered in person to said Contractor, or Contractor's authorized representative on the Work.

42. PROTECTION OF LIVES AND HEALTH

A. In order to protect lives and health of Contractor's employees under Contract, Contractor shall comply with all pertinent provisions of Wisconsin Administrative Code, Rules of Department of Commerce, relating to Safety and Health.

B. Contractor alone shall be responsible for safety, efficiency and adequacy of Contractor's tools, equipment and methods, and for any damage that may result from their failure or their improper construction, maintenance or operation.

43. AFFIRMATIVE ACTION PROVISION AND MINORITY / WOMEN / DISADVANTAGED BUSINESS ENTERPRISES

A. Affirmative Action Provisions.
   1. During term of their Contract, Contractor agrees not to discriminate on basis of race, religion, color, sex, handicap, age, sexual preference, marital status, physical appearance, or national origin against any person, whether recipient of services (actual or potential), employee, or applicant for employment. Such equal opportunity shall include but not be limited to following: employment, upgrading, demotion, transfer, recruitment, advertising, layoff, termination, training, rates of pay, and any other form of compensation or level of service(s). Contractor agrees to post in conspicuous places, these affirmative action standards so as to be visible to all employees, service recipients and applicants for this paragraph. Listing of prohibited bases for discrimination shall no be construed to amend in any fashion state or federal law setting forth additional bases and exceptions shall be permitted only to extent allowable in state or federal law.
   2. Contractor is subject to this Article only if Contractor has ten (10) or more employees and receives $10,000.00 or more in annual aggregate contracts with County. Contractor shall file and Affirmative Action Plan with Dane County Contract Compliance Officer in accord with Chapter 19 of Dane County Code of Ordinances. Such plan must be filed within fifteen (15) days of effective date of this Contract and failure to do so by said date shall constitute ground for immediate termination of Contract by County. Contractor shall also, during term of this Contract, provide copies of all announcements of employment opportunities to County's Contract Compliance Office, and shall report annually number of persons, by race, sex and handicap status, who apply for employment, and, similarly classified, number hired and number rejected.
   3. Contact Dane County Contract Compliance Officer at Dane County Contract Compliance Office, 210 Martin Luther King, Jr. Blvd., Room 421, Madison, WI 53703, 608/266-4114.
   4. In all solicitations for employment placed on Contractor's behalf during term of this Contract, Contractor shall include statement to affect Contractor is "Equal Opportunity Employer". Contractor agrees to furnish all information and reports required by County's Contract Compliance Officer as same relate to affirmative action and nondiscrimination, which may include any books, records, or accounts deemed appropriate to determine compliance with Chapter 19, Dane County Code of Ordinances, and provision of this Contract.

B. Minority / Women / Disadvantaged / Emerging Small Business Enterprises.

1. Chapter 19.508 of Dane County Code of Ordinances is official policy of Dane County regarding utilization of, to fullest extent of, Minority Business Enterprises (MBEs), Women Business Enterprises (WBEs) Disadvantage Business Enterprises (DBEs) and Emerging Small Business Enterprises (ESBEs).
2. Contractor may utilize MBEs / WBEs / DBEs / ESBEs as subcontractors or suppliers. List of subcontractors will be required of low bidder as stated in this Contract. List shall indicate which are MBEs / WBEs / DBEs / ESBEs and percentage of subcontract awarded, shown as percentage of total dollar amount of bid.

44. COMPLIANCE WITH FAIR LABOR STANDARDS

A. During term of this Contract, Contractor shall report to County Contract Compliance Officer, within ten (10) days, any allegations to, or findings by National Labor Relations Board (NLRB) or Wisconsin Employment Relations Commission (WERC) that Contractor has violated statute or regulation regarding labor standards or relations. If investigation by Contract Compliance Officer results in final determination that matter adversely affects Contractor's responsibilities under this Contract, and which recommends termination, suspension or cancellation of this Contract, County may take such action.

B. Contractor may appeal any adverse finding by Contract Compliance Officer as set forth in Dane County Ordinance 25.015(11)(c) through (e).

C. Contractor shall post this statement in prominent place visible to employees: "As condition of receiving and maintaining contract with Dane County, this employer shall comply with federal, state and all other applicable laws prohibiting retaliation or union organizing."

45. DOMESTIC PARTNERSHIP BENEFITS

A. Contractor agrees to provide same economic benefits to all of its employees with domestic partners as it does to employees with spouses, or cash equivalent if such benefit cannot reasonably be provided. Contractor agrees to make available for County inspection Contractor's payroll records relating to employees providing services on or under this Contract or subcontract. If any payroll records of Contractor contain any false, misleading or fraudulent information, or if Contractor fails to comply with provisions of Chapter 25.016, Dane County Ordinances, contract compliance officer may withhold payments on Contract; terminate, cancel or suspend Contract in whole or in part; or, after due process hearing, deny Contractor right to participate in bidding on future County contracts for period of one year after first violation is found and for period of three years after second or subsequent violation is found.

46. USE AND OCCUPANCY PRIOR TO ACCEPTANCE

A. Contractor agrees to use and occupancy of portion or unit of the Work before formal acceptance by Department, provided Department:
   1. Secures written consent of Contractor; except when in opinion of Public Works Project Manager, Contractor is chargeable with unwarranted delay in final cleanup of punch list items or other Contract requirements.
   2. Secures endorsement from insurance carrier and consent of Surety permitting occupancy of building or use of the Work during remaining period of construction, or, secures consent of Surety.
   3. Assumes all costs and maintenance of heat, electricity and water.

4. Accepts all work completed within that portion or unit of the Work to be occupied, at time of occupancy.

47. MINIMUM WAGES

A. Contractor shall post, at appropriate conspicuous point on site of project, schedule showing all determined minimum wage rates for various classes of laborers and mechanics to be engaged in the Work under this Contract and all deductions, if any, required by law to be made from unpaid wages actually earned by laborers and mechanics so engaged.

B. Supplementary Conditions section in Construction Documents lists wage determinations required by State Law.

C. If, after award of Contract, it becomes necessary to employ any person in trade or occupation not classified in wage determinations, such person shall be paid at not less than such rate as shall be determined by Wisconsin Department of Workforce Development. Such approved minimum rate shall be retroactive to time of initial employment of such person in such trade or occupation. Contractor shall notify Department of Contractor's intention to employ persons in trades or occupations not so classified in sufficient time for Department to obtain approved rates for such trades or occupations.

D. Specified wage rates are minimum rates only, and Department will not consider any claims for additional compensation made by Contractor because of payment by Contractor of any wage rate in excess of applicable rate contained in this Contract. Contractor shall adjust any disputes in regard to payment of wages in excess of those specified in this Contract.

E. Submit required affidavit(s) to Department of Public Works, Highway & Transportation, as requested and with final application for payment for work under said contract. Affidavit(s) shall clearly indicate name, trade or occupation, and paid wages of every laborer, worker or mechanic employed by Contractor and all subcontractors during billing period including accurate record of number of hours worked by each employee and actual wages paid as stipulated in Wisconsin Statue 66.0903. If Wisconsin Prevailing Wage Rate Determination is required for this Work, use "Prime Contractor Affidavit of Compliance with Prevailing Wage Rate Determination" and "Agent or Subcontractor Affidavit of Compliance with Prevailing Wage Rate Determination" (if applicable). If Wisconsin Prevailing Wage Rate Determination is not required for this Work, use "Dane County, Wisconsin Contractor Wage Affidavit". Forms of such affidavits are included in Supplementary Conditions.

48. CLAIMS

A. No claim may be made until Department's Assistant Public Works Director has reviewed Architect / Engineer's decision as provided for in Article 35 of General Conditions of Contract. If any claim remains unresolved after such review by Department's Assistant Public Works Director the claim may be filed under Wisconsin Statute 893.80. Work shall progress during period of any dispute or claim. Unless specifically agreed between parties, venue will be in Dane County, Wisconsin.

49. ANTITRUST AGREEMENT

A. Contractor and County recognize that in actual economic practice, overcharges resulting from antitrust violations are in fact usually borne by County. Therefore, Contractor hereby assigns to County any and all claims for such overcharges as to goods and materials purchased in

connection with this Contract, except as to overcharges which result from antitrust violations commencing after price is established under this Contract and any change order thereto.

50. INSURANCE

A. Contractor Carried Insurance:

1. Contractor shall not commence work under this Contract until Contractor has obtained all insurance required under this Article and has provided evidence of such insurance to Risk Manager, 425 City-County Building, 210 Martin Luther King Jr. Blvd., Madison, WI 53703. Contractor shall not allow any subcontractor to commence work until insurance required of subcontractor has been so obtained and approved. Company providing insurance must be licensed to do business in Wisconsin.
2. Worker's Compensation Insurance:
   a) Contractor shall procure and shall maintain during life of this Contract, Worker's Compensation Insurance as required by statute for all of Contractor's employees engaged in work at site of project under this Contract and, in case of any such work sublet, Contractor shall require subcontractor similarly to provide Worker's Compensation Insurance for all of latter's employees to be engaged in such work unless such employees are covered by protection afforded by Contractor's Worker's Compensation Insurance.
   b) If any claim of employees engaged in hazardous work on project under this Contract is not protected under Worker's Compensation Statute, Contractor shall provide and shall cause each subcontractor to provide adequate Employer's Liability Insurance for protection of such of Contractor's employees as are not otherwise protected.
3. Contractor's Public Liability and Property Damage Insurance:
   a) Contractor shall procure and maintain during life of this Contract, Contractor's Public Liability Insurance and Contractor's Property Damage Insurance in amount not less than $1,000,000 bodily injury, including accidental death, to any one person, and subject to same limit for each person, in amount not less than $1,000,000 on account of one accident, and Contractor's Property Damage Insurance in amount not less than $1,000,000 or combined single limit of at least $1,000,000 with excess coverage over and above general liability in amount not less than $5,000,000. Contractor shall add "Dane County" as additional insured for each project.
   b) Contractor's Public Liability and Property Damage Insurance shall include Products, Completed Operation, and Contractual Liability under Insurance Contract. "Contractor shall in all instances save, defend, indemnify and hold harmless County and Architect / Engineer against all claims, demands, liabilities, damages or any other costs which may accrue in prosecution of the Work and that Contractor will save, defend, indemnify and hold harmless County and Architect / Engineer from all damages caused by or as result of Contractor's operations" and each shall be listed as additional insured on Contractor's and sub-contractors' insurance policies.
   c) Obligations of Contractor under Article 48.A.2)b) shall not extend to liability of Architect / Engineer, agents or employees thereof, arising out of:
      1) Preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs or specifications; or
      2) giving of or failure to give directions or instructions by Architect / Engineer, agents or employees thereof provided such giving or failure to give is primary cause of injury or damage.
   d) Contractor shall procure and shall maintain during life of this Contract, Comprehensive Automobile Liability Insurance covering owned, non-owned and hired automobiles for limits of not less than $1,000,000 each accident single limit, bodily injury and property damage combined with excess coverage over and above general liability in amount not less than $5,000,000.

e) Contractor shall either:
   1) Require each subcontractor to procure and to maintain during life of subcontract, subcontractor's Public Liability Property Damage Insurance, and Comprehensive Automobile Liability Insurance of type and in same amount specified in preceding paragraphs; or
   2) Insure activities of subcontractors in Contractor's own policy.

4. Scope of Insurance and Special Hazards: Insurance required under Article 48.A.2 hereof shall provide adequate protection for Contractor and subcontractors, respectively, against damage claims which may arise from operations under this Contract, whether such operation be by insured or by anyone directly or indirectly employed by insured and also against any of special hazards which may be encountered in performance of this Contract as enumerated in Supplementary Conditions.
5. Proof of Carriage of Insurance: Contractor shall furnish Risk Manager with certificates showing type, amount, class of operations covered, effective dates, dates of expiration of policies and "Dane County" listed as additional insured. Such certificates shall also contain (substantially) following statement: "Insurance covered by this certificate will not be canceled or materially altered, except after ten (10) days written notice has been received by Risk Manager."

B. Builder's Risk:
   1. County shall provide Builder's Risk policy. Terms of this policy will be made available by County's Risk Manager, upon Contractor's request. By executing this Contract, Contractor warrants it is familiar with terms of said policy.

C. Indemnification / Hold Harmless:
   1. Contractor shall indemnify, hold harmless and defend Dane County, its boards, commissions, agencies, officers, employees and representatives from and against all claims, damages, losses and expenses including attorneys' fees arising out of or resulting from performance of the Work, provided that any such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including loss of use resulting therefrom, and is caused in whole or in part by any act or omission of Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by part indemnified hereunder.
   2. In any and all claims against Dane County, its boards, commissions, agencies, officers, employees and representatives or by any employee of Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, indemnification obligation under this Contract shall not be limited in any way by any limitation on amount or type of damages, compensation or benefits payable by or for Contractor or any subcontractor under worker's compensation acts, disability benefits or other employee benefit acts.
   3. Obligations of Contractor under this Contract shall not extend to liability of Architect / Engineer, its agents or employees arising out of:
      a) Preparation or approval of maps, drawings, opinion, reports, surveys, change orders, designs or specifications; or
      b) Giving of or failure to give directions or instruction by Architect / Engineer, its agents or employees provided such giving or failure to give is primary cause of injury or damage.
   4. Dane County shall not be liable to Contractor for damages or delays resulting from work by third parties or by injunctions or other restraining orders obtained by third parties.

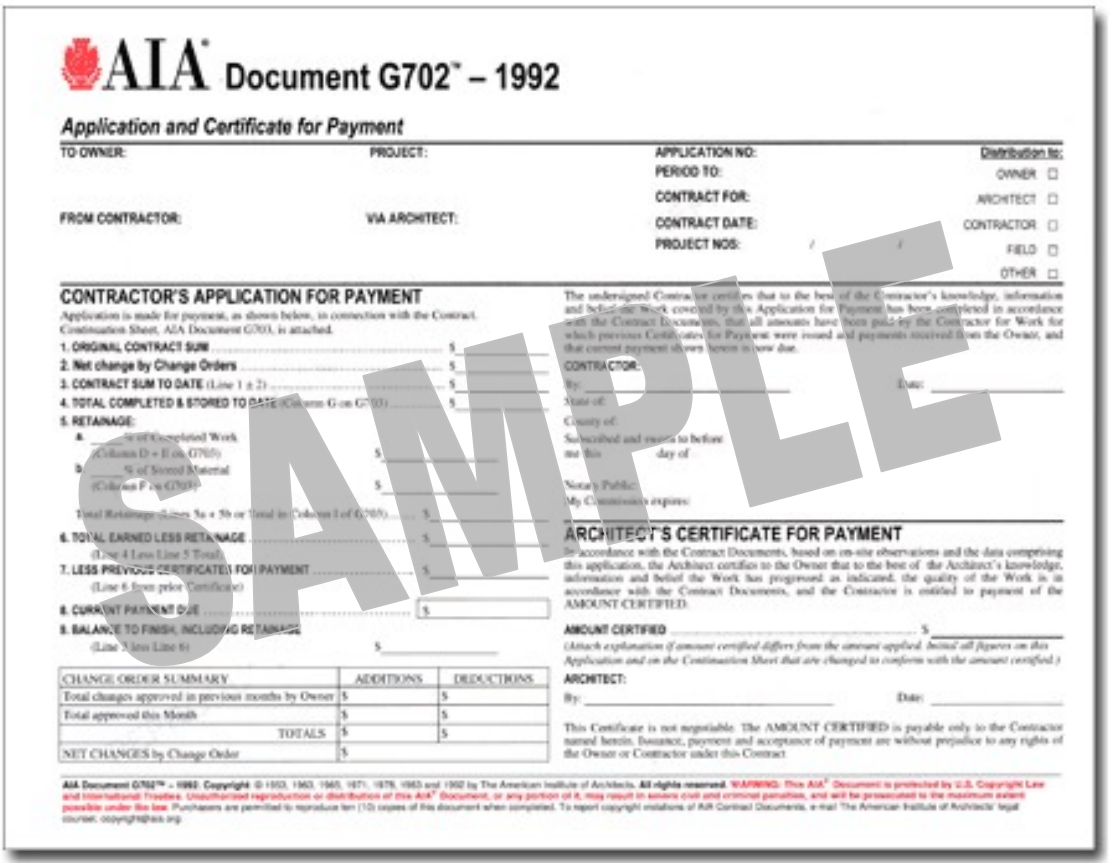
51. WISCONSIN LAW CONTROLLING

A. It is expressly understood and agreed to by parties hereto that in event of any disagreement or controversy between parties, Wisconsin law shall be controlling.

SUPPLEMENTARY CONDITIONS

1. APPLICATION & CERTIFICATE FOR PAYMENT

A. Every contractor engaged in performance of any contract for Department of Public Works, Highway & Transportation shall submit partial and final Application & Certificate for Payment for work under said contract. Form shall provide similar information as shown on AIA G702™ and G703™ forms (samples shown below). Forms shall be submitted to Public Works Project Manager for approval.



AIA Document G702™ – 1992

Application and Certificate for Payment

TO OWNER: PROJECT: APPLICATION NO: Distribution to:
PERIOD TO: OWNER ☐
CONTRACT FOR: ARCHITECT ☐
FROM CONTRACTOR: VIA ARCHITECT: CONTRACT DATE: CONTRACTOR ☐
PROJECT NOS: FIELD ☐
OTHER ☐

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract. Continuation Sheet, AIA Document G703, is attached.

1. ORIGINAL CONTRACT SUM ..... $
2. Net change by Change Orders ..... $
3. CONTRACT SUM TO DATE (Line 1 ± 2) ..... $
4. TOTAL COMPLETED & STORED TO DATE (Column G on G703) ..... $
5. RETAINAGE:
   a. ____ % of Completed Work (Column D + E on G703) $
   b. ____ % of Stored Material (Column F on G703) $
   Total Retainage (Lines 5a + 5b or Total in Column I of G703) ..... $
6. TOTAL EARNED LESS RETAINAGE ..... $ (Line 4 Less Line 5 Total)
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT ..... $ (Line 6 from prior Certificate)
8. CURRENT PAYMENT DUE ..... $
9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 3 less Line 6) $

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	$	$
Total approved this Month	$	$
TOTALS	$	$
NET CHANGES by Change Order	$	

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:
By: Date:
State of:
County of:
Subscribed and sworn to before me this day of
Notary Public:
My Commission expires:

ARCHITECT'S CERTIFICATE FOR PAYMENT

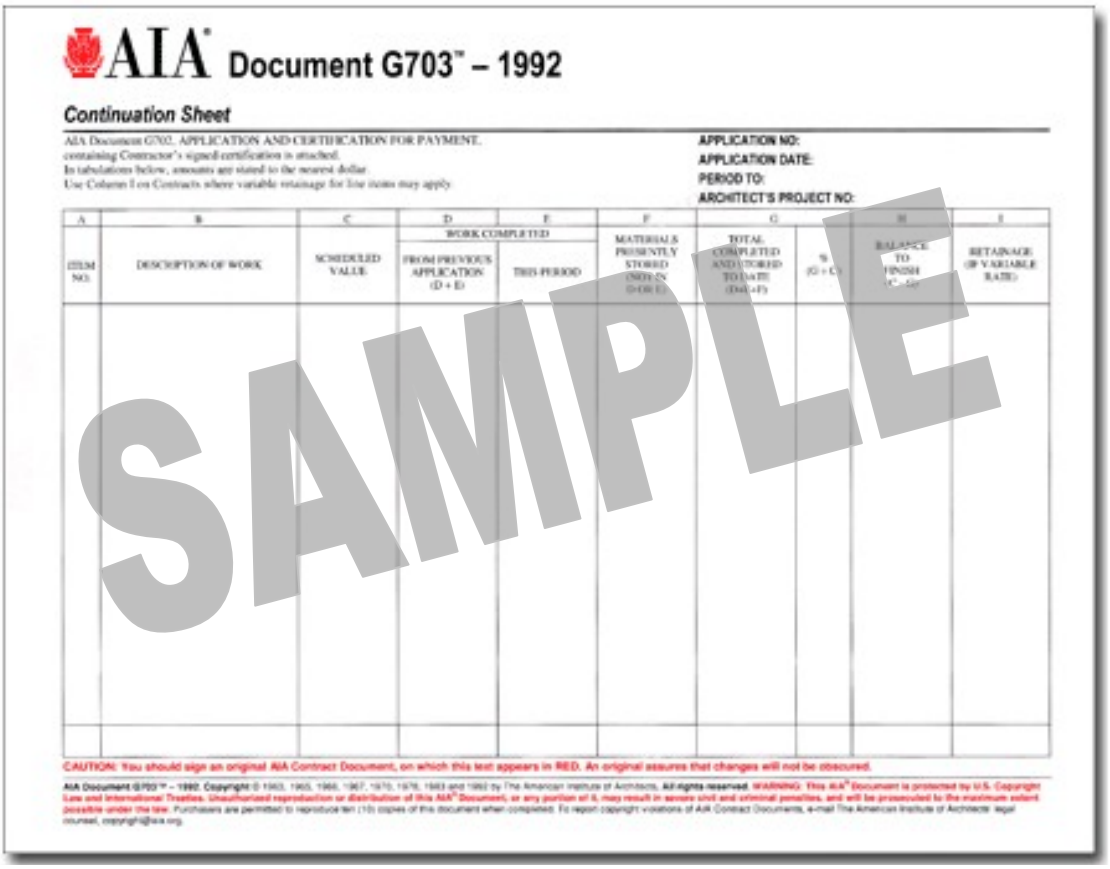
In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED ..... $
(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)
ARCHITECT:
By: Date:

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

AIA Document G702™ – 1992. Copyright © 1953, 1963, 1965, 1971, 1978, 1983 and 1992 by The American Institute of Architects. All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. Purchasers are permitted to reproduce ten (10) copies of this document when completed. To report copyright violations of AIA Contract Documents, e-mail The American Institute of Architects' legal counsel, copyright@aia.org.

SAMPLE



AIA Document G703™ – 1992

Continuation Sheet

AIA Document G702, APPLICATION AND CERTIFICATION FOR PAYMENT, containing Contractor's signed certification is attached.
In tabulations below, amounts are stated to the nearest dollar.
Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO:
APPLICATION DATE:
PERIOD TO:
ARCHITECT'S PROJECT NO:

A	B	C	D	E	F	G		H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED: FROM PREVIOUS APPLICATION (D + E)	WORK COMPLETED: THIS PERIOD	MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G ÷ C)	BALANCE TO FINISH (C - G)	RETAINAGE (IF VARIABLE RATE)

SAMPLE

CAUTION: You should sign an original AIA Contract Document, on which this text appears in RED. An original assures that changes will not be obscured.

AIA Document G703™ – 1992. Copyright © 1963, 1965, 1966, 1967, 1970, 1978, 1983 and 1992 by The American Institute of Architects. All rights reserved. WARNING: This AIA® Document is protected by U.S. Copyright Law and International Treaties. Unauthorized reproduction or distribution of this AIA® Document, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law. Purchasers are permitted to reproduce ten (10) copies of this document when completed. To report copyright violations of AIA Contract Documents, e-mail The American Institute of Architects' legal counsel, copyright@aia.org.

2. PREVAILING WAGE RATE DETERMINATION

A. A prevailing wage rate determination (PWRD) may be required on this project depending on the total project cost. A PWRD is not required if the total bid is below $100,000. If the bid is $100,000 or more, the Contractor shall apply the PWRD. The PWRD shall also be applied if the bid is a single trade project for $48,000 or more. A single trade project is one in which no single trade accounts for eighty-five percent (85%) or more of the total labor cost of the project.

B. These supplements shall modify, delete, and / or add to General Conditions of Contract. Where any article, paragraph, or subparagraph in General Conditions of Contract is supplemented by one of these paragraphs, provisions of such article, paragraph, or subparagraph shall remain in effect and supplementary provisions shall be considered as added thereto. Where any article, paragraph, or subparagraph in General Conditions of Contract is amended, voided, or superseded by any of these paragraphs, provisions of such article, paragraph, or subparagraph not so amended, voided, or superseded shall remain in effect.
   1. General Conditions of Contract Article 47, "Minimum Wages", paragraph B. Following Prevailing Wage Rate Determination No. 201501882 is added to General Conditions of Contract.

C. These State of Wisconsin forms, hereinafter set forth in this section, shall be filled out and submitted to Department of Public Works, Highway & Transportation:
   1. Disclosure of Ownership (ERD-7777)

2. Prime Contractor Affidavit of Compliance With Prevailing Wage Rate Determination (ERD-5724)
3. List of Agents and Subcontractors (Page 2 - ERD-5724)
4. Agent or Subcontractor Affidavit of Compliance With Prevailing Wage Rate Determination (ERD-10584)
5. List of Agents and Subcontractors (Page 2 - ERD-10584)
6. Request To Employ Subjourneyperson (ERD-10880)

D. At a minimum, these wage rates must be displayed in a place where all workers can access them, but not inside the job trailer. If this isn't easily done based on job conditions, the State requires they be displayed at a library or other public building.

SECTION 01 00 00

GENERAL REQUIREMENTS

PART 1 GENERAL

1.1 SECTION SUMMARY

A. Section Includes:

1. Section Summary
2. Summary of the Work
3. Contractor Use of Premises
4. Applications for Payment
5. Alternates
6. Coordination
7. Cutting and Patching
8. Conferences
9. Progress Meetings
10. Submittal Procedures
11. Proposed Products List
12. Shop Drawings
13. Product Data
14. Samples
15. Manufacturers' Instructions
16. Manufacturers' Certificates
17. Quality Assurance / Quality Control of Installation
18. References
19. Interior Enclosures
20. Protection of Installed Work
21. Parking
22. Staging Areas
23. Occupancy During Construction and Conduct of Work
24. Protection
25. Progress Cleaning
26. Products
27. Transportation, Handling, Storage and Protection
28. Product Options
29. Substitutions
30. Starting Systems
31. Demonstration and Instructions
32. Contract Closeout Procedures
33. Final Cleaning
34. Adjusting
35. Operation and Maintenance Data
36. Spare Parts and Maintenance Materials
37. As-Built and Record Drawings and Specifications

1.2 SUMMARY OF THE WORK

A. Project Description: Perform the Work as specified and detailed in Construction Documents package. Contractor to provide construction services for a pre-engineered metal building of approximately 1,056 square feet including associated site work, concrete work, and HVAC work.

B. Work by Owner: Refer to Instructions to Bidders, Article 19.
   1. Concrete Testing
   2. Testing and Balancing for HVAC, Specification Section 23 05 93, will be contracted separately by Owner.

C. Permits: Prior to commencement of the Work, Contractor to secure any and all necessary permits for completion of the Work and facility occupancy except those noted to be provided by Owner in Article 12 of the General Conditions.

D. Examination of Plans, Specification and Site: If in the opinion of the Contractor there are omissions or errors in the plans or specifications, the Contractor shall request clarification per the Instructions to Bidders, Article 3, Interpretation. In lieu of written clarification by addendum, resolve all conflicts in favor of the greater quantity or better quality.

E. Diggers Hotline:
   1. It is the responsibility of the General Contractor to contact Diggers Hotline to have all utility locations marked prior to excavation and planning an excavation in a timely manner so as not to delay the Work.
   2. Diggers Hotline shall also be used to obtain information on safe working clearances from overhead lines.
   3. It is the responsibility of the General Contractor to contact & hire private utility locating services if necessary.

1.3 CONTRACTOR USE OF PREMISES

A. Refer to General Conditions Article 7. Limit use of premises to allow work by others and work and access by Owner.

B. Construction activities with significant noise or temporary disruption of services will be required to be coordinated and scheduled with Owner.

1.4 APPLICATIONS FOR PAYMENT

A. Refer to General Conditions Article 25. Submit two (2) copies of each application on AIA G702™ and G703™ forms or approved Contractors invoice form.

B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.

C. Payment Period: Monthly.

1.5 ALTERNATES

A. Alternates quoted on Bid Form shall be reviewed and accepted or rejected at the Owner's option.

B. Coordinate related work and modify surrounding work as required.

C. Schedule of Alternates: there are no alternates proposed for this project.

1.6 COORDINATION

A. Coordinate scheduling, submittals, and work of various sections of Specifications to assure efficient and orderly sequence of installation of interdependent construction elements.

B. Verify utility requirement characteristics of operating equipment are compatible with building utilities.

C. Coordinate space requirements and installation of mechanical and electrical work that are indicated diagrammatically on Drawings.

1.7 CUTTING AND PATCHING

A. Employ a skilled and experienced installer to perform cutting and patching new work; restore work with new Products.

B. Submit written request in advance of cutting or altering structural or building enclosure elements.

C. Fit work tight to adjacent elements. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.

D. Refinish surfaces to match adjacent finishes.

1.8 CONFERENCES

A. Owner will schedule a preconstruction conference after Award of Contract for all affected parties.

B. Contractor shall submit Construction Schedule at the pre-construction meeting.

C. When required in individual Specification section, convene a pre-installation conference at project site prior to commencing work of the section.

1.9 PROGRESS MEETINGS

A. Owner shall schedule and administer meetings throughout progress of the Work at minimum of two (2) per month.

B. Owner shall preside at meetings, record minutes, and distribute copies within three (3) days to those affected by decisions made.

1.10 SUBMITTAL PROCEDURES

A. Submittal form to identify Project, Contractor, Subcontractor or supplier; and pertinent Construction Documents references.

B. Apply Contractor's stamp, signed or initialed, certifying that review, verification of Products required, field dimensions, adjacent construction work, and coordination of information is in accordance with requirements of the Work and Construction Documents.

C. Identify variations from Construction Documents and Product or system limitations that may be detrimental to successful performance of completing the Work.

D. Revise and resubmit submittals as required; identify all changes made since previous submittal.

1.11 PROPOSED PRODUCTS LIST

A. Within fifteen (15) days after date of Award of Contract, submit complete list of major Products proposed for use, with name of manufacturer, trade name, and model number of each Product.

1.12 SHOP DRAWINGS

A. Submit number of copies that Contractor requires, plus three (3) copies that shall be retained by Public Works Project Manager.

1.13 PRODUCT DATA

A. Submit number of copies that Contractor requires, plus two (2) copies that shall be retained by Public Works Project Manager.

B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturer's standard data to provide information unique to this Project.

1.14 SAMPLES

A. Submit samples to illustrate functional and aesthetic characteristics of the Product.

B. Submit samples of finishes from the full range of manufacturers' standard colors, textures, and patterns for Public Works Project Manager's selection.

1.15 MANUFACTURERS' INSTRUCTIONS

A. When specified in individual Specification sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.

1.16 MANUFACTURERS' CERTIFICATES

A. When specified in individual Specification sections, submit manufacturers' certificate to Public Works Project Manager for review, in quantities specified for Product Data.

B. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

1.17 QUALITY ASSURANCE / QUALITY CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce work of specified quality.

B. Comply fully with manufacturers' instructions.

C. Comply with specified standards as minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

1.18 REFERENCES

A. Conform to reference standard by date of issue current as of date for receiving bids.

B. Should specified reference standard conflict with Construction Documents, request clarification from Public Works Project Manager before proceeding.

1.19 INTERIOR ENCLOSURES

A. Provide temporary partitions as required to separate work areas from Owner occupied areas, to prevent distribution of dust and moisture into Owner occupied areas, and to prevent damage to existing materials and equipment.

1.20 PROTECTION OF INSTALLED WORK

A. Protect installed work and provide special protection where specified in individual Specification sections.

1.21 PARKING

A. Arrange for temporary parking areas to accommodate construction personnel. Parking shall be available at the Work site.

1.22 STAGING AREAS

A. Coordinate staging areas with Public Works Project Manager prior to starting the Work.

B. On-site space for use as staging areas and storage of materials is limited and will be apportioned among the various Contractors as their needs dictate with due regard for storage requirements of each Contractor. Each Contractor shall be responsible for safety of equipment and materials that are stored on site.

1.23 OCCUPANCY DURING CONSTRUCTION AND CONDUCT OF WORK

A. Areas of existing facility will be occupied during period when the Work is in progress. Work may be done during normal business hours (8:00 am to 4:30 pm), but confer with Owner, schedule work and store materials so as to interfere as little as possible with normal use of premises. Notify Owner when coring or similar noise making work is to be done and obtain Owner's written approval of schedule. If schedule is not convenient for Owner, reschedule and resubmit new times for Owner approval. Coring of floor along with other noisy work may have to be done on second and third shifts.

B. Work shall be done and temporary facilities furnished so as not to interfere with access to any occupied area and so as to cause least possible interference with normal operation of facility or any essential service thereof.

C. Contractor shall, at all times, provide approved, safe walkways and facility entrances for use by Owner, employees and public.

D. Contractor shall provide adequate protection for all parts of facility, its contents and occupants wherever the Work under this Contract is to be performed.

E. Contractor [is, is not] responsible for providing & maintaining temporary toilet facilities.

F. Each Contractor shall arrange with Owner to make necessary alterations, do new work, make connections to all utilities, etc., at such times as will not cause interruption of utility services to facility. Contractor doing this work shall protect, cap, cut off and / or replace and relocate existing pipes, electrical work and other active utilities encountered which may interfere with new construction work.

G. New work in extension of existing work shall correspond in all respects with that to which it connects or similar existing work unless otherwise indicated or specified.
   1. Existing work shall be cut, altered, removed or replaced as necessary for performance of Contract obligations.
   2. Work remaining in place, damaged or defaced by reason of work done under this Contract shall be restored equal to its condition at time of Award of Contract.
   3. If removal of work exposes discolored or unfinished surfaces or work out of alignment, such surfaces shall be refinished or materials replaced as necessary to make continuous work uniform and harmonious.

1.24 PROTECTION

A. Contractor shall protect from injury all trees, shrubs, hedges, walks and driveways and pay for any damage to same resulting from insufficient or improper protection.

B. Contractor shall provide and maintain barricades & signage to prohibit public access to construction site.

C. Contractor shall provide and maintain guard lights at all barricades, railings, obstructions in streets, roads or sidewalks and at all trenches adjacent to public walks or roads.

1.25 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in clean and orderly condition.

1.26 PRODUCTS

A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work, but does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components specifically identified for reuse.

B. Do not use materials and equipment removed from existing premises, except as specifically identified or allowed by Construction Documents.

1.27 TRANSPORTATION, HANDLING, STORAGE AND PROTECTION

A. Transport, handle, store and protect Products in accordance with manufacturer's instructions.

1.28 PRODUCT OPTIONS

A. Where definite material is specified, it is not intentional to discriminate against "equal" product made by another manufacturer. Intention is to set definite standard of material quality. Should bidder choose to bid materials other than those specified, bidder shall submit said materials specifications to Public Works Project Manager for approval at least seven (7) days prior to Bid Due Date.

B. Products and materials that are not specified, but have been approved for use by Public Works Project Manager shall be identified in addenda to all bidding contractors.

C. Requests for material or product substitutions submitted after Bid Due Date may be considered. Owner reserves right to approve or reject substitutions based on Specification requirements and intended use.

1.29 SUBSTITUTIONS

A. Public Works Project Manager shall consider requests for Substitutions only within fifteen (15) days after date of Public Works Construction Contract.

B. Document each request with complete data substantiating compliance of proposed Substitution with Construction Documents.

C. Submit three (3) copies of requests for Substitution for consideration. Limit each request to one (1) proposed Substitution.

D. Substitutions shall not change contract price established at Bid Due Date.

1.30 STARTING SYSTEMS

A. Provide written notification prior to start-up of each equipment item or system.

B. Ensure that each piece of equipment or system is ready for operation.

C. Execute start-up under supervision of responsible persons in accordance with manufacturers' instructions.

D. Submit written report that equipment or system has been properly installed and is functioning correctly.

1.31 DEMONSTRATION AND INSTRUCTIONS

A. Demonstrate operation and maintenance of Products to Owner's personnel prior to date of final inspection.

B. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at agreed-upon times, at designated location.

C. Owner may choose to videotape demonstration session; demonstration and demonstrator shall be to level of satisfaction of Owner.

1.32 CONTRACT CLOSEOUT PROCEDURES

A. Submit written certification that Construction Documents have been reviewed, the Work has been inspected, and the Work is complete in accordance with Construction Documents and ready for Public Works Project Manager's inspection.

B. Submit final Application for Payment identifying total adjusted Contract Sum / Price, previous payments, and amount remaining due.

1.33 FINAL CLEANING

A. Execute final cleaning prior to final inspection.

B. Clean interior and exterior surfaces exposed to view.

C. Remove waste and surplus materials, rubbish, and construction facilities from site.

1.34 ADJUSTING

A. Adjust operating Products and equipment to ensure smooth and unhindered operation.

1.35 OPERATION AND MAINTENANCE MANUAL

A. Provide operation and maintenance manual for all mechanical and electrical equipment and systems supplied and installed in the Work.

1.36 SPARE PARTS AND MAINTENANCE MATERIALS

A. Provide Products, spare parts, maintenance and extra materials in quantities specified in individual Specification Sections.

B. Deliver to the Work site and place in location as directed.

1.37 AS-BUILT AND RECORD DRAWINGS AND SPECIFICATIONS

A. Contractor-produced Drawings and Specifications shall remain property of Contractor whether Project for which they are made is executed or not. Contractor shall furnish Public Works Project Manager with original marked up redlines of Construction Documents' drawings and specifications that shall include all Addendums, Change Orders, Construction Bulletins, on-site changes, field corrections, etc. These are the project As-Built Drawings & Specifications. Record Drawings & Specifications shall be created from these As-Builts by Public Works.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

SECTION 01 74 19

CONSTRUCTION WASTE MANAGEMENT, DISPOSAL & RECYCLING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Summary
2. Waste Management Goals
3. Construction and / or Demolition Waste Management
4. Waste Management Plan
5. Reuse
6. Recycling
7. Materials Sorting and Storage On Site
8. Lists of Recycling Facilities Processors and Haulers
9. Waste Management Plan Form

B. Related Sections:
1. Section 01 00 00 - General Requirements
2. Section 02 41 19 - Selective Structure Demolition

1.2 WASTE MANAGEMENT GOALS

A. Dane County requires that as many waste materials as possible produced as result of this project be salvaged, reused or recycled in order to minimize impact of construction waste on landfills and to minimize expenditure of energy and cost in fabricating new materials. Additional information may be found in Dane County Green Building Policy, Resolution 299, 1999-2000.

1.3 CONSTRUCTION AND / OR DEMOLITION WASTE MANAGEMENT

A. All construction and demolition waste suitable for recycling must go to Dane County Construction & Demolition Recycling Facility located at 7102 US Hwy 12, Madison, located across from Yahara Hills Golf Course. This facility can receive mixed loads of construction and demolition waste. For complete list of acceptable materials see www.countyofdane.com/pwht/recycle/CD_Recycle.aspx.

B. Dane County Landfill, also at 7102 US Hwy 12, Madison, must receive all other waste from this project. www.countyofdane.com/pwht/recycle/landfill.aspx.

1.4 WASTE MANAGEMENT PLAN

A. Contractor shall develop Waste Management Plan (WMP) for this project. Dane County's Special Projects & Materials Manager may be contacted with questions. Outlined in RECYCLING section of this specification are examples of materials that can be recycled or reused as well as recommendations for waste sorting methods.

B. Contractor shall complete WMP and include cost of recycling / reuse in Bid. WMP will be submitted to Public Works Project Manager within fifteen (15) business days of Bid Due date. Copy of blank WMP form is in this Section. Submittal shall include cover letter and WMP form with:
   1. Information on:
      a. Types of waste materials produced as result of work performed on site;
      b. Estimated quantities of waste produced;
      c. Identification of materials with potential to be recycled or reused;
      d. How materials will be recycled or reused;
      e. On-site storage and separation requirements (on site containers);
      f. Transportation methods; and
      g. Destinations.

1.5 REUSE

A. Contractors and subcontractors are encouraged to reuse as many waste materials as possible. Salvage should be investigated for materials not reusable on site.

1.6 RECYCLING

A. These materials must be recycled at Dane County Construction & Demolition Recycling Facility:
   1. Wood.
   2. Wood Pallets.
   3. PVC Plastic (pipe, siding, etc.).
   4. Asphalt & Concrete.
   5. Bricks & Masonry.
   6. Vinyl Siding.
   7. Cardboard.
   8. Metal.
   9. Unpainted Gypsum Drywall.
   10. Shingles.

B. These materials can be recycled elsewhere in Dane County area:
   1. Fluorescent Lamps.
   2. Foam Insulation & Packaging (extruded and expanded).
   3. Carpet Padding.
   4. Barrels & Drums.

C. All materials must be recycled at WDNR permitted waste processing facilities that adhere to all State Statutes.

1.7 MATERIALS SORTING AND STORAGE ON SITE

A. Contractor shall provide separate containers for recyclable materials. Number of containers will be dependent upon project and site conditions.

B. Contractor shall provide on-site locations for subcontractors supplied recycling containers to help facilitate recycling.

C. Mixed loads of recycled materials are allowed only per instructions at www.countyofdane.com/pwht/recycle/CD_Recycle.aspx.

1.8 LISTS OF RECYCLING FACILITIES PROCESSORS AND HAULERS

A. Refer to www.countyofdane.com/pwht/recycle/CD_Recycle.aspx for information on Dane County Construction & Demolition Recycling Facility.

B. Web site www.countyofdane.com/pwht/recycle/categories.aspx lists current information for Dane County Recycling Markets. Contractors can also contact Allison Hackner at 608/266-4990, or local city, village, town recycling staff listed at site www.countyofdane.com/pwht/recycle/contacts.aspx. Statewide listings of recycling / reuse markets are available from UW Extension at www4.uwm.edu/shwec/wrmd/search.cfm.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

END OF SECTION

WASTE MANAGEMENT PLAN FORM

Contractor Name: _____

Address: _____

_____

Phone No.: _____ Recycling Coordinator: _____

MATERIAL	ESTIMATED QUANTITY	DISPOSAL METHOD (CHECK ONE)	RECYCLING / REUSE COMPANY OR DISPOSAL SITE
Salvaged & reused building materials	_____ cu. yds. _____ tons	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Wood	_____ cu. yds. _____ tons	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Wood Pallets	_____ units	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
PVC Plastic	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Asphalt & Concrete	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Bricks & Masonry	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Vinyl Siding	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Cardboard	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Metals	_____ cu. yds. _____ tons	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Unpainted Gypsum / Drywall	_____ cu. yds. _____ tons	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Shingles	_____ cu. yds. _____ tons	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Fluorescent Lamps	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Foam Insulation	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Carpet Padding	_____ cu. ft. _____ lbs.	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Barrels & Drums	_____ units	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____

WASTE MANAGEMENT PLAN FORM

Glass	_____ cu. yds. _____ tons	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Other	_____	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Other	_____	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Other	_____	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Other	_____	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____
Other	_____	_____ Recycled _____ Reused _____ Landfilled _____ Other	Name:_____

SECTION 02 41 19

SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. General Conditions of the Contract and portions of Division One of this Project Manual apply to this Section as though repeated herein.

1.2 WORK INCLUDED

A. The work under this section shall consist of providing all work, materials, labor, equipment, and supervision necessary to provide for the demolition of such features as required in these specifications and on the drawings. Included are the following:
   1. Demolish flare, fencing, piping, and other items as indicated on drawings.
   2. Protect portions of building adjacent to or affected by selective demolition. Take appropriate measures to protect existing facilities operations against dust contamination. Materials shall be removed without disruption to the Owner or facility operations.
   3. Remove and legally dispose of demolished materials off-site.
   4. Demolish and salvage for reuse those items noted on the drawings.
   5. Recycle as per requirements of Section 01 74 19.

1.3 SUBMITTALS

A. For utilities or other services requiring removal or abandonment in-place, submit materials documenting completion of such work.

B. Submit copies of records documenting recycling of demolition materials from the site.

1.4 DEFINITIONS

A. “Remove”: Remove and legally dispose of items, except those indicated to be reinstalled.

B. “Remove and Reinstall”: Remove items indicated; clean, service and otherwise prepare them for reuse; store and protect against damage. Reinstall in the same location or in locations indicated.

C. “Existing to Remain”: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by the A/E, items may be removed to a suitable, protected storage location during selective demolition and then cleaned and reinstalled in their original locations.

1.5 QUALITY ASSURANCE

A. Comply with governing codes and regulations.

1.6 RECORD DRAWINGS

A. Maintain record drawings showing actual locations of utilities and other features encountered, and any deviations from the original design. Show actual limits of removal and demolition.

1.7 SAFETY

A. Verify that all gas and electrical utilities have been abandoned or disconnected and associated hazards mitigated, prior to beginning any demolition.

B. Take all necessary precautions while dismantling piping containing gas, gasoline, oil or other explosive or toxic fluids or gases. Purge lines and contain materials in accordance with all applicable regulations. Store such piping outdoors until fumes are removed.

C. Maintain a clean and orderly site. Remove debris at end of each workday.

D. If hazardous materials are not anticipated, but encountered, terminate operations and contact the Owner immediately. Follow all applicable local, state and federal regulations pertaining to hazardous materials.

1.8 PERMITS

A. Unless otherwise noted, Contractor shall be responsible for obtaining and paying for all permits necessary to complete demolition work.

B. If necessary, file and maintain Notification of Demolition and/or Renovation and Application for Permit Exemption (WDNR Form 4500-113) in accordance with the Wisconsin Administrative Code Chapter NR447.

1.9 DISCONNECTION OF SERVICES

A. Prior to starting removal and/or demolition operations be responsible and coordinate disconnection with owner of all existing utilities, communication systems, alarm systems and other services.

B. Disconnect all services in manner which insures continued operation in facilities not scheduled for demolition.

C. Disconnect all services in manner which allows for future connection to that service.

D. Disconnect services to equipment at unions, flanges, valves, or fittings wherever possible.

1.10 REMOVAL/SALVAGING OF ITEMS

A. Carefully remove all items that are scheduled to be salvaged.

B. Secure salvaged items to allow for future movement; provide pallets, skids and other devices as necessary. Secure all loose parts.

C. Provide crates, padding, tarps and other measures necessary to protect salvaged items during storage. Store items in secure location, safe from vandalism, weather, dust and other adverse elements.

D. Where salvaged items are indicated to be turned over to Owner, deliver to location on property where designated by Owner.

E. Where indicated to be incorporated into new work, store the salvaged item in secure location until trade responsible for re-installation mobilizes his equipment and storage facilities to the site, or otherwise accepts responsibility for the salvaged item.

F. Items of salvage value that are not to be returned to the Owner shall be removed from the structure. Storage or sale of such salvage items at project site is prohibited.

PART 2 - PRODUCTS

2.1 EQUIPMENT

A. Use Contractor's normal equipment for demolition purposes and which meets all safety requirements imposed on such equipment.

PART 3 - EXECUTION

3.1 GENERAL

A. Examine all areas of work, verify all existing conditions, and report any unsatisfactory conditions.

3.2 PROTECTION OF EXISTING WORK AND FACILITIES

A. Verify the locations of, and protect, any building elements, utilities, and all other such facilities that are intended to remain or be salvaged.

B. Make such explorations and probes as necessary to ascertain any required protection measures that shall be used before proceeding with demolition.

C. Take all measures necessary to safeguard all existing work and facilities which are outside the limits of the work.

D. Furnish and install temporary enclosures or other barriers as shown on the plans or as otherwise necessary to protect existing features.

E. Protect adjacent interior areas from collection of dust and noxious fumes. Seal HVAC system ductwork and grilles to prevent contamination of building or mechanical systems.

F. Provide protection for workers, public, adjacent construction and occupants of existing building(s).

G. Report damage of any facilities or items scheduled for salvaging to the Owner.

H. Repair or replace any damaged facilities that are not scheduled for demolition.

I. Do not damage building elements and improvements indicated to remain.

J. Do not close or obstruct walks, drives, other occupied or used spaces, or facilities without the written permission from the owner, A/E and the authorities having jurisdiction.

K. Do not interrupt utilities serving occupied facilities without permission from the owner, A/E and authorities having jurisdiction. If necessary, provide temporary utilities.

L. Cease operations if public safety or remaining structures are endangered. Perform temporary corrective measures until operations can be continued properly.

M. If necessary, provide additional materials to protect existing building components that are to remain.

N. Where necessary to prevent collapse of any construction, install temporary shores, struts or bracing. Do not commence demolition work until all temporary construction is complete.

O. Take precautions to guard against movement, settlement or collapse of any surrounding construction designated to remain and be liable for any such movement, settlement or collapse.

3.3 DEMOLITION

A. Remove all equipment, fixtures and other materials scheduled for salvage prior to beginning demolition operations.

B. Abandon gas, electric and communication utilities in accordance with local utility company requirements, or applicable substantive requirements if considered private.

C. Remove all sealant, fasteners and damaged or rotten blocking from existing construction to remain where demolition occurs.

3.4 TRANSPORTATION AND DISPOSAL OF DEMOLITION WASTE

A. Transport and dispose all demolition waste in accordance with local, state, and federal guidelines.
   1. Recycle fluorescent lamps and other lamps containing heavy metals with a company engaged in the proper handling and recycling of these materials.
   2. Properly dispose of any lamp ballasts containing PCB's.

B. Whenever possible, or otherwise required by the Contract Documents, recycle demolition waste.

C. Demolition waste that cannot be recycled shall be disposed of at a landfill or dumpsite designed and approved to accept the given waste.

D. Maintain records documenting recycling of demolition waste. Record description of material, date removed, quantity removed and recycling destination.
   1. Provide copies of records to owner at completion of project.

3.5 SCHEDULE

A. Items to be removed shall be as indicated on the Drawings.
   1. Items to be stored and reinstalled.
   2. Items to be removed from site by Contractor.

B. Items to remain (if clarification required).

3.6 CLEANING

A. All adjacent areas shall be broom cleaned and ready to receive new construction.

B. Remove from the site all debris resulting from the Work of this Section.

END OF SECTION

.

SECTION 03 10 00

CONCRETE FORMS AND ACCESSORIES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Formwork for cast-in place concrete.
2. Shoring, bracing, and anchorage.
3. Form accessories.
4. Form stripping.

B. Related Sections:

1. Section 03 20 00 - Concrete Reinforcement.
2. Section 03 30 00 - Cast-in-Place Concrete.
3. Section 03 35 00 - Concrete Finishing

1.2 REFERENCES

A. American Concrete Institute:
1. ACI 301 - Specifications for Structural Concrete.
2. ACI 347 - Guide to Formwork for Concrete.

B. The Engineered Wood Association:
1. APA/EWA PS 1 - Voluntary Product Standard for Construction and Industrial Plywood.

C. West Coast Lumber Inspection Bureau:
1. WCLIB - Standard Grading Rules for West Coast Lumber.

PART 2 PRODUCTS

2.1 WOOD FORM MATERIALS

A. Form Materials: At discretion of Contractor.

B. Lumber Forms:
1. Application: Use for edge forms and unexposed finish concrete.
2. Boards: 6 inches or 8 inches in width, shiplapped or tongue and groove, “Standard” Grade Douglas Fir, conforming to WCLIB Standard Grading Rules for West Coast Lumber. Surface boards on four sides.

C. Plywood Forms:
1. Application: Use for exposed finish concrete.

.

2. Forms: Conform to PS 1; full size 4 x 8 feet panels; each panel labeled with grade trademark of APA/EWA.
3. Plywood where “Smooth Finish” is required, as indicated on Drawings: APA/EWA “HD Overlay Plyform Structural I Exterior” grade, minimum of 3/4 inch thick.

2.2 PREFABRICATED FORMS

A. Furnish materials in accordance with Dane County Public Work's standards.

PART 3 EXECUTION

3.1 SITE PREPARATION

A. Contractor is responsible for all excavation and civil site work necessary for this work. Contractor is responsible for locating and avoiding all existing buried utilities. Several utilities are buried near this area.

B. Notify Owner if inadequate subgrade materials are discovered during civil site work.

C. If inadequate subgrade materials are discovered, Owner will supply adequate materials. Contractor shall place Owner-supplied materials, and this additional work will be paid as a Change Order.

3.2 EXAMINATION

A. Verify lines, levels, and centers before proceeding with formwork. Verify dimensions agree with Drawings.

3.3 INSTALLATION

A. Formwork - General:
1. Construct forms to correct shape and dimensions, mortar-tight, braced, and of sufficient strength to maintain shape and position under imposed loads from construction operations.
2. Carefully verify horizontal and vertical positions of forms. Correct misaligned or misplaced forms before placing concrete.
3. Complete wedging and bracing before placing concrete.

B. Erect formwork, shoring, and bracing to achieve design requirements, in accordance with requirements of ACI 301.

C. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.

3.4 APPLICATION - FORM RELEASE AGENT

A. Apply form release agent on formwork in accordance with manufacturer's recommendations.

.

B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.

C. Do not apply form release agent where concrete surfaces are indicated to receive applied coverings that are affected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

D. Reuse and Coating of Forms: Thoroughly clean forms and reapply form coating before each reuse. For exposed work, do not reuse forms with damaged faces or edges. Apply form coating to forms in accordance with manufacturer's specifications. Do not coat forms for concrete indicated to receive "scored finish". Apply form coatings before placing reinforcing steel.

3.5 FORM CLEANING

A. Clean forms as erection proceeds, to remove foreign matter within forms.

B. Clean formed cavities of debris prior to placing concrete.

C. Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.

3.6 FORM REMOVAL

A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads and removal has been approved by Project Engineer.

B. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.

C. Store removed forms in manner that surfaces to be in contact with fresh concrete will not be damaged. Discard damaged forms.

D. Leave forms in place for minimum number of days as specified in ACI 347.

3.7 FIELD QUALITY CONTROL

A. Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and that supports, fastenings, wedges, ties, and items are secure.

B. Notify Project Engineer after placement of reinforcing steel in forms, but prior to placing concrete for inspection.

C. Schedule concrete placement to permit formwork inspection before placing concrete.

END OF SECTION

SECTION 03 20 00

CONCRETE REINFORCEMENT

PART 1 GENERAL

1.1 SUMMARY

A. Note: Reinforcement for this slab was designed based on the equipment this slab will carry and based on the assumed loads of the building. Contractor is responsible for verifying that the concrete slab design is adequate to handle the building loads. Contractor is also responsible for coordinating how the building will be anchored to the slab.

B. Section Includes:
1. Reinforcing bars.
2. Reinforcement accessories.
3. Poly Fiber Additive

C. Related Sections:
1. Section 03 10 00 - Concrete Forms and Accessories.
2. Section 03 30 00 - Cast-in-Place Concrete.
3. Section 03 35 00 - Concrete Finishing: Reinforcement for concrete floor toppings.
4. Section 13 12 10 – Pre-Engineered Buildings: Building anchors embedded in concrete.

1.2 REFERENCES

A. American Concrete Institute:
1. ACI 301 - Specifications for Structural Concrete.

1.3 SUBMITTALS

A. Shop Drawings: Indicate bar sizes, spacings, locations, and quantities of reinforcing steel.

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 301.

PART 2 PRODUCTS

2.1 REINFORCEMENT

A. Reinforcing Steel: Grade 60 rebar standard # 4 bars

2.2 ACCESSORY MATERIALS

A. Tie Wire: 17 gauge bar ties.

B. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during concrete placement.

C. Building Anchors: As specified by Contractor's building design Engineer.

PART 3 EXECUTION

3.1 PLACEMENT

A. Install 10 mil polyethylene vapor barrier under slabs on grade in accordance with ASTM E1643. Lap joints minimum 6 inches and seal watertight by taping edges and ends.

B. Do not displace, puncture, or damage 10 mil vapor barrier.

C. Repair vapor barrier damaged during placement of concrete reinforcing. Repair with vapor barrier material; lap over damaged areas minimum 6 inches and seal watertight.

D. Place, support, and secure #4 reinforcement bars, grade 60, against displacement at 12" on center both ways.

E. Place, support, and secure 6 - #4 reinforcement bars, grade 60, around perimeter lapped 12" minimum.

F. Place anchors as specified by contractor's building design Engineer.

END OF SECTION

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 SUMMARY

A. Section includes cast-in-place concrete for the following:
   1. Slabs on grade.

B. Related Sections:
   1. Section 03 10 00 - Concrete Forms and Accessories
   2. Section 03 20 00 - Concrete Reinforcement.
   3. Section 03 35 00 - Concrete Finishing.

1.2 REFERENCES

A. American Concrete Institute:
   1. ACI 301 - Specifications for Structural Concrete.
   2. ACI 306.1 - Standard Specification for Cold Weather Concreting.

B. ASTM International:
   1. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete.
   2. ASTM C150 - Standard Specification for Portland Cement.
   3. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
   4. ASTM C595 - Standard Specification for Blended Hydraulic Cements.
   5. ASTM C1116 - Standard Specification for Fiber-Reinforced Concrete and Shotcrete.
   6. ASTM E1643 - Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill under Concrete Slabs.

1.3 SUBMITTALS

A. Product Data: Submit data on joint devices and attachment accessories.

B. Design Data:
   1. Submit concrete mix design to meet 4,000 psi test after 28 days.
   2. Submit separate mix designs when admixtures are required for the following:
      a. Hot and cold weather concrete work.
   3. b. Air entrained concrete work.
   4. Identify mix ingredients and proportions, including admixtures.

C. Samples: Submit two 2” x full width samples of expansion/contraction joint and control joint.

D. Manufacturer’s Installation Instructions: Submit installation procedures and interface required with adjacent Work.

1.4 CLOSEOUT SUBMITTALS

A. Project Record Documents: Accurately record actual locations of embedded utilities and components concealed from view in finished construction on as-builts.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 301.

B. Acquire cement and aggregate from one source for Work.

C. Conform to ACI 306.1 when pouring concrete during cold weather.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Maintain concrete temperature and adjacent surfaces after installation at minimum 45 degrees F for minimum 5 days.

PART 2 PRODUCTS

2.1 CONCRETE MATERIALS

A. Cement: ASTM C150, Type IA - Air Entraining; ASTM C595.

B. Reinforcing rebar: Grade 60 rebar standard #4 bars, 12 inch o.c. in both directions.

C. Water: Clean and not detrimental to concrete.

2.2 ADMIXTURES

A. Furnish materials in accordance with State of Wisconsin Standards.

B. Air Entrainment: ASTM C260.

2.3 ACCESSORIES

A. Concrete Reinforcing Fibers: ASTM C1116, high strength industrial-grade fibers specifically engineered for secondary reinforcement of concrete.
   1. Poly fibers at 3#/CU.YD.

2.4 CONCRETE MIX

A. Mix and deliver concrete in accordance with ASTM C94/C94M, 4,000 PSI at 28 days, 3-4” slump and 6% +/- 1.5% air entrainment.

B. Admixtures: Include admixture types and quantities indicated in concrete mix designs approved through submittal process.
   1. Use accelerating admixtures in cold weather. Use of admixtures will not relax cold weather placement requirements.
   2. Add air entraining agent to normal weight concrete mix for work exposed to exterior.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify requirements for concrete cover over reinforcement.

B. Verify anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with placing concrete.

3.2 PLACING CONCRETE

A. Place concrete in accordance with ACI 301.

B. Notify Project Engineer minimum 24 hours prior to commencement of operations.

C. Notify and coordinate transformer pad concrete and conduit with local Utility minimum 72 hours prior to commencement of operations.

D. Ensure reinforcement, inserts, embedded parts, and formed expansion and contraction joints are not disturbed during concrete placement.

E. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.

F. Do not interrupt successive placement; do not permit cold joints to occur.

3.3 CONCRETE FINISHING

A. Finish concrete floor surfaces with smooth trowel in accordance with ACI 301.

B. Final finish to be smooth trowel. Review with Project Engineer before pouring.

3.4 CURING AND PROTECTION

A. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
    1. Protect concrete footings from freezing for minimum 5days.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

C. Cure floor surfaces in accordance with ACI 301.

D. Two heavy coats of Cure “n” Seal or equal.

3.5 FIELD QUALITY CONTROL

A. Provide free access to Work and cooperate with Engineer.

B. Submit proposed mix design of concrete to Engineer for review prior to commencement of Work.

C. Tests of cement and aggregates may be performed to ensure conformance with specified requirements.

D. Project Engineer may ask for concrete test cylinders. Owner is responsible for all costs associated with this testing.

E. Maintain records of concrete placement. Record date, location, quantity, air temperature and test samples taken.
   1. Assist Project Engineer in testing of concrete.

3.6 PATCHING

A. Allow Engineer to inspect concrete surfaces immediately upon removal of forms.

B. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify Engineer upon discovery.

C. Patch imperfections as directed by Engineer in accordance with ACI 301.

3.7 DEFECTIVE CONCRETE

A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.

B. Repair or replacement of defective concrete will be determined by Engineer.

C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Engineer for each individual area.

END OF SECTION

SECTION 03 35 00

CONCRETE FINISHING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Finishing concrete floors.
2. Floor surface treatment.

B. Related Sections:
1. Section 03 30 00 - Cast-in-Place Concrete:

1.2 REFERENCES

A. American Concrete Institute:
1. ACI 301 - Specifications for Structural Concrete.

1.3 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 301.

1.4 COORDINATION

A. Coordinate the Work with concrete floor placement and concrete floor curing.

1.5 ENVIRONMENTAL REQUIREMENTS

A. Temporary Heat: Ambient temperature of 40 degrees F minimum.

PART 2 EXECUTION

2.1 EXAMINATION

A. Verify floor surfaces are acceptable to receive the Work of this section.

2.2 FLOOR FINISHING

A. Finish concrete floor surfaces in accordance with ACI 301.

B. Final finish to be smooth trowel. Review with Project Manager before pouring.

C. Saw cuts 1 ½” deep, fill with self-leveling Polyurethane Caulk.

END OF SECTION

SECTION 13 12 10

PRE-ENGINEERED BUILDINGS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes 24’ x 46’ pre-engineered, shop fabricated structural steel building frame; insulated metal wall and sloped roof system; exterior doors; overhead doors; and installation of louvers. Construct building on new concrete slab. Protect existing buildings and piping during all phases of Work.

B. The building will not be heated by dedicated HVAC equipment. However, it will be maintained above freezing due to the natural heat of the landfill gas in the pipes, the heat of the generators operating, and the insulated walls.

C. Gutters and down spouts constructed on West Elevation (Sheet 6) as to not interfere with air intake equipment and roll-up door. All precipitation shall drain to the south.

1.2 REFERENCES

A. ASTM International:
   1. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
   2. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
   3. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

B. American Welding Society:
   1. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination.

C. SSPC: The Society for Protective Coatings:
   1. SSPC - Steel Structures Painting Manual.

1.3 SYSTEM DESCRIPTION

A. Clear span.

B. Bay Spacing: As required for structural design. Coordinate with location of doors, louvers, utilities, and other wall penetrations.

C. Primary Framing: Rigid frame of rafter beams and columns and wind bracing.

D. Secondary Framing: As recommended by building engineer.

E. Wall System: Preformed metal panels of vertical profile, insulation with reinforced vinyl facing, and accessory components.

F. Roof System: Preformed metal panels of upslope profile, insulation with reinforced vinyl facing, and accessory components.

G. Roof Slope: At least 1/2 inch in 12 inches.

1.4 DESIGN REQUIREMENTS

A. Provide Wall System and Roof System with minimum 6" of reinforced vinyl faced batt insulation

B. Design building to withstand the deadloads of the building, equipment, and accessories, as well as all other loads required in accordance with State of Wisconsin Building Code.

C. Provide drainage to exterior for water entering or condensation occurring within wall or roof system.

D. Permit movement of components without buckling, failure of joint seals, undue stress on fasteners or other detrimental effects, when subject to temperature range of –40 to 110 degrees F.

E. Size and fabricate wall and roof systems free of distortion or defects detrimental to appearance or performance.

1.5 PERFORMANCE REQUIREMENTS

A. Conform to Wisconsin Building Code for submission of design calculations and drawings, approved by a registered engineer, as required for acquiring permits.

B. Cooperate with regulatory agency or authority and provide data as requested by authority having jurisdiction.

C. Provide components of each type from one manufacturer compatible with adjacent materials.

1.6 SUBMITTALS

A. Shop Drawings: Indicate assembly dimensions, locations of structural members, connections; wall and roof system dimensions, panel layout, general construction details, anchorages and method of anchorage; framing anchor bolt settings, sizes, and locations from datum; indicate welded connections with AWS A2.4 welding symbols; indicate net weld lengths; provide professional seal and signature.

B. Product Data: Submit data on structural members, profiles, component dimensions, fasteners, and performance characteristics.

C. Samples: Submit two samples of precoated metal panels for each color selected, 4x4 inch in size illustrating color and texture of finish.

D. Manufacturer's Instructions: Submit preparation requirements and anchor bolt placement.

E. Erection Drawings: Indicate members by label, assembly sequence, and temporary erection bracing.

1.7 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record actual locations of concealed components and utilities. Indicate any changes to construction on as-built drawings.

1.8 QUALITY ASSURANCE

A. Insulation Installed in Exposed Locations Surface Burning Characteristics: 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.

B. Perform Work in accordance with State of Wisconsin standards.

1.9 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

B. Erector: Company specializing in performing Work of this section with minimum two years experience, approved by manufacturer.

C. Design structural components, develop shop drawings, and perform shop and site work under direct supervision of Professional Engineer experienced in design of this Work and licensed in State of Wisconsin.

1.10 PRE-INSTALLATION MEETINGS

A. Convene minimum one week prior to commencing work of this section.

1.11 WARRANTY

A. Furnish ten year warranty to include coverage for exterior pre-finished surfaces color coat against chipping, cracking or crazing, blistering, peeling, chalking, or fading.

PART 2 PRODUCTS

2.1 PRE-ENGINEERED BUILDINGS

A. Manufacturers:
   1. Star Building
   2. Nucor

3. A&S Buildings is approved
4. Metallic Building Company is approved
5. American Buildings Company is approved
6. Schulte Building Systems is approved
7. Ceco Building Systems is approved
8. Substitutions: As approved by Project Manager.

2.2 COMPONENTS - FRAMING

A. As recommended by building designer.

2.3 COMPONENTS - WALL AND ROOF SYSTEM

A. Sheet Steel Stock: R panel, 26 gauage steel. Wall Panels will have Kynar or baked on enamel finish, color chosen by Owner. Roof panels will have uncolored Galvalume finish.

B. Insulation: Fiberglass Batt, faced with reinforced white vinyl, minimum 6 inches thick.
1. Manufacturers
- GBP Silvercote
- Thermal Design, Simple Saver System
- Substitutions: As approved by Project Manager

C. Joint Seal Gaskets: Manufacturer's standard type.

D. Fasteners: Manufacturer's standard type, galvanized, finish to match adjacent surfaces when exterior exposed.

E. Bituminous Paint: Asphaltic type.

F. Sealant: Manufacturer's standard, non-staining, elastomeric, skinning.

G. Base trim, finish trim at all exterior corners and door openings, eave and rake trim, closure pieces, caps, flashings: Same material, thickness and finish as exterior sheets; brake formed to required profiles.

2.4 COMPONENTS - METAL DOORS AND FRAMES

A. Doors and Frames:
1. Two (2) new 36” pre-hung, heavy duty insulated steel service door, color chosen by owner, with weather stripping and Schlage D-series door knob and lock, or equal.
2. One new double man door. Each door 36” pre-hung, heavy duty insulated steel service door, color chosen by owner, with weather stripping and Schlage D-series door knob and lock, or equal.

2.5 COMPONENTS - OVERHEAD DOORS

A. One 12’x12’ insulated coiling door, with weather stripping and electric operation opening device.

Note: When opened, this doors must coil or roll up. They must not travel along the ceiling, like a typical garage door.

B. Manufacturers:
1. Clopay: Model 155
2. Trac-Rite: Model 955
3. Substitutions: As approved by Project Manager.

2.6 FABRICATION - FRAMING

A. Fabricate members in accordance with AISC Specification for plate, bar, tube, or rolled structural shapes.

B. Anchor Bolts: Formed with straight shank, assembled with template for casting into concrete.

C. Provide framing for door openings, louvers, and pipe supports.

2.7 FABRICATION - WALL AND ROOF SYSTEMS

A. Siding and Roofing: Minimum 26 gauge metal thickness, ribbed profile, screwed with gaskets.

B. Soffit Panels: Minimum 26 gauge metal thickness, flat, perforated for ventilation.

C. Girts/Purlins: Rolled formed structural shape to receive siding and roofing sheet.

D. Internal and External Corners: Same material thickness and finish as adjacent material, profile brake formed to required angles.

E. Expansion Joints: Same material and finish as adjacent material where exposed, manufacturer's standard brake formed type, of profile to suit system.

F. Flashings, Closure Pieces, Fascia, Infills, and Caps: Same material and finish as adjacent material, profile to suit system.

G. Fasteners: To maintain load requirements and weather tight installation, same finish as cladding, non-corrosive type.

2.8 FACTORY FINISHING

A. Framing Members: Clean, prepare, and prime to SSPC Manual requirements. Do not prime surfaces to be field welded.

B. Galvanizing for Nuts, Bolts and Washers: ASTM A153/A153M.

C. Vapor Retarder at Interior Face of Insulation: Sheet vinyl, white.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify foundation, floor slab, mechanical and electrical utilities, and placed anchors are in correct position.

3.2 ERECTION - FRAMING

A. Protect existing Work and electric generation equipment during all phases of Work.

B. Erect framing in accordance with AISC Specification.

C. Contractor is responsible for anchoring the building to the new and existing slabs. Install anchors as directed by contractor's building engineer. Coordinate anchor locations with thickened areas of existing slab.

D. Provide for erection and wind loads. Provide temporary bracing to maintain structure plumb and in alignment until completion of erection and installation of permanent bracing. Locate braced bays as indicated on building engineer Drawings.

E. Set column base plates with non-shrink grout to achieve full plate bearing.

F. Do not field cut or alter structural members without approval of Architect/Engineer.

G. After erection, prime welds, abrasions, and surfaces not shop primed.

H. Install Work in accordance with State of Wisconsin standards.

3.3 ERECTION - WALL AND ROOFING SYSTEMS

A. Protect existing Work and electrical generation equipment during all phases of Work.

B. Exercise care when cutting prefinished material to ensure cuttings do not remain on finish surface.

C. Fasten cladding system to structural supports, aligned level and plumb.

D. Locate end laps over supports. End laps minimum 2 inches. Place side laps over bearing.

E. Install expansion joints where indicated on Drawings.

F. Use exposed fasteners.

G. Attach insulation and vapor retarder to framing members.

H. Install sealant and gaskets to prevent weather penetration. Building must be weather tight.

3.4 ERECTION – ACCESSORIES

A. Protect existing Work and electric generation equipment during all phases of Work.

B. Install door frames; doors; and overhead door level and plumb.

C. Seal wall and roof accessories watertight with sealant, as recommended by building designer.

3.5 ERECTION TOLERANCES

A. Framing Members: 1/4 inch from level; 1/8 inch from plumb.

B. Siding and Roofing: 1/8 inch from indicated position. Erected to prevent ponding of water.

END OF SECTION

SECTION 23 05 00
COMMON WORK RESULTS FOR HVAC

P A R T 1 - G E N E R A L

SCOPE

This section includes information common to two or more technical specification sections or items that are of a general nature, not conveniently fitting into other technical sections.

REFERENCE

Applicable provisions of Division 1 govern work under this section.

REFERENCE STANDARDS

Abbreviations of standards organizations referenced in other sections are as follows:

AABC	Associated Air Balance Council
ADC	Air Diffusion Council
AMCA	Air Movement and Control Association
ANSI	American National Standards Institute
ARI	Air-Conditioning and Refrigeration Institute
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
EPA	Environmental Protection Agency
IEEE	Institute of Electrical and Electronics Engineers
ISA	Instrument Society of America
MCA	Mechanical Contractors Association
MICA	Midwest Insulation Contractors Association
NBS	National Bureau of Standards
NEBB	National Environmental Balancing Bureau
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association, Inc.
UL	Underwriters Laboratories Inc.
ASTM E84	Standard Test Method for Surface Burning Characteristics of Building Materials
UL723	Surface Burning Characteristics of Building Materials

QUALITY ASSURANCE

Refer to Division 1.

Where equipment or accessories are used which differ in arrangement, configuration, dimensions, ratings, or engineering parameters from those indicated on the contract documents, the contractor is responsible for all costs involved in integrating the equipment or accessories into the system and for obtaining the performance from the system into which these items are placed. This may include changes found necessary during the testing, adjusting, and balancing phase of the project.

PROTECTION OF FINISHED SURFACES

Refer to Division 1.

Furnish one can of touch-up paint for each different color factory finish which is to be the final finished surface of the product. Deliver touch-up paint with other "loose and detachable parts" as covered in the General Requirements.

SLEEVES AND OPENINGS

Refer to Division 1.

EQUIPMENT AND WORK FURNISHED BY OTHER

Electrical connections to HVAC equipment will be provided by other divisions of work and are not included as part of Division 23 work.

SUBMITTALS

Refer to Division 1.

Submit for all equipment and systems as indicated in the respective specification sections, marking each submittal with that specification section number. Mark general catalog sheets and drawings to indicate specific items being submitted and proper identification of equipment by name and/or number, as indicated in the contract documents.

Before submitting electrically powered equipment, verify that the electrical power and control requirements for the equipment are in agreement with the electrical drawings. Include a statement on the shop drawing transmittal to the engineer that the equipment submitted and the motor starter schedules are in agreement or indicate any discrepancies. See related comments in Section 23 05 13 in Part 1 under Electrical Coordination.

Include wiring diagrams of electrically powered equipment.

Submit sufficient quantities of shop drawings to allow the following distribution:

- Operating and Maintenance Manuals 2 copies
- Testing, Adjusting and Balancing Contractor 1 copy
- Dane County Public Works 1 copy
- Engineer 1 copy

Electronic submittals are acceptable in PDF format. Submittals shall clearly identify the specific item being submitted for review. One electric copy shall be submitted to the Owners Project Manager, who shall forward to the respective engineer. One electronic submittal review shall be returned with status of the submittal.

OFF SITE STORAGE

Refer to Division 1.

CERTIFICATES AND INSPECTIONS

Refer also to Division 1.

Obtain and pay for all required State or Local permit and installation inspections except those provided by the Owner/Architect/Engineer in accordance with code. Deliver originals of these certificates to the Division Project Representative. Include copies of the certificates in the Operating and Maintenance Instructions.

OPERATION AND MAINTENANCE DATA

All operations and maintenance data shall comply with the submission and content requirements specified under section GENERAL REQUIREMENTS.

In addition to the general content specified under GENERAL REQUIREMENTS supply the following additional documentation:

1. Records of tests performed a to certify compliance with system requirements
2. Certificates of inspection by regulatory agencies
3. Lubrication instructions, including list/frequency of lubrication
4. Copies of all approved shop drawings.
5. Manufacturer's wiring diagrams for electrically powered equipment
6. Control record drawings and control sequences
7. Parts lists for manufactured equipment
8. Warranties
9. Additional information as indicated in the technical specification sections

TRAINING OF OWNER PERSONNEL

Instruct owner personnel in the proper operation and maintenance of systems and equipment provided as part of this project. Include not less than ONE hour of instruction, and additional time necessary to properly instruct the owner's personnel, using the Operating and Maintenance manuals during this instruction. Demonstrate startup and shutdown procedures for all equipment. All training to completed during normal working hours. Also refer to section 23 09 14, 20 09 26 and 23 09 93 for **additional** training for detection and control systems.

RECORD DRAWINGS

Refer to Division 1.

P A R T 2 - P R O D U C T S

IDENTIFICATION

STENCILS:
Not less than 1 inch high letters/numbers for marking equipment.

ENGRAVED NAME PLATES:
White letters on a black background, 1/16 inch thick plastic laminate, beveled edges, screw mounting, Setonply Style 2060 by Seton Name Plate Company or Emedolite- Style EIP by EMED Co., or equal by Marking Services, or W. H. Brady.

P A R T 3 - E X E C U T I O N

CUTTING AND PATCHING

Refer to Division 1.

EQUIPMENT ACCESS

Install all ductwork, and accessories to permit access to equipment for maintenance and service.

COORDINATION

Verify that all devices are compatible for the surfaces on which they will be used. This includes, but is not limited to, diffusers, register, grilles, and recessed or semi-recessed heating and/or cooling terminal units installed in/on architectural surfaces.

Coordinate all work with other contractors prior to installation. Any installed work that is not coordinated and that interferes with other contractor's work shall be removed or relocated at the installing contractor's expense.

Cooperate with the test and balance agency in ensuring Section 23 05 93 specification compliance. Verify system completion to the test and balance agency, ready for testing, adjusting and balancing work. Demonstrate the starting, interlocking and control features of each system so the test and balance agency can perform its work.

IDENTIFICATION

Identify equipment in mechanical equipment rooms by stenciling equipment number on equipment.
Where stenciling is not appropriate for equipment identification, engraved name plates may be used.

Use engraved name plates to identify control equipment.

LUBRICATION

Lubricate all bearings with lubricant as recommended by the manufacturer before the equipment is operated for any reason. Once the equipment has been run, maintain lubrication in accordance with the manufacturer's instructions until the work is accepted by Owner. Maintain a log of all lubricants used and frequency of lubrication; include this information in the Operating and Maintenance Manuals at the completion of the project.

SEALING

Provide waterproof caulk sealant at all exterior wall penetrations for HVAC systems ductwork or equipment.

END OF SECTION

SECTION 23 05 13
COMMON MOTOR REQUIREMENTS FOR HVAC EQUIPMENT

P A R T 1 - G E N E R A L

SCOPE
This section includes requirements for single and three phase motors that are used with equipment specified in other sections of Division 23.

RELATED WORK
Section 23 09 14 - Electric Instrumentation and Control Devices for HVAC
Section 23 05 14 - Variable Frequency Drives

REFERENCE
Applicable provisions of Division 1.

REFERENCE STANDARDS

ANSI/IEEE 112	Test Procedure for Polyphase Induction Motors and Generators
ANSI/NEMA MG-1	Motors and Generators
ANSI/NFPA 70	National Electrical Code

QUALITY ASSURANCE
Refer to division 1.

SHOP DRAWINGS
Include with the equipment which the motor drives the following motor information: motor manufacturer, horsepower, voltage, phase, hertz, rpm, and full load efficiency. Include project wiring diagrams prepared specifically for this work.

OPERATION AND MAINTENANCE DATA
All operations and maintenance data shall comply with the submission and content requirements specified under section GENERAL REQUIREMENTS.

ELECTRICAL COORDINATION
All starters, overload relay heater coils, disconnect switches and fuses, relays, wire, conduit, pushbuttons, pilot lights, and other devices required for the control of motors or electrical equipment are furnished and installed by the Electrical Contractor, except as specifically noted elsewhere in this division of specifications.

The schedules for HVAC equipment show number, horsepower rating, voltage and phase of all motors furnished by this Contractor. This Division contractor shall coordinate the Electrical contractor to verify the data on the HVAC documents is consistent with the voltage and phase available. Should any discrepancy in size, horsepower rating, electrical characteristics or means of control be found for any motor or other electrical equipment after contracts are awarded, Contractor is to immediately notify the architect/engineer of such discrepancy. Costs involved in any changes required due to equipment substitutions initiated by this contractor will be the responsibility of this contractor. See related comments in Section 23 05 00 - Common Work Results for HVAC, under Shop Drawings.

Electrical Contractor will provide all power wiring. Wiring for temperature control shall be included as part of this Division, refer to section 23 09 14.

Furnish project specific wiring diagrams to Electrical Contractor for all equipment and devices furnished by this Contractor and indicated to be wired by the Electrical Contractor.

PRODUCT CRITERIA
Motors to conform to all applicable requirements of NEMA, IEEE, ANSI, and NEC standards and shall be listed by U.L. for the service specified.

Select motors for conditions in which they will be required to perform; i.e., general purpose, splash proof, explosion proof, standard duty, high torque or any other special type as required by the equipment or motor manufacturer's recommendations.

Furnish motors for starting in accordance with utility requirements and compatible with starters as specified.

P A R T 2 - P R O D U C T S

THREE PHASE, SINGLE SPEED MOTORS
Use NEMA rated for voltage as scheduled, three phase, 60 hertz motors for all motors 1/2 HP and larger unless specifically indicated.

Use NEMA general purpose, continuous duty, Design B, normal starting torque, T-frame or U-frame motors with Class B or better insulation unless the manufacturer of the equipment on which the motor is being used has different requirements. Use open drip-proof motors unless totally enclosed fan-cooled, totally enclosed non-ventilated, explosion-proof, or encapsulated motors are specified in the equipment sections.

All open drip-proof motors to have a 1.15 service factor. Other motor types may have minimum 1.0 service factors.

All motors 1 HP and larger, except specially wound motors to be high efficiency design with full load efficiencies which meet or exceed the values listed below when tested in accordance with NEMA MG 1.

FULL LOAD NOMINAL MOTOR EFFICIENCY BY MOTOR SIZE AND SPEED

	-----Open Drip-Proof Motors------		
MOTOR	-------Nominal Motor Speed-------		
HP	1200 rpm	1800 rpm	3600 rpm
1	82.5	85.5	77.0
1-1/2	86.5	86.5	84.0
2	87.5	86.5	85.5
3	88.5	89.5	85.5
5	89.5	89.5	86.5
7-1/2	90.2	91.0	88.5

TWO-SPEED MOTORS
Unless otherwise indicated, three phase two speed motors to be two winding, variable torque.

MOTORS USED ON VARIABLE FREQUENCY DRIVES
In addition to the requirements specified above, the motor must be suitable for use with the drive specified in Section 23 05 14, including but not limited to motor cooling. Motor shall comply with NEMA MG1 Part 31 to provide windings capable to withstand up to 1600 peak Volts with a rise time of 0.1 µs. Provide bearing protection grounding rings to bleed current from the motor shaft to the motor casing. Manufacturers: Aegis SGR, Inpro/Seal CDR, or equal.

P A R T 3 - E X E C U T I O N

INSTALLATION
When motor will be connected to the driven device by means of a belt drive, mount sheaves on the appropriate shafts in accordance with the manufacturer's instructions. Use a straight edge to check alignment of the sheaves; reposition sheaves as necessary so that the straight edge contacts both sheave faces squarely. After sheaves are aligned, loosen the adjustable motor base so that the belt(s) can be added and tighten the base so that the belt tension is in accordance with the drive manufacturer's recommendations. Frequently recheck belt tension and adjust if necessary during the first day of operation and again after 80 hours of operation.

Verify the proper rotation of each three-phase motor as it is being wired or before the motor is energized for any reason.

Lubricate all motors requiring lubrication. Record lubrication material used and the frequency of use. Include this information in the maintenance manuals.

END OF SECTION

SECTION 23 05 14
VARIABLE FREQUENCY DRIVES

PART 1 - GENERAL

SCOPE
This section includes variable frequency drives, bypass starters, and line reactors.

RELATED WORK
Section 23 34 00 - HVAC Fans

REFERENCE
Applicable provisions of Division 1 govern work under this section.

REFERENCE STANDARDS
ANSI/IEEE 519 Guide for Harmonic Control and Reactive Compensation of Static Power Converters

SUBMITTALS
Submit shop drawings and product data under provisions of Division 1.

Include physical, electrical, and performance characteristics of each variable frequency drive and associated components, including dimensions; weight; input and output performance; voltage, phase, current and overcurrent characteristics; installation instructions; protective features; wiring and block diagrams indicating specified options; electrical noise attenuation equipment where required to meet the criteria specified; line side voltage notch wave form and line side current harmonics; certified efficiency versus load and speed curves; and required operating environment.

OPERATION AND MAINTENANCE DATA
All operations and maintenance data shall comply with the submission and content requirements specified under section GENERAL REQUIREMENTS.

EQUIPMENT STARTUP AND AGENCY TRAINING
Provide the services of a factory trained and certified technician to approve the installation; start-up, test, and adjust for proper operation of the unit(s) a minimum period of 1 hour. Upon completion of the equipment startup, submit a complete manufacturer's field report, including startup and test log, signed by the factory trained technician. Coordinate with the Control Contractor and the Balancing Contractor. The startup shall be coordinated with Electrical Contractor.

WARRANTY
The warranty shall be for a period of twenty-four (24) months from the date of project Substantial Completion. Further, the warranty shall include all parts, labor, travel time, administrative costs, overhead, travel expenses, technical support and any and all other costs to provide the warranty service.

PART 2 - PRODUCTS

MANUFACTURERS
ABB, Toshiba, Trane/Danfoss, GE, Yaskawa, Eaton/Cutler Hammer, Mitsubishi, Allen Bradley

DESIGN AND CONSTRUCTION
The unit shall be variable torque, modular design for control of the motors as specified in Division 23 and rated at the motor full load nameplate amps.

The unit shall be U.L. listed, solid state, microprocessor based with a pulse width modulated (PWM) output wave form (none others are acceptable).

The VFD shall employ a full wave bridge rectifier and capacitors to minimize the ripple of the rectified voltage to maintain near constant DC voltage. Insulated gate bipolar transistors (IGBT's) shall be employed as the output switching device.

The VFD package shall contain the equivalent of 5% impedance to reduce harmonic distortion. The 5% equivalent impedance shall be provided in the form of a DC bus choke, an input AC line reactor in each phase, or a combination of the two methods.

Control circuitry shall be plug-in, plug-out modular basis with a corrosion resistant coating on printed circuit boards.

Units to be suitable for an operating environment from -9°F to 104°F (-23°C to 40°C) temperature and humidity up to 90% non-condensing.

Electrically and physically isolate control circuitry and conductors from power circuitry and power conductors. Control conductors and power conductors shall not be run in the same pathway.

The unit enclosure shall be NEMA 12 as required for the application minimum and all components shall be fully factory assembled and tested prior to leaving the manufacturing facility.

Include the following operating and monitoring devices mounted on the front cover:

A disconnect switch or circuit breaker to de-energize both the drive and bypass circuit with door interlocked handle and lock-open padlocking provisions.
Operating mode selector switch marked "hand-off-auto".
Manual speed adjustment via keypad, mounted on the door.
Manual bypass selector switch to select power through drive or bypass (if a bypass is provided).

Provide a manual bypass circuit and bypass starter to transfer from variable frequency drive operation to bypass operation.

PERFORMANCE REQUIREMENTS

Units shall be suitable for input power of electrical system as scheduled on the drawings ±10%, 3 phase, 60 Hertz nominal.

Use a current limiting control device to limit output current to 110% continuous for one minute; also refer to Protection Features in this section. Full load output current available from drive shall not be less than motor nameplate amperage. The full load amp rating of the VFD shall not be less than the values indicated in the NEC Table 430-150.

Output power shall be suitable for driving standard NEMA B design, three phase alternating current induction motors at full rated speed with capability of 6:1 turndown.

Additional performance capabilities to include the following:

Ride through a momentary power outage of 15 cycles,
Start into a rotating load without damage to drive components or motor,
Capable of automatic restart into a rotating load after a preset, adjustable time delay following a power outage
Input power factor: Min 0.95 throughout the speed range
Minimum efficiency: 95% at 100% speed, 85% at 50% speed

CONTROL FEATURES

Use control circuits compatible with input signal from control system in the automatic mode and from manual speed control in the manual mode. Vary motor speed in response to the input control signal. Include components necessary to accept the signal from the control system in the form that it is sent. Refer to Section 23 09 14. This section shall coordinate the signal being provided by Section 23 09 14.

Include the following additional control features:

- Hand-Off-Automatic (HOA) selector switch to select local or remote start/stop and speed control
- Analog input, selectable 0-10v or 4-20 mA, for automatic control from the control system
- Local speed control at the VFD
- Adjustable acceleration and deceleration rate so that the time period from start to full speed and from full speed to stop can be field adjusted
- Adjustable minimum and maximum speed settings for both automatic and manual modes of operation
- Manual transfer bypass circuit
- Field adjustment of minimum and maximum output frequency
- Two (2) sets of programmable form "C" contacts for remote indication of variable frequency drive condition. Note: default programming to be set for "Drive Run & Fault".
- Illuminated display keypad.
- External Fault indicator
- One (1) input for a N.O. dry contact type input for a 2-wire remote start/stop
- One (1) N.O. dry contact output for proving motor status. This output shall be programmed to detect belt or coupling break that would remove the load from the motor. The dry contact will open on loss of load or VFD being off.
- PID control loop capable of VFD control from an external device connected to a VFD analog input.

PROTECTION FEATURES

Use electronic protection circuitry in the power circuits to provide an orderly shutdown of the drive without blowing fuses or tripping circuit breakers and prevent component loss under the following abnormal conditions:

Activation of any safety device;
Instantaneous overcurrent and/or over voltage of output;
Power line overvoltage and under voltage protection;
Phase loss;
Single and three phase short circuiting;
Ground faults;
Control circuit malfunction;
Over temperature; and
Output current over limit.

Provide the following additional protective features:

- Input transient overvoltage protection up to 3000 volts per ANSI 37.90A;
- DC bus fusing or other electronic controls which limit the rate of rise of the DC bus current and de-energizes the drive at a predetermined current level;
- Fusing for the control circuit transformer;
- Grounded control chassis; and
- Devices and/or control circuitry to ensure that the variable frequency drive and bypass starter are not both energized and driving motor simultaneously.

DIAGNOSTICS

Provide an English character display (no error codes) with indicators for the following:

Phase loss
Ground fault
Over current
Overvoltage
Under voltage
Over temperature
Overload
DC bus status

QUALITY ASSURANCE TESTS
Use a factory heat stress test to verify proper operation of all functions and components under full load.

Variable frequency drive manufacturer or designated representative to perform a field test of each drive, in the presence of the Owners representative, for the following items:

- Provide general inspection to verify proper installation;
- Demonstrate drive reaction to simulated power interruptions of two seconds and sixty seconds;
- Demonstrate adequate protection during switching from variable frequency drive operation to bypass starter operation and back again.

BYPASS EQUIPMENT
Bypass Starters:

The bypass starters for 480 volt motors, 40 HP and less, shall be across-the-line magnetic starter type.

Bypass Configuration:

Provide one main disconnect switch or circuit breaker to de-energize both the drive and bypass circuit. Provide a drive input disconnect switch or fuse block to allow the drive to be isolated while the bypass circuit is energized. Provide one output drive contactor and one output bypass contactor. The two output contactors shall be electrically interlocked to allow only one contactor to be closed at any one time.

Provide motor overload protection in the bypass circuit.

Provide bypass equipment in a common enclosure with the VFD or, if not available, in a separate enclosure.

AC INPUT LINE REACTORS
When needed to comply with the requirement for 5% equivalent impedance, furnish and factory install AC input line reactors.

Line reactors shall be installed in each phase of the AC input side of the VFD and mounted within a common enclosure with the VFD.

Line reactor shall be a three phase inductor, iron core, 600V, Class H insulation, 115 degree C rise, copper windings with screw type terminal blocks.

PART 3 - EXECUTION

VARIABLE FREQUENCY DRIVES
Install where indicated on drawings and in accordance with approved submittals and manufacturer's published recommendations. Installation to be by the Electrical Contractor.

Input power wiring shall be installed in a separate conduit, output power wiring shall be installed in a separate conduit and control wiring shall be installed in a separate conduit. Do not mix input power, output power, or control wiring in a common conduit. Separate conduits for input and output power wiring shall be provided for each motor. Input and output power wiring for more than one motor shall not share a common conduit. Power wiring shall be furnished and installed by the Electrical Contractor.
Control signal for drive will be provided under Division 23.

Control Contractor will furnish and install the required temperature control wiring in metal conduit.

END OF SECTION

SECTION 23 05 29
HANGERS AND SUPPORTS FOR HVAC EQUIPMENT

P A R T 1 G E N E R A L

SCOPE
This section includes specifications for supports of all HVAC equipment.

RELATED WORK
Section 23 34 00 - HVAC Fans

REFERENCE
Applicable provisions of Division 1 shall govern work under this section.

REFERENCE STANDARDS
MSS SP-58 Materials, Design, Manufacture, Selection, Application, and Installation

QUALITY ASSURANCE
Refer to Division 1, General Conditions, Equals and Substitutions.

DESCRIPTION
Provide all supporting devices as required for the installation of mechanical equipment and materials. All supports and installation procedures are to conform to the latest requirements of the ANSI Code for pressure piping.

Support apparatus and material under all conditions of operation, variations in installed and operating weight of equipment to prevent excess stress,.

Protect insulation at all hanger points; see Related Work above.

SHOP DRAWINGS
Refer to division 1, General Conditions, Submittals.

P A R T 2 - P R O D U C T S

STRUCTURAL SUPPORTS
Provide all supporting steel required for the installation of mechanical equipment and materials, whether or not it is specifically indicated or sized, including angles, channels, beams, etc. to suspend or floor support of equipment.

STEEL HANGER RODS:
Threaded both ends, threaded one end, or continuous threaded, black finish.

Size rods for individual hangers as indicated in the following schedule.

Total weight of equipment, including duct work and accessories are not to exceed the limits indicated.

Maximum Load (Lbs.) (650°F Maximum Temp.)	Rod Diameter (inches)
610	3/8
1130	1/2
1810	5/8
2710	3/4

Provide rods complete with adjusting and lock nuts.

BEAM CLAMPS
MSS SP-58 Type 23 malleable black iron clamp for attachment to beam flange to 0.62 inches thick for single threaded rods of 3/8, 1/2, and 5/8 inch diameter. Furnish with a hardened steel cup point set screw. Anvil figure 86.

P A R T 3 - E X E C U T I O N

INSTALLATION
Install supports to provide for free expansion of the duct system.

END OF SECTION

SECTION 23 05 93
TESTING, ADJUSTING, AND BALANCING FOR HVAC

P A R T 1 - G E N E R A L

SCOPE
This section includes air testing, adjusting and balancing for the entire project.

RELATED WORK
Section 23 05 00 Common Work Results for HVAC
Section 23 09 14 Electric Instrumentation, Control Devices and Sequences for HVAC

REFERENCE STANDARDS
AABC	National Standards for Total System Balance, Sixth Edition, 2002.
ASHRAE	ASHRAE Handbook, 2007 HVAC Applications, Chapter 37, Testing Adjusting and Balancing.
NEBB	Procedural Standards for Testing Adjusting Balancing of Environmental Systems, Seventh Edition, 2005.
TABB	Tab Procedural Guide, First Edition, 2003.

DESCRIPTION
The Division 23 Contractor will contract with an independent test and balance agency to perform all testing, adjusting, and balancing of air systems required for this project.

Requirements include the balance of air distribution, adjustment systems and equipment to provide design requirements indicated on the drawings, electrical measurement and verification of performance of all mechanical equipment, all in accordance with standards published by AABC, NEBB, or TABB.

QUALITY ASSURANCE
Qualifications
An independent firm specializing in the Testing and Balancing of HVAC systems for a minimum of 3 years. A certified member of AABC or certified by NEBB or TABB in the specific area of work performed. Maintain certification for the entire duration of the project..

SUBMITTALS
Submit testing, adjusting and balancing reports bearing the seal and signature of the NEBB, AABC or TABB Certified Test and Balance Supervisor. The reports certify that the systems have been tested, adjusted and balanced in accordance with the referenced standards; are an accurate representation of how the systems have been installed and are operating; and are an accurate record of all final quantities measured to establish normal operating values of the systems.

Cover page identifying project name, project number and descriptive title of contents. Divide the contents of the report into the below listed divisions:

- General Information
- Summary
- Air Systems

Contents: Provide the following minimum information, forms and data:

General Information: Inside cover sheet identifying Test and Balance Agency, Contractor, Engineer, Project Name and Project Number. Include addresses, contact names and telephone numbers. Also include a certification sheet containing the seal and signature of the Test and Balance Supervisor.

Summary: Provide summary sheet describing mechanical system deficiencies. Describe objectionable noise or drafts found during testing, adjusting and balancing. Provide recommendations for correcting unsatisfactory performances and indicate whether modifications required are within the scope of the contract, are design related or installation related. List instrumentation used during testing, adjusting and balancing procedures.

The remainder of the report to contain the appropriate standard NEBB, AABC, or TABB forms for each respective item and system. Fill out forms completely. Where information cannot be obtained or is not applicable indicate same.

P A R T 2 - P R O D U C T S

INSTRUMENTATION
Provide all required instrumentation to obtain proper measurements. Application of instruments and accuracy of instruments and measurements to be in accordance with the requirements of NEBB, AABC, or TABB Standards and instrument manufacturer's specifications.

All instruments used for measurements shall be accurate, and calibration histories for each instrument to be available for examination by DD upon request. Calibration and maintenance of all instruments to be in accordance with the requirements of NEBB, AABC, or TABB Standards

P A R T 3 - E X E C U T I O N

PRELIMINARY PROCEDURES
Check filters for cleanliness, equipment for proper rotation and belt tension, controls for completion of installation.

PERFORMING TESTING, ADJUSTING AND BALANCING
Perform testing, adjusting and balancing procedures on each system identified, in accordance with the detailed procedures outlined in the referenced standards except as may be modified below.

Unless specifically instructed in writing, all work in this specification section is to be performed during the normal workday.

In air systems employing filters, blank off sufficient filter area to simulate a pressure drop that is midway between that of a clean filter and that of a dirty filter.

Measure and record system measurements at the fan to determine total flow. Adjust equipment as required to yield specified total flow.

Measure and record static air pressure conditions across fans and filters.

Provide fan and motor drive sheave adjustments necessary to obtain design performance. Provide drive changes specifically noted on drawings, if any. If work of this section indicates that any drive or motor is inadequate for the application, advise the owner's project representative by giving the representative properly sized motor/drive information (in accordance with manufacturers original service factor and installed motor horsepower requirements); Confirm any change will keep the system within its design limitations with respect to speed of the device and pressure classification of the system. Required motor/drive changes not specifically noted on drawings or in specifications will be considered an extra cost and will require an itemized cost breakdown submitted to owner's project representative. Prior authorization is needed before this work is started.

Areas designed to maintain positive require special attention. Adjust fan drives, and controls to maintain indicated pressure relationship.

Final air system measurements to be within the following range of specified CFM:
Fans: 0% to +10%

Contact the Control Contractor for assistance in operation and adjustment of controls during testing, adjusting and balancing procedures. Cycle controls and verify proper operation and set points. Include in report description control operation and any deficiencies found.

Leave systems in proper working order, replacing belt guards, closing access doors and electrical boxes, and restoring controls to normal operating settings.

DEFICIENCIES
Division 23 contractor to correct any installation deficiencies found by the test and balance agency that were specified and/or shown on the Contract Documents to be performed as part of that division of work. Test and balance agency will notify the Owners Project Representative of these items and instructions will be issued to the Division 23 contractor for correction of the deficient work. All corrective work to be done at no cost to the owner. Retest mechanical systems, equipment, and devices once corrective work is complete as specified.

END OF SECTION

SECTION 23 09 14
ELECTRIC CONTROL DEVICES FOR HVAC

P A R T 1 - G E N E R A L

SCOPE
This section includes control system specifications for HVAC work of this project.

All control components required to provide the specified control sequence shall be provided even if not specifically included in this section.

RELATED WORK
Section 23 05 93 - Testing, Adjusting, and Balancing for HVAC - Coordination
Section 23 09 93 - Sequence of Operation for HVAC Controls
Section 23 33 00 - Ductwork Accessories - for control damper installation

REFERENCE
Applicable provisions of Division 1 govern work under this section.

REFERENCE STANDARDS

ANSI B16.22	Wrought Copper and Wrought Copper Alloy Solder Joint Pressure Fittings
ANSI/ASTM B32	Specification for Solder Metal
ASTM B75	Seamless Copper Tube
ASTM D1693	Environmental Stress-Cracking of Ethylene Plastics
ASTM D 635	Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position
UL 94	Tests for Flammability of Plastic Materials for Parts in Devices and Appliances
AMCA 500-D	Laboratory Method of Testing Dampers for Rating

SYSTEM DESCRIPTION
The system is the control of make-up air and exhaust fans for providing engine/generator cooling and combustion air and maintain the required building positive pressure.

System is to be electric/electronic.

SUBMITTALS
Include the following information:

Manufacturer's data sheets indicating model number, pressure/temperature ratings, capacity, methods and materials of construction, installation instructions, and recommended maintenance. General catalog sheets showing a series of the same device is not acceptable unless the specific model is clearly marked.

Schematic flow diagrams of systems showing fans, dampers, and other control devices. Indicate all wiring, clearly, differentiating between factory and field installed wiring. Wiring should be shown in schematics that detail contact states, relay references, etc. Diagrammatic representations of devices alone are not acceptable.

Details of construction, layout, and location of the temperature control panel within the building, including instruments location in panel and labeling. Also include on drawings equipment number and location of mechanical equipment controlled, horsepower of motorized equipment, locations of all remote sensors and control devices (either by room number or column lines).

Schedule of control dampers indicating size, and size of operators required.

A complete description of each control sequence for mode of operation.

DESIGN CRITERIA
Size all control apparatus to properly supply and/or operate and control the apparatus served.

Use only UL labeled products that comply with NEMA Standards. Electrical components and installation to meet all requirements of the electrical sections of project specifications.

OPERATION AND MAINTENANCE DATA
All operations and maintenance data shall comply with the submission and content requirements specified under section GENERAL REQUIREMENTS.

In addition to the general content specified under GENERAL REQUIREMENTS supply the following additional documentation:

1. A complete set of record control drawings.

MATERIAL DELIVERY AND STORAGE
Provide factory shipping cartons for each piece of equipment and control device. This contractor is responsible for storage of equipment and materials inside and protected from the weather.

P A R T 2 - P R O D U C T S

CONTROL DAMPERS
Provide dampers to be mounted in ductwork. Refer to plans and schedules for dampers provided as an accessory to fans that are provided by the fan manufacturer.

Provide control dampers shown on the plans and as required to perform the specified functions. Dampers shall be rated for velocities that will be encountered at maximum system design and rated for pressure equal or greater than the ductwork pressure class as specified in Section 23 31 00 of the ductwork where the damper is installed.

Use only factory fabricated dampers with mechanically captured replaceable resilient blade seals, stainless steel jamb seals and with entire assembly suitable for the maximum temperature and air velocities encountered in the system.

Dampers in galvanized ductwork shall be constructed of galvanized steel and/or aluminum.

All dampers, unless otherwise specified, to be rated at a minimum of 180º F working temperature. Leakage testing shall be certified to be based on latest edition of AMCA Standard 500-D and all dampers, unless otherwise specified, shall have leakage ratings as follows:

Damper Class	Differential Pressure	Leakage
Class IA	1" w.g.	$\leq$3 CFM/ft^2

Steel framed dampers: Nailor models 2010 & 2020; Greenheck models VCD-33 & VCD-42; Johnson Controls model V-1330; Ruskin Models CD60 & CD40; other approved equal.

Aluminum frame and blade dampers: Nailor models 2010EAF & 202EAF; Greenheck model VCD-43; Ruskin model CD50; Arrow model AFD-20; other approved equal.

Two position dampers may be parallel or opposed blade type.

All power required for electric actuation shall be provided by this contractor.

ELECTRIC/ELECTRONIC THERMOSTATS

ELECTRIC THERMOSTATS:
Provide line or low voltage electric type suitable for heating or heating and cooling as required. Provide the required number of stages required for the application. For line voltage ventilation applications utilizing fans and where otherwise specified in the sequence of operations, provide an integral manual On/Off/Auto selector switch.

PRESSURE TRANSDUCERS (AIR)

Provide pressure transducers specified below for the following applications:
- Space/building static control or monitoring.

The airflow transducer shall provide noise filtration and automatic auto-zeroing. The automatic zeroing circuit shall be capable of maintaining the transducer output to within ±0.25% of operating span. The transducer output shall be locked and maintained at the last given output value during the automatic zeroing period so as not to interrupt the automatic control process. Use a bi-directional transmitter for applications

that may have both positive and negative pressure excursions. Transmitter shall be provided with an integral four-digit display of the pressure sensed.

Transducer Span: <2 times the design velocity pressure at maximum flow, single range
Accuracy: ±0.25% of full scale, including non-linearity, hysteresis, deadband, and non-repeatability
Temperature Effect: ±0.15% of full scale/°F
Response: 0.5 sec. for 98% of full span change
Overpressure: 5 PSIG Proof
Power: 24VAC/VDC
Analog Output: 0-5VDC, 0-10VDC, or 4-20mA field adjustable
Auto Zero Frequency: every 1 to 24 hours on 1 hour intervals

For space or building static pressure monitoring, use Vaisala model SPH10 Static Pressure Head, or approved equal for outside air reference. Mount in location shown on plans.

TEMPERATURE CONTROL PANELS
Constructed of steel or extruded aluminum, with hinged door, keyed lock, and baked enamel finish. Install controls, relays, transducers and automatic switches inside panels. Label devices with permanent printed labels and provide as-built wiring diagram within enclosure. Provide raceways for wiring within panel for neat appearance. Provide termination blocks for all wiring terminations. Label outside of panel with panel number corresponding to plan tags and as-built control drawings as well as building system(s) served.

Control panels that have devices or terminations that are fed or switch 50V or higher shall enclose the devices, terminations, and wiring so that Personal Protective Equipment (PPE) is not required to service the under 50V devices and terminations within the control panel. As an alternative, a separate panel for only the 50V and higher devices may be provided and mounted adjacent to the under 50V control panel.

For panels that have 120 VAC power feeds provide a resettable circuit breaker. Provide label within the panel indicating circuit number of 120 VAC serving panel

CURRENT STATUS SWITCHES
Provide a current sensor with adjustable threshold and digital output with LED display, equal to a Veris model H-708/H-904. Threshold adjustment must be by a multi-turn potentiometer or set by multiprocessor that will automatically compensate for frequency and amperage changes associated with variable frequency drives. When used on variable speed motor applications, use a current sensor that will not change state due to varying speeds.

POWER SUPPLIES
Provide all required power supplies for transducers, sensors, transmitters and relays. All low voltage transformers shall have a resettable secondary circuit breaker and be listed as class 2 power supplies.

HORN STROBE ALARM

EST Life Safety and Communications or approved equivalent.

Field Configurable indoor wall or ceiling horn strobe EST Genesis Series Model GC-HDVM with white housing

Lens to be optical grade polycarbonate (clear)

Mounting 4” square box, deep, indoor wall or ceiling

Agency Listings and Approvals: ULC-S525 & ULC-S526, year 2004 UL requirements for standards UL1638 and UL1971, and complies with UL1480. All horn-strobes comply with ADA Code of Federal Regulation Chapter 28 Part 36 Final Rule. CSFM, MEA, FM.

Strobe Output Rating: UL 1971, UL 1638, ULC S526: selectable 15/30/75/95 cd (GC-HDVM) and 95/115/150/177 cd (GC-HDVMH)

Strobe Flash Rate: GC-HDVM series temporal-tone horn-strobes: one flash per second synchronized with optional G1M Genesis Signal Master indefinitely within 10 milliseconds (or self-synchronized within 200 milliseconds over thirty minutes on a common circuit without G1M Genesis Signal Master) Temporal setting (private mode only): synchronized to temporal output of horns on same circuit

Strobe Output Rating: UL 1971, UL 1638, ULC S526: selectable 15/30/75/95 cd (GC-HDVM) and 95/115/150/177 cd (GC-HDVMH)

Horn Pulse Rate: GC-HDVM series temporal-tone horn-strobes: temporal rate synchronized with optional G1M Genesis Signal Master indefinitely within 10 milliseconds (or self-synchronized within 200 milliseconds over thirty minutes on a common circuit without G1M Genesis Signal Master)

P A R T 3 - E X E C U T I O N

INSTALLATION
Install all control equipment, accessories, and wiring in a neat and workmanlike manner. All control devices must be installed in accessible locations. This contractor shall verify that all control devices furnished under this Section are functional and operating the mechanical equipment as specified in Section 23 09 93.

All components required to provide the control system sequences specified shall be provided by this section unless specifically specified otherwise. This includes all switches, relays, actuators, dampers.

All cables to the electronic input/output devices, sensors, relays and interlocking wiring shall be supplied and installed under this section of specification

Label all control devices with the exception of dampers, with printed labels that correspond to control drawings. Control junction and pullboxes shall be identified utilizing spray painted green covers.

Provide all electrical relays and wiring, line and low voltage, for control systems, devices and components. Install all high voltage and low voltage wiring (includes low voltage cable) in metal conduit, Electrical Non-metallic Tubing (ENT), or Electrical Metallic Tubing (EMT), as scheduled below and hereafter referred to generically as conduit. See Wire Conduit Installation Schedule below for specific conduit or tubing to be used. All conduit must be installed in accordance with electrical sections of this specification and the National Electrical code.

Conduit shall be a minimum of 1/2 " for low voltage control provided the pipe fill does not exceed 40%.

Minimum low voltage wiring gauge to be 18 AWG for outputs and 20 AWG for inputs. All low voltage wiring to be stranded.

Low voltage wiring can be run without conduit above accessible lay-in tile ceilings. All wiring in mechanical rooms, above inaccessible hard ceilings, exterior locations, and in any exposed areas, and in all other locations should be in conduit. Wire for wall sensors must be run in conduit. Wiring for radiation valves shall be run in conduit where routed through walls.

This contractor shall be responsible for all 120 VAC power, not provided in the electrical contractor, required for equipment provided under this section.

All wiring in control panels shall be terminated on a terminal strip. Wire nuts are not acceptable. A maximum of two wires shall be terminated under any one terminal.

All electrical wiring is to be permanently tagged or labeled within one inch of terminal strip with a numbering system to correspond with the "Record Drawings".

After completion of installation, test and adjust control equipment. Submit data showing set points and final adjustments of controls.

WIRE CONDUIT AND TUBING INSTALLATION SCHEDULE
Exposed Dry Interior Locations: Rigid steel conduit. Intermediate metal conduit. Electrical metallic tubing.

TEMPERATURE CONTROL PANELS
All control panel openings shall be plugged. Conduits and other penetrations on the top of the cabinets shall be sealed on the exterior of the cabinet with silicone caulk to resist water penetration. Provide permanent printed labeling for instruments and controls inside cabinet and engraved plastic nameplates on cabinet face.

Provide as-built control drawings of all systems served by each local panel in a location adjacent to or inside of panel cover. Provide a protective cover or envelope for drawings.

HORN STROBE ALARM
Install horn/strobe at locations indicated on the drawing. Refer to control sequence section 23 09 93.

Install in accordance with manufacturer instructions

Label with 3 inch high RED lettering on white background "GAS ALARM" at each device.

TRAINING
Contractor to provide representative and/or field personnel knowledgeable with the operations, maintenance and troubleshooting of the system and/or components defined within this section. See section 23 09 93 for training time required.

END OF SECTION

SECTION 23 09 26
GAS DETECTION SYSTEM

PART 1 - GENERAL

SCOPE

The work covered by this section of the specifications includes the furnishing of all labor, equipment, materials, and performance of all operations associated with the installation of the new Gas Alarm System as shown on the drawings and as herein specified. Included are the following topics:

RELATED WORK

The work covered by this section of the specifications shall be coordinated with the related work as specified elsewhere under the following project sections:

Section 23 05 00 – Common Work Results for HV
Section 23 05 93 – Testing, Adjusting and Balancing for HV
Section 23 09 14 – Electric Control Devices for HV
Section 23 09 93 – Sequences of Operation for HV Controls

DESCRIPTION OF WORK

Furnish and install a complete Single Zone Gas Detection System within the Dane County No. 1 (Verona) Landfill Generator Building as described herein and as shown on the plans; to be wired, connected, and left in first class operating condition as illustrated on the drawings.

The Gas Detection System shall be manufactured by Quatrosense Environmental, LTD. (www.QELsafety.com), or Owner pre-approved equivalent, and shall be provided for the monitoring of combustible gas concentrations, and any other 4-20mA input parameter.

The complete installation shall be done in a neat, workmanlike manner in accordance with all applicable Codes and the manufacturer's recommendations.

REGULATORY REQUIREMENTS

The complete installation shall conform to the applicable sections of the latest edition of the following Codes and Standards:

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA):

NFPA-70	National Electrical Code (NEC)
NFPA 101	Life Safety Code
IBC	International Building Code
IFC	International Fire Code
IMC	International Mechanical Code
	Wisconsin Administrative Code

SUBMITTALS

Under the provisions of Section 23 05 00 and Division 1, submit all products for approval prior to ordering any equipment in accordance with requirements of Division 1, General Conditions.

PRODUCT DELIVERY, STORAGE AND HANDLING

Receive equipment at job site; verify applicable components and quantity delivered.

Handle equipment to prevent internal components' damage and breakage, as well as denting and scoring of enclosure finish.

Do not install damaged equipment.

Store equipment in a clean, dry space and protect from dirt, fumes, water, and construction debris and physical damage. Make arrangements with the Owner at the pre-construction meeting for storage of equipment on the premises

SPARE PARTS

Contractor shall provide the following spare parts in quantities shown:

Quantity:	Type of Device
(1)	CH4 Gas Transmitter/Sensor

PART 2 - PRODUCTS

ENCLOSURES

All panels and peripheral devices shall be the standard product of a single manufacturer and shall display the manufacturer's name on each component.

CONTROL PANEL

Provide QEL Model M-CONTROLLER with CTS-M-Series Gas Detectors or 4-20mA inputs from gas detectors and/or auxiliary input devices.

Controller requirements:

- 4 parallel RS 485 ports for up to 32 gas sensors wired in a 'daisy chain' configuration, and a total of 99 relays wired in a 'daisy chain' configuration without compromising sensor count.
- 8 analog (4-20mA) input ports for monitoring from any other measurement device.
- Three on board DPDT relays rated 5 Amp resistive 3.7 Amp inductive at 240 VAC / 30 VDC.
- Relay assignment individually set to one or all transmitter/sensors in any combination. May be set for averaging, or voting.
- Time delays individually set, make, break, average, voting.
- Audio indicator with three modes of alarm.
- 24VDC Horn and strobe outputs.
- Available 8 channel scalable analog 4-20mA output from controller configurable for any sensor or group of sensors to host computer, BAS, DDC or data acquisition system.
- RS-422 output to computer/PLC with Modbus Protocol.
- RS-232 programming port and interconnect cable for programming configuration of system (includes non-proprietary M-View software CD for system configuration).
- 5 LED status lights.
- Digital display and keypad for manual programming.
- Test Function for microprocessor, lights, relays, audio calibration disable through front keypad.
- Locking door latch.
- Non-proprietary configuration software and access password to controller.

SEQUENCE OF OPERATION

- Refer to Section 23 09 93 for complete sequence of operation.

TRANSMITTER/SENSORS

COMBUSTIBLE GAS TRANSMITTER/SENSOR – CH4 (methane/natural gas)
Provide QEL Model CTS-M1710 Series stand-alone, analog and/or networked combustible gas transmitter/sensor.

Combustible Gas Transmitter/Sensor requirements:

- Catalytic Bead Sensor.
- Range 0 to 100 % LEL
- Digital display of gas concentration
- Scalable 4-20 mA or 2-10 VDC linearized output
- RS-485 digital communication
- 2 SPDT relay output Form C, 1 amp dry contact and buzzer (optional)
- Time delays (make and break) on relay outputs
- Outputs, range, relay enable/disable, time delays, digital addressing, configuration adjustable through 3 switches on side of unit
- Input voltage 24VAC or 24VDC
- Non-proprietary calibration protocol

Sequence of Operation:

- Refer to Section 23 09 93 for complete sequence of operation.
- Activate fan(s) when the level of gas reaches 50% of LEL concentration in the zone.
- Activate visual and continuous audible alarm at when the level of gas reaches 50% of LEL concentration in the zone.
- Alarm shall also be capable of providing a signal to be transmitted to an outside service for reporting CH4 detection. Requirement for outside reporting to be determined by Dane County.

PART 3 - EXECUTION

GENERAL

The complete installation shall be done in a neat, workmanlike manner in accordance with the applicable requirements of NFPA 70 and the manufacturer's recommendations.

Commissioning shall be performed by authorized technician.

TESTING

Before proceeding with any testing, all persons, facilities and building occupants whom receive alarms or trouble signals shall be notified by the contractor to prevent unnecessary response or building occupant distress. At the conclusion of testing, those previously notified shall be notified that testing has been concluded.

The manufacturer's authorized representative shall provide on-site supervision of the complete system installation, perform a complete functional test of the system, and report to the Owner’s Project Manager attesting to the proper operation of the completed system prior to final inspection.

WARRANTY

The Contractor shall warrant the completed system wiring and equipment to be free from inherent mechanical and electrical defects for a period of two (2) years from the date of substantial completion of the project.

TRAINING

The Contractor through his/her supplier shall provide, as part of this contract, up to ONE hour system operation training for Owner, and the Engineer. This training shall be coordinated with the Ventilation Control Contractor to provide training of the detection and control system in the same time period.

END OF SECTION

SECTION 23 09 93
SEQUENCE OF OPERATION FOR HVAC CONTROLS

P A R T 1 - G E N E R A L

SCOPE
This section includes control sequences for HVAC equipment provided or modified by this project.

RELATED WORK

Applicable provisions of Division 1 govern work under this Section.
Section 23 05 00 - Common Work Results for HVAC
Section 23 05 93 - Testing, Adjusting, and Balancing for HVAC
Section 23 09 14 - Electric Control Devices for HVAC
Section 23 34 00 - HV Fans

REFERENCE
Section 23 09 14 work includes furnishing and installing all field devices, and all related field wiring, interlocking control wiring between equipment, that is covered in that section.

Motorized control dampers and actuators are also covered in Section 23 09 14 except motor operated dampers included as part of specific equipment.

DESCRIPTION OF WORK
The system is the control of make-up air and exhaust fans for providing engine/generator cooling and combustion air and maintaining the required building positive pressure.

Control sequences are hereby defined as the manner and method by which automatic controls function.

Requirements for the operation are specified in this section.

Operation equipment, devices and system components required to be controlled are specified in other Division 23 control sections of these specifications.

SUBMITTALS
Refer to Division 1, Basic Requirements, Submittals, Section 23 05 00 and Section 23 09 14 for descriptions of what should be included in the submittals.

Shop drawings shall be provided under Sections 23 09 14. The contractor providing the 23 09 14 equipment shall provide a complete narrative of the sequence of operation for equipment that is controlled by this section 23 09 14 and this section or directly from that equipment provided controls. The narrative of the sequence of operation shall not be a verbatim copy of the sequences contained herein, but shall reflect the actual operation as applied by the control section contractor.

OPERATION AND MAINTENANCE DATA
All operations and maintenance data shall comply with the submission and content requirements specified under section GENERAL REQUIREMENTS.

P A R T 2 - P R O D U C T S

Not applicable to this Section – reference Section 23 09 14 for product descriptions.

P A R T 3 - E X E C U T I O N

CONTROL SEQUENCES

GENERAL:

The scope of this project is the control of supply and exhaust fans for engine/generator cooling ventilation, combustion air while maintaining required space positive pressure and provide building ventilation on detection of combustible gas.

There are 2 engine/generators. Each engine/generator is provided with a supply and exhaust fan system.

Each system includes one exhaust fan controlled by a two stage thermostat to operate the exhaust fan in two stages, one interlocked supply fan with speed/volume controlled by a variable frequency drive to maintain the generator room at a positive pressure in relation to the exterior as the exhaust fan volume and engine combustion air varies.

Each system shall be provided with controls to operate the supply/exhaust system when the respective engine/generator is operating, independent of the other system in response to space temperature and space positive static pressure.

ENGINE/GENERATOR VENTILATION CONTROL SEQUENCE

Each of the two ventilation systems shall be interlocked with the associated engine/generator unit to enable the system to operate when the engine/generator is operating.

On start of the engine/generator the associated two speed exhaust fan shall be controlled by the two stage thermostat to maintain the space temperature set point. Initial set points shall be 75 deg. low speed start and 85 deg. high speed start. Set points shall be adjustable. When the exhaust is enabled the discharge damper shall open and the end switch shall allow the fan to start.

On start of the engine/generator the associated supply system shall be enabled and the outside air dampers shall open. The supply fan shall start and the motor speed shall be controlled to maintain a space positive pressure of 0.2 inches of H_2O (adjustable) in relation to the building exterior as sensed by interior and exterior pressure transducers providing signal to the variable speed drive to control the speed/volume of the supply fan.

When the engine/generator is not operating the associated exhaust and supply fans shall be disabled unless the enabled engine/generator the associated ventilation system cannot provide the heat removal to maintain a space temperature below the set point of a high limit thermostat of the enabled system as follows.

When the space temperature reaches the high limit thermostat set point of 95 deg. (adjustable) the disabled engine/generator ventilation system (now operating as a backup) supply and exhaust system shall be enabled even though the associated engine/generator is not operating. The backup supply and exhaust fan systems shall operate with it's normal sequence until the space temperature of the backup system is 5 deg. (adjustable) below the high limit start set point at which point the backup system shall be disabled.

GAS DETECTION VENTILATION CONTRIL SEQUENCE

On detection of CH4 (methane/natural gas) by the gas detection system if the one or both of the supply/exhaust ventilation systems are in operation the ventilation systems shall continue to operate and the detection alarms shall be activated.

On detection of CH4 (methane/natural gas) by the gas detection system if both of the supply/exhaust ventilation systems are not operating, one of the engine/generator ventilation systems shall be activated to provide space ventilation and the detection alarms shall be activated.

TRAINING

Provide all the time necessary to properly instruct the owner's personnel, on the operation of the ventilation control system to designated owner personnel. This training shall be coordinated with the Detection System Suppliers technician to provide training of the detection and control system in the same time period.

END OF SECTION

SECTION 23 31 00
HVAC DUCTS

P A R T 1 - G E N E R A L

SCOPE
This section includes specifications for duct systems used on this project

RELATED WORK
Section 23 05 93 - Testing, Adjusting, and Balancing for HVAC
Section 23 33 00 – Air Duct Accessories

REFERENCE
Applicable provisions of Division 1 govern work under this Section.

REFERENCE STANDARDS

ASTM A90	Test Method for Weight of Coating on Zinc-Coated (Galvanized) Iron or Steel Articles
ASTM A623	Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process
ASTM 924	Standard Specification for General Requirements for Sheet Steel, Metallic-coated by the Hot-dip Method
UL 181	Standard for Safety for Factory Made Air Ducts and Air Connectors.

QUALITY ASSURANCE
Refer to division 1, General Conditions, Equals and Substitutions.

SHOP DRAWINGS
Include manufacturer's data and/or Contractor data for the following:

- Material of construction, gauge, pressure class, system class, method of reinforcement, joint construction, fitting construction, and support methods.
- Duct sealant and gasket material.

DESIGN CRITERIA
Construct all ductwork to be free from vibration, chatter, objectionable pulsations and leakage under specified operating conditions.

Use material, weight, thickness, gauge, construction and installation methods as outlined in the following SMACNA publications, unless noted otherwise:

- HVAC Duct Construction Standards, Metal and Flexible, 3rd Edition, 2005
- HVAC Air Duct Leakage Test Manual, 2nd Edition, 2012
- HVAC Systems - Duct Design, 4th Edition, 2006

Use products which conform to NFPA 90A, possessing a flame spread rating of not over 25 and a smoke developed rating no higher than 50.

DELIVERY, STORAGE AND HANDLING
Promptly inspect shipments to ensure that Ductwork is undamaged and complies with the specification.

Protect Ductwork by storing inside or by durable, waterproof, above ground packaging. Do not store material on grade. Protect Ductwork from dirt, dust, construction debris and foreign material. Where end caps/packaging are provided, take precautions so caps/packaging remain in place and free from damage.

P A R T 2 - P R O D U C T S

GENERAL
All sheet metal used for construction of duct shall be 24 gauge or heavier

DUCTWORK PRESSURE CLASS
Minimum acceptable duct pressure class, for all ductwork is 2 inch W.G. positive or negative, depending on the application.

MATERIALS
GALVANIZED STEEL SHEET:
Use ASTM A 653 galvanized steel sheet of lock forming quality. Galvanized coating to be 1.25 ounces per square foot, both sides of sheet, G90 in accordance with ASTM A90.

LOW PRESSURE DUCTWORK (Maximum 2 inch pressure class)
Fabricate and install ductwork in sizes indicated on the drawings and in accordance with SMACNA recommendations, except as modified below.

Construct so that all interior surfaces are smooth. Use slip and drive or flanged and bolted construction when fabricating rectangular ductwork. Sheet metal screws may be used on duct hangers, transverse joints and other SMACNA approved locations if the screw does not extend more than 1/2 inch into the duct.

Where rectangular elbows are used, provide turning vanes in accordance with Section 23 33 00.

DUCT SEALANT
Manufacturer: 3M 800, 3M 900, H.B. Fuller/Foster, Hardcast, Hardcast Peal & Seal, Lockformer cold sealant, Mon-Eco Industries, United Sheet Metal, or approved equal. Silicone sealants are not allowed in any type of ductwork installation.

Install sealants in strict accordance with manufacturer's recommendations, paying special attention to temperature limitations. Allow sealant to fully cure before pressure testing of ductwork, or before startup of air handling systems.

GASKETS
2 INCH PRESSURE CLASS AND LOWER:
Soft neoprene or butyl gaskets in combination with duct sealant for flanged joints.

P A R T 3 - E X E C U T I O N

INSTALLATION
Verify dimensions at the site, making field measurements and drawings necessary for fabrication and erection. Check plans showing work of other trades and consult with Engineer in the event of any interference.

Make allowances for beams, pipes or other obstructions in building construction and for work of other contractors. Transform, divide or offset ducts as required, in accordance with SMACNA HVAC Duct Construction Standards, Figure 4-7, except do not reduce duct to less than six inches in any dimension and do not exceed an 8:1 aspect ratio.

Test openings for test and balance work will be provided under Section 23 05 93.

Provide frames constructed of angles or channels for filters, dampers installed in duct systems, and make all connections to such equipment including equipment furnished by others. Secure frames with gaskets and screws or nut, bolts and washers.

Install all motor operated dampers and connect to or install all equipment furnished by others.

Provide adequate access to ductwork for cleaning purposes.

DUCTWORK SUPPORT
Support ductwork in accordance with SMACNA HVAC Duct Construction Standards, Figure 5-5, except supporting ductwork with secure wire method is not allowed.

END OF SECTION

SECTION 23 33 00
AIR DUCT ACCESSORIES

P A R T 1 - G E N E R A L

SCOPE
This section includes accessories used in the installation of duct systems.

RELATED WORK
Section 23 05 29 – Hanger and Supports for HVAC Piping and Equipment
Section 23 31 00 – HVAC Ducts

REFERENCE
Applicable provisions of Division 1 govern work under this Section.

REFERENCE STANDARDS

NFPA 90A	Standard for Installation of Air Conditioning and Ventilating Systems
SMACNA	HVAC Duct Construction Standards - Metal and Flexible, 2nd Edition, 1995

QUALITY ASSURANCE
Refer to division 1, Equals and Substitutions

SHOP DRAWINGS
Refer to division 1, Submittals.

Submit for all accessories and include dimensions, capacities, ratings, installation instructions, and appropriate identification.

OPERATION AND MAINTENANCE DATA
All operations and maintenance data shall comply with the submission and content requirements specified under section GENERAL REQUIREMENTS.

P A R T 2 - P R O D U C T S

TURNING VANES
Manufacturers: Aero Dyne, Anemostat, Barber-Colman, Hart & Cooley, or approved equal.

Construct turning vanes and runners for square elbows in accordance with SMACNA Fig. 2-3 and Fig. 2-4 except use only airfoil type vanes. Construct turning vanes for short radius elbows and elbows where one dimension changes in the turn in accordance with SMACNA Fig. 2-5 and Fig. 2-6.

CONTROL DAMPERS
Control dampers are specified in section 23 09 14.

ACCESS DOORS
Access doors to be designed and constructed for the pressure class of the duct in which the door is to be installed. Doors in exposed areas shall be hinged type with cam sash lock. Hinges shall be aluminum or steel full length continuous piano type. Use minimum 1" deep 24 gauge galvanized steel double wall access doors with minimum 24 gauge galvanized steel frames. Provide double neoprene gasket that shall provide seals from the frame to the door and frame to the duct. Access doors constructed with sheet metal screw fasteners will not be accepted.

DUCT FLEXIBLE CONNECTIONS
Material to be fire retardant, be UL 214 listed, and meet the requirements of NFPA 90A.

Connections to be a minimum of 3 inches wide, crimped into metal edging strip, and air tight. Connections to have adequate flexibility and width to allow for thermal expansion/contraction, vibration of connected equipment, and other movement.

Use coated glass fiber fabric for all applications. Material for inside applications other than corrosive environments, fume exhaust, or kitchen exhaust to be double coated with neoprene, air and water tight, suitable for temperatures between -10°F and 200°F, and have a nominal weight of 30 ounces per square yard.

P A R T 3 - E X E C U T I O N

MANUAL VOLUME DAMPERS
Install manual volume dampers in each branch duct and for each grille, register, or diffuser as far away from the outlet as possible while still maintaining accessibility to the damper. Install so there is no flutter or vibration of the damper blade(s).

TURNING VANES
Install turning vanes in all rectangular, mitered elbows in accordance with SMACNA standards and/or manufacturer's recommendations.

Install double wall, airfoil, 2 inch radius vanes in ducts with vane runner length 18" or greater and air velocity less than 2000 fpm. Install double wall, airfoil, 4-1/2 inch radius vanes in ducts with vane runner length 18" or greater and air velocity 2000 fpm or greater.

If duct size changes in a mitered elbow, use single wall type vanes with a trailing edge extension. If duct size changes in a radius elbow or if short radius elbows must be used, install sheet metal turning vanes in accordance with SMACNA Figure 2-5 and Figure 2-6.

CONTROL DAMPERS
Install dampers in locations indicated on the drawings, as detailed, and according to the manufacturer's instructions. Install blank-off plates or transitions where required for proper mixing of airstreams in mixing plenums. Provide adequate operating clearance and access to the operator. Install an access door adjacent to each control damper for inspection and maintenance.

ACCESS DOORS
Install access doors where specified, indicated on the drawings, and in locations where maintenance, service, cleaning or inspection is required. Examples include, but are not limited to motorized dampers, fire and smoke dampers, smoke detectors, fan bearings, heating and cooling coils, filters, valves, and control devices needing periodic maintenance.

Size and numbers of duct access doors to be sufficient to perform the intended service. Minimum access door size shall be 8 x 8 inch size for hand access, 18 x 18 inch size for shoulder access, or other size as indicated. Install access doors on both inlet and outlet sides of reheat coils as well as other duct mounted coils.

DUCT FLEXIBLE CONNECTIONS
Install at all duct connections to rotating or vibrating equipment, including fans, or other motorized equipment in accordance with SMACNA Figure 2-19.

END OF SECTION

SECTION 23 34 00
HVAC FANS

P A R T 1 - G E N E R A L

SCOPE
This section includes specifications for fans that are not an integral part of a manufactured device.

RELATED WORK
Section 23 05 29 - Hangers and Supports for HVAC Equipment
Section 23 05 13 - Common Motor Requirements for HVAC Equipment

REFERENCE
Applicable provisions of Division 1 govern work under this Section.

REFERENCE STANDARDS

AMCA 203	AMCA Fan Application Manual - Troubleshooting
AMCA 210	Laboratory Method of Testing Fans for Rating
AMCA 300	Reverberant Room Method for Sound Testing of Fans
NFPA 90A	Standard for the Installation of Air Conditioning and Ventilating Systems

QUALITY ASSURANCE
Refer to division 1, General Conditions, Equals and Substitutions.

SHOP DRAWINGS
Refer to division 1.

Include dimensions, capacities, fan curves, materials of construction, ratings, weights, motors and drives, sound power levels, appropriate identification and vibration isolation for all equipment. Sound power levels to be based on tests performed in accordance with AMCA Standard 300.

Fan curves shall indicate the relationship of CFM to static or total pressure for various fan speeds. Brake horsepower, recommended selection range, and limits of operation are to also be indicated on the curves. Indicate operating point on the fan curves at design air quantity and indicate the manufacturer's recommended drive loss factor for the specific application. Tabular fan performance data is not acceptable.

For variable air volume application, include data which indicates the effect of capacity control devices, such as inlet vanes, on performance.

OPERATION AND MAINTENANCE DATA
All operations and maintenance data shall comply with the submission and content requirements specified under section GENERAL REQUIREMENTS.

DESIGN CRITERIA
Tested and certify all fans in accordance with the applicable AMCA test code.

Each fan and motor combination shall be capable of delivering 110% of air quantity scheduled at scheduled static pressure. The motor furnished with the fan shall not operate into the motor service factor when operating under these conditions.

Consider drive efficiency in motor selection according to manufacturer's published recommendation or according to AMCA Publication 203, Appendix L.

Where inlet and outlet ductwork at any fan is changed from that shown on the drawings, provide any motor, drive and/or wiring changes required due to increased static pressure or baffling necessary to prevent uneven airflow or improve mixing.

All internal insulation and other components exposed to the airstream are to meet the flame spread and smoke ratings contained in NFPA 90A.

P A R T 2 - P R O D U C T S

GENERAL
Use fan size, class, type, arrangement, and capacity as scheduled.

Furnish complete with motors, wheels, drive assemblies, bearings, vibration isolation devices, and accessories required for specified performance and proper operation.

Provide variable pitch sheaves for drives 5 hp and smaller, fixed pitch sheaves for drives larger than 5 hp. Design all drives for 150% of motor rating.

Use OSHA approved belt guards that totally enclose the entire drive.

Statically and dynamically balance all fans so they operate without objectionable noise or vibration.

IN-LINE CENTRIFUGAL FANS
Manufacturers: Greenheck, Cook, New York Blower, Peerless, Penn, Twin City, or approved equal.

Construct housing of welded steel with reinforcing to prevent distortion. Furnish with streamlined inlet cones and multiple straightening vanes following the fan wheel to minimize noise and reduce turbulence. Provide each housing with a bolted and gasketed access door for inspection of drive and fan wheel. Use non-overloading airfoil blade fans welded to the wheel cones. Isolate belt drives from airstream with a belt tube. Externally mount motors on an adjustable base. Bearings to be grease lubricated, self-aligning ball bearing type with grease seal and external grease fitting. Unless a special coating is scheduled, paint fans with a prime coat after metal cleaning and surface preparation. Apply a second coat of paint to all exterior surfaces.

Design all vertically mounted fans to withstand the vertical thrust loads.

Provide one inch galvanized mesh inlet screens for fans without inlet ductwork.

SIDEWALL PROPELLER FANS
Manufacturers: Greenheck, Penn, Cook, or approved equal.

Constructed of steel with angle iron reinforcing and motor support frame, die formed propeller blades with a welded reinforcing gusset on the backside for added rigidity, belt or drive as scheduled, electrically operated control/backdraft damper with blade edge and jamb seals, damper operator, bird screen, and screened inlet/fan guard. Paint fans with a prime coat after metal cleaning and surface preparation; apply a second coat of paint to all exterior surfaces.

Provide factory fabricated wall sleeves and other accessories as scheduled.

P A R T 3 - E X E C U T I O N

INSTALLATION
Install as shown on the drawings, as detailed, and according to manufacturer's installation instructions.

END OF SECTION

SECTION 23 37 13
REGISTERS & GRILLES

PART 1 - GENERAL

SCOPE

This section includes specifications for air terminal equipment

RELATED WORK

Section 23 31 00 - HVAC Ducts
Section 23 33 00 - Air Duct Accessories
Section 23 05 93 - Testing, Adjusting and Balancing for HVAC

REFERENCE

Applicable provisions of Division 1 govern work under this section.

REFERENCE STANDARDS

NFPA 90A - Installation of Air Conditioning and Ventilation Systems.
UL 181 - Factory-Made Air Ducts and Connectors.
ARI-ADC Standard 880

QUALITY ASSURANCE

Refer to division 1, General Conditions, Equals and Substitutions.

SUBMITTALS

Refer to division 1, General Conditions, Submittals.

Furnish submittal information including, but not limited to, the following:

- Manufacturer's name and model number
- Identification as referenced in the documents
- Capacities/ratings
- Materials of construction
- Sound ratings
- Dimensions
- Finish
- Manufacturer's installation instructions
- All other appropriate data

DESIGN CRITERIA

All performance data shall be based on tests conducted in accordance with Air Diffusion Council (ADC) Test Code 1062 GRD 84.

PART 2 - PRODUCTS

MANUFACTURERS

Manufacturers: Carnes, Krueger, Titus, Metal-Aire, and E.H. Price.

SIDE-WALL REGISTERS AND GRILLES

Carnes model as scheduled. Titus, Metal Aire, Krueger, Price or prior approved equivalent.

Steel unless otherwise indicated, with frame type appropriate to installation.

Double deflection type blade supply registers and supply grilles allow deflection adjustment in all direction.

Register and grille sizes as shown on drawings and/or as scheduled.

White, baked enamel finish or powder coat finish, unless otherwise indicated.

Screw holes on surface counter sunk to accept recessed type screws.

PART 3 - EXECUTION

INSTALLATION
Install grilles, registers and diffusers as shown on drawings and according to manufacturer's instructions.

END OF SECTION

SECTION 23 41 00
PARTICULATE AIR FILTRATION

P A R T 1 - G E N E R A L

SCOPE
This section includes specifications for air system filters.

RELATED WORK
Section 23 05 93 - Testing, Adjusting and Balancing for HVAC
Section 23 31 00 - HVAC Ducts
Section 23 33 00 - Air Duct Accessories
Section 23 34 00 - HVAC Fans

REFERENCE
Applicable provisions of Division 1 govern work under this section.

REFERENCE STANDARDS
ASHRAE Standard 52
UL 900 – Standard for Air Filter Units

QUALITY ASSURANCE
Refer to division 1, General Conditions, Equals and Substitutions.

SHOP DRAWINGS
Refer to division 1, General Conditions, Submittals.

Include data concerning dimensions, materials, efficiencies, installation instructions and appropriate identification.

OPERATION AND MAINTENANCE DATA
All operations and maintenance data shall comply with the submission and content requirements specified under section GENERAL REQUIREMENTS.

DESIGN CRITERIA
Use UL Class 1 or Class 2 filters unless noted otherwise. (Reference applicable UL standard referenced)

Efficiencies indicated in this section are based on ASHRAE Standard 52.

Fan motors have been selected to operate against the resistance of dirty filters as specified in this section.

P A R T 2 - P R O D U C T S

MANUFACTURERS
American Air Filter, Barnebey-Cheney, Cambridge, Continental, Flanders, Camil-Farr, Mine Safety Appliances, Research Products, BLC Industries or approved equal.

MERV 8 FILTERS
Use 2" thick, pleated panels, 100% synthetic, self supported media fully bonded and sealed in cardboard frame.

Media nominal rating to be 500 FPM face velocity, 0.23 inch WG initial resistance, 1.0 inches WG recommended final resistance., 30-35% duct spot efficiency, average arrestance of filter media shall be >90% .

Provide one set of filters to be used during construction and two replacement sets of filters. One clean set to be installed at the start of air testing and balancing and one set to be provided to Owner.

P A R T 3 - E X E C U T I O N

INSTALLATION

Install units as shown on drawings and details according to manufacturer's instructions.

Provide contractor fabricated filter racks for installation in ductwork as detailed on the drawings or manufactured filter housing that will fit into the space available as detailed.

Provide filter access doors in duct as detailed.

Maintain necessary clearance for changing filters.

END OF SECTION

SECTION 23 82 00
PACKAGED HEATING COOLING UNITS

P A R T 1 - G E N E R A L

SCOPE
This section includes specification for heating and cooling packaged terminal equipment.

RELATED WORK
Section 23 05 00 - Common work Results for HVAC

REFERENCE
Applicable provisions of Division 1 govern work under this Section.

QUALITY ASSURANCE
Refer to division 1, General Conditions, Equals and Substitutions

SHOP DRAWINGS
Refer to division 1, General Conditions, Submittals.

Include dimensions, capacities, materials of construction, ratings, weights, wiring diagrams, and appropriate identification for all equipment in this section.

OPERATION AND MAINTENANCE DATA
All operations and maintenance data shall comply with the submission and content requirements specified under section GENERAL REQUIREMENTS.

DESIGN CRITERIA
Forced Circulation Coils: Ratings certified in accordance with ARI 410.

Electrical Equipment and heaters shall be UL listed for the service specified.

Electrical components and work must be in accordance with National Electrical Code.

P A R T 2 - P R O D U C T S

PACKAGED HEATING COOLING UNITS

Manufacturers: Based on product by Friedrich. General Electric, Emerson, Amana or approved equivalent.

Furnish with electric heat and electric cooling with capacities as scheduled.

Provide unit with the following features:

- Adjustable throw outlet grille.
- Integral thermostat.
- Auto heat - cool change over.
- Temperature readout to display set temperatures and room temperature.
- Speed selector switch with minimum of three speeds.
- Power cord with plug as scheduled.
- MERV 6 filter.
- R410A refrigerant.

Unit to be through wall mounted. Provide wall sleeve.

Use centrifugal type fans, statically and dynamically balanced.

Motors to be fully enclosed with built-in thermal overload protection.

P A R T 3 - E X E C U T I O N

INSTALLATION

Install units in accordance with manufacturer's installation instructions.

Install wall sleeve and install unit in sleeve. Provide watertight seal sleeve to building wall construction.

Coordinate location of units with equipment installed in room with Owner, and other trades to assure access to owner's equipment.

After installation, provide protective covers to prevent accumulation of dirt on units during balance of construction.

Units will be wired by the Electrical Contractor.

END OF SECTION

SECTION 26 05 33

ELECTRICAL CONDUIT REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes buried electrical conduit for electrical wiring system.

1.2 REFERENCES

A. American National Standards Institute (ANSI):
   1. ANSI C80.1 - Rigid Steel Conduit, Zinc Coated.
   2. ANSI C80.3 - Specification for Electrical Metallic Tubing, Zinc Coated.
   3. ANSI C80.5 - Aluminum Rigid Conduit - (ARC).

B. National Electrical Manufacturers Association (NEMA):
   1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
   2. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies.
   3. NEMA TC 2 - Electrical Polyvinyl Chloride (PVC) Tubing and Conduit.
   4. NEMA TC 3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing.

C. American Society for Testing and Materials (ASTM).

D. National Fire Protections Association (NFPA).

E. Underwriters Laboratories, Inc. (UL).

1.3 DEFINITIONS

A. Certain terms used herein; on the drawings; and in the contract documents, shall be defined as follows:
   1. Provide: Furnish and install complete and ready for Electrical Contractor.
   2. Approval: The approval of the Owner in writing.

1.4 STANDARDS, CODES, AND PERMITS

A. All work shall be installed in accordance with National State, and Local electrical codes, laws, ordinances, and regulations. Comply with all applicable OSHA regulations.

B. All materials shall have a U.L. label where U.L. standards exist.

C. Prepare and submit to all authorities having jurisdiction, for their approval, all applications and working drawings required by them.

D. Secure and pay for all permits and licenses required.

1.5 INTENT OF DRAWINGS AND SPECIFICATIONS

A. These specifications and drawings are intended to cover conduit installation. The omission of expressed reference to any item of labor or material necessary for the proper execution of the work in accordance with present practice of the trade shall not relieve the Contractor from providing such additional labor and materials.

1.6 DRAWINGS

A. The drawings do not attempt to show the complete details of building construction which affect the conduit installation. The Contractor shall refer to National, State, and Local codes for additional details which affect the proper installation of this work.

1.7 SUBSTITUTION AND APPROVAL OF MATERIAL

A. Such requests shall be accompanied by three copies of all necessary illustrations, cute, drawings, and descriptions of material proposed for substitution and shall fully describe all points in which it differs from the articles specified. Two copies will be retained by the Owner and one copy returned to the Contractor with approval or revisions indicated thereon.

1.8 FIELD CHANGES

A. Should any change in drawings or specifications be required to comply with local regulations and/or field conditions, the Contractor shall refer same to Owner for approval before any work which deviates from the original requirements of the drawings and specifications is started. In the event of disagreements as to the necessity of such changes, the decision of the Owner shall be final.

1.9 COORDINATION

A. Verify routing and termination locations of conduit prior to rough-in.

B. Coordinate installation of conduits with utility provider, Owner, and all necessary parties.

1.10 SYSTEM DESCRIPTION

A. Conduit located as indicated on Drawings, and at other locations required for equipment connections and compliance with regulatory requirements. Conduit are shown in approximate locations unless dimensioned. Provide electrical conduit installation, other Electrical Work to be done by an Electrical Contractor.

B. Connection to Transformer Pad: Provide all necessary electrical conduit and materials specified in Figure 1.

1.11 DELIVERY, STORAGE, AND HANDLING

A. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

B. Protect PVC conduit from sunlight.

1.12 SEALING AND FIREPROOFING

A. Sealing and fireproofing of openings between conduit and fire rated surfaces shall be the responsibility of the Contractor whose work penetrates the opening.

B. All conduit openings shall have a 2 hour fire rated seal.

C. Sealing and fireproofing shall use materials and methods complying with SSTM E814 requirements appropriate to the rating of the material penetrated.

D. Materials by Dow-Corning, 3M, Specified Technologies, Inc., and Chase-Foam are acceptable if in accordance with (B) above.

E. Include copies of penetration details to Owner.

1.13 QUALITY ASSURANCE

A. Items provided under this section shall be listed and labeled by UL or other Nationally Recognized Testing Laboratory (NRTL).
   1. Term “NRTL” shall be as defined in OSHA Regulation 1910.
   2. Terms “listed” and “labeled” shall be as defined in National Electrical Code, Article 100.

B. Regulatory Requirements:
   1. National Electrical Code: components and installation shall comply with Article 300.
   2. State and Local codes and ordinances.

PART 2 PRODUCTS

2.1 PLASTIC CONDUIT (PVC)

A. Manufacturers:
   1. Carlon Electrical Products.
   2. Genova.
   3. Certainteed.
   4. Substitutions: Section 26 05 33 – Part 1 (1.7) above.

B. Standard lengths and sizes.

C. Schedule 40, heavy wall rigid plastic (PVC) conduit manufactured to NEMA TC2 standards, UL listed, and as required by NEC.

D. Rated for 90 degree C cable.

E. Minimum size: 2 inches, except as follows:
   1. As noted on Drawings and Figure 1.

F. Fittings and Conduit Bodies: NEMA TC 3. All fittings and conduit bodies shall have a water-tight seal.

2.2 INSTALLATION

A. Install Work in accordance with all National, State, and Local electrical codes, laws, ordinances, and regulations. Comply with all applicable OSHA regulations.

2.3 INSTALLATION - CONDUIT

A. Conduit routing is shown in approximate locations unless dimensioned. Route to complete wiring system.

B. Arrange conduit supports to prevent misalignment during wiring installation.

C. Route exposed conduit parallel and perpendicular to walls.

D. Route conduit in and under slab from point-to-point.

E. Maintain 12 inch (300 mm) clearance between conduit and surfaces with temperatures exceeding 104 degrees F (40 degrees C).

F. Cut conduit using saw or pipe cutter; de-burr cut ends.

G. Bring conduit to shoulder of fittings; fasten securely.

H. Join nonmetallic conduit using cement as recommended by manufacturer. Wipe nonmetallic conduit dry and clean before joining. Apply full even coat of cement to entire area inserted in fitting. Allow joint to cure for minimum 20 minutes.

I. Install 90 degree sweeps for all horizontal and vertical conduit bends.

J. Install fittings to accommodate expansion and deflection where conduit crosses expansion joints.

K. Install suitable pull string or cord in each empty conduit except sleeves and nipples.

L. Install suitable caps to protect installed conduit against entrance of dirt and moisture.

M. Close ends and unused openings in conduit.

2.4 CLEANING

A. Clean interior of conduit to remove dust, debris, and other material.

B. Clean exposed surfaces and restore finish.

END OF SECTION

SECTION 31 10 00

SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. General Conditions of the Contract and portions of Division One of this Project Manual apply to this Section as though repeated herein.

B. Section 31 20 00 Excavation, Backfilling, and Compaction and Section 01 74 19 Recycling.

1.2 SUMMARY

A. Section Includes:
1. Preparation.
2. Existing Utilities.
3. Clearing and Grubbing.
4. Site Improvements.
5. Disposal of Surplus and Waste Materials.

1.3 MATERIAL OWNERSHIP

A. Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain on Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.4 PROJECT CONDITIONS

A. Traffic: Minimize interference with site traffic, adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
1. Do not close or obstruct street or traffic patterns of other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.

B. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.

C. Do not commence site clearing operations until temporary erosion- and sedimentation-control measures are in place. See Section 31 25 00.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Section 31 20 00.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction. Identify existing benchmarks that will interfere with construction to Owner. Owner will relocate existing benchmarks outside of the Work limits.

B. Locate and clearly identify trees, shrubs, and other vegetation to remain or to be relocated.

C. Protect existing site improvements to remain from damage during construction.
   1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 EXISTING UTILITIES

A. Locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means of protection during earthwork operations..

B. Should uncharted or incorrectly charted piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.

C. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
   1. Notify Owner not less than two days in advance of proposed utility interruptions.
   2. Do not proceed with utility interruptions without Owner's written permission.

3.3 CLEARING AND GRUBBING

A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.
   1. Remove stumps and roots, obstructions, and debris to a depth of 18 inches below exposed subgrade.

3.4 TOPSOIL STRIPPING AND STOCKPILING

A. Strip topsoil in a manner to prevent intermingling with underlying subsoil or other waste materials.

B. Stockpile topsoil away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Maintain to prevent windblown dust and erosion by water.

C. Place stockpiles in Owner-approved location.

3.5 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction. Items to be removed shall be as indicated on the Drawings.

3.6 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property or as allowed by Owner in sanitary landfill.

B. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities. Do not interfere with other Project work.

C. Refer to specification Section 01 74 19.

END OF SECTION

SECTION 31 20 00

EXCAVATING, BACKFILLING, AND COMPACTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. General Conditions of the Contract and portions of Division One of this Project Manual apply to this Section as though repeated herein.

B. Section 31 10 00 Site Clearing

1.2 DESCRIPTION

A. Section includes excavating, backfilling, compacting, grading, and restoration to the lines and grades shown on the Drawings.

B. Trenching, backfilling, compaction and grading for utility installation.

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM):
1. ASTM D 1557 - Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3)).
2. ASTM D 6938 - Standard Test Method for In-place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depths).
3. ASTM D 4253 - Standard Test Method for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.
4. ASTM D 4254 - Standard Test Method for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density.
5. ASTM C 136 - Method for Sieve Analysis of Fine and Coarse Aggregates.
6. ASTM D 422 - Method for Particle-Size Analysis of Soils.
7. ASTM D 2487 – Standard Practice for Classification of Soils for Engineering Purposes.

B. State of Wisconsin Department of Transportation (WisDOT):
1. Standard Specifications for Highway and Structure Construction, latest edition.

C. State of Wisconsin Department of Natural Resources (WDNR):
1. WDNR Construction Site Erosion & Sediment Control Conservation Practice Standards, latest edition. http://dnr.wi.gov/topic/stormwater/standards/const_standards.html

1.4 QUALITY ASSURANCE

A. Perform Work in accordance with Wisconsin Department of Transportation Standards and as specified in the project specifications.

1.5 SUBMITTALS

A. Submit in accordance with the General Conditions of the Contract.

B. Submit in airtight container a sample of each type of fill to testing laboratory. Sample size to be in accordance with laboratory requirements.

PART 2 - PRODUCTS

2.1 FILL MATERIAL

A. Free Draining Granular Fill:
   1. Imported well-graded sand or gravel fill with no more than 8 percent by weight passing the No. 200 US sieve, a maximum 65% passing the 1-inch sieve, and no stones larger than 1 ½ inches.

2.2 GEOMEMBRANES

A. Polyethylene Vapor Barrier:
   1. Americover Vapor Barrier 10 mil or approved equal.

2.2 TOPSOIL, SEED, FERTILIZER AND MULCH

A. Topsoil:
   1. Natural silty clay loam soils available from the overlying portions of the excavation area.

B. Seed Mixture:
   1. WisDOT Seed Mix No. 20.

C. Fertilizer: Type B as specified in Section 629, WisDOT Standard Specifications.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions where Work will be performed and notify the Engineer in writing of conditions detrimental to the proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions have been corrected.

3.2 EXCAVATING

A. General:
   1. Excavate to the limits and depths shown on the Drawings.
   2. Segregate and stockpile excavated materials.
   3. Stockpile clean soil on site and provide and install silt sock around all disturbed areas as directed by the Owner or Engineer.

4. Removal of materials beyond the limits and depths shown on the Drawings without authorization of Engineer shall be at the Contractor's expense, including backfill and compaction.
5. For foundation excavations, use a smooth-edge backhoe bucket for excavation and hand trim clay/silt foundation soils to minimize foundation subgrade disturbance.

B. Undercutting for Removal of Unsuitable Soils
1. Excavate exploratory test pits as directed by Engineer to delineate extent of excavation to remove unsuitable soils in building and ramp areas.
2. Excavate unsuitable soils such as non-engineered fill, buried topsoil, and moderately compressible clayey sand/sandy clay soils, if any, as directed by Engineer. Replace unsuitable soils with compacted backfill as directed by Engineer.
3. Where directed by Engineer, excavate below foundation subgrades to remove unsuitable soils. Excavate laterally beyond outside foundation edge for a minimum of 0.5 foot for each foot of excavation depth below foundation grade as directed by Engineer.
4. Once unsuitable soils are removed, compact subgrade. Statically recompact native clays with smooth drum roller (without vibration). Recompact granular soils with vibration.
5. After compaction, follow Proofrolling Subgrade Stabilization measures in 3.2.D.

C. Undercutting Below Footings
1. Pocket penetrometer readings less than 1.5 tons per square foot, as performed by soil testing agency, will require undercutting as directed by soil testing agency.
2. Where undercutting is required, widen the base of the undercut excavation beyond the footing edges at least 0.5 foot in each direction for each foot of undercut depth for stress distribution.
3. Where undercut will be above water table, backfill with Granular Fill to at least 95 percent of modified Proctor maximum dry density when directed by soil testing agency or Engineer. Alternatively, use 3" Dense Graded Base to stabilize softer clays by working thin lifts of stone in the subgrade with heavy construction equipment until deflection ceases when directed by soil testing agency or Engineer.
4. Where undercut excavation will extend at or slightly below the water table, place a 6 inch to 12 inch layer of Open Graded Base to stabilize wet soils prior to subsequent fill placement as directed by soil testing agency or Engineer. If Open Graded Base layer exceeds 12 inches, wrap Open Graded Base in non-woven geotextile fabric.
5. Recompact granular soils exposed at footing grade with a vibratory plate compactor prior to formwork/concrete placement.

D. Proofrolling and Subgrade Stabilization:
1. Proofroll subgrade with a loaded triaxle dump truck or loaded scraper as directed by Engineer.
2. Stabilize a soft or loose subgrade by excavating soft or loose soil and placing Granular Fill compacted to at least 95 percent of modified Proctor maximum dry density when directed by Engineer. Alternatively, use 3" Dense Graded Base to stabilize softer clays by working thin lifts of stone in the subgrade with heavy construction equipment until deflection ceases when directed by Engineer.

3. Re-establish subgrade elevation with compacted backfill as specified in Part 3.4 when directed by Engineer or soil testing agency.
4. Where new fill will tie into existing fill in ramp area, cut 2-foot wide by 1-foot high benches into existing soils for each vertical foot of new fill to be placed.
5. Compact building and pavement subgrades prior to filling or placing concrete as directed by Engineer. For sand or gravel subgrades, compact with a vibratory compactor. For silt or clay subgrades, compact with a smooth drum roller without vibration.

E. Contaminated Soil Hauling and Disposal
1. Haul excavated contaminated soil to the off-site disposal facility.
2. Owner will arrange for disposal facility approval.
3. Owner will pay for disposal fees.
4. Measurement of soil hauled will be based on disposal facility scale readings.
5. Use only trucks with Solid Waste Transporters Licenses.

F. Trenching:
1. Unauthorized trenching: Removal of materials beyond the elevations or dimensions indicated on the Drawings without authorization of Engineer shall be at the Contractor's expense, including backfill and compaction.
2. Excavate to the dimensions and elevations shown on the Drawings to permit proper installation of utility piping.
3. Grade bottom of trench so that pipes can be laid without sags or humps.
4. Unsuitable soil: Remove unsuitable soils as required by pipe manufacturer’s specifications. Replace the excavated material in accordance with pipe manufacturer’s recommendations.

G. Saw Cutting:
1. Saw cut and strip away concrete and asphalt surfaces prior to excavating.
2. Re-saw cut damaged asphalt and concrete prior to placing base course as directed by the Engineer.

H. Dewatering:
1. Dewater excavation with pumps and shallow sump pits to facilitate soil excavation below water table.
2. Construct berms or flumes to direct water away from open excavation.
3. Maintain excavations and trenches free of water.
4. Dewatering shall be done in accordance with WDNR Conservation Practice Standard 1061.

I. Do not backfill excavation or trenches until an inspection has been made and backfilling authorized by the Engineer.

J. Perform all Work in accordance with OSHA requirements

3.3 PREPARATION AND RESTORATION

A. Remove ice and snow before placing fill. Do not place fill on frozen subgrade.

B. Cut out soft areas of unsuitable subgrade.

C. Prepare, maintain, and document proper subbase.

D. Engineer will observe surface conditions of subgrade prior to placement of fill or concrete.

3.4 BACKFILLING

A. General.
1. Clear excavation of trash and debris before backfilling.
2. Reconsolidate and compact stockpiled, clean soil into excavation prior to backfilling with off-site fill materials as directed by soil testing agency or Engineer.
3. Place and compact building floor slab fill to floor slab subgrade elevation prior to excavation to establish foundation subgrades. Place floor slab fill laterally 5 feet beyond the building footprint prior to excavating for foundations.
4. Carefully place backfill material to protect underground structures and utilities.
5. Do not backfill with frozen material.
6. Remove ice and snow before placing fill. Do not place fill on frozen subgrade.
7. During cold weather, protect exposed subgrades from freezing before and after footing construction.
8. Do not backfill excavation until an inspection has been made and backfilling authorized by the soil testing agency or Engineer.
9. Place non-woven geotextile above open graded fill such as open graded base if open graded fill thickness will exceed 12 inches, as directed by soil testing agency or Engineer. Install geotextile in accordance with manufacturer's recommendations.
10. If backfill settles below the adjacent ground surface, prior to one year following completion of Work, Contractor shall refill settled area and mechanically compact the surface. If backfill settlement damages structures, pavement, landscaping, or buried utilities, Contractor shall repair damaged facilities to the satisfaction of the Owner.

B. Backfill Below Foundations and Floor Slabs and Around Foundations and Buildings:
1. Includes fill materials to be placed within the one horizontal to one vertical zone of influence under footings and foundations and within 10 feet of building lines.
2. Backfill excavation with Granular Fill in lifts not exceeding 10-inches before compaction. Do not used crushed asphalt pavement as Granular Fill below foundations, floor slabs, or the ramp area. Mechanically compact to at least 95 percent of modified Proctor maximum dry density.

C. Backfill in Non-Paved Areas:
1. Backfill excavation in non-paved areas with Granular Fill or General Fill backfill in 10-inch lifts, mechanically compact to at least 90 percent of modified Proctor maximum dry density for sand/gravel materials, and to at least 85 percent for clay/silt materials.

D. Testing:
1. Owner shall provide and pay for an independent soil testing agency and laboratory to perform compaction and gradation testing. Contractor to coordinate work performed by soil testing agency and independent testing laboratory.

3.5 GRADING

A. Grade and finish to within 0.10 foot of grades provided.

B. Uniformly grade areas within limits of backfilled trenches, including adjacent transition areas.

3.6 EXCESS SOIL

A. Load and haul any excess fill material not usable or used during construction to off-site area as directed by Owner.

3.7 GRASSED AREA RESTORATION

A. Place topsoil, seed, fertilizer, and mulch to maximize the germination and viability of the grass seed, and minimize the soil and seed loss due to erosion. Coordinate and notify Project Manager minimum 24 hours prior to commencement of operations.

B. Topsoil:
   1. Place and spread to a uniform depth of 4 inches or such greater depth as designated by the Engineer. Limit preparation to areas that will be planted immediately.
   2. Remove rocks, twigs, and other foreign material. Dress the entire surface to present a uniform appearance. Appropriate pitch shall be maintained.

C. Seed:
   1. WisDOT Seed Mix: Place in accordance with Section 630 WisDOT Standard Specifications.

END OF SECTION

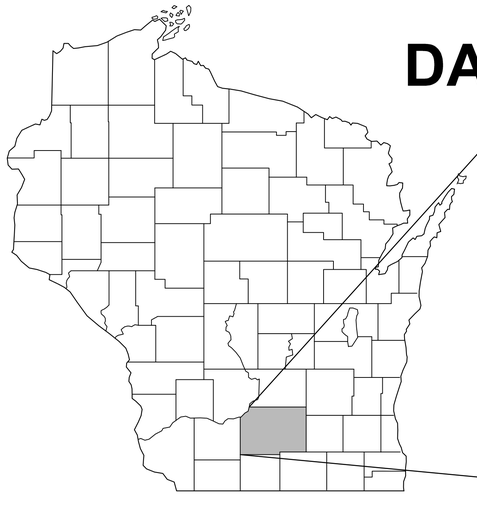
DANE COUNTY NO. 1 (VERONA) LANDFILL

BID # 316031 - CONSTRUCT GENERATOR BUILDING

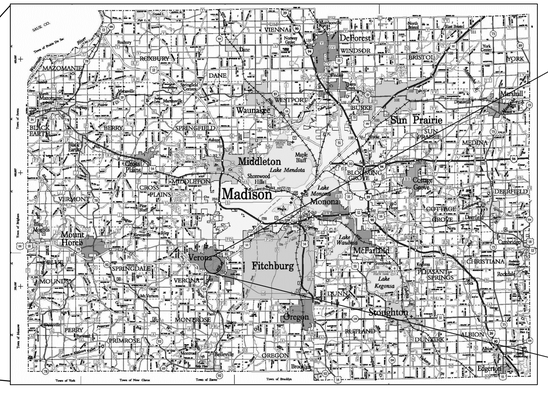
PREPARED BY: ENGINEERING 370, LLC.
MECHANICAL CONSULTING
OREGON, WISCONSIN
&
DANE COUNTY
DEPARTMENT OF PUBLIC WORKS
SOLID WASTE DIVISION
DANE COUNTY, WISCONSIN

DATE: JUNE 2016

INDEX



WISCONSIN



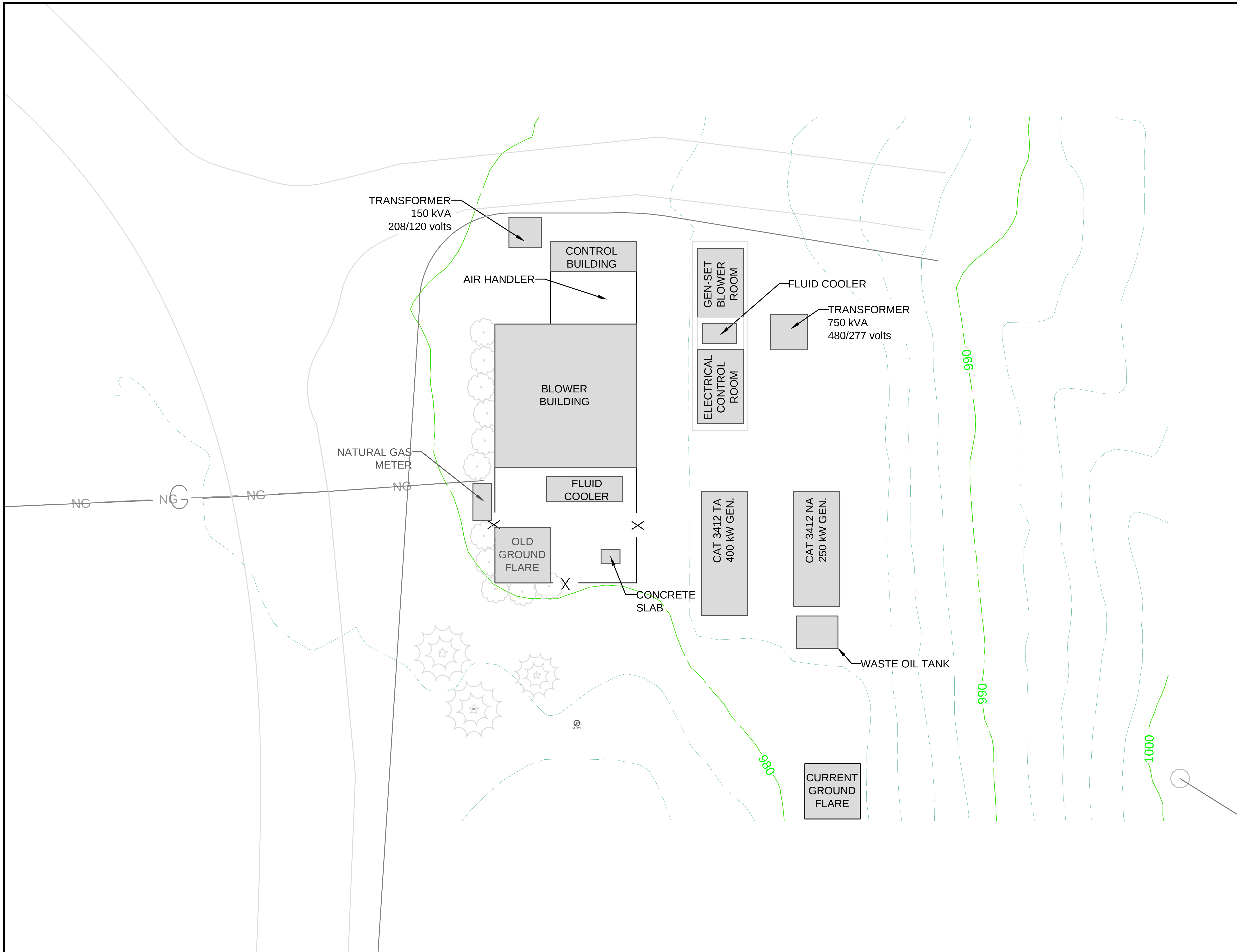
DANE COUNTY

SITE LOCATOR

NOTE: THESE PLANS ARE ACCOMPANIED BY A PROJECT MANUAL OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

1919 Alliant Energy Center Way
Madison, WI 53713
Phone: 608-266-4018
Fax: 608-267-1533

File Location: H:\Shared\Solid Waste Division\Ali Hackner\316031 - Title 6 Generator BDG\02 - Dra... **Layout Name:** SHEET 1
Plot Information: NONE HACKNER, ALLISON ---- ANSI A (8.50 X 11.00 INCHES) June 28, 2016 0.3869 ----



LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- APPROXIMATE RIGHT-OF-WAY
- GRID LOCATION
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EXISTING FENCE
- EXISTING BUILDING
- 800 EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- x 815.1 EXISTING SPOT ELEVATION
- EXISTING TREES AND/OR BRUSH
- DRAINAGE DITCH
- 890 PROPOSED 10' BASE GRADE CONTOUR
- 892 PROPOSED 2' BASE GRADE CONTOUR
- 0.75% SLOPE AND DIRECTION
- EXISTING UNDER GROUND ELECTRIC LINE
- NG EXISTING NATURAL GAS PIPE
- EXISTING LEACHATE FORCEMAIN LINE
- EXISTING LEACHATE GRAVITY DRAIN LINE
- EXISTING SANITARY SEWER LINE
- LIMITS OF COMPOSITE FINAL COVER
- LIMITS OF VERTICAL EXPANSION FOR 1993 WESTERN EXPANSION

NOTES

1. CONTRACTOR TO FIELD LOCATE AND VERIFY ALL UTILITIES.

N

0 10 20 30 40

SCALE: 1"=10' (22" x 34")
SCALE: 1"=20' (11" x 17")

NOTE: THESE PLANS ARE ACCOMPANIED BY A PROJECT MANUAL OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

PROJECT: **DANE COUNTY NO. 1 (VERONA) LANDFILL**
BID # 316031 - CONSTRUCT GENERATOR BUILDING
DANE COUNTY, WISCONSIN

SHEET TITLE: **EXISTING CONDITIONS**

DRAWN BY: MR	SCALE: AS SHOWN	PROJ. NO. BID # 316031
DESIGNED BY: MR		FILE NO. N/A
APPROVED BY:	DATE PRINTED:	**SHEET 2 OF 9**
DATE: JUNE 2016		

Department of Public Works, Highway, & Transportation
Solid Waste Division
1919 Alliant Energy Center Way
Madison, WI 53713

File Location: H:\Shared\Solid Waste Division\Ali Hackner\316031 - File Name: PLAN SET - REVISED MR Drawings Layout Name: SHEET 2
Plot Information: NONE HACKNER, ALLISON ---- ANSI A (8.50 X 11.00 INCHES) June 28, 2016 0.3869 ----

TRANSFORMER
150 kVA
208/120 volts

CONTROL BUILDING

AIR HANDLER

BLOWER BUILDING

GEN-SET BLOWER ROOM

ELECTRICAL CONTROL ROOM

FLUID COOLER

TRANSFORMER
750 kVA
480/277 volts

NATURAL GAS METER

NG

FLUID COOLER

OLD GROUND FLARE

SCRAP FLARE & REMOVE ASSOCIATED PIPING

CAT 3412 TA
400 kW GEN.

CAT 3412 NA
250 kW GEN.

REMOVE CONCRETE SLABS

SALVAGE FENCE

WASTE OIL TANK

REMOVE STUMP

REMOVE TREES

CURRENT GROUND FLARE

960

980

1000

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- APPROXIMATE RIGHT-OF-WAY
- GRID LOCATION
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EXISTING FENCE
- EXISTING BUILDING
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING SPOT ELEVATION
- EXISTING TREES AND/OR BRUSH
- EXISTING WET AREA AND WETLAND LIMITS
- EXISTING EDGE OF WATER
- DRAINAGE DITCH
- EXISTING APPROVED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- PROPOSED PHASE DELINEATION LINE
- PROPOSED CELL DELINEATION LINE
- PROPOSED 10' BASE GRADE CONTOUR
- PROPOSED 2' BASE GRADE CONTOUR
- PROPOSED LEACHATE COLLECTION PIPE
- PROPOSED LEACHATE COLLECTION SUMP
- SLOPE AND DIRECTION
- PROPOSED SOLID WALL LEACHATE CLEANOUT PIPE
- PROPOSED INCLINED RISER LEACHATE PUMP-OUT PIPE AND MANHOLE
- PROPOSED PERFORATED LEACHATE COLLECTION PIPE
- EXISTING LEACHATE FORCEMAIN LINE
- EXISTING LEACHATE GRAVITY DRAIN LINE
- EXISTING SANITARY SEWER LINE
- PROPOSED NEW FORCEMAIN PIPE
- LIMITS OF COMPOSITE FINAL COVER
- LIMITS OF VERTICAL EXPANSION FOR 1993 WESTERN EXPANSION
- PROPOSED LEACHATE HEADWELL LOCATION

NOTES

1. CONTRACTOR TO FIELD LOCATE AND VERIFY ALL UTILITIES.

0 10 20 30 40

SCALE: 1"=10' (22" x 34")
SCALE: 1"=20' (11" x 17")

NOTE: THESE PLANS ARE ACCOMPANIED BY A PROJECT MANUAL OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

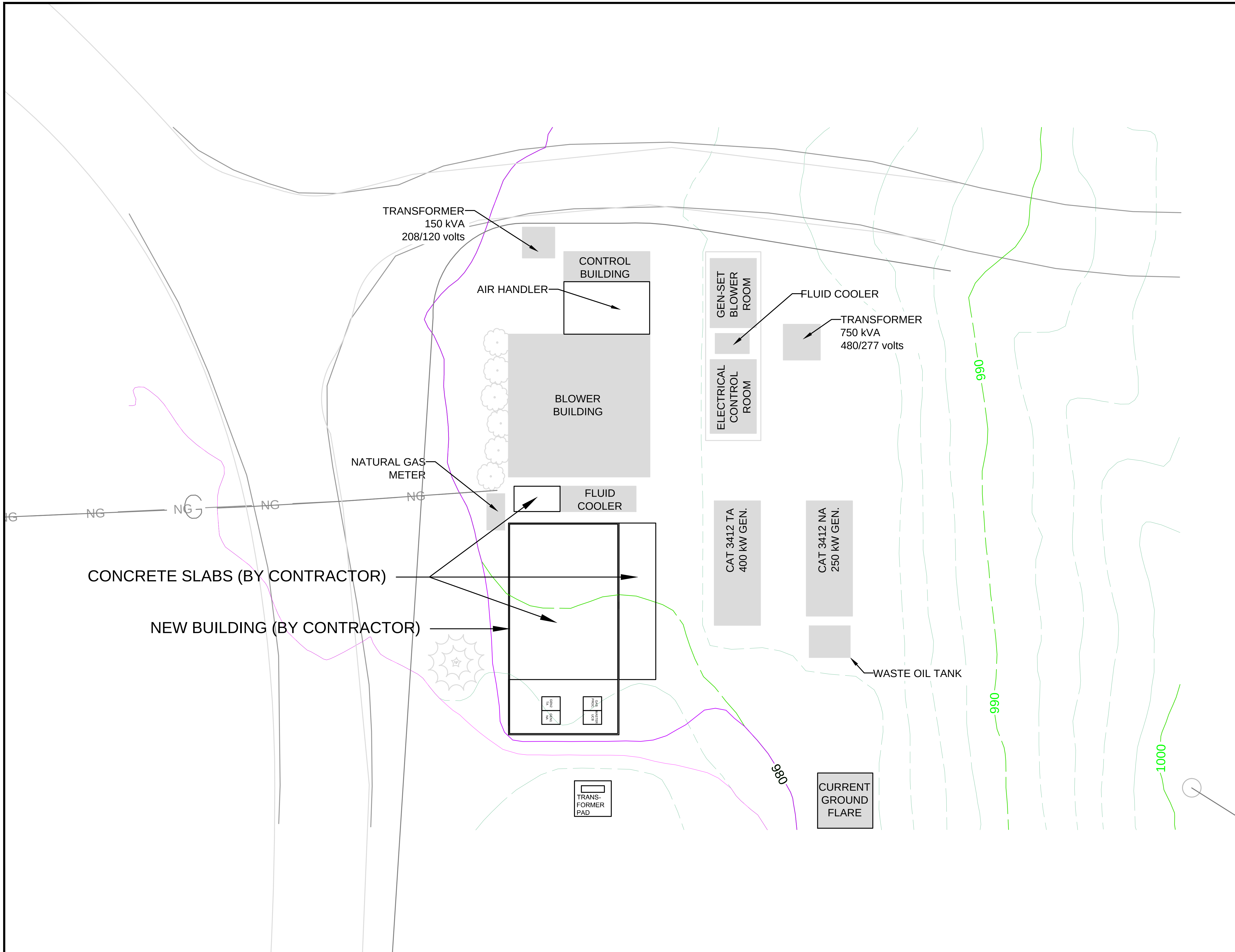
PROJECT:
DANE COUNTY NO. 1 (VERONA) LANDFILL
BID # 316031 - CONSTRUCT GENERATOR BUILDING
DANE COUNTY, WISCONSIN

SHEET TITLE:
DEMOLITION PLAN

DRAWN BY: MR	SCALE: AS SHOWN	PROJ. NO. BID # 316031	
DESIGNED BY: MR		FILE NO. N/A	
APPROVED BY:	DATE PRINTED:	SHEET 3 OF 9	
DATE: JUNE 2016			

Department of Public Works, Highway, & Transportation
Solid Waste Division
1919 Alliant Energy Center Way
Madison, WI 53713

File Location: H:\Shared\Solid Waste Division\Ali Hackner\316031 - CONSTRUCT GENERATOR BUILDING\ **File Name:** PLAN SET - REVISED.DWG **Layout Name:** SHEET 3
Plot Information: NONE HACKNER, ALLISON ---- ANSI A (8.50 X 11.00 INCHES) June 28, 2016 0.3869 ----



LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- APPROXIMATE RIGHT-OF-WAY
- GRID LOCATION
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EXISTING FENCE
- EXISTING BUILDING
- 800 EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- x 815.1 EXISTING SPOT ELEVATION
- EXISTING TREES AND/OR BRUSH
- EXISTING WET AREA AND WETLAND LIMITS
- EXISTING EDGE OF WATER
- DRAINAGE DITCH
- EXISTING APPROVED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- PROPOSED PHASE DELINEATION LINE
- PROPOSED CELL DELINEATION LINE
- 890 PROPOSED 10' BASE GRADE CONTOUR
- 892 PROPOSED 2' BASE GRADE CONTOUR
- PROPOSED LEACHATE COLLECTION PIPE
- PROPOSED LEACHATE COLLECTION SUMP
- 0.75% SLOPE AND DIRECTION
- PROPOSED SOLID WALL LEACHATE CLEANOUT PIPE
- MH-9N PROPOSED INCLINED RISER LEACHATE PUMP-OUT PIPE AND MANHOLE
- PROPOSED PERFORATED LEACHATE COLLECTION PIPE
- EXISTING LEACHATE FORCEMAIN LINE
- EXISTING LEACHATE GRAVITY DRAIN LINE
- EXISTING SANITARY SEWER LINE
- PROPOSED NEW FORCEMAIN PIPE
- LIMITS OF COMPOSITE FINAL COVER
- LIMITS OF VERTICAL EXPANSION FOR 1993 WESTERN EXPANSION
- MLH-9N PROPOSED LEACHATE HEADWELL LOCATION

NOTES

1. CONTRACTOR TO FIELD LOCATE AND VERIFY ALL UTILITIES.

N

0 10 20 30 40

SCALE: 1"=10' (22" x 34")
SCALE: 1"=20' (11" x 17")

NOTE: THESE PLANS ARE ACCOMPANIED BY A PROJECT MANUAL OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

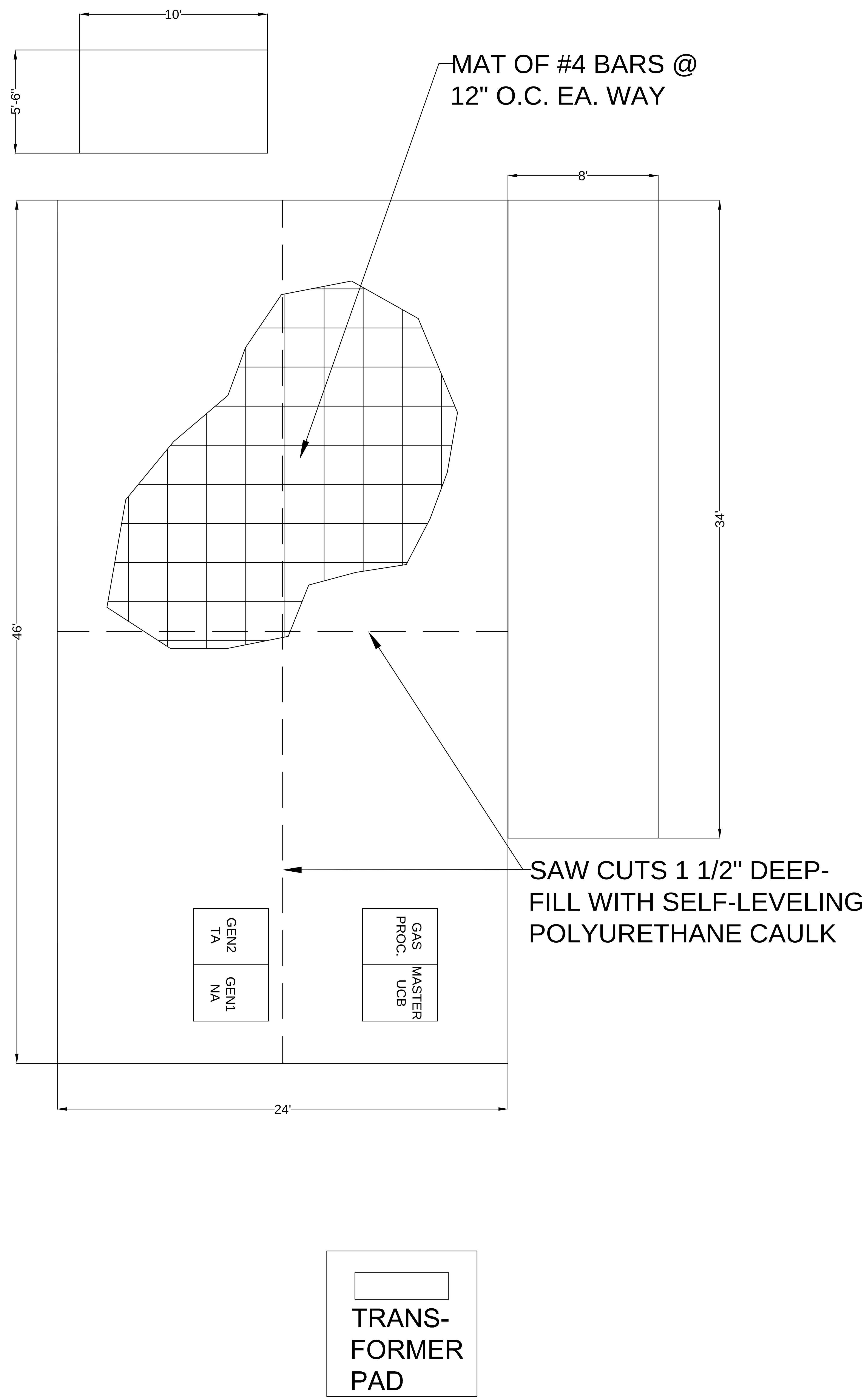
PROJECT: **DANE COUNTY NO. 1 (VERONA) LANDFILL**
BID # 316031 - CONSTRUCT GENERATOR BUILDING
DANE COUNTY, WISCONSIN

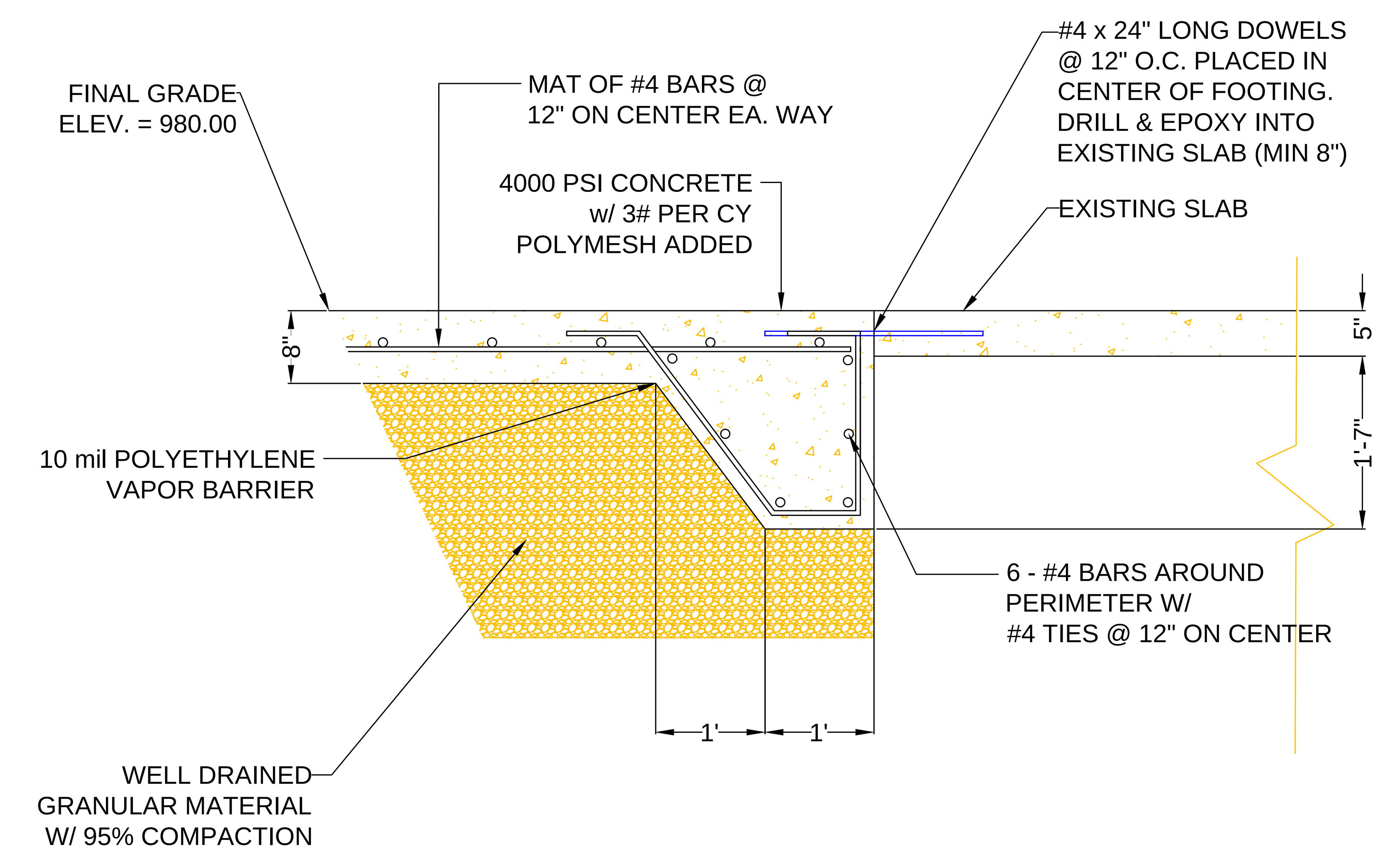
SHEET TITLE: **SITE PLAN**

DRAWN BY: MR	SCALE: AS SHOWN	PROJ. NO. BID # 316031
DESIGNED BY: MR		FILE NO. N/A
APPROVED BY:	DATE PRINTED:	**SHEET 4 OF 9**
DATE: JUNE 2016		

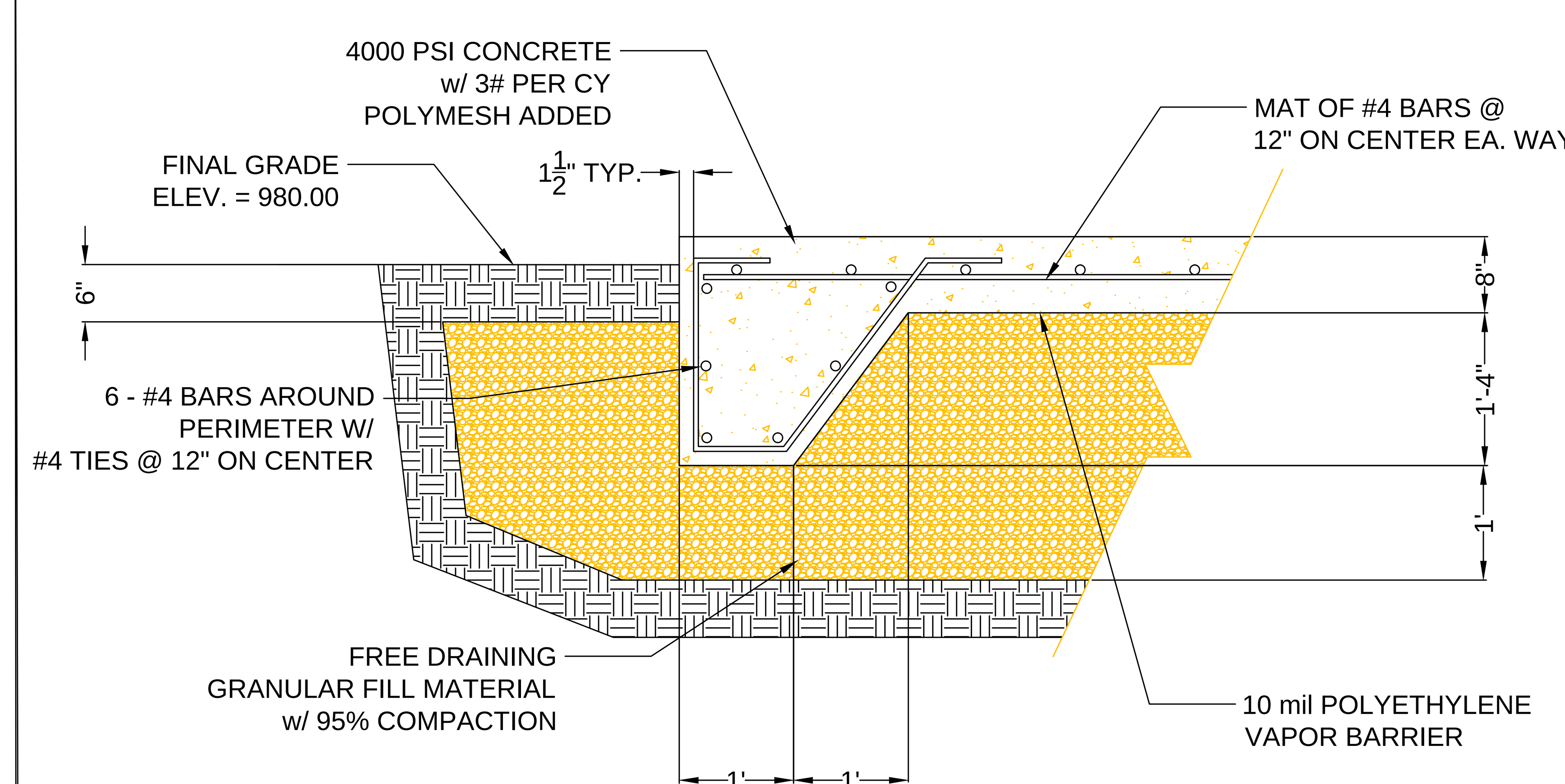
.\Dane County Seal.png

Department of Public Works, Highway, & Transportation
Solid Waste Division
1919 Alliant Energy Center Way
Madison, WI 53713





DETAILS - FLUID COOLER SLAB



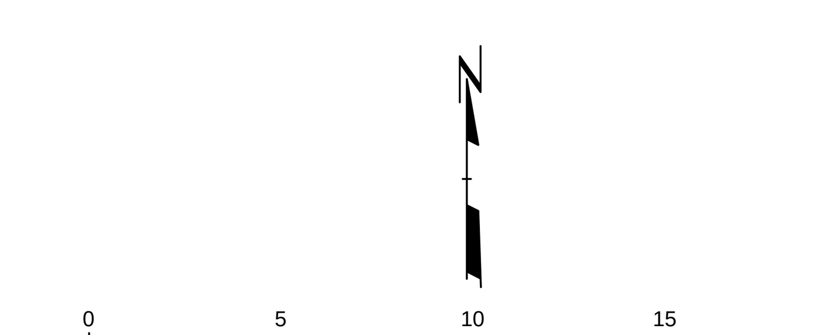
DETAILS - BUILDING SLAB

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- APPROXIMATE RIGHT-OF-WAY
- GRID LOCATION
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EXISTING FENCE
- EXISTING BUILDING
- 800 EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- x 815.1 EXISTING SPOT ELEVATION
- EXISTING TREES AND/OR BRUSH
- EXISTING WET AREA AND WETLAND LIMITS
- EXISTING EDGE OF WATER
- DRAINAGE DITCH
- EXISTING APPROVED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- PROPOSED PHASE DELINEATION LINE
- PROPOSED CELL DELINEATION LINE
- 890 PROPOSED 10' BASE GRADE CONTOUR
- 892 PROPOSED 2' BASE GRADE CONTOUR
- PROPOSED LEACHATE COLLECTION PIPE
- PROPOSED LEACHATE COLLECTION SUMP
- 0.75% SLOPE AND DIRECTION
- PROPOSED SOLID WALL LEACHATE CLEANOUT PIPE
- MH-9N PROPOSED INCLINED RISER LEACHATE PUMP-OUT PIPE AND MANHOLE
- PROPOSED PERFORATED LEACHATE COLLECTION PIPE
- FM EXISTING LEACHATE FORCEMAIN LINE
- GD EXISTING LEACHATE GRAVITY DRAIN LINE
- SAN EXISTING SANITARY SEWER LINE
- FM PROPOSED NEW FORCEMAIN PIPE
- LIMITS OF COMPOSITE FINAL COVER
- LIMITS OF VERTICAL EXPANSION FOR 1993 WESTERN EXPANSION
- MLH-9N PROPOSED LEACHATE HEADWELL LOCATION

NOTES

1. USE AIR ENTRAINED CEMENT FOR EXTERIOR CONDITIONS.
2. CONCRETE TO HAVE 3"-4" SLUMP AND A SMOOTH TROWEL FINISH.
3. COVER CONCRETE AND CURE FOR 5 DAYS MAINTAINING 40° F MIN. TEMPERATURE.
4. ALL BARS TO BE A MINIMUM OF GRADE 60, LAPPED 12" AND SECURELY WIRE TIED.
5. SEAL FINISHED CONCRETE WITH TWO COATS OF CURE 'N' SEAL.
6. FREE DRAINING GRANULAR FILL MATERIAL SHALL HAVE A MAXIMUM OF 8% PASSING THE No. 200 SIEVE, A MAXIMUM 65% PASSING THE 1-INCH SIEVE AND 100% PASSING THE 1 1/2-INCH SIEVE.
7. TRANSFORMER PAD SHALL MEET SPECIFICATIONS MEETING 277/480V WITH 400 AMP, OUTLINED IN FIGURE 1.
8. ALL CONDUIT OPENINGS SHALL BE SEALED FROM ENVIRONMENT WHILE UTILITY LINES ARE NOT IN PLACE.



NOTE: THESE PLANS ARE ACCOMPANIED BY A PROJECT MANUAL OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

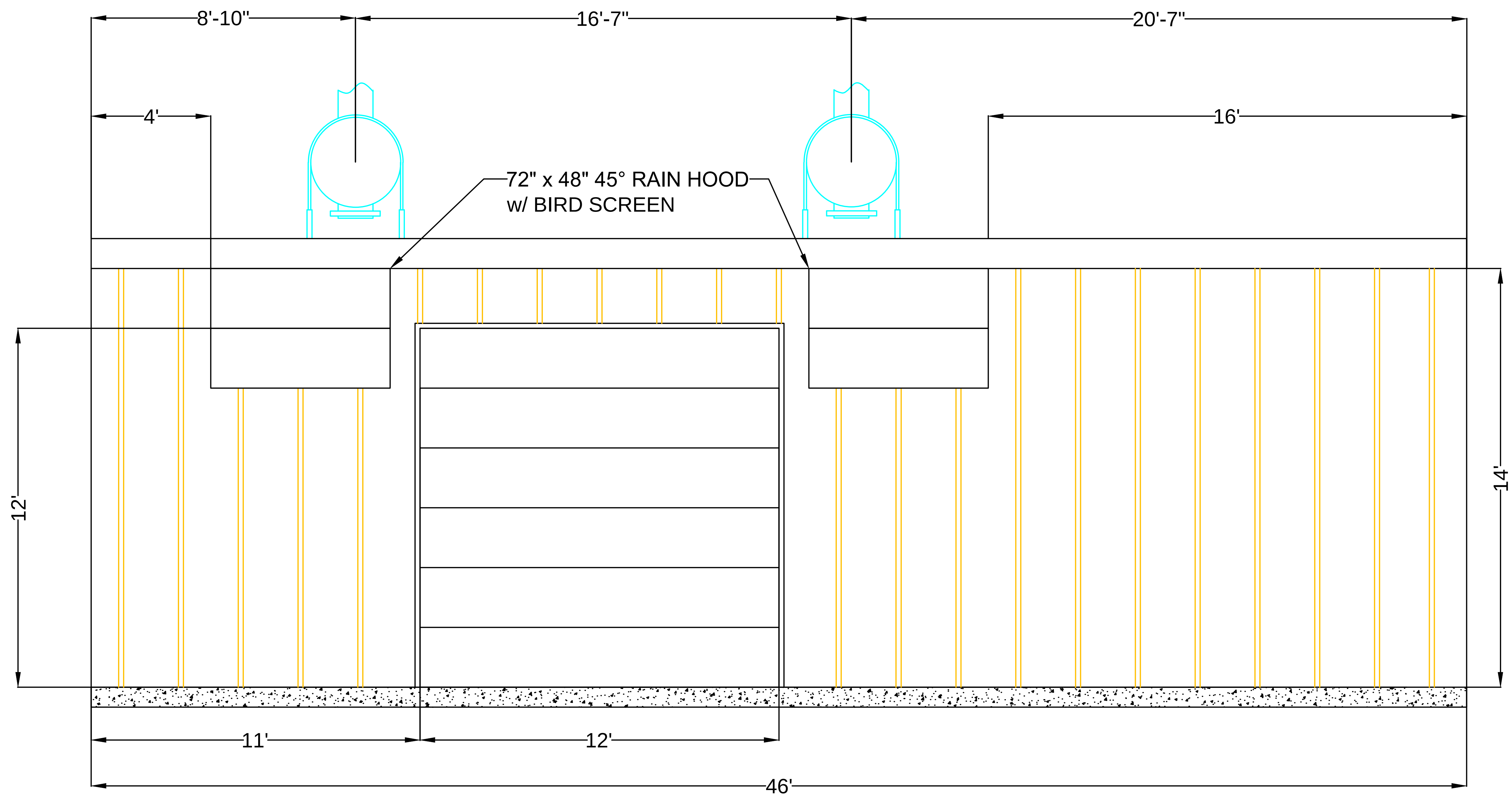
PROJECT: **DANE COUNTY NO. 1 (VERONA) LANDFILL**
BID # 316031 - CONSTRUCT GENERATOR BUILDING
DANE COUNTY, WISCONSIN

SHEET TITLE: **CONCRETE SLABS**

DRAWN BY: MR	SCALE: AS SHOWN	PROJ. NO.	BID # 316031
DESIGNED BY: MR		FILE NO.	N/A
APPROVED BY:	DATE PRINTED:	**SHEET 5 OF 9**	
DATE: JUNE 2016			

\Dane County Seal.png

Department of Public Works, Highway, & Transportation
Solid Waste Division
1919 Alliant Energy Center Way
Madison, WI 53713



LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- APPROXIMATE RIGHT-OF-WAY
- GRID LOCATION
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EXISTING FENCE
- EXISTING BUILDING
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING SPOT ELEVATION
- EXISTING TREES AND/OR BRUSH
- EXISTING WET AREA AND WETLAND LIMITS
- EXISTING EDGE OF WATER
- DRAINAGE DITCH
- EXISTING APPROVED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- PROPOSED PHASE DELINEATION LINE
- PROPOSED CELL DELINEATION LINE
- PROPOSED 10' BASE GRADE CONTOUR
- PROPOSED 2' BASE GRADE CONTOUR
- PROPOSED LEACHATE COLLECTION PIPE
- PROPOSED LEACHATE COLLECTION SUMP
- SLOPE AND DIRECTION
- PROPOSED SOLID WALL LEACHATE CLEANOUT PIPE
- PROPOSED INCLINED RISER LEACHATE PUMP-OUT PIPE AND MANHOLE
- PROPOSED PERFORATED LEACHATE COLLECTION PIPE
- EXISTING LEACHATE FORCEMAIN LINE
- EXISTING LEACHATE GRAVITY DRAIN LINE
- EXISTING SANITARY SEWER LINE
- PROPOSED NEW FORCEMAIN PIPE
- LIMITS OF COMPOSITE FINAL COVER
- LIMITS OF VERTICAL EXPANSION FOR 1993 WESTERN EXPANSION
- PROPOSED LEACHATE HEADWELL LOCATION

NOTES

1. CONTRACTOR TO DESIGN ROOF AND BUILDING SUPPORTS TO ACCOMMODATE ADDITIONAL DEAD LOAD OF MUFFLER UNIT.

0 2 4 6 8

SCALE: 1/2"=1' (22" x 34")
SCALE: 1/4"=1' (11" x 17")

NOTE: THESE PLANS ARE ACCOMPANIED BY A PROJECT MANUAL OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

PROJECT: **DANE COUNTY NO. 1 (VERONA) LANDFILL**
BID # 316031 - CONSTRUCT GENERATOR BUILDING
DANE COUNTY, WISCONSIN

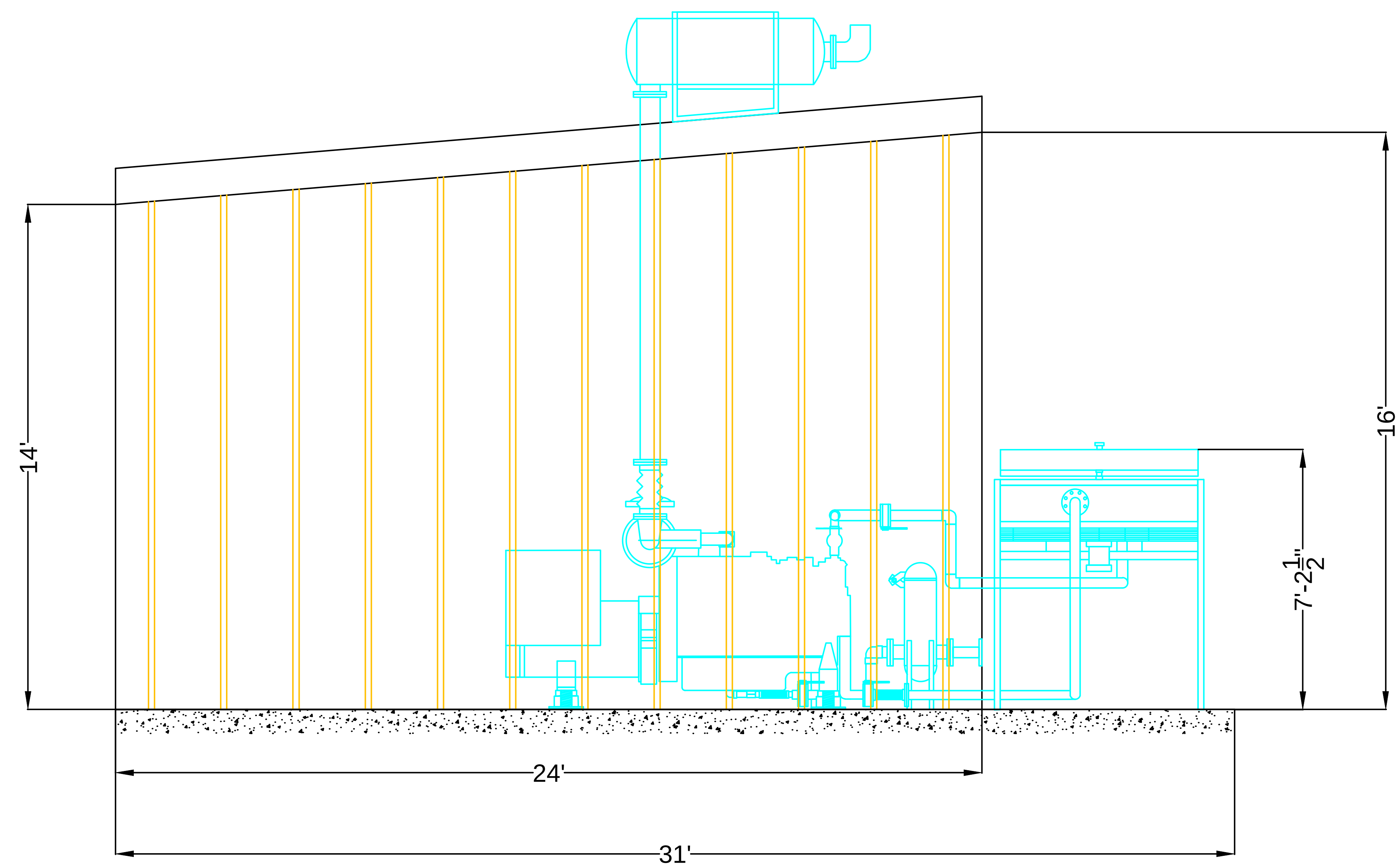
SHEET TITLE:

BUILDING - WEST ELEVATION

DRAWN BY: MR	SCALE:	PROJ. NO.	BID # 316031
DESIGNED BY: MR	AS SHOWN	FILE NO.	SHEET 6.dwg
APPROVED BY:	DATE PRINTED:	**SHEET 6 OF 9**	
DATE: JUNE 2016			

\Dane County Seal.png

Department of Public Works, Highway, & Transportation
Solid Waste Division
1919 Alliant Energy Center Way
Madison, WI 53713



LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- APPROXIMATE RIGHT-OF-WAY
- GRID LOCATION
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EXISTING FENCE
- EXISTING BUILDING
- EXISTING 10' CONTOUR (800)
- EXISTING 2' CONTOUR
- EXISTING SPOT ELEVATION (x 815.1)
- EXISTING TREES AND/OR BRUSH
- EXISTING WET AREA AND WETLAND LIMITS
- EXISTING EDGE OF WATER
- DRAINAGE DITCH
- EXISTING APPROVED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- PROPOSED PHASE DELINEATION LINE
- PROPOSED CELL DELINEATION LINE
- PROPOSED 10' BASE GRADE CONTOUR (890)
- PROPOSED 2' BASE GRADE CONTOUR (892)
- PROPOSED LEACHATE COLLECTION PIPE
- PROPOSED LEACHATE COLLECTION SUMP
- SLOPE AND DIRECTION (0.75%)
- PROPOSED SOLID WALL LEACHATE CLEANOUT PIPE
- PROPOSED INCLINED RISER LEACHATE PUMP-OUT PIPE AND MANHOLE (MH-9N)
- PROPOSED PERFORATED LEACHATE COLLECTION PIPE
- EXISTING LEACHATE FORCEMAIN LINE
- EXISTING LEACHATE GRAVITY DRAIN LINE
- EXISTING SANITARY SEWER LINE
- PROPOSED NEW FORCEMAIN PIPE
- LIMITS OF COMPOSITE FINAL COVER
- LIMITS OF VERTICAL EXPANSION FOR 1993 WESTERN EXPANSION
- PROPOSED LEACHATE HEADWELL LOCATION (MLH-9N)

NOTES

1. CONTRACTOR TO DESIGN ROOF AND BUILDING SUPPORTS TO ACCOMMODATE ADDITIONAL DEAD LOAD OF MUFFLER UNIT.
2. CONTRACTOR TO FIELD LOCATE AND VERIFY ALL UTILITIES.

0 2 4 6 8

SCALE: 1/2"=1' (22" x 34")
SCALE: 1/4"=1' (11" x 17")

NOTE: THESE PLANS ARE ACCOMPANIED BY A PROJECT MANUAL OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

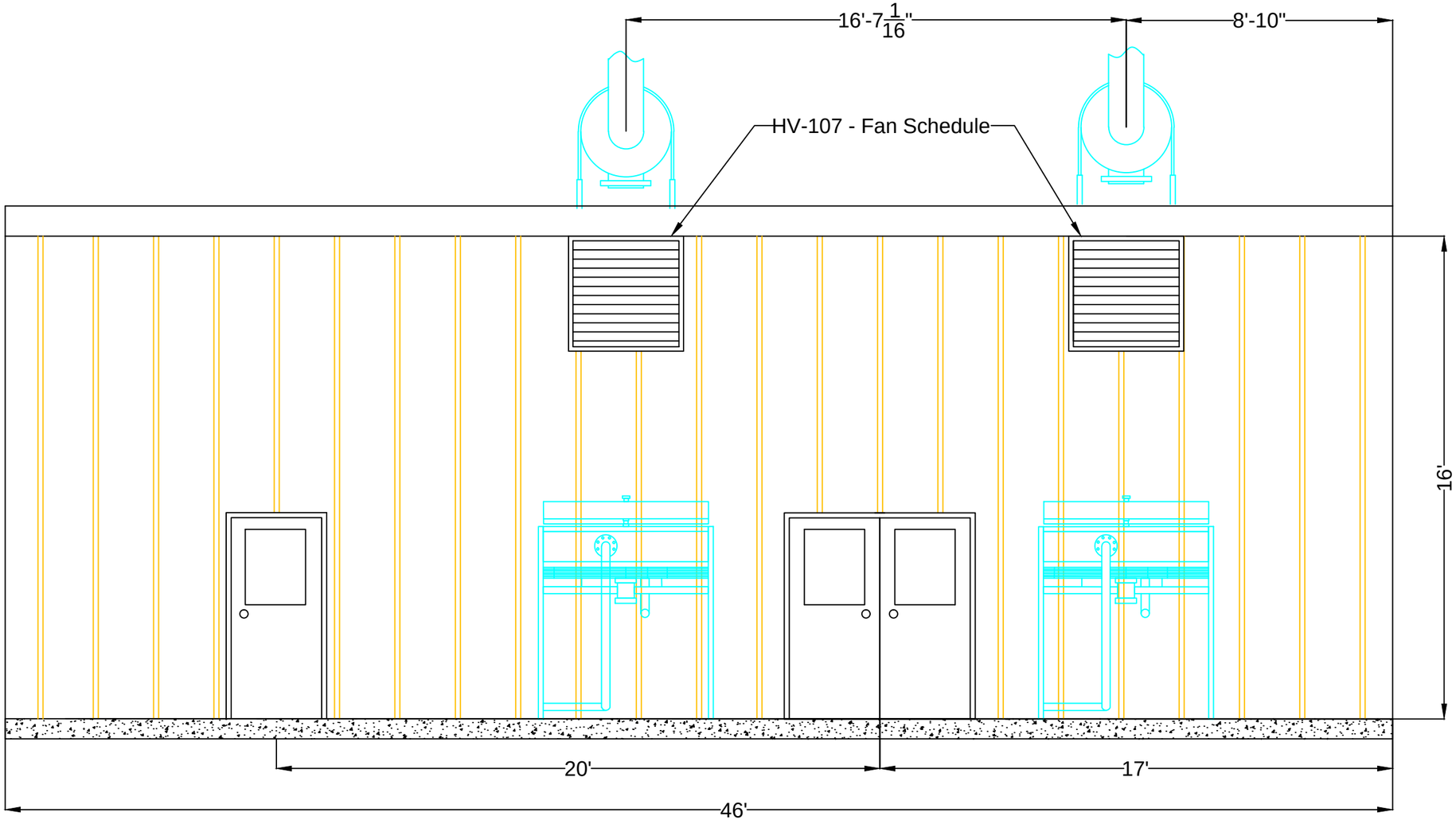
NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

PROJECT: **DANE COUNTY NO. 1 (VERONA) LANDFILL**
BID # 316031 - CONSTRUCT GENERATOR BUILDING
DANE COUNTY, WISCONSIN

SHEET TITLE: **BUILDING - SOUTH ELEVATION**

DRAWN BY: MR	SCALE:	PROJ. NO.	BID # 316031
DESIGNED BY: MR	AS SHOWN	FILE NO.	N/A
APPROVED BY:	DATE PRINTED:	**SHEET 7 OF 9**	
DATE: JUNE 2016			

Department of Public Works, Highway, & Transportation
Solid Waste Division
1919 Alliant Energy Center Way
Madison, WI 53713



LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- APPROXIMATE RIGHT-OF-WAY
- GRID LOCATION
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EXISTING FENCE
- EXISTING BUILDING
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING SPOT ELEVATION
- EXISTING TREES AND/OR BRUSH
- EXISTING WET AREA AND WETLAND LIMITS
- EXISTING EDGE OF WATER
- DRAINAGE DITCH
- EXISTING APPROVED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- PROPOSED PHASE DELINEATION LINE
- PROPOSED CELL DELINEATION LINE
- PROPOSED 10' BASE GRADE CONTOUR
- PROPOSED 2' BASE GRADE CONTOUR
- PROPOSED LEACHATE COLLECTION PIPE
- PROPOSED LEACHATE COLLECTION SUMP
- SLOPE AND DIRECTION
- PROPOSED SOLID WALL LEACHATE CLEANOUT PIPE
- PROPOSED INCLINED RISER LEACHATE PUMP-OUT PIPE AND MANHOLE
- PROPOSED PERFORATED LEACHATE COLLECTION PIPE
- EXISTING LEACHATE FORCEMAIN LINE
- EXISTING LEACHATE GRAVITY DRAIN LINE
- EXISTING SANITARY SEWER LINE
- PROPOSED NEW FORCEMAIN PIPE
- LIMITS OF COMPOSITE FINAL COVER
- LIMITS OF VERTICAL EXPANSION FOR 1993 WESTERN EXPANSION
- PROPOSED LEACHATE HEADWELL LOCATION

NOTES

1. CONTRACTOR TO DESIGN ROOF AND BUILDING SUPPORTS TO ACCOMMODATE ADDITIONAL DEAD LOAD OF MUFFLER UNIT.
2. CONTRACTOR TO FIELD LOCATE AND VERIFY ALL UTILITIES.

0 2 4 6 8

SCALE: 1/2"=1' (22" x 34")
SCALE: 1/4"=1' (11" x 17")

NOTE: THESE PLANS ARE ACCOMPANIED BY A PROJECT MANUAL OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

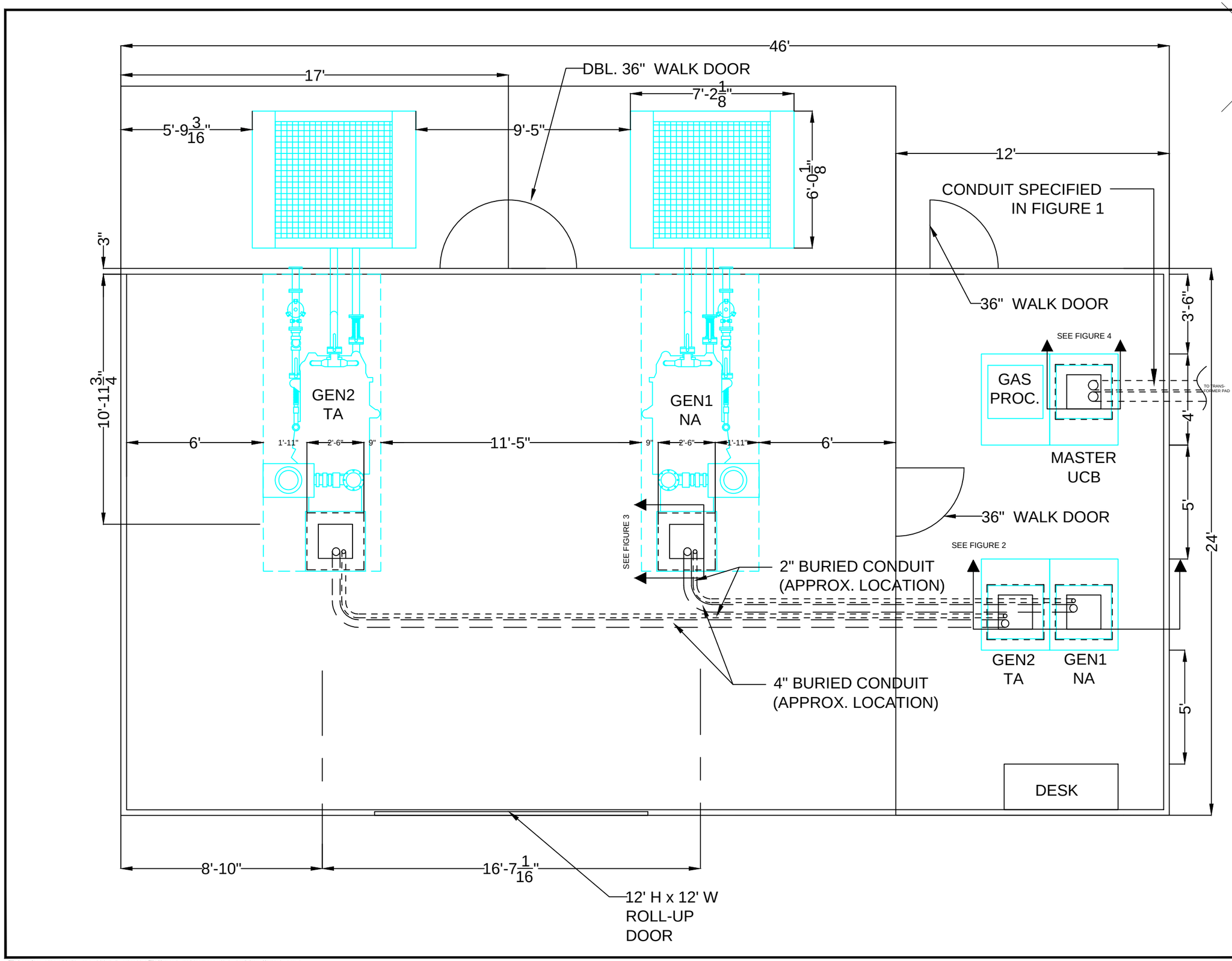
PROJECT:
DANE COUNTY NO. 1 (VERONA) LANDFILL
BID # 316031 - CONSTRUCT GENERATOR BUILDING
DANE COUNTY, WISCONSIN

SHEET TITLE:
BUILDING - EAST ELEVATION

DRAWN BY:	MR	SCALE:	PROJ. NO. BID # 316031
DESIGNED BY:	MR	AS SHOWN	FILE NO. N/A
APPROVED BY:		DATE PRINTED:	**SHEET 8 OF 9**
DATE:	JUNE 2016		

Department of Public Works, Highway, & Transportation
Solid Waste Division
1919 Alliant Energy Center Way
Madison, WI 53713

File Location: H:\Shared\Solid Waste Division\Ali Hackner\316031 - Construct Generator BDG\02 - Drawings\DWG\SHEET 8
Plot Information: NONE HACKNER, ALLISON ---- ANSI A (8.50 X 11.00 INCHES) July 19, 2016 0.3869 ----



LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- APPROXIMATE RIGHT-OF-WAY
- GRID LOCATION
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EXISTING FENCE
- EXISTING BUILDING
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING SPOT ELEVATION
- EXISTING TREES AND/OR BRUSH
- EXISTING WET AREA AND WETLAND LIMITS
- EXISTING EDGE OF WATER
- DRAINAGE DITCH
- EXISTING APPROVED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- PROPOSED PHASE DELINEATION LINE
- PROPOSED CELL DELINEATION LINE
- PROPOSED 10' BASE GRADE CONTOUR
- PROPOSED 2' BASE GRADE CONTOUR
- PROPOSED LEACHATE COLLECTION PIPE
- PROPOSED LEACHATE COLLECTION SUMP
- SLOPE AND DIRECTION
- PROPOSED SOLID WALL LEACHATE CLEANOUT PIPE
- PROPOSED INCLINED RISER LEACHATE PUMP-OUT PIPE AND MANHOLE
- PROPOSED PERFORATED LEACHATE COLLECTION PIPE
- EXISTING LEACHATE FORCEMAIN LINE
- EXISTING LEACHATE GRAVITY DRAIN LINE
- EXISTING SANITARY SEWER LINE
- PROPOSED NEW FORCEMAIN PIPE
- LIMITS OF COMPOSITE FINAL COVER
- LIMITS OF VERTICAL EXPANSION FOR 1993 WESTERN EXPANSION
- PROPOSED LEACHATE HEADWELL LOCATION

NOTES

1. CONTRACTOR TO DESIGN ROOF AND BUILDING SUPPORTS TO ACCOMMODATE ADDITIONAL DEAD LOAD OF MUFFLER UNIT.
4. CONTRACTOR SHALL FIELD LOCATE AND VERIFY ALL BURIED UTILITIES.
4. CONTRACTOR SHALL CONSTRUCT ALL BURIED ELECTRICAL CONDUIT TO MEET NATIONAL, STATE, AND LOCAL STANDARDS.
5. CONTRACTOR SHALL VERIFY ALL ELECTRICAL CONDUIT SPACING, BENDS, AND LOCATION.
6. CONTRACTOR SHALL BURY CONDUIT 6" BELOW SLAB GRADE AND EMBED WITH PEA GRAVEL.
7. CONTRACTOR SHALL SEAL ALL CONDUIT OPENINGS FROM ENVIRONMENT WHILE UTILITY LINES ARE NOT IN PLACE.
8. CONTRACTOR SHALL INSTALL 90 DEG. SWEEPS FOR HORIZONTAL AND VERTICAL CONDUIT BENDS.
9. CONTRACTOR SHALL MEET 2 HOUR FIRE RATED SEAL FOR ALL CONDUIT OPENINGS.

0 2 4 6 8

SCALE: 1"=10' (22" x 34")

NOTE: THESE PLANS ARE ACCOMPANIED BY A PROJECT MANUAL OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

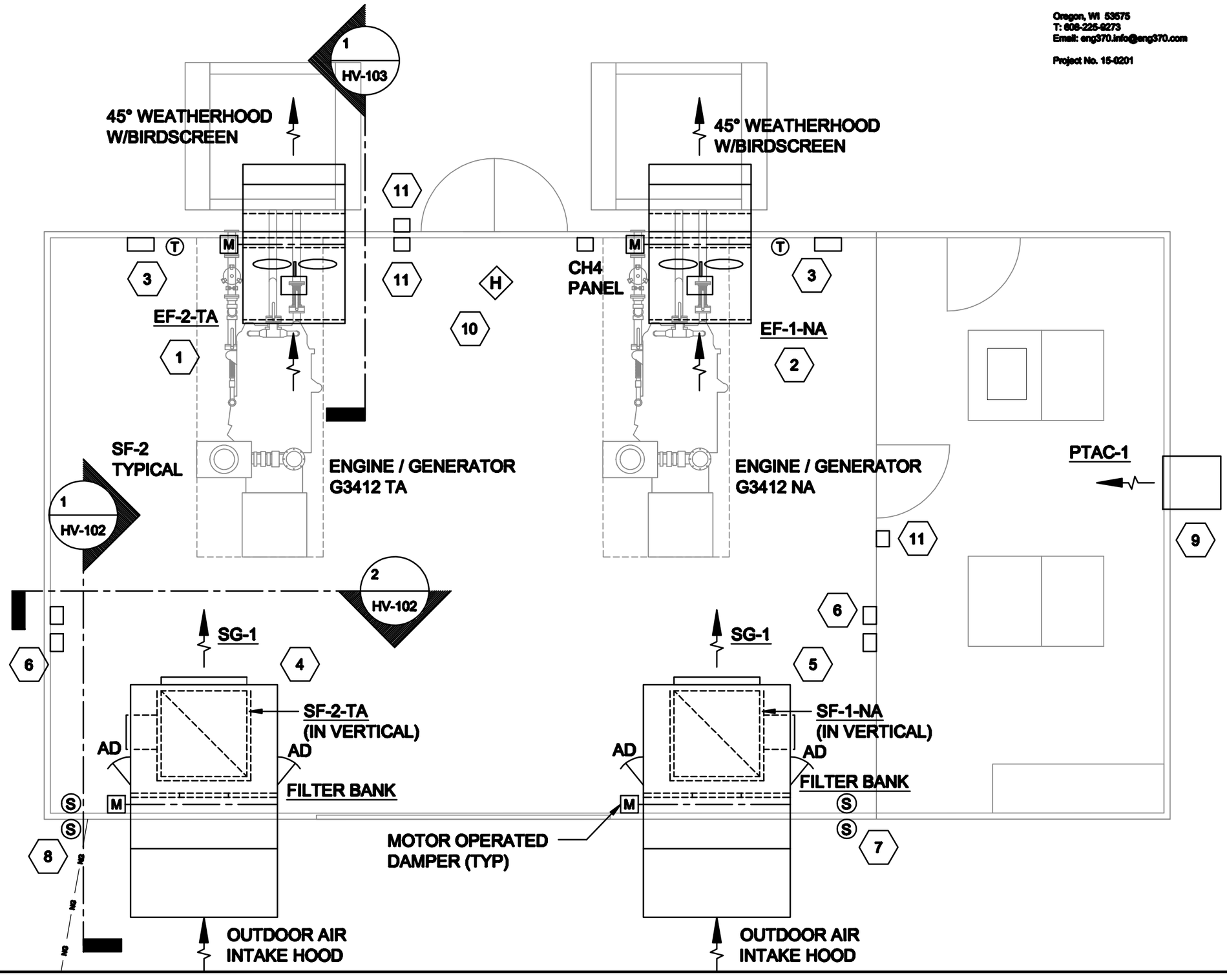
PROJECT:
DANE COUNTY NO. 1 (VERONA) LANDFILL
BID # 316031 - CONSTRUCT GENERATOR BUILDING
DANE COUNTY, WISCONSIN

SHEET TITLE:
FLOOR PLAN

DRAWN BY:	MR	SCALE:	PROJ. NO. BID # 316031
DESIGNED BY:	MR	AS SHOWN	FILE NO. N/A
APPROVED BY:		DATE PRINTED:	SHEET 9 OF 9
DATE:	JUNE 2016		

Department of Public Works, Highway, & Transportation
Solid Waste Division
1919 Alliant Energy Center Way
Madison, WI 53713

File Location: H:\Shared\Solid Waste Division\Ali Hackner\316031 - Construct Generator BDG\13 - Con **File Name:** SHEET 9 **Layout Name:** SHEET 9
Plot Information: NONE HACKNER, ALLISON ---- ANSI A (8.50 X 11.00 INCHES) July 21, 2016 0.3869 ----



Engineering 370, LLC
MECHANICAL CONSULTING

Oregon, WI 53575
T: 608-225-9273
Email: eng370.info@eng370.com

Project No. 15-0201

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- APPROXIMATE RIGHT-OF-WAY
- GRID LOCATION
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EXISTING FENCE
- EXISTING BUILDING
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING SPOT ELEVATION
- EXISTING TREES AND/OR BRUSH
- EXISTING WET AREA AND WETLAND LIMITS
- EXISTING EDGE OF WATER
- DRAINAGE DITCH
- EXISTING APPROVED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- PROPOSED PHASE DELINEATION LINE
- PROPOSED CELL DELINEATION LINE
- PROPOSED 10' BASE GRADE CONTOUR
- PROPOSED 2' BASE GRADE CONTOUR
- PROPOSED LEACHATE COLLECTION PIPE
- PROPOSED LEACHATE COLLECTION SUMP
- SLOPE AND DIRECTION
- PROPOSED SOLID WALL LEACHATE CLEANOUT PIPE
- PROPOSED INCLINED RISER LEACHATE PUMP-OUT PIPE AND MANHOLE
- PROPOSED PERFORATED LEACHATE COLLECTION PIPE
- EXISTING LEACHATE FORCEMAIN LINE
- EXISTING LEACHATE GRAVITY DRAIN LINE
- EXISTING SANITARY SEWER LINE
- PROPOSED NEW FORCEMAIN PIPE
- LIMITS OF COMPOSITE FINAL COVER
- LIMITS OF VERTICAL EXPANSION FOR 1993 WESTERN EXPANSION
- PROPOSED LEACHATE HEADWELL LOCATION

NOTES

1.
2.

0 2 4 8 16
SCALE: 1"=10' (22" x 34")

NOTE: THESE PLANS ARE ACCOMPANIED BY A PROJECT MANUAL OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

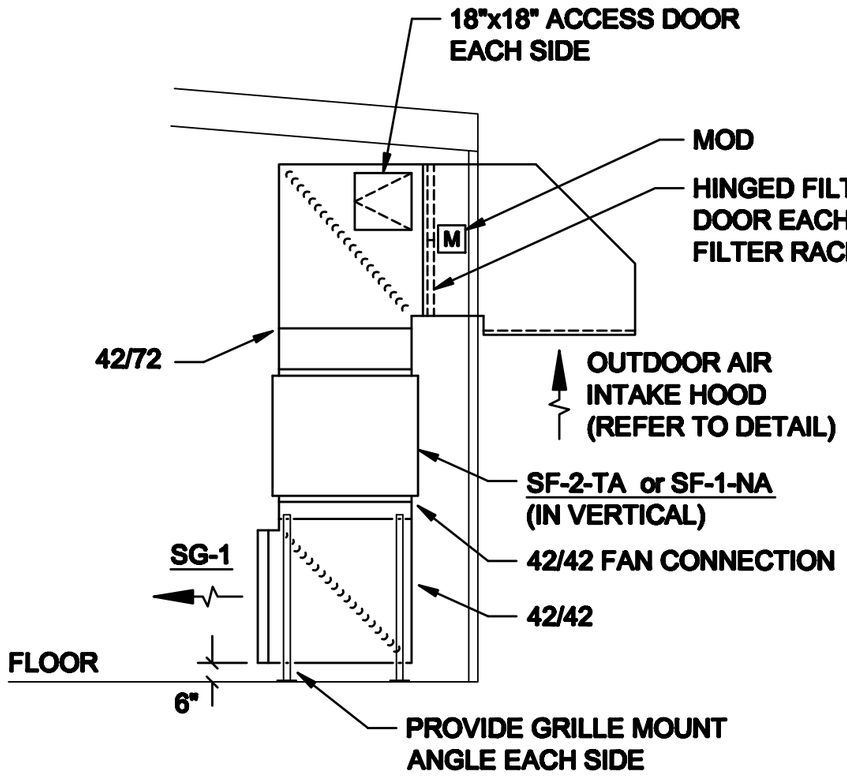
NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

PROJECT: DANE COUNTY NO. 1 (VERONA) LANDFILL
BID # 316031 - CONSTRUCT GENERATOR BUILDING
DANE COUNTY, WISCONSIN

SHEET TITLE: FLOOR PLAN - HVAC

DRAWN BY: FBN	SCALE: AS SHOWN	PROJ. NO.	BID#_316008
DESIGNED BY: ENG370		FILE NO.	
APPROVED BY:	DATE PRINTED:	HV-101	OF 7
DATE: JUNE_2016			

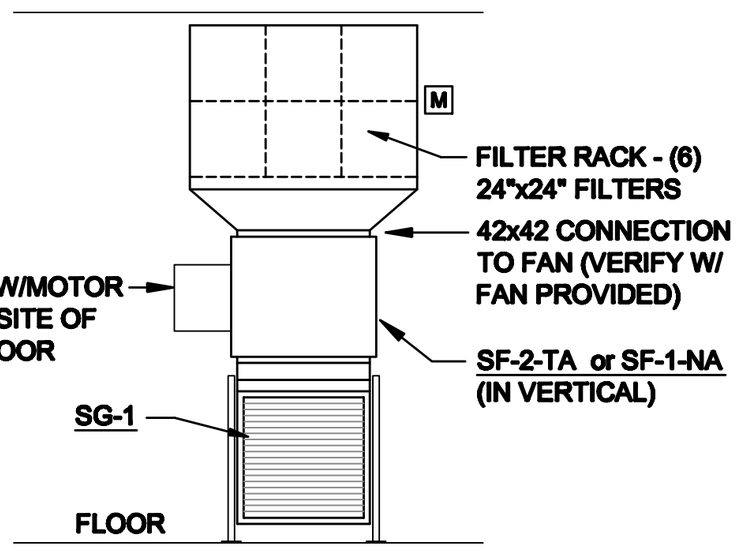
Department of Public Works, Highway, & Transportation
Solid Waste Division
1919 Alliant Energy Center Way
Madison, WI 53713



NOTE:
KEEP FAN AS CLOSE TO WALL AS POSSIBLE

1 SUPPLY FAN SECTION

SCALE: 1/4" = 1'-0"



2 SUPPLY FAN SECTION

SCALE: 1/4" = 1'-0"

Engineering 370, LLC
MECHANICAL CONSULTING

Oregon, WI 53575
T: 608-225-9273
Email: eng370.info@eng370.com

Project No. 15-0201

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- APPROXIMATE RIGHT-OF-WAY
- GRID LOCATION
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EXISTING FENCE
- EXISTING BUILDING
- 880 EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- x 815.1 EXISTING SPOT ELEVATION
- EXISTING TREES AND/OR BRUSH
- EXISTING WET AREA AND WETLAND LIMITS
- EXISTING EDGE OF WATER
- DRAINAGE DITCH
- EXISTING APPROVED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- PROPOSED PHASE DELINEATION LINE
- PROPOSED CELL DELINEATION LINE
- 888 PROPOSED 10' BASE GRADE CONTOUR
- 882 PROPOSED 2' BASE GRADE CONTOUR
- PROPOSED LEACHATE COLLECTION PIPE
- PROPOSED LEACHATE COLLECTION SUMP
- 0.75% SLOPE AND DIRECTION
- PROPOSED SOLID WALL LEACHATE CLEANOUT PIPE
- MH-8N PROPOSED INCLINED RISER LEACHATE PUMP-OUT PIPE AND MANHOLE
- PROPOSED PERFORATED LEACHATE COLLECTION PIPE
- FM EXISTING LEACHATE FORCEMAIN LINE
- GO EXISTING LEACHATE GRAVITY DRAIN LINE
- SAN EXISTING SANITARY SEWER LINE
- FM PROPOSED NEW FORCEMAIN PIPE
- LIMITS OF COMPOSITE FINAL COVER
- LIMITS OF VERTICAL EXPANSION FOR 1993 WESTERN EXPANSION
- MLH-8N PROPOSED LEACHATE HEADWELL LOCATION

NOTES

1.
2.

0 2 4 6 8
SCALE: 1"=10' (22" x 34")

NOTE: THESE PLANS ARE ACCOMPANIED BY A PROJECT MANUAL OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

PROJECT: DANE COUNTY NO. 1 (VERONA) LANDFILL
BID # 316031 - CONSTRUCT GENERATOR BUILDING
DANE COUNTY, WISCONSIN

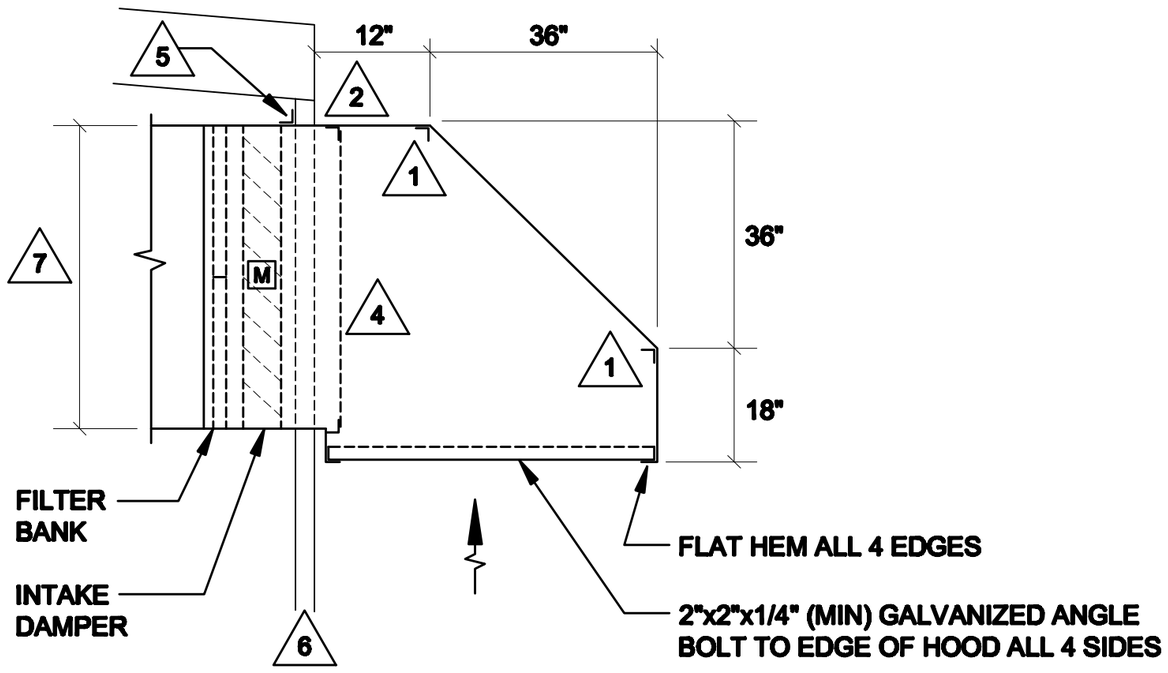
SHEET TITLE: SECTIONS - HVAC

DRAWN BY: FBN	SCALE: AS SHOWN	PROJ. NO.	BID#_315008
DESIGNED BY: ENG370		FILE NO.	
APPROVED BY:	DATE PRINTED:	HV-102	OF 7
DATE: JUNE_2016			

Department of Public Works, Highway, & Transportation
Solid Waste Division
1919 Alliant Energy Center Way
Madison, WI 53713

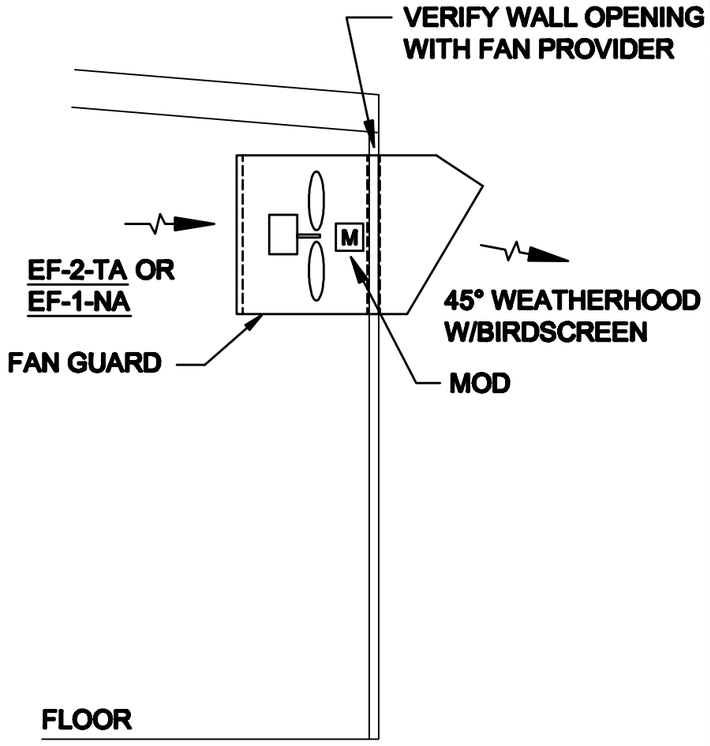
INTAKE HOOD SECTION NOTES:

1. 2"x2"x1/4" (MIN) GALVANIZED ANGLE
2. CAULK HOOD WATERTIGHT TO BUILDING WALL
3. CONSTRUCT HOOD WITH18 GAUGE - G90
4. 1/2"x1/2" MESH ALUMINUM BIRDSCREEN IN ALUMINUM FRAME
   PROVIDE 1"x1"x1/8" ANGLE ON 4 SIDES FOR MOUNTING SCREEN
5. TURN HOOD SHEET METAL UP 6" ON INSIDE OF WALL AND FASTEN TO WALL
6. VERIFY THICKNESS OF BUILDING WALL
7. 48" HIGH, 72" WIDE - FIELD VERIFY ACTUAL WALL OPENING REQUIRED FOR FILTER BANK INSTALLATION.



2 INTAKE HOOD SECION

SCALE: 1/4" = 1'-0"



1 EXHAUST FAN SECTION

SCALE: 1/4" = 1'-0"

Engineering 370, LLC
MECHANICAL CONSULTING
Oregon, WI 53575
T: 608-225-9273
Email: eng370.info@eng370.com
Project No. 15-0201

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- APPROXIMATE RIGHT-OF-WAY
- GRID LOCATION
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EXISTING FENCE
- EXISTING BUILDING
- 880 EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- x 915.1 EXISTING SPOT ELEVATION
- EXISTING TREES AND/OR BRUSH
- EXISTING WET AREA AND WETLAND LIMITS
- EXISTING EDGE OF WATER
- DRAINAGE DITCH
- EXISTING APPROVED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- PROPOSED PHASE DELINEATION LINE
- PROPOSED CELL DELINEATION LINE
- 888 PROPOSED 10' BASE GRADE CONTOUR
- 882 PROPOSED 2' BASE GRADE CONTOUR
- PROPOSED LEACHATE COLLECTION PIPE
- PROPOSED LEACHATE COLLECTION SUMP
- 0.75% SLOPE AND DIRECTION
- PROPOSED SOLID WALL LEACHATE CLEANOUT PIPE
- MH-8N PROPOSED INCLINED RISER LEACHATE PUMP-OUT PIPE AND MANHOLE
- PROPOSED PERFORATED LEACHATE COLLECTION PIPE
- FM EXISTING LEACHATE FORCEMAIN LINE
- GD EXISTING LEACHATE GRAVITY DRAIN LINE
- SAN EXISTING SANITARY SEWER LINE
- FM PROPOSED NEW FORCEMAIN PIPE
- LIMITS OF COMPOSITE FINAL COVER
- LIMITS OF VERTICAL EXPANSION FOR 1993 WESTERN EXPANSION
- MLH-8N PROPOSED LEACHATE HEADWELL LOCATION

NOTES

1.
2.

0 2 4 6 8
SCALE: 1"=1.0' (22" x 34")

NOTE: THESE PLANS ARE ACCOMPANIED BY A PROJECT MANUAL OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

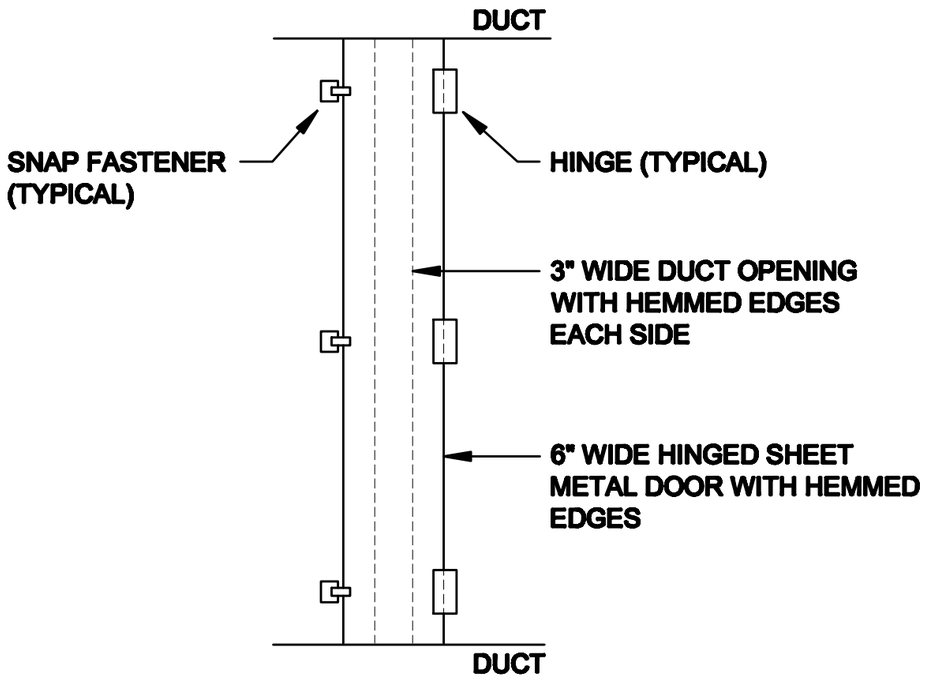
NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

PROJECT: DANE COUNTY NO. 1 (VERONA) LANDFILL
BID # 316031 - CONSTRUCT GENERATOR BUILDING
DANE COUNTY, WISCONSIN

SHEET TITLE: SECTIONS - HVAC

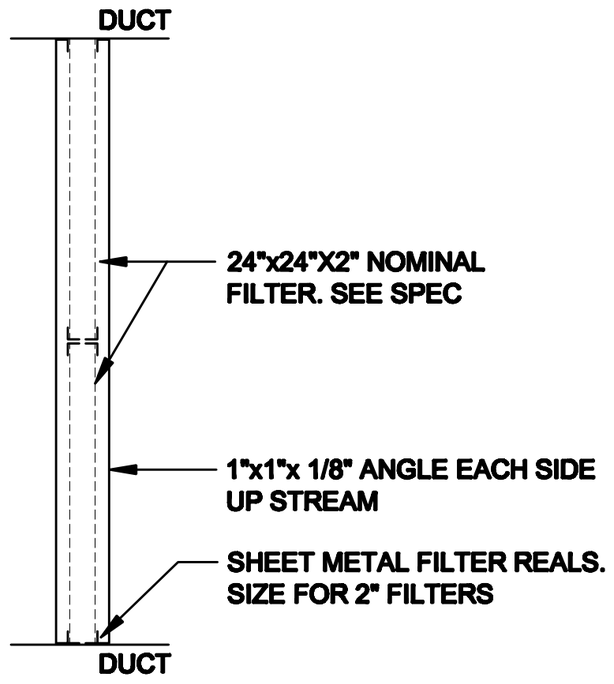
DRAWN BY: FBN	SCALE: AS SHOWN	PROJ. NO.	SID# 316008
DESIGNED BY: ENG370		FILE NO.	
APPROVED BY:	DATE PRINTED:	HV-103	OF 7
DATE: JUNE_2016			

Department of Public Works, Highway, & Transportation
Solid Waste Division
1919 Alliant Energy Center Way
Madison, WI 53713



2 FILTER ACCESS DOOR DETAIL

SCALE: 1" = 1'-0"



1 FILTER RACK DETAIL

SCALE: 1" = 1'-0"

Engineering 370, LLC
MECHANICAL CONSULTING

Oregon, WI 53575
T: 608-225-9273
Email: eng370.info@eng370.com

Project No. 15-0201

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- APPROXIMATE RIGHT-OF-WAY
- GRID LOCATION
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EXISTING FENCE
- EXISTING BUILDING
- 880 — EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- x 815.1 — EXISTING SPOT ELEVATION
- EXISTING TREES AND/OR BRUSH
- EXISTING WET AREA AND WETLAND LIMITS
- EXISTING EDGE OF WATER
- DRAINAGE DITCH
- EXISTING APPROVED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- PROPOSED PHASE DELINEATION LINE
- PROPOSED CELL DELINEATION LINE
- 888 — PROPOSED 10' BASE GRADE CONTOUR
- 882 — PROPOSED 2' BASE GRADE CONTOUR
- PROPOSED LEACHATE COLLECTION PIPE
- PROPOSED LEACHATE COLLECTION SUMP
- 0.75% — SLOPE AND DIRECTION
- PROPOSED SOLID WALL LEACHATE CLEANOUT PIPE
- MH-8N — PROPOSED INCLINED RISER LEACHATE PUMP-OUT PIPE AND MANHOLE
- PROPOSED PERFORATED LEACHATE COLLECTION PIPE
- FM — EXISTING LEACHATE FORCEMAIN LINE
- GO — EXISTING LEACHATE GRAVITY DRAIN LINE
- SAN — EXISTING SANITARY SEWER LINE
- FM — PROPOSED NEW FORCEMAIN PIPE
- LIMITS OF COMPOSITE FINAL COVER
- LIMITS OF VERTICAL EXPANSION FOR 1993 WESTERN EXPANSION
- MLH-8N — PROPOSED LEACHATE HEADWELL LOCATION

NOTES

1.
2.

0 2 4 6 8
SCALE: 1"=10' (22" x 34")

NOTE: THESE PLANS ARE ACCOMPANIED BY A PROJECT MANUAL OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

PROJECT: DANE COUNTY NO. 1 (VERONA) LANDFILL
BID # 316031 - CONSTRUCT GENERATOR BUILDING
DANE COUNTY, WISCONSIN

SHEET TITLE: FILTER RACK DETAIL - HVAC

DRAWN BY: FBN	SCALE: AS SHOWN	PROJ. NO.	BIDM_316006
DESIGNED BY: ENG370		FILE NO.	
APPROVED BY:	DATE PRINTED:	HV-104	OF 7
DATE: JUNE_2016			

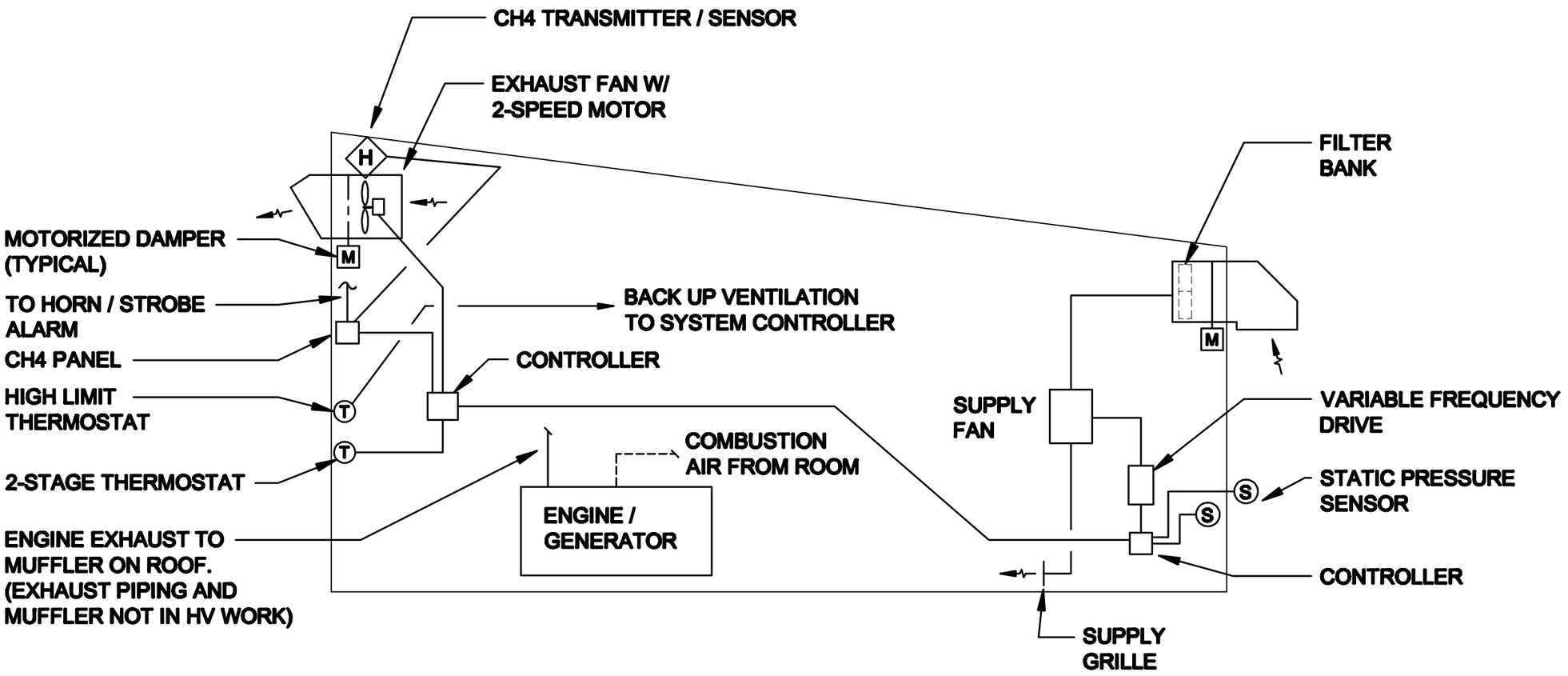
Department of Public Works, Highway, & Transportation
Solid Waste Division
1919 Alliant Energy Center Way
Madison, WI 53713

Engineering 370, LLC
MECHANICAL CONSULTING

Oregon, WI 53575
T: 608-225-9273
Email: eng370.info@eng370.com

Project No. 15-0201

NOTES:
1. SEE CONTROL SEQUENCE IN SPECIFICATION SECTION 23 09 14
2. LOCATE THERMOSTATS AND STATIC PRESSURE SENSORS AS INDICATED ON FLOOR PLAN.
3. ELECTRICAL CONTRACTOR WILL PROVIDE 120 VOLT FOR EACH OF 2 GENERATOR SYSTEM VENTILATION CONTROL PANELS.



1 CONTROL DIAGRAM - TYPICAL OF 2 ENGINE GENERATOR UNITS

SCALE: NONE

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- APPROXIMATE RIGHT-OF-WAY
- GRID LOCATION
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EXISTING FENCE
- EXISTING BUILDING
- 880 EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- x 815.1 EXISTING SPOT ELEVATION
- EXISTING TREES AND/OR BRUSH
- EXISTING WET AREA AND WETLAND LIMITS
- EXISTING EDGE OF WATER
- DRAINAGE DITCH
- EXISTING APPROVED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- PROPOSED PHASE DELINEATION LINE
- PROPOSED CELL DELINEATION LINE
- 888 PROPOSED 10' BASE GRADE CONTOUR
- 882 PROPOSED 2' BASE GRADE CONTOUR
- PROPOSED LEACHATE COLLECTION PIPE
- PROPOSED LEACHATE COLLECTION SUMP
- 0.75% SLOPE AND DIRECTION
- PROPOSED SOLID WALL LEACHATE CLEANOUT PIPE
- MH-8N PROPOSED INCLINED RISER LEACHATE PUMP-OUT PIPE AND MANHOLE
- PROPOSED PERFORATED LEACHATE COLLECTION PIPE
- FM EXISTING LEACHATE FORCEMAIN LINE
- GD EXISTING LEACHATE GRAVITY DRAIN LINE
- SAN EXISTING SANITARY SEWER LINE
- FM PROPOSED NEW FORCEMAIN PIPE
- LIMITS OF COMPOSITE FINAL COVER
- LIMITS OF VERTICAL EXPANSION FOR 1993 WESTERN EXPANSION
- MLH-8N PROPOSED LEACHATE HEADWELL LOCATION

NOTES
1.
2.

0 2 4 6 8
SCALE: 1"=10' (22" x 34")

NOTE: THESE PLANS ARE ACCOMPANIED BY A PROJECT MANUAL OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

NO.	BY	DATE	REVISION	APPD.
3.				
2.				
1.				

PROJECT: DANE COUNTY NO. 1 (VERONA) LANDFILL
BID # 316031 - CONSTRUCT GENERATOR BUILDING
DANE COUNTY, WISCONSIN

SHEET TITLE: CONTROL DRAWING - HVAC

DRAWN BY:	FBN	SCALE:	PROJ. NO. BID#_316008
DESIGNED BY:	ENG370	AS SHOWN	FILE NO.
APPROVED BY:		DATE PRINTED:	HV-105 OF 7
DATE:	JUNE_2016		

Department of Public Works, Highway, & Transportation
Solid Waste Division
1919 Alliant Energy Center Way
Madison, WI 53713

Engineering 370, LLC
MECHANICAL CONSULTING

Oregon, WI 53575
T: 608-225-9273
Email: eng370.info@eng370.com

Project No. 15-0201

PLAN HV-101 KEY NOTES

1. MOUNT FAN ABOVE ENGINE/GENERATOR G3412 TA AS HIGH AS POSSIBLE. COORDINATE THE EXACT LOCATION WITH BUILDING STRUCTURE & OWNER PROVIDE REQUIRED FRAMING STEEL FOR MOUNTING THE FAN AND ACCESSORIES TO THE STRUCTURE. REFER TO DETAIL 1, DRAWING HV-103.
2. MOUNT FAN ABOVE ENGINE/GENERATOR G3412 NA AS HIGH AS POSSIBLE. COORDINATE THE EXACT LOCATION WITH BUILDING STRUCTURE & OWNER PROVIDE REQUIRED FRAMING STEEL FOR MOUNTING THE FAN AND ACCESSORIES TO THE STRUCTURE. REFER TO DETAIL 1, DRAWING HV-103.
3. FAN CONTROLLER AND THERMOSTAT. REFER TO CONTROL DIAGRAM, DETAIL 1, DRAWING HV-105 AND SPECIFICATION 23 09 14.
4. SUPPLY FAN SYSTEM SF-2-TA, SERVES ENGINE/GENERATOR G3412 TA. MOUNT AS CLOSE TO BUILDING WALL AS POSSIBLE WITH MOTOR ON SIDE OPPOSITE OVERHEAD DOOR. HANG FAN FROM STRUCTURE WITH VIBRATION ISOLATORS IN HANGERS. REFER TO DETAILS 1 AND 2, DRAWING HV-102, INTAKE HOOD DETAIL 2 HV-103 AND FILTER DETAILS 1 AND 2 HV-103.
5. SUPPLY FAN SYSTEM SF-1-NA, SERVES ENGINE/GENERATOR G3412 NA. MOUNT AS CLOSE TO BUILDING WALL AS POSSIBLE WITH MOTOR ON SIDE OPPOSITE OVERHEAD DOOR. HANG FAN FROM STRUCTURE WITH VIBRATION ISOLATORS IN HANGERS. REFER TO DETAILS 1 AND 2, DRAWING HV-102. INTAKE HOOD DETAIL 2 HV-103 AND FILTER DETAILS 1 AND 2 HV-103.
6. FAN CONTROLLER AND VARIABLE FREQUENCY DRIVE. REFER TO CONTOL DIAGRAM, DETAIL 1, DRAWING HV-105 AND SPECIFICATION 23 09 14. CONFIRM LOCATION AND SET POINTS WITH OWNER.
7. STATIC PRESSURE SENSORS CONTROLLING SF-1-NA. REFER TO CONTROL DIAGRAM, DETAIL 1, DRAWING HV-105 AND SPECIFICATION 23 09 14. CONFIRM LOCATIONS WITH OWNER.
8. STATIC PRESSURE SENSORS CONTROLLING SF-2-TA. REFER TO CONTROL DIAGRAM, DETAIL 1, DRAWING HV-105 AND SPECIFICATION 23 09 14. CONFIRM LOCATIONS WITH OWNER.
9. INSTALL WALL SLEEVE FOR HEATING-COOLING UNIT PTAC-1 THROUGH WALL WITH TOP AT 6'-0" ABOVE FLOOR. PROVIDE STEEL REQUIRED TO SUPPORT SLEEVE IN BUILDING WALL. COORDINATE THE EXACT LOCATION WITH OWNER, BUILDING STRUCTURE AND SWITCHGEAR. CAULK SLEEVE WATER TIGHT TO BUIDLING WALL.
10. CH4 (METHANE / NATURAL GAS) TRANSMITTER / SENSOR. MOUNT 8" MIN, 12" MAXIMUM BELOW STRUCTURE.
11. CH4 ALARM HORN / STROBE. MOUNT AT 8'-0".

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- APPROXIMATE RIGHT-OF-WAY
- GRID LOCATION
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EXISTING FENCE
- EXISTING BUILDING
- 880 — EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- x 815.1 — EXISTING SPOT ELEVATION
- EXISTING TREES AND/OR BRUSH
- EXISTING WET AREA AND WETLAND LIMITS
- EXISTING EDGE OF WATER
- DRAINAGE DITCH
- EXISTING APPROVED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- PROPOSED PHASE DELINEATION LINE
- PROPOSED CELL DELINEATION LINE
- 880 — PROPOSED 10' BASE GRADE CONTOUR
- 882 — PROPOSED 2' BASE GRADE CONTOUR
- PROPOSED LEACHATE COLLECTION PIPE
- PROPOSED LEACHATE COLLECTION SUMP
- 0.75% — SLOPE AND DIRECTION
- PROPOSED SOLID WALL LEACHATE CLEANOUT PIPE
- MH-8N — PROPOSED INCLINED RISER LEACHATE PUMP-OUT PIPE AND MANHOLE
- PROPOSED PERFORATED LEACHATE COLLECTION PIPE
- FM — EXISTING LEACHATE FORCEMAIN LINE
- GD — EXISTING LEACHATE GRAVITY DRAIN LINE
- SAN — EXISTING SANITARY SEWER LINE
- FM — PROPOSED NEW FORCEMAIN PIPE
- LIMITS OF COMPOSITE FINAL COVER
- LIMITS OF VERTICAL EXPANSION FOR 1993 WESTERN EXPANSION
- MLH-8N — PROPOSED LEACHATE HEADWELL LOCATION

NOTES

1.
2.

0 2 4 6 8
SCALE: 1"=10' (22" x 34")

NOTE: THESE PLANS ARE ACCOMPANIED BY A PROJECT MANUAL OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

NO.	BY	DATE	REVISION	APP'D.
3.				
2.				
1.				

PROJECT: DANE COUNTY NO. 1 (VERONA) LANDFILL
BID # 316031 - CONSTRUCT GENERATOR BUILDING
DANE COUNTY, WISCONSIN

SHEET TITLE: PLAN KEYED NOTES - HVAC

DRAWN BY: FBN	SCALE: AS SHOWN	PROJ. NO.	BID#_316008
DESIGNED BY: ENG370		FILE NO.	
APPROVED BY:	DATE PRINTED:	HV-106	OF 7
DATE: JUNE_2016			

Department of Public Works, Highway, & Transportation
Solid Waste Division
1919 Alliant Energy Center Way
Madison, WI 53713

GRILLE SCHEDULE

MARK	MFGR	MODEL NO.	DESCRIPTION	MATERIAL	MOUNTING	DAMPER	SIZE	CFM RANGE	REMARKS
SG-1	CARNES	RCJAH	DOUBLE DEFLECTION INDUSTRIAL GRILLE	STEEL FRAME	DUCT	NO	42X42	UP TO 10,300	1, 2
			2 INCH DEEP BLADES, 2 INCHES O.C.	ALUM. BLADES					

REMARKS

1 PROVIDE ANGLE FLANGE AT OPENING IN DUCT FOR MOUNTING GRILLE

2 STANDARD WHITE FINISH

PACKAGED HEATING COOLING UNIT

TAG	MANUFACTURER	MODEL	MOUNT	ELECTRICAL VOLTAGE	PHASE	CIRCUIT BREAKER RATING	FAN SPEEDS	CONNECTION CORD AND PLUG	COOLING BTUH	COOLING AMPS	HEATING BTUH	HEATING AMPS	FILTER	REMARKS
PTAC-1	FRIEDRICH	EM 18N 34	WALL	208/230	3	30 AMP	3	6 FT CORD	17,500	7.4 / 8.0	13,000	19.5 / 17.0	MERV 8	1, 2, 3
			SLEEVE					NEMA 6-30P						

REMARKS

1 PROVIDE MANUFACTURER OF CONTRACTOR FABRICATED WALL SPEEVE

2 AUTO HEATING-COOLING CHANGEOVER

3

FAN SCHEDULE

MARK	MANUFACTURER	MODEL NO.	FAN DATA AIR FLOW (CFM)	EXT STATIC PRESS	FAN TYPE	WHEEL TYPE	DRIVE TYPE	RPM MOTOR	RPM FAN	TIP SPEED	CURB OR WALL DATA OPENING SIZE	DAMPER	MOTOR DATA ENCL	BHP	HP	VFD	VOLTS / PHASE	REMARKS
SF-1-NA	GREENHECK	BSQ-300-30	9480	0.9	INLINE	BI	BELT	1725	702	5608			ODP	2.95	5	YES	480/60/3	1, 2, 3, 4, 5, 6
SF-2-TA	GREENHECK	BSQ-300-50	10300	0.9	INLINE	BI	BELT	1725	733	5852			ODP	3.36	5	YES	480//60/3	1, 2, 3, 4, 5, 6
EF-1-NA	GREENHECK	SBE-1L36-10	8800	0.25	WALL/PROP	PROP	BELT	1725	510	4806	45.75 X 45.75	---	ODP	0.94	1 1/2	NO	480//60/3	1, 4, 6, 7, 8, 9, 10, 11, 12
EF-2-TA	GREENHECK	SBE-1L36-10	9030	0.25	WALL/PROP	PROP	BELT	1725	508	4784	45.75 X 45.75	---	ODP	0.96	1 1/2	NO	480//60/3	1, 4, 6, 7, 8, 9, 10, 11, 12

Notes

1 GRIP NOTCH BELTS, PROVIDE ONE SPARE SET

2 PROVIDE SPRING ISOLATORS FOR SUSPENSION FOR FAN

3 NEMA PREMIUM MOTOR - VFD RATED

4 THERMAL OVERLOAD PROTECTION

5 FAN TO BE MOUNTED WITH VERTICAL DOWN AIR FLOW

6 DISCONNECT SWITCH, JUNCTION BOX MOUNTED AND WIRED

7 MOTOR OPERATED DAMPER, END SWITCH, DAMPER ACTUATOR SAME VOLTAGE AS MOTOR - DAMPER SIZED TO FIT WALL HOUSING.

8 TWO SPEED, TWO WINDING MOTOR FOR 1/2 SPEED REDUCTION

9 DISCONNECT BY ELECTRICAL CONTRACTOR,

10 MOTOR STARTER BY ELECTRICAL CONTRACTOR, FOR TWO SPEED MOTOR CONTROL

11 LONG WALL HOUSING, FLUSH EXTERIOR, WITH OSHA GUARD

12 WEATHER HOOD, GALVANIZED 45 DEGREE WITH BIRD SCREEN

Engineering 370, LLC
MECHANICAL CONSULTING

Oregon, WI 53575
T: 608-225-9273
Email: eng370.info@eng370.com

Project No. 15-0201

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- APPROXIMATE RIGHT-OF-WAY
- GRID LOCATION
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EXISTING FENCE
- EXISTING BUILDING
- 880 EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- x 915.1 EXISTING SPOT ELEVATION
- EXISTING TREES AND/OR BRUSH
- EXISTING WET AREA AND WETLAND LIMITS
- EXISTING EDGE OF WATER
- EXISTING DRAINAGE DITCH
- EXISTING APPROVED LIMITS OF WASTE
- PROPOSED LIMITS OF WASTE
- PROPOSED PHASE DELINEATION LINE
- PROPOSED CELL DELINEATION LINE
- 888 PROPOSED 10' BASE GRADE CONTOUR
- 882 PROPOSED 2' BASE GRADE CONTOUR
- PROPOSED LEACHATE COLLECTION PIPE
- PROPOSED LEACHATE COLLECTION SUMP
- 0.75% SLOPE AND DIRECTION
- PROPOSED SOLID WALL LEACHATE CLEANOUT PIPE
- MH-8N PROPOSED INCLINED RISER LEACHATE PUMP-OUT PIPE AND MANHOLE
- PROPOSED PERFORATED LEACHATE COLLECTION PIPE
- FM EXISTING LEACHATE FORCEMAIN LINE
- GO EXISTING LEACHATE GRAVITY DRAIN LINE
- SAN EXISTING SANITARY SEWER LINE
- FM PROPOSED NEW FORCEMAIN PIPE
- LIMITS OF COMPOSITE FINAL COVER
- LIMITS OF VERTICAL EXPANSION FOR 1993 WESTERN EXPANSION
- MLH-8N PROPOSED LEACHATE HEADWELL LOCATION

NOTES

1.
2.

0 2 4 8 16
SCALE: 1"=10' (22" x 34")

NOTE: THESE PLANS ARE ACCOMPANIED BY A PROJECT MANUAL OF THE SAME TITLE. THESE DOCUMENTS ARE INTERRELATED AND ARE INTENDED TO BE USED TOGETHER.

NO.	BY	DATE	REVISION	APPD.
3.				
2.				
1.				

PROJECT: **DANE COUNTY NO. 1 (VERONA) LANDFILL**
BID # 316031 - CONSTRUCT GENERATOR BUILDING
DANE COUNTY, WISCONSIN

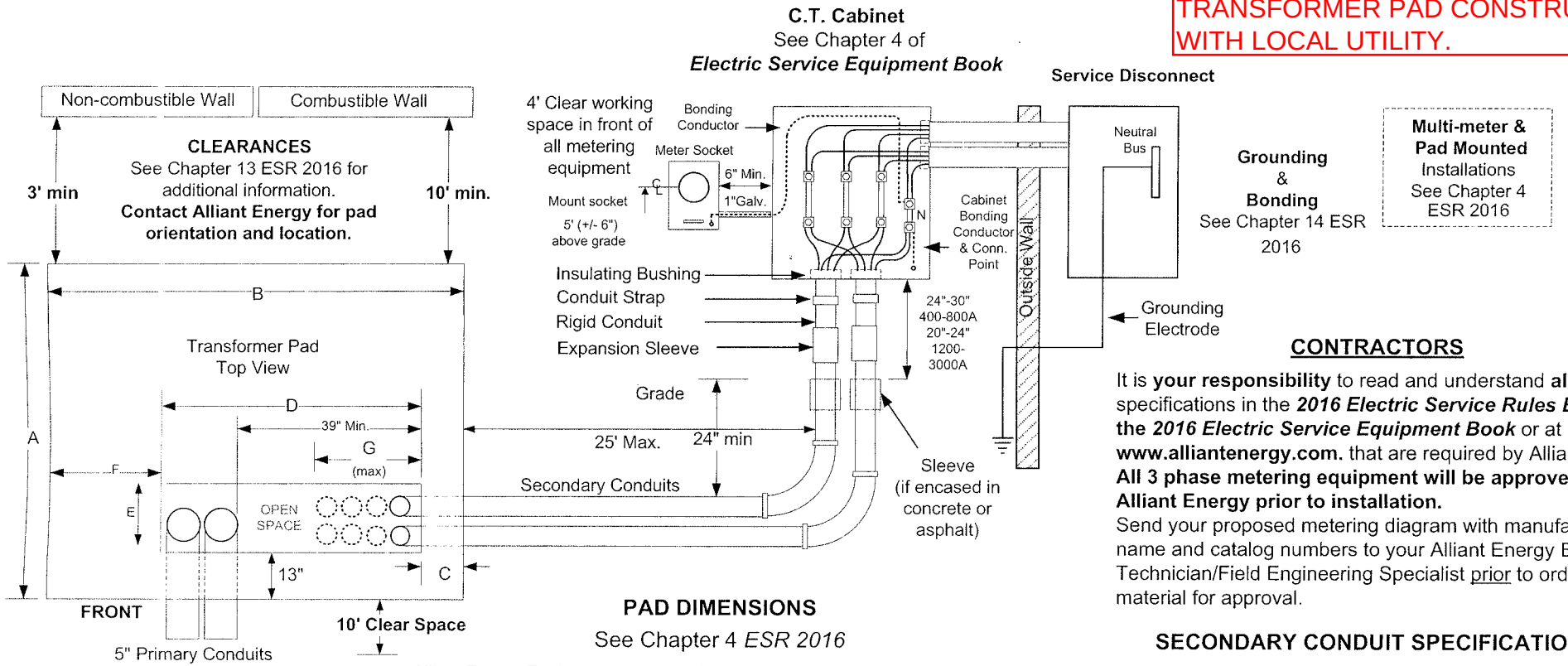
SHEET TITLE: **SCHEDULES - HVAC**

DRAWN BY: FBN	SCALE: AS SHOWN	PROJ. NO.	BID#_316008
DESIGNED BY: ENG370		FILE NO.	
APPROVED BY:	DATE PRINTED:	HV-107	OF 7
DATE: JUNE_2016			

Department of Public Works, Highway, & Transportation
Solid Waste Division
1919 Alliant Energy Center Way
Madison, WI 53713

3 Phase Secondary Metering Specification 400A-3000A Single Meter
All metering equipment will be installed outdoors

FIGURE 1 PROVIDED BY ALLIANT ENERGY. COORDINATE TRANSFORMER PAD CONSTRUCTION WITH LOCAL UTILITY.



CONTRACTORS

It is **your responsibility** to read and understand **all** specifications in the ***2016 Electric Service Rules Book*** **and the** ***2016 Electric Service Equipment Book*** or at **www.alliantenergy.com.** that are required by Alliant Energy. **All 3 phase metering equipment will be approved by Alliant Energy prior to installation.**
Send your proposed metering diagram with manufacturer name and catalog numbers to your Alliant Energy Engineering Technician/Field Engineering Specialist prior to ordering any material for approval.

PAD DIMENSIONS

See Chapter 4 *ESR 2016*

Alliant Energy Engineering will specify which pad is correct for your installation

Typical Installation
(2) 36" or 48", Schedule 40, 5" PVC 90 degree sweeps, 3 to 4 feet below grade, extending 3' min. beyond pad. (Plug and mark both ends)

	120/208v	277/480v	A	B	C	D	E	F	G	PAD THICKNESS
PAD I	100-1200 AMP	100-600 AMP	84"	96"	10"	55"	17"	31"	22"	6"
PAD II	1600-3000 AMP	800-3000 AMP	105"	108"	14"	60"	17"	34"	27"	8"

SECONDARY CONDUIT SPECIFICATIONS

Main Disc. Amperes	# of Conduits	Conduit Size	Min. Bend Radius (steel)	Min. Bend Radius (pvc)
400	2	4"	16"	30"
600	2	4"	16"	30"
800	3	4"	16"	30"
1200	5	4"	16"	30"
1600	4	5"	24"	36"
2000	5	5"	24"	36"
2500	7	5"	24"	36"
3000	8	5"	24"	36"

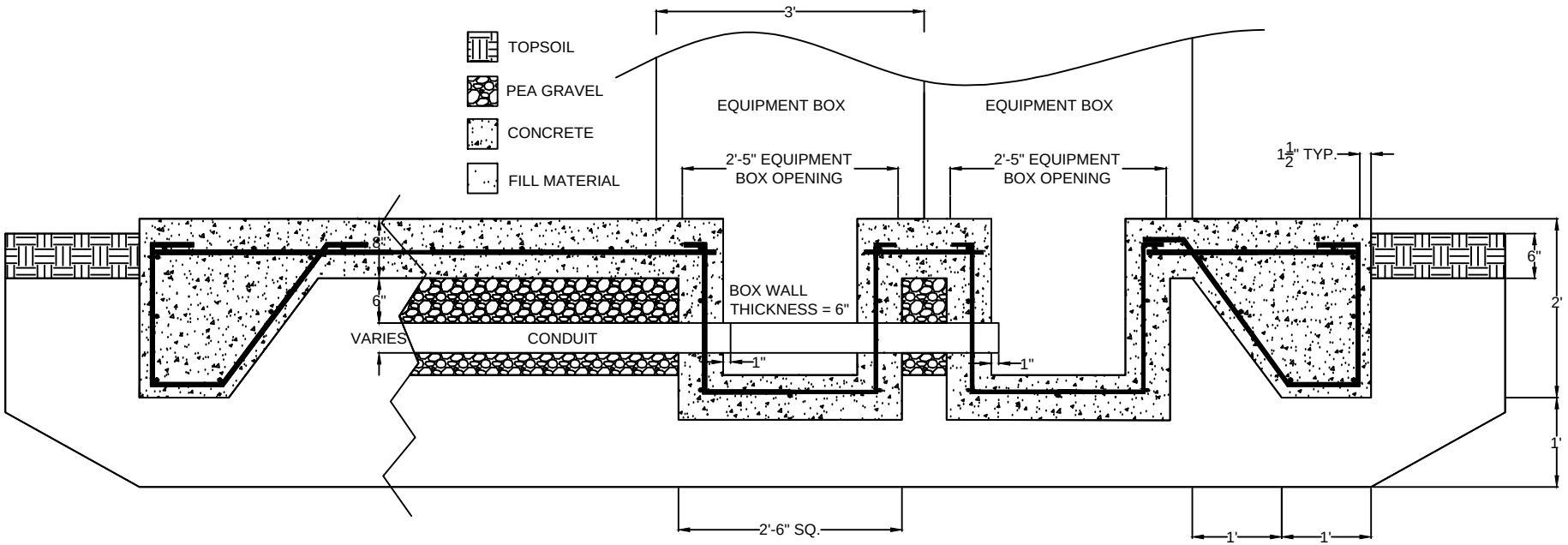
Riser Material will be:
Schd. 80 PVC (electric rated); **Galv. Steel** or **IMC**
See Chapter 4 *ESR 2016* for complete specifications

Notes:

1. All conduits shall enter through the window opening provided in the pad foundation and shall be cut off so the top of the conduit is flush with the surface of the pad.
2. All metallic conduits (if installed) shall be fitted with an insulating bushing.
3. When an oil sump is required, excavate 18" under, and around pad and fill with coarse crushed rock - check with local building code to determine if required.
4. Concrete mix shall have a minimum strength of 4000 lb./sq.in. after 28 days.
5. The top of the pad shall be level and all edges and corners rounded off.
6. The pad shall be reinforced with #4 wire, 4" x 4" welded mesh or equivalent materials with additional 3/8 reinforcing rods around the cable opening. The mesh shall not be less than 1" from the edges and opening, and 3" below the surface. If the #4 wire, 4" x 4" mesh is not available, 2 layers of #10 wire, 6" x 6" mesh, horizontally staggered, may be substituted.

12/11/2015
3ph handout vsd
rmartingillo

Figure 1 - Transformer Pad Specifications

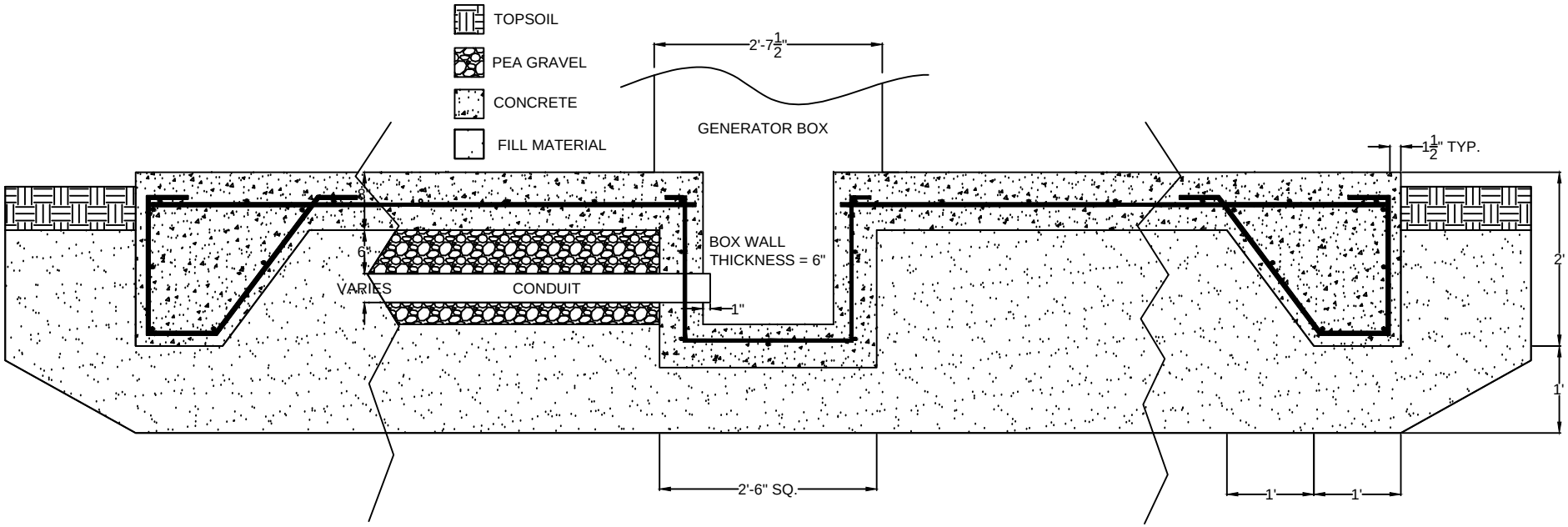


NOTES:

1. 5 - #4 BARS AROUND PERIMETER W/ #4 TIES @ 12" O.C.
2. MAT OF #4 BARS @ 12" O.C. EACH WAY
3. CONTRACTOR SHALL MEET 2 HOUR FIRE RATED SEAL FOR ALL CONDUIT OPENINGS
4. SEE SHEET 5 FOR SUBBASE AND FILL MATERIAL AROUND THICKENED SLAB

PROJECT: 316031 - CONSTRUCT GENERATOR BUILDING	
FIGURE 2 - FLOOR OPENINGS UNDER EQUIPMENT BOXES	
DRAWN BY: AH	SCALE: AS SHOWN
APPROVED BY: JW	DATE: JUNE 2016

Department of Public Works, Highway, & Transportation
Solid Waste Division
1919 Alliant Energy Center Way
Madison, WI 53713

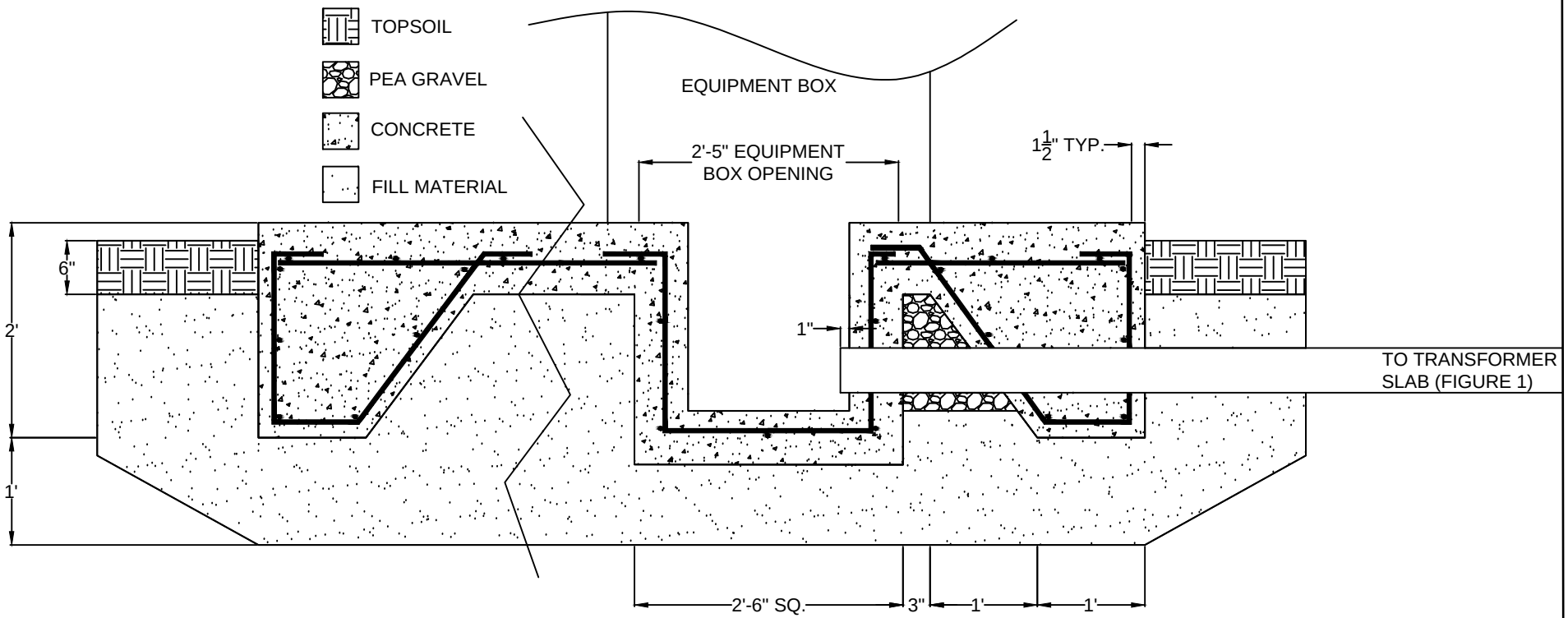


NOTES:

1. 5 - #4 BARS AROUND PERIMETER W/ #4 TIES @ 12" O.C.
2. MAT OF #4 BARS @ 12" O.C. EACH WAY
3. CONTRACTOR SHALL MEET 2 HOUR FIRE RATED SEAL FOR ALL CONDUIT OPENINGS
4. SEE SHEET 5 FOR SUBBASE AND FILL MATERIAL AROUND THICKENED SLAB

PROJECT: 316031 - CONSTRUCT GENERATOR BUILDING	
FIGURE 3 - FLOOR OPENINGS UNDER GENERATOR BOXES	
DRAWN BY: AH	SCALE: AS SHOWN
APPROVED BY: JW	DATE: JUNE 2016

Department of Public Works, Highway, & Transportation
Solid Waste Division
1919 Alliant Energy Center Way
Madison, WI 53713



NOTES:

1. 5 - #4 BARS AROUND PERIMETER W/ #4 TIES @ 12" O.C.
2. MAT OF #4 BARS @ 12" O.C. EACH WAY
3. CONTRACTOR SHALL MEET 2 HOUR FIRE RATED SEAL FOR ALL CONDUIT OPENINGS
4. SEE SHEET 5 FOR SUBBASE AND FILL MATERIAL AROUND THICKENED SLAB

PROJECT: 316031 - CONSTRUCT GENERATOR BUILDING	
FIGURE 4 - FLOOR OPENINGS UNDER MASTER UCB	
DRAWN BY: AH	SCALE: AS SHOWN
APPROVED BY: JW	DATE: JUNE 2016

Department of Public Works, Highway, & Transportation
Solid Waste Division
1919 Alliant Energy Center Way
Madison, WI 53713