



VILLAGE OF RANTOUL, IL

**POWER PLANT SUBSTATION
TRANSFORMER REPLACEMENT**

INSTALLATION CONTRACT

3953 K001



VILLAGE OF RANTOUL

POWER PLANT SUBSTATION TRANSFORMER REPLACEMENT INSTALLATION CONTRACT

3953 K001

Construction Bids Due:

August 18, 2026

2:00 p.m.

Location: City Hall

Final RFIs Due:

August 3, 2026

Direct inquiries for clarification to:

Chris Couch

Phone: 636-237-7823

E-Mail: ccouch@bhm-g.com

and

Amy Wooldridge

Phone: 636-333-3923

E-Mail: awooldridge@bhm-g.com

BHMG ENGINEERS, INC.
Consulting Engineers
9735 Landmark Parkway Drive, Suite 110
St. Louis, MO 63127



Bid Specification – Executive Summary

PROJECT OVERVIEW

- **Project Name** – Power Plant Substation Transformer Replacement
- **Owner** – Village of Rantoul
- **Engineer** – BHMGE Engineers
- **Project Location** – 200 W Grove Ave, Rantoul, IL 61866
- **Project Purpose & Background**
 - Rantoul is experiencing leaking issues with the existing transformer while also experiencing other risks within their electrical system. The Village already has a new transformer on hand, so the installation of this transformer will help improve reliability and mitigate system risks.
- **Labor & Procurement Type** – Both
 - Labor & misc. material provided by contractor (Owner providing XMFR and other material)
- **Key Contacts**
 - Village of Rantoul:
 - Village Admin
Scott Eisenhauer - seisenhauer@village.rantoul.il.us

 - Director of Electric
Geoff Wahl - gwahl@village.rantoul.il.us
 - BHMG:
 - Project Manager
Chris Couch - ccouch@bhmg.com - 636-237-7823

 - Project Admin
Amy Wooldridge - awooldridge@bhmg.com - 636-333-3923

 - Substation PE
Jack Sykut - jsykut@bhmg.com - 636-333-3945

 - Substation PE
Greg Mitchell - gmitchell@bhmg.com - 636-333-3836

SCOPE OF WORK & PROJECT SUMMARY

- High-level Summary
 - This project consists of replacing the transformer at the Power Plant Substation. This includes but is not limited to replacing the transformer, replacing the

- foundation pad, running new conduit and cable to the new transformer control cabinet and junction box.
- Major material
 - Transformer, Conduit, Connectors, Grounding, Cable, Junction Box
 - Laydown yard will be construction site

CONTRACTOR RESPONSIBILITIES

- Specified Labor in IFB Package
 - Supplemental Labor Requirements:
 - Demolition of specified items
 - The contractor will take ownership, liability, and be responsible for loading, rigging, and unloading & setting the existing transformer to its new site in addition to acquiring any transportation requirements. The new site for the existing transformer will be 621 Cook St. Rantoul, IL
 - Approximately 150 Cable terminations inside new transformer and termination cabinet
- Specified Procurement in IFB Package BOM
 - Contractor material to provide (but not limited to):
 - Supplemental Procurement Requirements:
 - Client provided material in the Bill of Material section. Client provided material will be stored at the job site. Contractor will be responsible for doing an inventory check and then assuming ownership of material until installation of and energization.
- Shop drawings
- Schedule
- Testing & commissioning
 - Supplemental Requirements:
 - Programing of transformer LTC

OWNER RESPONSIBILITIES

- Procurement – Village provided material specified in BOM
- Outage Coordination

KEY MILESTONES

- RFIs Due – 8/3/26
- Bids Due / Opening – 8/18/26
- Notice of Award – September 2026
- Construction Mobilize – 11/6/26
- LLT Material Delivery – TBD
- Substantial Completion – 12/18/26
- Final Completion – 1/20/27

Note that depending on LLT material, the construction may be delayed to the Spring of 2027

BID TYPE

- Lump Sum
- Liquidated Damages - None
- Allowances - None
- Alternates – Yes (If construction delayed until Spring)

BIDDER ACTION CHECKLIST

- ☐ Physical Sealed Bid
- ☐ Bid Form
- ☐ Bid Bond
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CONSTRUCTION DRAWINGS & BILL OF MATERIALS

Seals and Signatures

	I hereby certify that the portion of this technical submission described below was prepared by me or under my direct supervision and responsible charge. I am a duly licensed professional under the laws of the State of Illinois. Jacek (Jack) Sykut Signature _____ Date _____ Discipline: Substation, Illinois License #: 062065275 License Expires: 11/30/2027
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INVITATION FOR BIDS

The Village of Rantoul, Champaign County, IL will receive sealed bids for:

Power Plant Substation Transformer Replacement
Installation Contract

Until 2:00 p.m. local time on August 18, 2026, at the Village of Rantoul, 333 South Tanner Street, Rantoul, IL 61866.

The plans and specifications are on file with the said Village of Rantoul for viewing purposes only.

Copies of the documents may be acquired from BHMGE Engineers, Inc., 9735 Landmark Parkway Suite 110A, St. Louis, Missouri 63127, Consulting Engineers for the said Board. Please email Amy Wooldridge, AWooldridge@bhmg.com with request.

Bids shall be received for the aforementioned items.

A certified check or bank draft on a responsible, solvent bank, or a satisfactory bid bond executed by the bidder and an acceptable surety company, payable to the Village of Rantoul, Sam Hall, Mayor or Government Bonds or cash in the amount of not less than five percent (5%) of bid, shall be submitted with each bid.

The bid shall be marked to identify bid package contents, reference specification 3953 K001.

The successful bidder will be required to:

- Register as a bidder for this project.
- Furnish **in duplicate** the following executed documents:
 - Non-Collusion Affidavit
 - Bid Form
 - Bid Bond, Certified Check or Money Order
 - And any other documents as required by the specifications.

No bid shall be withdrawn after the opening of bids without the consent of the Utility for a period of sixty (60) days after the scheduled time of closing bids.

The said Village of Rantoul reserves the right to reject any or all bids and to waive any informalities in bidding, and to determine and accept the bid most advantageous to the Utility.

Date: July 23, 2026

Village of Rantoul, IL
Sam Hall, Mayor

Instructions to Bidders

ARTICLE 1 - DEFINED TERMS

1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

A. *Issuing Office*--The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.

ARTICLE 2 - COPIES OF BIDDING DOCUMENTS

2.01 Complete sets of the Bidding Documents in the number and for the sum stated in the Advertisement or Invitation to Bid may be obtained from the Issuing Office.

2.02 Complete sets of Bidding Documents shall be used in preparing Bids; neither Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

2.03 Owner and Engineer, in making copies of Bidding Documents available on the above terms, do so only for the purpose of obtaining Bids for the Work and do not confer a license or grant for any other use.

ARTICLE 3 - QUALIFICATIONS OF BIDDERS

3.01 To demonstrate Bidder's qualifications to perform the Work, within five days of Owner's request, Bidder shall submit written evidence such as financial data, previous experience, present commitments, and such other data as may be requested by the Owner.

ARTICLE 4 - EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE

4.01 *Subsurface and Physical Conditions*

A. The Specification identifies:

1. Those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Bidding Documents.
2. Those drawings of physical conditions in or relating to existing surface and subsurface structures at or contiguous to the Site (except

Underground Facilities) that Engineer has used in preparing the Bidding Documents.

4.02 *Subsurface and Physical Conditions*

A. The Specification identifies:

1. Those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Bidding Documents.
2. Those drawings of physical conditions in or relating to existing surface and subsurface structures at or contiguous to the Site (except Underground Facilities) that Engineer has used in preparing the Bidding Documents.

B. Copies of reports and drawings referenced in Paragraph 4.01.A will be made available by Owner to any Bidder on request. Those reports and drawings, which are not part of the Contract Documents, but the other “technical data” contained therein upon which Bidder is entitled to rely as provided in Paragraph 4.02 of the General Conditions has been identified and established in Paragraph 4.02 of the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any “technical data” or any other data, interpretations, opinions or information contained in such reports or shown or indicated in such drawings.

4.03 *Underground Facilities*

A. Information and data shown or indicated in the Bidding Documents with respect to existing Underground Facilities is based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities, including Owner, or others. It shall be the responsibility of the Contractor to request underground facility and utility locators.

4.04 *Hazardous Environmental Condition* *Not Used*

4.05 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to subsurface conditions, other physical conditions and Underground Facilities, and possible changes in the Bidding Documents due to differing or unanticipated conditions appear in Paragraphs 4.02, 4.03, and 4.04 of the General Conditions. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders with respect to a Hazardous Environmental Condition at the Site, if any, and possible changes in the Contract Documents due to any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be within the

scope of the Work appear in Paragraph 4.06 of the General Conditions.

- 4.06 On request, Owner will provide Bidder access to the Site to conduct such examinations, investigations, explorations, tests, and studies as Bidder deems necessary for submission of a Bid. Bidder shall fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies. Bidder shall comply with all applicable Laws and Regulations relative to excavation and utility locates.
- 4.07 Reference is made to Article 7 of the General Conditions for the identification of the general nature of other work that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) that relates to the Work contemplated by these Bidding Documents. On request, Owner will provide to each Bidder for examination access to or copies of Contract Documents (other than portions thereof related to price) for such other work.
- 4.08 It is the responsibility of each Bidder before submitting a Bid to:
- A. Examine and carefully study the Bidding Documents, the other related data identified in the Bidding Documents, and any Addendum.
 - B. Visit the Site and become familiar with and satisfy Bidder as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - C. Become familiar with and satisfy Bidder as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
 - D. Obtain and carefully study (or accept consequences of not doing so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto.
 - E. Agree at the time of submitting its Bid that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of its Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.

- F. Become aware of the general nature of the work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
 - G. Correlate the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.
 - H. Promptly give Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder discovers in the Bidding Documents and confirm that the written resolution thereof by Engineer is acceptable to Bidder.
 - I. Determine that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work.
- 4.09 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Bidding Documents and applying any specific means, methods, techniques, sequences, and procedures of construction that may be shown or indicated or expressly required by the Bidding Documents, that Bidder has given Engineer written notice of all conflicts, errors, ambiguities, and discrepancies that Bidder has discovered in the Bidding Documents and the written resolutions thereof by Engineer are acceptable to Bidder, and that the Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work.

ARTICLE 5 - PRE-BID CONFERENCE

- 5.01 *Not Used.*

ARTICLE 6 - SITE AND OTHER AREAS

- 6.01 The Site is identified in the Bidding Documents. Easements for permanent structures or permanent changes in existing facilities are to be obtained and paid for by Owner unless otherwise provided in the Bidding Documents. All additional land and access thereto required for temporary construction facilities, construction equipment, or storage of materials and equipment to be incorporated in the Work are to be obtained and paid for by Contractor.

ARTICLE 7 - INTERPRETATIONS AND ADDENDA

- 7.01 All questions about the meaning or intent of the Bidding Documents are to be submitted to Engineer in writing. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by Engineer as having received the Bidding Documents. Questions received less than four days prior to the date for opening of Bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
- 7.02 Addenda may be issued to clarify, correct, or change the Bidding Documents as deemed advisable by Owner or Engineer.

ARTICLE 8 - BID SECURITY

- 8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of five percent (5%) of Bidder's maximum Bid price and in the form of a certified check or bank money order or a Bid bond (on the form attached) issued by a surety meeting the requirements of Paragraphs 5.01 and 5.02 of the General Conditions.
- 8.02 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 15 days after the Notice of Award, Owner may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of seven days after the Effective Date of the Agreement or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be returned.
- 8.03 Bid security of other Bidders whom Owner believes do not have a reasonable chance of receiving the award will be returned within seven days after the Bid opening.

ARTICLE 9 – *Not Used*

ARTICLE 10 - LIQUIDATED DAMAGES

- 10.01 No liquidated damages.

ARTICLE 11 - SUBSTITUTE AND "OR-EQUAL" ITEMS

- 11.01 The Contract, if awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration of possible substitute or "or-equal" items. Whenever it is specified or described in the Bidding Documents that a substitute or "or-equal" item of material or equipment may be furnished or used by Contractor if acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the Effective Date of the Agreement.

ARTICLE 12 - SUBCONTRACTORS, SUPPLIERS, AND OTHERS

- 12.01 If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, individuals, or entities to be submitted to Owner in advance of a specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening, submit to Owner a list of all such Subcontractors, Suppliers, individuals, or entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, individual, or entity if requested by Owner. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, individual, or entity, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit a substitute, without an increase in the Bid.
- 12.02 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, individuals, or entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor, Supplier, individual, or entity so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 6.06 of the General Conditions.
- 12.03 Contractor shall not be required to employ any Subcontractor, Supplier, individual, or entity against whom Contractor has reasonable objection.

ARTICLE 13 - PREPARATION OF BID

- 13.01 *Not Used*

- 13.02 All blanks on the Bid Form shall be completed by printing in ink or by typewriter and the Bid signed in ink. Erasures or alterations shall be initialed in ink by the person signing the Bid Form. A Bid price shall be indicated for each section, bid item, alternative, adjustment unit price item, and unit price item listed therein, or the words "No Bid," "No Change," or "Not Applicable" entered.
- 13.03 A Bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.
- 13.04 *Not Used*
- 13.05 A Bid by a limited liability company shall be executed in the name of the firm by a member and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm shall be shown below the signature.
- 13.06 *Not Used*
- 13.07 *Not Used*
- 13.08 All names shall be typed or printed in ink below the signatures.
- 13.09 The Bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the Bid Form.
- 13.10 The address and telephone number for communications regarding the Bid shall be shown.
- 13.11 The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the Contract. Bidder's state contractor license number, if any, shall also be shown on the Bid Form.

ARTICLE 14 - BASIS OF BID; COMPARISON OF BIDS

14.01 *Lump Sum*

- A. Bidders shall submit a Bid on a lump sum basis for the base Bid and include a separate price for each unit described in the Bidding Documents as provided for in the Bid Form. The price for each unit will be the amount added to or deleted from the base Bid if Owner selects an addition or reduction of the scope of work. In the comparison of Bids, unit pricing will be applied in the same order as listed in the Bid form.

- 14.02 The Bid price shall include such amounts as the Bidder deems proper for overhead and profit on account of cash allowances, if any, named in the Contract Documents as provided in Paragraph 11.02 of the General Conditions.
- 14.03 Bid prices will be compared after adjusting for differences in the time designated by Bidders for Substantial Completion. The adjusting amount will be determined at the rate set forth in the Contract Documents for liquidated damages for failing to achieve Substantial Completion for each day before or after the desired date appearing in Article 9.

ARTICLE 15 - SUBMITTAL OF BID

- 15.01 Bidder to complete these items from the Specification and submit with the Bid:
- A. Bid Form
 - B. Bid Security
 - C. Non-Collusion Affidavit
 - D. Qualifications
 - E. Addendum (if issued)
 - F. List of Proposed Subcontractors
 - G. List of Proposed Suppliers
- 15.02 Bids shall be submitted no later than 2:00 p.m. local time, July 21, 2026, at the address shown below.
- A. The Bid and all documents shall be enclosed in a sealed envelope plainly marked with the following:
 - 1. Project Title: Power Plant Substation Transformer Replacement, Installation Contract
 - 2. Name and address of Bidder
 - B. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid shall be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED".

C. All Bids shall be delivered to:

**Village of Rantoul, IL
333 South Tanner Street
Rantoul, IL 61866
3953 K001**

ARTICLE 16 - MODIFICATION AND WITHDRAWAL OF BID

16.01 A Bid may be modified or withdrawn by an appropriate document duly executed in the manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids.

ARTICLE 17 - OPENING OF BIDS

15.01 Bids will be opened at the time and place indicated in Article 15 and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 18 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE

16.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 19 – EVALUATION OF BIDS AND AWARD OF CONTRACT

19.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner further reserves the right to reject the Bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to not be responsible. Owner may also reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder. Owner also reserves the right to waive all informalities not involving price, time, or changes in the Work and to negotiate contract terms with the Successful Bidder.

19.02 More than one Bid for the same Work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one Bid for the Work may be cause for disqualification of that Bidder and the rejection of all Bids in which that Bidder has an interest.

19.03 In evaluating Bids, Owner will consider whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.

- 19.04 In evaluating Bidders, Owner will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other individuals or entities proposed for those portions of the Work for which the identity of Subcontractors, Suppliers, and other individuals or entities must be submitted as provided in the Supplementary Conditions.
- 19.05 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, individuals, or entities to perform the Work in accordance with the Contract Documents.
- 19.06 If the Contract is to be awarded, Owner will award the Contract to the Bidder whose Bid is in the best interests of the Project.

ARTICLE 20 - CONTRACT SECURITY AND INSURANCE

- 20.01 Article 5 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it shall be accompanied by such bonds.

ARTICLE 21 - SIGNING OF AGREEMENT

- 21.01 When Owner gives a Notice of Award to the Successful Bidder, it shall be accompanied by the required number of unsigned counterparts of the Agreement with the other Contract Documents which are identified in the Agreement as attached thereto. Within 15 days thereafter, Successful Bidder shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner. Within fifteen (15) days thereafter, Owner shall deliver one fully signed counterpart to Successful Bidder with a complete set of the Drawings with appropriate identification.

ARTICLE 22 - SALES AND USE TAXES

- 22.01 Owner is exempt from Illinois State sales and use taxes on materials and equipment to be incorporated in the Work by Exemption No. E99985799. Said taxes shall not be included in the Bid. Refer to Paragraph SC-6.10 of the Supplementary Conditions for additional information.

ARTICLE 23 - PREVAILING WAGES

- 23.01 The Contractor shall be in full compliance with the Prevailing Wages for this project and shall comply with the prevailing wage provisions of Illinois Division of Labor Standards, Wage and Hour Section, for Champaign County, IL.

Non-Collusion Affidavit

The Municipality reserves the right, before any award of contract is made, to require any bidder to whom it may make an award of the Principal Contract, to sign a non-collusion affidavit in the form designated below:

STATE OF _____

COUNTY OF _____

_____, being first duly sworn, deposes and says that he is _____ * (sole owner, partner, president, secretary, etc.) of the interest of or on behalf of any undisclosed person, partnership, company, association, organization or corporation; that such bid is genuine and not collusive or sham; that said bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that said bidder has not in any manner, directly or indirectly, sought by agreement, communication or conference with anyone to fix the bid price of said bidder or of any bidder to fix any overhead, profit or cost element of such bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract or anyone interested in the proposed contract; that all statements contained in such bid are true; and, further, that said bidder has not, directly or indirectly, submitted his bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid and will not pay any fee in connection therewith to any corporation, partnership, company, association, organization, bid depository, or any member or agent thereof, or to any other individual except to such person or persons as have a partnership or other financial interest with said bidder in his general business.

Signed: _____

Title: _____

Subscribed and sworn to before me this _____ day of _____ 20 _____

Seal of Notary:

Notary Public

* In making out this form, the title that is not applicable should be struck out. For example, if the Contractor is a corporation and this form is to be executed by its president, the words "Sole Owner, a partner, secretary", etc. should be struck out.

BID FORM

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This Bid is submitted by: _____

ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

**Village of Rantoul
333 South Tanner Street
Rantoul, IL 61866
3953 K001**

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

- A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged.

Addendum No.	Addendum Date
_____	_____
_____	_____
_____	_____

- B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local and Site conditions that may affect cost, progress, and performance of the Work.
- C. Bidder is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and performance of the Work.

- D. Bidder has obtained and carefully studied (or accepts the consequences for not doing so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents to be employed by Bidder, and safety precautions and programs incident thereto.
- E. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bidding Documents.
- F. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- G. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the Site, reports and drawings identified in the Bidding Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bidding Documents.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.
- J. Bidder will submit written evidence of its authority to do business in the state where the Project is located not later than the date of its execution of the Agreement.

ARTICLE 4 – FURTHER REPRESENTATIONS

4.01 Bidder further represents that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization, or corporation.

- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding.
- D. Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.

ARTICLE 5 – BASIS OF BID

- 5.01 The Contractor shall be required to furnish labor, use of tools, and use of their equipment as required for the construction of the project to complete the scope of work.

Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

Proposal No. 1

Fall Construction:

Total Bid Price: \$

Proposal No. 2 (Alternate)

Alternate bid price if construction gets delayed to Spring 2027:

Total Bid Price: \$

ARTICLE 6 – TIME OF COMPLETION

- 6.01 Bidder agrees that the installation of the Power Plant Substation Transformer Replacement project will be substantially completed no later than 12/18/2026 and ready for final payment in accordance with Paragraph 14.07.B of the General Conditions on or before 30 days after completion date of 01/20/2027.
- 6.02 The time for delivery shall be extended for the period of any reasonable delay due to exclusively to causes beyond the control and without the fault of the Bidder, including but not limited to acts of God, fires, strikes, and floods.
- 6.03 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

7.01 The following documents are attached to and made a condition of this Bid:

- A. Required Bid security in the form of Bid Bond, Certified Check or Bank Money Order.
- B. List of Proposed Subcontractors, if applicable.
- C. List of Proposed Suppliers, if applicable.
- D. Non-Collusion Affidavit
- E. This Document, Completed Bid Form Document 00410
- F. Completed Bidder Qualification Form 00420
- G. Any Addenda issued by the Engineer.

ARTICLE 8 – DEFINED TERMS

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 – BID SUBMITTAL

9.01 This Bid submitted by:

If Bidder is:

A Corporation

Corporation Name: _____

State of Incorporation: _____

Type: _____
(General Business, Professional, Service, Other)

By: _____
(Signature – attach evidence of authority to sign)

Name: _____
(typed or printed)

Title: _____

(Corporate Seal)

Attest:

(Signature of Corporate Secretary)

Business Address:

Phone:

Email Address:

Or if Bidder is:

A Limited Liability Company (LLC)

LLC Name:

State in which
organized:

By:

(Signature – attach evidence of authority to sign)

Name: (typed or printed)

Business Address:

Phone:

Email:

SECTION 00420

Qualifications

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Appointment of Counsel
- B. Pre-qualifications
- C. Bidder's Qualifications
- D. Certifications
- E. References
- F. Signatures.

1.02 AWARD OF BID

- A. Failure of Bidder to meet all qualification criteria as stated in these Specifications shall disqualify Bidder from consideration for the Project.
- B. The Owner reserves the right to exclude Bidder from consideration due to the Bidder's failure to present with written documentation his experience and capability to complete the project to the Owner's expectations.

PART 2 – QUALIFICATIONS

2.01 APPOINTMENT OF COUNSEL – NON-RESIDENT

- A. Bidder has appointed _____, whose address is _____, as the agent of Bidder for service of process in the event any litigation or controversy results between the Bidder and Owner arising out of the contractual relationship created by the acceptance of this Bid. Bidder agrees that the courts of the State in which the project is located will have jurisdiction over Bidder for all such purposes to the same extent as though Bidder were a resident of the State.

2.02 PRE-QUALIFICATION

- A. Failure of Bidder to meet the Pre-qualification requirements as stated in the Instruction to Bidders Bid shall disqualify Bidder from consideration for the Project.

2.03 BIDDER'S QUALIFICATIONS

- A. Bidder shall prove to the Owner's satisfaction Bidder's experience in completing similar projects, thus demonstrating the ability of the Bidder to complete the Project to the Owner's Satisfaction.
- B. Bidder shall submit written proof and abide by the written proof that the Bidder will complete a minimum of (30) thirty percent of the overall project by his own company and workers.
- C. Bidder shall submit documentation proving that the Bidder is capable of funding the Project and is not in financial hardship.
- D. Bidder shall submit documentation proving that the Bidder uses only qualified, licensed workers experienced in the line of work.
- E. Bidder's subcontractors shall be the responsibility of the Bidder and shall be considered part of the Bidder's company and shall meet qualification requirements for all aspects of the Project.

2.04 CERTIFICATIONS

- A. The Bidder certifies the following as required by law:
 - 1. Bidder has not been convicted of bribery or attempting to bribe an officer or employee of the State, nor has the Bidder made an admission of guilt of such conduct which is a matter of record, nor has an official, agent or employee of the Bidder been so convicted or made such admission of bribery on its behalf and pursuant to the direction or authorization of a responsible official thereof.
 - 2. Bidder is not barred from bidding with any unit of state or local government as a result of unlawful bid rigging.

3. Under penalty of perjury, the Bidder certifies that the Federal Taxpayer Identification Number noted below is correct and the Bidder is doing business as a (please check one):

☐ Individual	☐ Real Estate Agent
☐ Partnership	☐ Government Entity
☐ Corporation	☐ Trust or Estate

4. Bidder, if an individual, is not in default on an educational loan.

2.05 REFERENCES

- A. Bidder shall submit a minimum of three (3) written letters of recommendation with references' signatures and contact information to the Engineer.
- B. These References shall be from the Owner, Project Manager, or other individual who is knowledgeable on the project, or recent previous Projects with very similar Scope of Work completed under the current Bidder's name.
- C. Bidder shall submit a minimum of three (3) company brochures, or company information sheets, along with list of completed equivalent projects.

2.06 SIGNATURES

Firm Name:	_____
Federal Taxpayer Identification Number:	_____
By:	_____
Title:	_____
By:	_____
Title:	_____

Note: If the Bidder is a corporation, the legal name of the corporation shall be set forth above together with the signature of the officer or officers authorized to sign contracts on behalf of the corporation; if the Bidder is a partnership, the true name of the firm shall be set forth above together with the signature of the partner or partners authorized to sign contracts on behalf of the partnership; and if the Bidder is an individual, his signature shall be placed above. If signature is by an agent, other than an officer of a corporation or member of a partnership, a power of attorney must be submitted with the bid.

PART 3 – EXECUTION *NOT USED*

END OF SECTION

BID BOND

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

BIDDER

Name:
Address:

SURETY

(Name and Address of Principal Place of Business)

Name:
Address:

OWNER

Name: Village of Rantoul
Address: 333 South Tanner Street, Rantoul, IL 61866

BID

Bid Due Date: August 18, 2026
Project: Power Plant Substation Transformer Replacement, Installation Contract

BOND

Bond Number:
Date:

(Not later than Bid due date)

Penal Sum: _____ \$ _____
(Words) (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

BIDDER

SURETY

(Seal)

(Seal)

Bidder's Name and Corporate Seal

Surety's Name and Corporate Seal

By:

Signature and Title

By:

Signature and Title
(Attach Power of Attorney)

Attest:

Signature and Title

Attest:

Signature and Title

Note: Above addresses are to be used for giving required notice.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder any difference between the total amount of Bidder's Bid and the total amount of the Bid of the next lowest, responsible Bidder who submitted a responsive Bid as determined by Owner for the work required by the Contract Documents, provided that:
 - 1.1. If there is no such next Bidder, and Owner does not abandon the Project, then Bidder and Surety shall pay to Owner the penal sum set forth on the face of this Bond.
 - 1.2. In no event shall Bidder's and Surety's obligation hereunder exceed the penal sum set forth on the face of this Bond.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
 - 3.1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
 - 3.2. All Bids are rejected by Owner.
 - 3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default by Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

AGREEMENT BETWEEN OWNER AND CONTRACTOR

THIS AGREEMENT is by and between:

Village of Rantoul
333 South Tanner Street, Rantoul, IL 61866

(Owner)

and

(Contractor)

Owner and Contractor, in consideration of the mutual covenants set forth herein, agree as follows:

ARTICLE 1 - WORK

- 1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

The project consists of replacing the XMFR at the Power Plant Substation. This includes but is not limited to replacing the XMFR, replacing the foundation pad, running new conduit and cable to the new XMFR control cabinet and junction box. See the drawings provided for more detail.

ARTICLE 2 - THE PROJECT

- 2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described in these specifications and as shown in the Construction Package documents and drawings.

The Contractor shall be required to furnish specified material and labor, use of tools, and use of his equipment as required for the construction of the project, complete and in place, and as required to make a complete working system. The Contractor is also required to determine the specific amounts of labor and material required for the installation.

ARTICLE 3 – ENGINEER

3.01 The Project has been designed by BHMGE Engineers, Inc., 9735 Landmark Parkway Drive, Suite 110A, St. Louis, MO 63127 (Engineer), who is to act as Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 - CONTRACT TIMES

4.01 Time of the Essence

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 Dates for Substantial Completion and Final Payment

A. The work will be substantially completed as specified on Bidder's Bid Form, completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions.

4.03 Liquidated Damages and Incentives are as defined in the Supplementary Conditions.

ARTICLE 5 - CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Paragraphs 5.01.A, 5.01.B, and 5.01.C below:

A. For all Work, a Lump Sum of: \$ _____

All specific cash allowances are included in the above price and have been computed in accordance with paragraph 11.02 of the General Conditions.

- B. For all Unit Price Additions or Deletions, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the actual quantity of that item as indicated in this paragraph 5.01.B: As provided in Paragraph 11.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer as provided in Paragraph 9.07 of the General Conditions. Unit prices have been computed as provided in Paragraph 11.03 of the General Conditions.
- C. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit.

ARTICLE 6 - PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

- A. Contractor shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 Progress Payments; Retainage

- A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the third day after the first Monday of each month during performance of the Work as provided in Paragraphs 6.02.A.1 and 6.02.A.2 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07.A of the General Conditions or, in the event there is no schedule of values, as provided in the General Requirements:
 - 1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02 of the General Conditions:
 - a. 90 percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, Owner, on recommendation of Engineer, may determine that as long as the character and progress of the Work remain satisfactory to them, there will be no additional retainage.

- b. 90 percent of the cost of materials and equipment not incorporated in the Work (with the balance being retainage).
- 2. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to 95% percent of the Work completed, less such amounts as Engineer shall determine in accordance with Paragraph 14.02.B.5 of the General Conditions and less 100 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the tentative list of items to be completed or corrected attached to the certificate of Substantial Completion.

6.03 Final Payment

- A. Upon final completion and acceptance of the Work in accordance with Paragraph 14.07 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 14.07.

ARTICLE 7 - INTEREST

7.01 *Not Used*

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

- 8.01 In order to induce Owner to enter into this Agreement Contractor makes the following representations:
 - A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.
 - B. Contractor has visited the Site and become familiar with and is satisfied to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.
 - D. Contractor has carefully studied all reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) which have been identified in the Supplementary Conditions as provided in Paragraph 4.02 of the General Conditions.

- E. Contractor has obtained and carefully studied (or assumes responsibility for doing so) all examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the Site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents, and safety precautions and programs incident thereto.
- F. Contractor does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.
- G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
- H. Contractor has correlated the information known to Contractor, information and observations obtained from visits to the Site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract Documents.
- I. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
- J. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 9 - CONTRACT DOCUMENTS

9.01 Contents

- A. The Contract Documents consist of the following and are by this reference made a part hereof:
 - 1. This Agreement
 - 2. Bid Bond
 - 3. Performance Bond
 - 4. Addenda Nos. _____
 - 5. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor's Bid
 - b. Documentation submitted by Contractor prior to Notice of Award.
- B. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
 - 1. Notice to Proceed
 - 2. Work Change Directives
 - 3. Change Order(s).
- C. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).
- D. There are no Contract Documents other than those listed above in this Article 9.
- E. The Bid Specification and all sections are implied as part of the Contract Documents.
- F. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

ARTICLE 10 - MISCELLANEOUS

10.01 Terms

- A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 Assignment of Contract

- A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 Successors and Assigns

- A. Owner and Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 Severability

- A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement in triplicate. One counterpart each has been delivered to Owner, Engineer and Contractor. All portions of the Contract Documents have been signed or identified by Owner and Contractor or on their behalf.

This Agreement will be effective on: _____
(which is the Effective Date of the Agreement.)

OWNER:

CONTRACTOR:

Village of Rantoul

By: _____

By: _____

Title: _____

Title: _____

[CORPORATE SEAL]

[CORPORATE SEAL]

Attest: _____

Attest: _____

Title: _____

Title: _____

Address for giving notices:

Address for giving notices:

Village of Rantoul

333 South Tanner Street

Rantoul, IL 61866

Agent for service or process:

(If Contractor is a Corporation or LLC, attach
evidence of authority to sign.)

Notice to Proceed

Dated _____

Project:	Owner:	Owner's Contract No.:
Contract:	Engineer's Project No.:	
Contractor:		
Contractor's Address: [send Certified Mail, Return Receipt Requested]		

You are notified that the Contract Times under the above contract will commence to run on _____. On or before that date, you are to start performing your obligations under the Contract Documents. In accordance with Article 4 of the Agreement, the date of Substantial Completion is _____, and the date of readiness for final payment is _____ [(or) the number of days to achieve Substantial Completion is _____, and the number of days to achieve readiness for final payment is _____].

Before you may start any Work at the Site, Paragraph 2.01.B of the General Conditions provides that you and Owner must each deliver to the other (with copies to Engineer and other identified additional insureds) certificates of insurance which each is required to purchase and maintain in accordance with the Contract Documents.

Also, before you may start any Work at the Site, you must [add other requirements]:

_____	Owner
_____	Given by:
_____	Authorized Signature
_____	Title
_____	Date

Copy to Engineer

PERFORMANCE BOND

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

CONTRACTOR

Name:

Address:

SURETY (Name and Address of Principal Place of Business)

Name:

Address:

OWNER

Name: Village of Rantoul

Address: 333 South Tanner Street, Rantoul, IL 61866

CONTRACT

Date:

Amount:

Description: Power Plant Substation Transformer Replacement, Installation Contract

BOND

Bond Number:

Date:

(Not earlier than Contract Date)

Amount:

Modifications on this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Performance Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

Company's Name and Corporate Seal (Seal)

Surety's Name and Corporate Seal (Seal)

Signature: _____

Signature: _____

Name: _____

Name: _____

Title: _____

Title: _____

(Attach Power of Attorney)

Attest: _____

(Signature and Title)

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.
2. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 3.1.
3. If there is no Owner Default, Surety's obligation under this Bond shall arise after:
 - 3.1. Owner has notified Contractor and Surety, at the addresses described in Paragraph 10 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default.
 - 3.2. Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 3.1.
 - 3.3. Owner has agreed to pay the Balance of the Contract Price to:
 1. Surety in accordance with the terms of the Contract.
 2. Another contractor selected pursuant to Paragraph 4.3 to perform the Contract.
4. When Owner has satisfied the conditions of Paragraph 3, Surety shall promptly and at Surety's expense take one of the following actions:
 - 4.1. Arrange for Contractor, with consent of Owner, to perform and complete the Contract.
 - 4.2. Undertake to perform and complete the Contract itself, through its agents or through independent contractors.
 - 4.3. Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and Contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract and pay to the Owner the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default.
 - 4.4. 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 Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner.
 2. Deny liability in whole or in part and notify Owner citing reasons therefor.
5. If Surety does not proceed as provided in Paragraph 4 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in

- Paragraph 4.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.
6. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To a limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:
- 6.1. The responsibilities of Contractor for correction of defective Work and completion of the Contract.
- 6.2. Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions or failure to act of Surety under Paragraph 4.
- 6.3. Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.
7. Surety shall not be liable to Owner or others for obligations of Contractor that are unrelated to the 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 Owner or its heirs, executors, administrators, or successors.
8. Surety hereby waives notice of any change, including changes of time, to Contract or to related subcontracts, purchase orders, and other obligations.
9. 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 Contractor Default or within two years after Contractor ceased working or within two years after 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.
10. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.
11. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted here from and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
12. Definitions.
- 12.1 Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.
- 12.2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
- 12.3. Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to

perform or otherwise to comply with the terms of the Contract.

- 12.4. Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

FOR INFORMATION ONLY – Name, Address and Telephone
Surety Agency or Broker
Owner's Representative (engineer or other party)

Contractor's Application for Payment No. _____

	Application Period:	Application Date:
To (Owner):	From (Contractor):	Via (Engineer)
Project:	Contract:	
Owner's Contract No.:	Contractor's Project No.:	Engineer's Project No.:

APPLICATION FOR PAYMENT

Change Order Summary

Approved Change Orders		
Number	Additions	Deductions
TOTALS		
NET CHANGE BY CHANGE ORDERS		

1. ORIGINAL CONTRACT PRICE \$ _____

2. Net change by Change Orders \$ _____

3. CURRENT CONTRACT PRICE (Line 1 ± 2) \$ _____

4. TOTAL COMPLETED AND STORED TO DATE
(Column F on Progress Estimate) \$ _____

5. RETAINAGE:

a. ____ % x \$ _____ Work Completed \$ _____

b. ____ % x \$ _____ Stored Material \$ _____

c. Total Retainage (Line 5a + Line 5b) \$ _____

6. AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5c) \$ _____

7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application) \$ _____

8. AMOUNT DUE THIS APPLICATION \$ _____

9. BALANCE TO FINISH, PLUS RETAINAGE
(Column G on Progress Estimate + Line 5 above) \$ _____

CONTRACTOR'S CERTIFICATION

The undersigned Contractor certifies that: (1) all previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with Work covered by prior Applications for Payment; (2) title of all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to Owner at time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to Owner indemnifying Owner against any such Liens, security interest or encumbrances); and (3) all Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

By: _____ Date: _____

Payment of: \$ _____
(Line 8 or other - attach explanation of other amount)

is recommended by: _____ (Engineer) _____ (Date)

Payment of: \$ _____
(Line 8 or other - attach explanation of other amount)

is approved by: _____ (Owner) _____ (Date)

Approved by: _____

(Date)

Application for Payment

EJCDC No. C-620 (2002 Edition)
Prepared by the Engineers' Joint Contract Documents Committee and endorsed by the Associated General Contractors of America and the Construction Specifications Institute.

Progress Estimate

Application for Payment

For (contract):						Application Number:				
Application Period:						Application Date:				
A				B	C	D	E	F		G
Item		Bid Quantity	Unit Price	Bid Value	Estimated Quantity Installed	Value	Materials Presently Stored (not in C)	Total Completed and Stored to Date (D + E)	% (E) B	Balance to Finish (B - F)
Bid Item No.	Description									
	Totals									

Stored Material Summary

Application for Payment

For (contract):					Application Number:				
Application Period:					Application Date:				
A	B	C	D		E		F		G
Invoice No.	Shop Drawing Transmittal No.	Materials Description	Stored Previously		Stored this Month		Incorporated in Work		Materials Remaining in Storage (\$) (D + E - F)
			Date (Month/Year)	Amount (\$)	Amount (\$)	Subtotal	Date (Month/Year)	Amount (\$)	
		Totals							

Certificate of Substantial Completion

Project:	Owner:	Owner's Contract No.:
Contract:		Date of Contract:
Contractor:		Engineer's Project No.:

This [tentative] [definitive] Certificate of Substantial Completion applies to:

- ☐ All Work under the Contract Documents: ☐ The following specified portions:

Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Project or portion thereof designated above is hereby declared and is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below.

A [tentative] [revised tentative] [definitive] list of items to be completed or corrected, is attached hereto. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

The responsibilities between OWNER and CONTRACTOR for security, operation, safety, maintenance, heat, utilities, insurance and warranties shall be as provided in the Contract Documents except as amended as follows:

- ☐ Amended Responsibilities ☐ Not Amended

Owner's Amended Responsibilities:

Contractor's Amended Responsibilities:

The following documents are attached to and made part of this Certificate:

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract Documents.

Executed by Engineer

Date

Accepted by Contractor

Date

Accepted by Owner

Date

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the Controlling Law.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By



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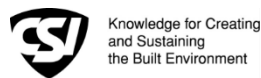
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AMERICAN SOCIETY OF CIVIL ENGINEERS

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The Associated General Contractors of America



Construction Specifications Institute

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These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor Nos. C-520 or C-525 (2002 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the EJCDC Construction Documents, General and Instructions (No. C-001) (2002 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (No. C-800) (2002 Edition).

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*--The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.

3. *Application for Payment*--The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*--Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*--The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidder*--The individual or entity who submits a Bid directly to Owner.

7. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda).

8. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, bid security of acceptable form, if any, and the Bid Form with any supplements.

9. *Change Order*--A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or

an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*--A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*--The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*-- Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor's submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

13. *Contract Price*--The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any, (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.

15. *Contractor*--The individual or entity with whom Owner has entered into the Agreement.

16. *Cost of the Work*--See Paragraph 11.01.A for definition.

17. *Drawings*--That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*--The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *Engineer*--The individual or entity named as such in the Agreement.

20. *Field Order*--A written order issued by Engineer which requires minor changes in the Work but

which does not involve a change in the Contract Price or the Contract Times.

21. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

22. *Hazardous Environmental Condition*--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

23. *Hazardous Waste*--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

24. *Laws and Regulations; Laws or Regulations*--Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

25. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

26. *Milestone*--A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*--The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

28. *Notice to Proceed*--A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

29. *Owner*--The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.

30. *PCBs*--Polychlorinated biphenyls.

31. *Petroleum*--Petroleum including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

32. *Progress Schedule*--A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

33. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. *Project Manual*--The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

35. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

36. *Related Entity* -- An officer, director, partner, employee, agent, consultant, or subcontractor.

37. *Resident Project Representative*--The authorized representative of Engineer who may be assigned to the Site or any part thereof.

38. *Samples*--Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

39. *Schedule of Submittals*--A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

40. *Schedule of Values*--A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

41. *Shop Drawings*--All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

42. *Site*--Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

43. *Specifications*--That part of the Contract Documents consisting of written requirements for

materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.

44. *Subcontractor*--An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

45. *Substantial Completion*--The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

46. *Successful Bidder*--The Bidder submitting a responsive Bid to whom Owner makes an award.

47. *Supplementary Conditions*--That part of the Contract Documents which amends or supplements these General Conditions.

48. *Supplier*--A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or any Subcontractor.

49. *Underground Facilities*--All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

50. *Unit Price Work*--Work to be paid for on the basis of unit prices.

51. *Work*--The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

52. *Work Change Directive*--A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the

Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 Terminology

A. The following words or terms are not defined but, when used in the Bidding Requirements or Contract Documents, have the following meaning.

B. Intent of Certain Terms or Adjectives

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered", "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action or determination will be solely to evaluate, in general, the Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. Day

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. Defective

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

a. does not conform to the Contract Documents, or

b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents, or

c. has been damaged prior to Engineer's - recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

E. Furnish, Install, Perform, Provide

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.

F. Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 - PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule; indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

2.07 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to Owner.

C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, or Engineer, or any of, their Related Entities, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. Reporting Discrepancies

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor may discover and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.

2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has

been issued by one of the methods indicated in Paragraph 3.04.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor knew or reasonably should have known thereof.

B. Resolving Discrepancies

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

- a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or
- b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

1. A Field Order;
2. Engineer's approval of a Shop Drawing or Sample; (Subject to the provisions of Paragraph 6.17.D.3); or
3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier or other individual or entity performing or furnishing all of the Work under a direct or indirect contract with Contractor, shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or

other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or Engineer's consultants, including electronic media editions; or

2. reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaption by Engineer.

B. The prohibition of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

A. Copies of data furnished by Owner or Engineer to Contractor or Contractor to Owner or Engineer that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party..

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Contract Documents; and

2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that Engineer has used in preparing the Contract Documents.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer's Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. Possible Price and Times Adjustments

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and

b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:

a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

c. Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, Owner and Engineer, and any of their Related Entities shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

a. reviewing and checking all such information and data,

b. locating all Underground Facilities shown or indicated in the Contract Documents,

c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction, and

d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to

proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

A. Reports and Drawings: Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the Engineer in the preparation of the Contract Documents.

B. Limited Reliance by Contractor on Technical Data Authorized: Contractor may rely upon the general accuracy of the “technical data” contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such “technical data” is identified in the Supplementary Conditions. Except for such reliance on such “technical data,” Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:

1. the completeness of such reports and drawings for Contractor’s purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any “technical data” or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous

Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any.

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered to Contractor written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner’s own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06. G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual’s or entity’s own negligence.

H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 - BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent must be accompanied by a certified copy of the agent's authority to act.

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide

another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

A. Contractor shall deliver to Owner, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.

B. Owner shall deliver to Contractor, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

5.04 *Contractor's Liability Insurance*

A. Contractor shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or

b. by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insured (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include completed operations insurance;

4. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);

6. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting,

removing, or replacing defective Work in accordance with Paragraph 13.07; and

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment.

a. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, (other than caused by flood) and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;

5. allow for partial utilization of the Work by Owner;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

B. Owner shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If Contractor requests in writing that other special insurance be included in the property insurance

policies provided under Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insured or additional insured (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to

Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order .

B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure

to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances. The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or received from the superintendent shall be binding on Contractor.

6.02 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents.

ments. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12.

Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole,

3) it has a proven record of performance and availability of responsive service; and

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times, and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. Substitute Items

a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. Contractor shall submit sufficient information as provided below to allow Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented in the General Requirements and as Engineer may decide is appropriate under the circumstances.

d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

1) shall certify that the proposed substitute item will:

a) perform adequately the functions and achieve the results called for by the general design,

b) be similar in substance to that specified, and

c) be suited to the same use as that specified;

2) will state:

a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time;

b) whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and

c) whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

3) will identify:

a) all variations of the proposed substitute item from that specified, and

b) available engineering, sales, maintenance, repair, and replacement services;

4) and shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change,

B. Substitute Construction Methods or Procedures: If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

C. Engineer's Evaluation: Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

D. Special Guarantee: Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

E. Engineer's Cost Reimbursement: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

F. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity, nor

2. shall anything in the Contract Documents create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or

entity except as may otherwise be required by Laws and Regulations.

D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, and Engineer,, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of Owner or Engineer its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any

such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 *Use of Site and Other Areas*

A. Limitation on Use of Site and Other Areas

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and

surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. Loading Structures: Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;
2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or , or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

D. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the acceptable Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. Shop Drawings

a. Submit number of copies specified in the General Requirements.

b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples*: Contractor shall also submit Samples to Engineer for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals.

a. Submit number of Samples specified in the Specifications.

b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. Submittal Procedures

1. Before submitting each Shop Drawing or Sample, Contractor shall have determined and verified:

a. all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

b. the suitability of all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

c. all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto; and

d. shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations, that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawing's or Sample Submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall

not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. Resubmittal Procedures

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 Continuing the Work

A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 Contractor's General Warranty and Guarantee

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its Related Entities shall be entitled to rely on representation of Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;

6. any inspection, test, or approval by others; or

7. any correction of defective Work by Owner.

6.20 Indemnification

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable

B. In any and all claims against Owner or Engineer or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 - OTHER WORK AT THE SITE

7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or via other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and

2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and shall properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's actions or inactions.

C. Contractor shall be liable to Owner and any other contractor for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's action or inactions.

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 *Replacement of Engineer*

A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

8.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. Owner's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by Engineer in preparing the Contract Documents.

8.06 *Insurance*

A. Owner's responsibilities, if any, in respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility in respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. If and to the extent Owner has agreed to furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents, Owner's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents and will not be changed without written consent of Owner and Engineer.

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.

C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.

D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question

B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believe that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or

performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to, the Resident Project Representative, if any, and assistants, if any.

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.B.

10.03 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

A. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the provisions of any bond to be given to a surety, the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies

either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

B. *Notice:* Written notice stating the general nature of each Claim, shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

1. deny the Claim in whole or in part,

2. approve the Claim, or

3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 - COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in Paragraph 11.01.B.

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if

any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to Engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D),

provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expresses, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. Costs Excluded: The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A and 11.01.B.

C. Contractor's Fee: When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

D. Documentation: Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 Allowances

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. Cash Allowances

1. Contractor agrees that:

a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. Contingency Allowance

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 Unit Price Work

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect any other item of Work; and

3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 - CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 Change of Contract Price

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;

b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the

actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be

Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

D. Owner, Engineer and the Related Entities of each of them shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of Engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's Site safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections*

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in said Paragraph 13.04.C; and

3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, it must, if requested by Engineer, be uncovered for observation.

F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs)

arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

D. If, the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

A. Promptly after receipt of notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific

provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or
2. correct such defective Work; or
3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications .

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to

Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be

entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. Applications for Payments

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on

account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations on the Site of the executed Work as an experienced and qualified design professional and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

- a. the Work has progressed to the point indicated;
- b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and to any other qualifications stated in the recommendation); and
- c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

- a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or
- b. that there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

- a. to supervise, direct, or control the Work, or
- b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
- c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
- d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
- e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
- b. the Contract Price has been reduced by Change Orders;
- c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
- d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. Reduction in Payment

1. Owner may refuse to make payment of the full amount recommended by Engineer because:

- a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
- b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
- c. there are other items entitling Owner to a set-off against the amount recommended; or
- d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor corrects to Owner's satisfaction the reasons for such action.

3. If it is subsequently determined that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1.

14.03 Contractor's Warranty of Title

A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 Substantial Completion

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

B. Promptly after Contractor's notification, , Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If

Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will within 14 days after submission of the tentative certificate to Owner notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will within said 14 days execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to complete or correct items on the tentative list.

14.05 *Partial Utilization*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions.

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of

the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor will certify to Owner and Engineer that such part of the Work is substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 *Final Payment*

A. Application for Payment

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

- a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.7;
- b. consent of the surety, if any, to final payment;
- c. a list of all Claims against Owner that Contractor believes are unsettled; and
- d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner or Owner's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. Engineer's Review of Application and Acceptance

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. Payment Becomes Due

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying docu-

mentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 Final Completion Delayed

A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 Waiver of Claims

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 Owner May Suspend Work

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjust-

ment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;

3. Contractor's disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion),

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and

3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and

damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B, and 15.02.C.

15.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 - DISPUTE RESOLUTION

16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions, or

2. agrees with the other party to submit the Claim to another dispute resolution process, or

3. gives written notice to the other party of their intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 - MISCELLANEOUS

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

To EJCDC - C700
Standard General Conditions of the
Construction Contract (2002) and Other Provisions

- b. Applicable Federal: Statutory
- c. Employer's Liability: \$1,500,000
- 2. Contractor's General Liability under Paragraphs 5.04.A.3 through A.6 of the General Conditions which shall include completed operations and product liability coverages and eliminate the exclusion with respect to property under the care, custody and control of Contractor:
 - a. General Aggregate \$1,500,000
 - b. Products \$1,500,000
Completed Operations Aggregate
 - c. Personal and Advertising Injury \$1,500,000
 - d. Each Occurrence \$1,500,000
(Bodily Injury and Property Damage)
 - e. Property Damage liability insurance will provide Explosion, Collapse, and Under-ground coverages where applicable.
 - f. Excess or Umbrella Liability
 - 1) General Aggregate \$5,000,000.00
 - 2) Each Occurrence \$5,000,000.00
- 3. Automobile Liability under Paragraph 5.04.A.6 of the General Conditions:
 - a. Bodily Injury:
 - Each person \$10,000
 - Each Accident \$1,500,000
 - b. Property Damage:
 - Each Accident \$1,500,000
 - c. Combined Single:
 - Limit of \$1,500,000

The reference to a "combined single limit" for bodily injury and property damage will normally permit the insurance broker to negotiate the most advantageous arrangement for the insureds, and either alternative should be acceptable although the coverages provided may not be identical. Other variations are available.

SC-6.06 Add a new paragraph immediately after Paragraph 6.06.G:

- H. Owner or Engineer may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor on account of Work performed for Contractor by a particular Subcontractor or Supplier.

SC-6.08 Add a new paragraph immediately after 6.08A:

- B. Owner shall provide the Village of Rantoul building permits, State of Illinois Environmental Protection Agency Construction Permit. Contractor shall obtain and pay for all other applicable permits and licenses.

SC-6.10 Add a new paragraph immediately after Paragraph 6.10.A:

- B. Owner is exempt from payment of sales and compensating use taxes of the State of Illinois and of cities and counties thereof on all materials to be incorporated into the Work.
1. Owner will furnish the required certificates of tax exemption to Contractor for use in the purchase of supplies and materials to be incorporated into the Work.
 2. Owner's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies or materials not incorporated into the Work.

Other Provisions

1.01 Prevailing Wage Requirements

- A. This project is subject to the requirements of the "Wages of Employees on Public works (Prevailing Wage) Act".

1.02 Equal Employment Opportunity

- A. The Contractor shall comply with the Equal Employment Opportunity Clause required by the Illinois Fair Employment Practices Commission.

1.03 Liquidated Damages

- A. No Liquidated Damages.

Change Order

No. _____

Date of Issuance: _____ Effective Date: _____

Project:	Owner:	Owner's Contract No.:
Contract:		Date of Contract:
Contractor:		Engineer's Project No.:

The Contract Documents are modified as follows upon execution of this Change Order:

Description: _____

Attachments: (List documents supporting change):

CHANGE IN CONTRACT PRICE:	CHANGE IN CONTRACT TIMES:
Original Contract Price:	Original Contract Times: ☐ Working days ☐ Calendar days
\$ _____	Substantial completion (days or date): _____
	Ready for final payment (days or date): _____
[Increase] [Decrease] from previously approved Change Orders No. _____ to No. _____:	[Increase] [Decrease] from previously approved Change Orders No. _____ to No. _____:
\$ _____	Substantial completion (days): _____
	Ready for final payment (days): _____
Contract Price prior to this Change Order:	Contract Times prior to this Change Order:
\$ _____	Substantial completion (days or date): _____
	Ready for final payment (days or date): _____
[Increase] [Decrease] of this Change Order:	[Increase] [Decrease] of this Change Order:
\$ _____	Substantial completion (days or date): _____
	Ready for final payment (days or date): _____
Contract Price incorporating this Change Order:	Contract Times with all approved Change Orders:
\$ _____	Substantial completion (days or date): _____
	Ready for final payment (days or date): _____

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By: _____ Engineer (Authorized Signature)	By: _____ Owner (Authorized Signature)	By: _____ Contractor (Authorized Signature)
Date: _____	Date: _____	Date: _____
Approved by Funding Agency (if applicable): _____		Date: _____

Change Order

Instructions

A. GENERAL INFORMATION

This document was developed to provide a uniform format for handling contract changes that affect Contract Price or Contract Times. Changes that have been initiated by a Work Change Directive must be incorporated into a subsequent Change Order if they affect Price or Times.

Changes that affect Contract Price or Contract Times should be promptly covered by a Change Order. The practice of accumulating Change Orders to reduce the administrative burden may lead to unnecessary disputes.

If Milestones have been listed in the Agreement, any effect of a Change Order thereon should be addressed.

For supplemental instructions and minor changes not involving a change in the Contract Price or Contract Times, a Field Order should be used.

B. COMPLETING THE CHANGE ORDER FORM

Engineer normally initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by Contractor, or requests from Owner, or both.

Once Engineer has completed and signed the form, all copies should be sent to Owner or Contractor for approval, depending on whether the Change Order is a true order to the Contractor or the formalization of a negotiated agreement for a previously performed change. After approval by one contracting party, all copies should be sent to the other party for approval. Engineer should make distribution of executed copies after approval by both parties.

If a change only applies to price or to times, cross out the part of the tabulation that does not apply.

Champaign County Prevailing Wage Rates posted on 7/15/2026

						Overtime										
Trade Title	Rg	Type	C	Base	Foreman	M-F	Sa	Su	Hol	H/W	Pension	Vac	Trng	Other Ins	Add OT 1.5x owed	Add OT 2.0x owed
ASBESTOS ABT-GEN	All	BLD		38.51	39.76	1.5	1.5	2.0	2.0	9.75	19.09	0.00	0.90	0.00	0.00	0.00
ASBESTOS ABT-MEC	All	BLD		31.20	32.20	1.5	1.5	2.0	2.0	11.20	10.50	0.00	1.00	0.00	0.00	0.00
BOILERMAKER	All	BLD		50.46	54.46	1.5	1.5	2.0	2.0	7.07	24.29	0.00	2.34	0.00	16.38	32.76
BRICK MASON	All	BLD		40.00	42.40	1.5	1.5	2.0	2.0	11.35	18.54	0.00	1.29		0.00	0.00
CARPENTER	All	BLD		42.97	45.72	1.5	1.5	2.0	2.0	10.45	20.65	0.00	0.85	0.00	15.55	31.10
CARPENTER	All	HWY		41.16	42.91	1.5	1.5	2.0	2.0	10.45	24.40	0.00	0.85	0.00	0.00	0.00
CEMENT MASON	All	BLD		41.89	44.64	1.5	1.5	1.5	2.0	11.25	13.00	0.00	0.80		0.00	0.00
CEMENT MASON	All	HWY		42.50	45.25	1.5	1.5	1.5	2.0	11.85	14.50	0.00	0.85	0.00	0.00	0.00
CERAMIC TILE FINISHER	All	BLD		37.34		1.5	1.5	2.0	2.0	11.35	13.71	0.00	0.62		0.00	0.00
ELECTRIC PWR EQMT OP	All	ALL		59.91	71.10	1.5	1.5	2.0	2.0	9.30	16.78	0.00	0.60	0.00	0.00	0.00
ELECTRIC PWR GRNDMAN	All	ALL		40.71	71.10	1.5	1.5	2.0	2.0	8.72	11.40	0.00	0.41	0.00	0.00	0.00
ELECTRIC PWR LINEMAN	All	ALL		66.69	71.10	1.5	1.5	2.0	2.0	9.50	18.67	0.00	0.67	0.00	0.00	0.00
ELECTRIC PWR TRK DRV	All	ALL		45.45	71.10	1.5	1.5	2.0	2.0	8.86	12.72	0.00	0.45	0.00	0.00	0.00
ELECTRICIAN	All	BLD		51.07	56.18	1.5	1.5	2.0	2.0	8.85	13.23	0.00	0.77		1.15	2.29
ELECTRONIC SYSTEM TECH	All	BLD		38.34	41.34	1.5	1.5	2.0	2.0	8.85	13.51	0.00	0.40		0.58	1.15
ELEVATOR CONSTRUCTOR	All	BLD		60.52	68.09	2.0	2.0	2.0	2.0	16.37	21.76	4.84	0.85		0.00	0.00
FENCE ERECTOR	All	ALL		40.08	42.58	1.5	1.5	2.0	2.0	12.99	18.00	0.00	1.11		18.00	18.00
GLAZIER	All	BLD		44.02	46.02	1.5	1.5	2.0	2.0	8.50	14.45	0.00	0.68	0.00	0.00	0.00
HEAT/FROST INSULATOR	All	BLD		43.00	10.00	1.5	1.5	2.0	2.0	9.24	15.89	0.00	0.40	1.20	0.00	0.00
IRON WORKER	All	BLD		40.08	42.58	1.5	1.5	2.0	2.0	12.99	18.00	0.00	1.11		18.00	18.00
IRON WORKER	All	HWY		43.30	45.30	1.5	1.5	2.0	2.0	12.99	18.00	0.00	1.11		18.00	18.00
LABORER	All	BLD		35.51	36.76	1.5	1.5	2.0	2.0	9.75	19.09	0.00	0.80	0.00	0.00	0.00
LABORER	All	HWY		40.22	41.22	1.5	1.5	2.0	2.0	9.75	19.42	0.00	0.80	0.00	0.00	0.00
LATHER	All	BLD		42.97	45.72	1.5	1.5	2.0	2.0	10.45	20.65	0.00	0.85	0.00	15.55	31.10
MACHINIST	All	BLD		61.89	65.89	1.5	1.5	2.0	2.0	14.43	9.95	1.85	1.47		0.00	0.00
MARBLE FINISHER	All	BLD		37.34		1.5	1.5	2.0	2.0	11.35	13.71	0.00	0.62		0.00	0.00
MARBLE MASON	All	BLD		38.94	40.89	1.5	1.5	2.0	2.0	11.35	14.05	0.00	0.62		0.00	0.00

Champaign County Prevailing Wage Rates posted on 7/15/2026

MILLWRIGHT	All	BLD		40.50	43.25	1.5	1.5	2.0	2.0	10.70	23.39	0.00	0.85	0.00	17.05	34.09
MILLWRIGHT	All	HWY		43.75	45.50	1.5	1.5	2.0	2.0	10.45	25.26	0.00	0.85	0.00	0.00	0.00
OPERATING ENGINEER	All	ALL	1	48.15	49.15	1.5	1.5	2.0	2.0	12.40	15.50	0.00	1.55	0.00	0.00	0.00
OPERATING ENGINEER	All	ALL	2	33.05	34.05	1.5	1.5	2.0	2.0	12.40	15.50	0.00	1.55	0.00	0.00	0.00
OPERATING ENGINEER	All	ALL	3	50.15	51.15	1.5	1.5	2.0	2.0	12.40	15.50	0.00	1.55	0.00	0.00	0.00
PAINTER	All	ALL		40.96	42.46	1.5	1.5	2.0	2.0	9.85	8.63	0.00	0.60	0.00	0.00	0.00
PAINTER - SIGNS	All	ALL		40.96	42.46	1.5	1.5	2.0	2.0	9.85	8.63	0.00	0.60	0.00	0.00	0.00
PILEDRIIVER	All	BLD		44.97	47.72	1.5	1.5	2.0	2.0	10.45	20.65	0.00	0.85	0.00	15.55	31.10
PILEDRIIVER	All	HWY		43.16	44.91	1.5	1.5	2.0	2.0	10.45	24.40	0.00	0.85	0.00	0.00	0.00
PIPEFITTER	All	BLD		56.26	59.75	1.5	1.5	2.0	2.0	10.45	11.39	0.00	2.88	0.00	0.00	0.00
PLASTERER	All	BLD		40.05	42.05	1.5	1.5	1.5	2.0	10.35	16.55	0.00	0.50	0.00	0.00	0.00
PLUMBER	All	BLD		56.26	59.75	1.5	1.5	2.0	2.0	10.45	11.39	0.00	2.88	0.00	0.00	0.00
ROOFER	All	BLD		38.71	41.71	1.5	1.5	2.0	2.0	12.90	12.08	0.00	1.36	0.00	0.00	0.00
SHEETMETAL WORKER	All	BLD		48.00	51.00	1.5	1.5	2.0	2.0	13.55	16.47	0.00	1.10	2.15	0.00	0.00
SPRINKLER FITTER	All	BLD		53.68	57.18	1.5	1.5	2.0	2.0	13.60	17.36	0.00	0.59		0.00	0.00
STONE MASON	All	BLD		40.00	42.40	1.5	1.5	2.0	2.0	11.35	18.54	0.00	1.29		0.00	0.00
TERRAZZO FINISHER	All	BLD		37.34		1.5	1.5	2.0	2.0	11.35	13.71	0.00	0.62		0.00	0.00
TERRAZZO MASON	All	BLD		38.94	40.89	1.5	1.5	2.0	2.0	11.35	14.05	0.00	0.62		0.00	0.00
TILE MASON	All	BLD		38.94	40.89	1.5	1.5	2.0	2.0	11.35	14.05	0.00	0.62		0.00	0.00
TRUCK DRIVER	All	ALL	1	48.17	52.53	1.5	1.5	2.0	2.0	16.11	8.38	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	ALL	2	48.76	52.53	1.5	1.5	2.0	2.0	16.11	8.38	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	ALL	3	49.03	52.53	1.5	1.5	2.0	2.0	16.11	8.38	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	ALL	4	49.42	52.53	1.5	1.5	2.0	2.0	16.11	8.38	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	ALL	5	50.52	52.53	1.5	1.5	2.0	2.0	16.11	8.38	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	O&C	1	38.54	42.02	1.5	1.5	2.0	2.0	16.11	8.38	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	O&C	2	39.00	42.02	1.5	1.5	2.0	2.0	16.11	8.38	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	O&C	3	39.22	42.02	1.5	1.5	2.0	2.0	16.11	8.38	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	O&C	4	39.54	42.02	1.5	1.5	2.0	2.0	16.11	8.38	0.00	0.25	0.00	0.00	0.00
TRUCK DRIVER	All	O&C	5	40.42	42.02	1.5	1.5	2.0	2.0	16.11	8.38	0.00	0.25	0.00	0.00	0.00
TUCKPOINTER	All	BLD		40.00	42.40	1.5	1.5	2.0	2.0	11.35	18.54	0.00	1.29		0.00	0.00

Champaign County Prevailing Wage Rates posted on 7/15/2026

Legend

Rg Region

Type Trade Type - All,Highway,Building,Floating,Oil & Chip,Rivers

C Class

Base Base Wage Rate

OT M-F Unless otherwise noted, OT pay is required for any hour greater than 8 worked each day, Mon through Fri. The number listed is the multiple of the base wage.

OT Sa Overtime pay required for every hour worked on Saturdays

OT Su Overtime pay required for every hour worked on Sundays

OT Hol Overtime pay required for every hour worked on Holidays

H/W Health/Welfare benefit

Vac Vacation

Trng Training

Other Ins Employer hourly cost for any other type(s) of insurance provided for benefit of worker.

Explanations CHAMPAIGN COUNTY

The following list is considered as those days for which holiday rates of wages for work performed apply: New Years Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, Christmas Day and Veterans Day in some classifications/counties. Generally, any of these holidays which fall on a Sunday is celebrated on the following Monday. This then makes work performed on that Monday payable at the appropriate overtime rate for holiday pay. Common practice in a given local may alter certain days of celebration. If in doubt, please check with IDOL.

Oil and chip resealing (O&C) means the application of road oils and liquid asphalt to coat an existing road surface, followed by application of aggregate chips or gravel to coated surface, and subsequent rolling of material to seal the surface.

EXPLANATION OF CLASSES

ASBESTOS - GENERAL - removal of asbestos material/mold and hazardous materials from any place in a building, including mechanical systems where those mechanical systems are to be removed. This includes the removal of asbestos materials/mold and hazardous materials from ductwork or pipes in a building when the building is to be demolished at the time or at some close future date.

ASBESTOS - MECHANICAL - removal of asbestos material from mechanical systems, such as pipes, ducts, and boilers, where the mechanical systems are to remain.

CERAMIC TILE FINISHER, MARBLE FINISHER, TERRAZZO FINISHER

Assisting, helping or supporting the tile, marble and terrazzo mechanic by performing their historic and traditional work assignments required to complete the proper installation of the work covered by said crafts. The term "Ceramic" is used for

Champaign County Prevailing Wage Rates posted on 7/15/2026

naming the classification only and is in no way a limitation of the product handled. Ceramic takes into consideration most hard tiles.

ELECTRONIC SYSTEMS TECHNICIAN

Installation, service and maintenance of low-voltage systems which utilizes the transmission and/or transference of voice, sound, vision, or digital for commercial, education, security and entertainment purposes for the following: TV monitoring and surveillance, background/foreground music, intercom and telephone interconnect, field programming, inventory control systems, microwave transmission, multi-media, multiplex, radio page, school, intercom and sound burglar alarms and low voltage master clock systems.

Excluded from this classification are energy management systems, life safety systems, supervisory controls and data acquisition systems not intrinsic with the above listed systems, fire alarm systems, nurse call systems and raceways exceeding fifteen feet in length.

TRUCK DRIVER - BUILDING, HEAVY AND HIGHWAY CONSTRUCTION Class 1. Drivers on 2 axle trucks hauling less than 9 ton. Air compressor and welding machines and brooms, including those pulled by separate units, truck driver helpers, warehouse employees, mechanic helpers, greasers and tiremen, pickup trucks when hauling materials, tools, or workers to and from and on-the-job site, and fork lifts up to 6,000 lb. capacity.

Class 2. Two or three axle trucks hauling more than 9 ton but hauling less than 16 ton. A-frame winch trucks, hydrolift trucks, vactor trucks or similar equipment when used for transportation purposes. Fork lifts over 6,000 lb. capacity, winch trucks, four axle combination units, and ticket writers.

Class 3. Two, three or four axle trucks hauling 16 ton or more. Drivers on water pulls, articulated dump trucks, mechanics and working forepersons, and dispatchers. Five axle or more combination units.

Class 4. Low Boy and Oil Distributors.

Class 5. Drivers who require special protective clothing while employed on hazardous waste work.

TRUCK DRIVER - OIL AND CHIP RESEALING ONLY.

This shall encompass laborers, workers and mechanics who drive contractor or subcontractor owned, leased, or hired pickup, dump, service, or oil distributor trucks. The work includes transporting materials and equipment (including but not limited to, oils, aggregate supplies, parts, machinery and tools) to or from the job site; distributing oil or liquid asphalt and aggregate; stock piling material when in connection with the actual oil and chip contract. The Truck Driver (Oil & Chip Resealing) wage classification does not include supplier delivered materials.

OPERATING ENGINEERS - BUILDING, HEAVY AND HIGHWAY CONSTRUCTION Class 1. Draglines, Derricks, Shovels, Gradalls, Mechanics, Tractor Highlift, Tournadozer, Concrete Mixers with Skip, Tournamixer, Two Drum Machine, One Drum Hoist with Tower or Boom, Cableways, Tower Machines, Motor Patrol, Boom Tractor, Boom or Winch Truck, Winch or Hydraulic Boom Truck, Tournapull, Tractor Operating Scoops, Bulldozer, Push Tractor, Asphalt Planer, Finishing Machine on Asphalt, Large Rollers on

Champaign County Prevailing Wage Rates posted on 7/15/2026

Earth, Rollers on Asphalt Mix, Ross Carrier or similar Machine, Gravel Processing Machine, Asphalt Plant Engineer, Paver Operator, Dredging Equipment, or Dredge Engineer, or Dredge Operator, Central Mix Plant Engineer, CMI or similar type machine, Concrete Pump, Truck or Skid Mounted, Engineer or Rock Crusher Plant, Concrete Plant Engineer, Ditching Machine with dual attachment, Tractor Mounted Loaders, Hydro Crane, Standard or Dinkey Locomotives, Scoopmobiles, Euclid Loader, Soil Cement Machine, Back Filler, Elevating Machine, Power Blade, Drilling Machine, including Well Testing, Caissons, Shaft or any similar type drilling machines, Motor Driven Paint Machine, Pipe Cleaning Machine, Pipe Wrapping Machine, Pipe Bending Machine, Apsco Paver, Boring Machine, (Head Equipment Greaser), Barber-Greene Loaders, Formless Paver, (Well Point System), Concrete Spreader, Hydra Ax, Span Saw, Marine Scoops, Brush Mulcher, Brush Burner, Mesh Placer, Tree Mover, Helicopter Crew (3), Piledriver-Skid or Crawler, Stump Remover, Root Rake, Tug Boat Operator, Refrigerating Machine, Freezing Operator, Chair Cart- Self-Propelled, Hydra Seeder, Straw Blower, Power Sub Grader, Bull Float, Finishing Machine, Self-Propelled Pavement Breaker, Lull (or similar type Machine), Two Air Compressors, Compressors hooked in Manifold, Chip Spreader, Mud Cat, Sull-Air, Fork Lifts (except when used for landscaping work), Soil Stabilizer (Seaman Tiller, Bo Mag, Rago Gator, and similar types of equipment), Tube Float, Spray Machine, Curing Machine, Concrete or Asphalt Milling Machine, Snooper Truck-Operator, Backhoe, Farm Tractors (with attachments), 4 Point Lift System (Power Lift or similar type), Skid-Steer (Bob Cat or similar type), Wrecking Shears, Water Blaster.

Class 2. Concrete Mixers without Skips, Rock Crusher, Ditching Machine under 6', Curbing Machine, One Drum Machines without Tower or Boom, Air Tugger, Self-Propelled Concrete Saw, Machine Mounted Post Hole Digger, two to four Generators, Water Pumps or Welding Machines, within 400 feet, Air Compressor 600 cu. ft. and under, Rollers on Aggregate and Seal Coat Surfaces, Fork Lift (when used for landscaping work), Concrete and Blacktop Curb Machine, One Water Pump, Oilers, Air Valves or Steam Valves, One Welding Machine, Truck Jack, Mud Jack, Gunnite Machine, House Elevators when used for hoisting material, Engine Tenders, Fireman, Wagon Drill, Flex Plane, Conveyor, Siphons and Pulsometer, Switchman, Fireman on Paint Pots, Fireman on Asphalt Plants, Distributor Operator on Trucks, Tampers, Self-Propelled Power Broom, Striping Machine (motor driven), Form Tamper, Bulk Cement Plant, Equipment Greaser, Deck Hands, Truck Crane Oiler-Driver, Cement Blimps, Form Grader, Temporary Heat, Throttle Valve, Super Sucker (and similar type of equipment).

Class 3. Power Cranes, Truck or Crawler Crane, Rough Terrain Crane (Cherry Picker), Tower Crane, Overhead Crane.

Other Classifications of Work:

For definitions of classifications not otherwise set out, the Department generally has on file such definitions which are available. If a task to be performed is not subject to one of the classifications of pay set out, the Department will upon being contacted state which neighboring county has such a classification and provide such rate, such rate being deemed to exist by reference in this document. If no neighboring county rate applies to the task, the Department shall undertake a special determination, such special determination being then deemed to have existed under this determination. If a project requires these, or any classification not listed, please contact IDOL at 217-782-1710 for wage rates or clarifications.

LANDSCAPING

Landscaping work falls under the existing classifications for laborer, operating engineer and truck driver. The work performed by landscape plantsman and landscape laborer is covered by the existing classification of laborer. The work performed by landscape operators (regardless of equipment used or its size) is covered by the classifications of operating engineer. The work performed by landscape truck drivers (regardless of size of truck driven) is covered by the classifications of truck driver.

Champaign County Prevailing Wage Rates posted on 7/15/2026

SECTION 01010

Summary of Work

PART 1 - GENERAL

1.1 GENERAL

This project consists of replacing the transformer at the Power Plant Substation. This includes but is not limited to replacing the transformer, replacing the foundation pad, running new conduit and cable to the new transformer control cabinet and junction box. See the drawings provided for more detail.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Details:

1. Project Location:
Power Plant Substation, 200 W. Grove Avenue, Rantoul, IL 61866
2. Owner:
Village of Rantoul, 333 South Tanner Street, Rantoul, IL 61866.

- B. Contract Documents, dated July 2026, were prepared for the Project by BHMGE Engineers, Inc., 9735 Landmark Parkway Drive, Suite 110A, St. Louis, MO 63127.

1.3 IMPORTANT PROJECT INFORMATION

- A. Material - Note: client provided material in the Bill of Material section. Client provided material will be stored at the job site. Contractor will be responsible for doing an inventory check and then assuming ownership of material until installation of and energization.

The substation transformer will be located adjacent to Power Plant Substation at 200 W Grove, Rantoul, IL 61866. The contractor will take ownership, liability, and be responsible for relocating & setting it on the pad and anchoring the unit. The substation transformer will be assembled and field dressed by OEM.

- B. Demolition:
Contractor responsible for removing existing transformer foundation pad, existing transformer, and misc. material as referenced in dwgs. The contractor will take ownership, liability, and be responsible for loading, rigging, and unloading & setting the existing transformer to its new site in addition to acquiring any transportation requirements. The new site for the existing transformer will be TBD.
- C. Laydown yard will be the construction site.
- D. Construction staking, if required, will be performed by the contractor or a licensed surveyor. BHMGE to provide necessary control points to facilitate installation.

Payments made pursuant to Section 01027, APPLICATIONS FOR PAYMENT, will be based on completion status indicated in the schedule and approved by the Engineer. The Contractor's Schedule of Values shall align with the major elements of the Construction

1.4 CONSTRUCTION SCHEDULES

- A. The Contractor is responsible to provide sequences of construction to facilitate further development of the schedule as required to integrate with other trades.
 - 1. A Detailed Construction Schedule is to be submitted to the Engineer within 15 days of Notice to Proceed, an electronic copy of this Microsoft Project File must be provided, to coordinate with our project schedulers.
 - 2. Payments made pursuant to Section 01027, APPLICATIONS FOR PAYMENT, will be based on completion status indicated in the schedule and approved by the Engineer. The Contractor's Schedule of Values shall align with the major elements of the Construction Schedule.
- B. Contractor shall use all practicable means to ensure progress of the work conforms to that shown on the schedule that is in effect. If the Contractor falls behind the schedule progress, the contractor shall take such steps as may be necessary to improve progress. In the event of failure to do so, the Engineer may require the contractor to increase any or all the Contractor's forces, shifts, days or hours of work, and construction plan so as to improve progress as required by the schedule, all without additional cost to the Owner.
- C. For outage planning, please coordinate with BHMGE to minimize downtime.

D. Available construction hours for Contractor are as follows: other hours by approval only (please coordinate with BHMg to request other construction hours).

1. Monday-Friday: 7:30am to 7:00pm.
2. Saturday: 9:00am to 5:00pm
3. No work on Sundays or Holidays.

1.5 CONTRACTOR USE OF PREMISES

- A. Maintain Emergency Building Exits and Fire lanes at all times during construction.
- B. Keep driveways and entrances serving the premises clear and available to the owner and to emergency vehicles at all times. Parking will be allowed only in designated areas. Coordinate deliveries to minimize space and time requirements for storage of materials and equipment on site.
- C. The contractor may request outages on all utilities as required to complete the work and is responsible for scheduling such outages and for providing temporary services required to complete work while owner's utilities are shut down.

1.6 PROJECT CONTACTS

Village of Rantoul:

Head of Electric Department

Scott Eisenhauer - seisenhauer@village.rantoul.il.us

Electric Dept Team Lead

Geoff Wahl - gwahl@village.rantoul.il.us

BHMg:

Project Manager

Chris Couch - ccouch@bhmng.com - 636-237-7823

Project Administrator

Amy Wooldridge - awooldridge@bhmng.com - 636-333-3923

Substation PE

Jack Sykut - jsykut@bhmng.com - 636-333-3945

1.7 OCCUPANCY REQUIREMENTS *Not Used*

PART 2 - PRODUCTS *Not Used*

PART 3 - EXECUTION *Not Used*

END OF SECTION

SECTION 01027

Applications for Payment

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 specification sections, apply to this Section.

1.2 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of input to the Construction Schedule
 - 1. Construction Schedule
 - 2. Application for Payment forms, including Continuation Sheets
 - 3. List of subcontractors
 - 4. List of products
 - 5. List of principal suppliers and fabricators
 - 6. Schedule of submittals
 - 7. Submit the Schedule of Values to the Engineer at the earliest possible date but no later than 7 days before the date scheduled for submittal of the initial Application for Payment.
- B. Format and Content: Provide at least one line item for each major schedule activity or for each Specification Section.
 - 1. Identification: Include the following Project identification on the Schedule of Values:
 - a. Project name and location
 - b. Name of the engineer
 - c. Project number

- d. Contractor's name and address
 - e. Date of submittal
2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division
 - b. Description of Work
 - c. Name of subcontractor
 - d. Name of manufacturer or fabricator
 - e. Name of supplier
 - f. Change Orders (numbers) that affect value
 - g. Dollar value
 - h. Percentage of Contract Sum to nearest one-hundredth percent, adjusted to total 100%.
3. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Break principal subcontract amounts down into several line items.
4. Round amounts to nearest whole dollar; the total shall equal the Contract Sum.
5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment, purchased, or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. Include requirements for insurance and bonded warehousing, if required.
6. Schedule Updating: Update and resubmit the Schedule of Values prior to the next Application for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.3 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Engineer and paid for by the Owner.
 - 1. The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the final Application for Payment involve additional requirements.
- B. Payment-Application Times: The date for each progress payment is open to the contractor's discretion, keeping in mind that city councils typically meet bi-monthly. The period covered by each Application for Payment starts on the day following the end of the preceding period and ends upon completion of a minimum additional 15% of the project.
- C. Payment-Application Forms: Use AIA Document G702 and Continuation Sheets G703 as the form for Applications for Payment.
- D. Application Preparation: Complete every entry on the form. Include notarization and execution by a person authorized to sign legal documents on behalf of the Contractor. The Engineer will return incomplete applications without action.
 - 1. Entries shall match data on the Schedule of Values and the Contractor's Construction Schedule. Use updated schedules if revisions were made.
 - 2. Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.
- E. Transmittal: Submit two signed and notarized original copies of each Application for Payment to the Engineer by a method ensuring receipt within 24 hours. One copy shall be complete, including waivers of lien and similar attachments, when required.
- F. Waivers of Mechanics Lien: With each Application for Payment, submit waivers of mechanics liens from subcontractors, sub-subcontractors and suppliers for the construction period covered by the previous application.
 - 1. Submit partial waivers on each item for the amount requested, prior to deduction for retention, on each item.
 - 2. When an application shows completion of an item, submit final or full waivers.

3. The Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Waiver Forms: Submit waivers of lien on forms and executed in a manner acceptable to the Owner.
- G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of the first Application for Payment include the following:
1. List of subcontractors
 2. List of principal supplier and fabricators
 3. Schedule of Values
 4. Schedule of principal products
 5. List of Contractor's principal consultants
 6. Copies of building permits
 7. Copies of authorizations and licenses from governing authorities for performance of the Work
 8. Initial progress report
 9. Certificates of insurance and insurance policies
 10. Performance and payment bonds, if required
 11. Data needed to acquire the Owner's insurance
- H. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment.
1. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
 2. Administrative actions and submittals that shall precede or coincide with this application include:
 - a. Occupancy permits and similar approvals

- b. Warranties (guarantees) and maintenance agreements
 - c. Maintenance instructions
 - d. Startup performance reports
 - e. Changeover information related to Owner's occupancy, use, operation, and maintenance
 - f. Final cleaning
 - g. Application for reduction of retention and consent of surety
 - h. Advice on shifting insurance coverage
 - i. List of Incomplete Work recognized as exceptions to Engineer's Certificate of Substantial Completion
- I. Final Payment Application: Administrative actions and submittals that must precede or coincide with submittal of the final Application for Payment include the following:
- 1. Completion of Project closeout requirements
 - 2. Completion of items specified for completion after Substantial Completion
 - 3. Assurance that unsettled claims will be settled
 - 4. Assurance that incomplete Work is not accepted and will be completed without undue delay
 - 5. Transmittal of required Project construction records to the Owner
 - 6. Proof that taxes, fees, and similar obligations were paid
 - 7. Removal of temporary facilities and services
 - 8. Removal of surplus materials, rubbish, and similar elements

PART 2 – PRODUCTS ***Not Used***

PART 3 – EXECUTION ***Not Used***

END OF SECTION

SECTION 01340

Shop Drawings, Product Data and Samples

PART 1 – GENERAL

1.1 REQUIREMENTS INCLUDE

- A. Contractor shall make submittals to Engineer.
- B. Contractor:
 - 1. Verify field dimensions
 - 2. Verify compliance with Contract requirements
 - 3. Certify review
 - 4. Transmit reviewed submittals to Engineer.

1.2 DEFINITIONS

- A. Shop Drawings:
Shop drawings are original drawings prepared by Contractor, subcontractor, sub-subcontractor, supplier, or distributor, which illustrate some portion of the work, showing fabrication, layout, setting or erection details.
 - 1. Prepared by qualified detailer.
 - 2. Identify details by reference to sheet and detail numbers shown on contract drawings.
 - 3. Drawn at scale of 3" per foot or larger.
 - 4. Maximum sheet size:
24" x 36"
 - 5. Reprints of Engineer's drawings are not acceptable for shop drawings.

B. Product Data:

1. Manufacturer's standard schematic drawings edited to fit this project.
2. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other standard descriptive data.
 - a. Clearly mark each copy to identify pertinent materials, products or models.
 - b. Show wiring diagrams and controls.
 - c. Show performance characteristics and capacities.

C. Samples:

Physical samples to illustrate materials, equipment, or workmanship. Approved samples establish standards by which complete work is judged. Maintain at site as directed. Protect until no longer needed.

1. Office samples:
Of sufficient size to clearly illustrate:
 - a. Functional characteristics of product or material.
 - b. Full range of color samples.
 - c. After review, samples may be used on construction of project.
2. Field samples and mock-ups:
 - a. Erect at project site at location approved by Contractor and Owner.
 - b. Construct each sample or mock-up complete, including work of all crafts required in finished work.
 - c. Remove as directed.

1.3 SPECIFIED PRODUCT LIST AND SAMPLES

- A. Submit to Engineer within 20 business days after Notice to Proceed date, a list of product manufacturers and full range of color samples for each manufacturer, and full range of color samples for each manufacturer's product proposed for installation. No colors will be selected prior to submittal of all products requiring a color selection.

- B. Tabulate list of each specification section.
- C. For products specified under reference standards, include with listing of each product:
 - 1. Name and address of manufacturer
 - 2. Trade name
 - 3. Model or catalog number
 - 4. Manufacturer's data
 - a. Performance and test data
 - b. Reference standards
- D. Subcontractors' names shall be included in list and must coincide with approved subcontractor list.

1.4 CONTRACTOR RESPONSIBILITIES

- A. Contractor shall review and stamp all shop drawings, product data and samples prior to submission. Failure to follow any or all established procedures set forth shall result in submittals being returned without review, at Contractor's expense.
- B. Contractor shall verify:
 - 1. Field measurements
 - 2. Field construction criteria
 - 3. Catalog numbers and similar data
- C. Contractor shall coordinate each submittal with requirements of work and contract documents.
- D. Contractor's responsibility for errors and omissions shall not be relieved by Engineer's review of submittal.
- E. Contractor's responsibility for deviations in submittals from requirements of contract documents shall not be relieved by Engineer's review unless written acceptance by Engineer of specific deviations is issued.

- F. Contractor shall notify Engineer in writing at time of submission of deviations within submittal from requirements of contract documents.
- G. Contractor shall begin no work that requires shop drawings or product data submittals until return of submittals bearing Engineer's or professional consultant's stamp and initials or signature.
- H. After Engineer's review, distribute shop drawings and/or product data to appropriate suppliers and subcontractors.

1.5 SUBMISSION REQUIREMENTS

- A. **A completed cover sheet provided at the end of this section shall accompany each individual submittal.**
- B. All submittals shall include:
 - 1. Date and revision dates.
 - 2. Project title and number.
 - 3. Names of:
 - a. Engineer
 - b. Subcontractor
 - c. Sub-subcontractor
 - d. Supplier
 - e. Manufacturer
 - f. Separate detailer when pertinent
 - 4. Identification of product or material.
 - 5. Relation to adjacent structure or material.
 - 6. Field dimensions clearly identified as such.
 - 7. Specification section and page number, one specification section per submittal.
 - 8. Specified standards, such as ASTM number of ANSI.

9. Identification of previously approved deviations from contract documents.
10. Engineer will not review submittals unless Shop Drawing Submittal cover sheet is attached to each individual submittal, signed and stamped by the Contractor.

C. Allow adequate space on cover sheet for Engineer to affix his stamp.

1.6 RESUBMISSION REQUIREMENTS

A. Shop Drawings:

1. Contractor shall revise initial drawings as required and resubmit as specified for initial submission.
2. Contractor shall indicate on drawings any changes which may have been made, other than those required by Engineer.

B. Product Data and Samples:

1. Submit new data and samples as required for initial submission.

C. Make all resubmittals within 15 days after Engineer's previous review.

1.7 DISTRIBUTION OF SUBMITTALS AFTER REVIEW

A. Distribute copies of shop drawings and product data bearing Engineer's or professional consultant's stamp to:

1. Contractor
2. Project site file
3. Other concerned subcontractors
4. Supplier/fabricator

B. Contractor shall distribute samples as directed.

1.8 ENGINEER'S REVIEW

A. Engineer will review all submittals with reasonable promptness.

- B. Engineer will review for:
 - 1. Conformance with design concept of project.
 - 2. Information contained in contract documents.
- C. Engineer's review of a separate item does not constitute review of an assembly within which item functions.
- D. Engineer's or professional consultant's stamp, initials or signature certifying to review of submittal will be affixed.
- E. Engineer will return submittals to contractor for distribution.

PART 2 - PRODUCTS ***Not Used***

PART 3 - EXECUTION ***Not Used***

END OF SECTION



Shop Drawing Submittal

Date: _____

PROJECT: _____

BHM Project No.: _____

Contractor: _____

Presented By: _____

Company Name: _____

Address: _____

Phone: _____

Contact Person: _____

Email: _____

Item: _____

Spec Section: _____

By approving and submitting these shop drawings, product data and samples, we represent that we have determined and verified all materials, field measurements and field construction criteria related thereto, or will do so, and that we have checked and coordinated information contained within submittal with requirements of the work and contract documents.

Contractor's Signature _____

Date _____

SECTION 01450

Quality Control

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Quality Assurance – Control of Installation
- B. Welding
- C. Tolerances
- D. References

1.2 QUALITY ASSURANCE – 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 manufacturer's instructions, including each step-in sequence.
- C. Should manufacturer's instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
- D. Comply with specified standards as a minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform work by persons qualified to produce workmanship of specified quality.
- F. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.
- G. The Contractor is the quality control inspector for the project. The Contractor shall review the work and verify that it is in conformance with the contract documents. Any work found not to be in conformance shall be corrected by the Contractor, so that it does conform. As a minimum, the Contractor shall reply within seven days of the discovery of work found not to be in conformance with the contract documents, with a written plan of the corrective action required to bring this work into conformance.

- H. The Engineer and the Owner will make periodic inspections to verify quality control measures.

1.3 WELDING

A. Welding Requirements

- 1. Welding shall be performed by qualified welding operators using procedures qualified in accordance with specified applicable codes and standards.

B. Procedure Qualification

- 1. Contractor, subcontractor, or fabricator performing welding under jurisdiction of referenced codes shall be responsible for obtaining and qualifying welding procedures. Structural welding procedures that conform to AWS D1.1 are prequalified as defined in AWS D1.1.
- 2. Contractor shall keep and maintain records and make available to Engineer, if requested, certifying procedure qualification tests have been completed successfully.

C. Welding Certificates

- 1. After Notice of Award, submit to Engineer, if requested, one copy for each person assigned to do field welding of materials installed for this project.
- 2. Show on certificates that each person has passed tests specified by AWS.
- 3. Submit certificates prior to execution of any welding. Certificates are not required for nonstructural tack welding.

D. Performance Qualification

- 1. Contractor, subcontractor, or fabricator performing welding under jurisdiction of referenced codes shall be responsible for testing and qualifying welding operators in accordance with applicable procedures.
- 2. Unless welding operators have been qualified previously by Contractor (within past six months) and have been continuously employed as welders by Contractor following qualification, requalification tests must be completed.

3. Engineer reserves the right to require any welder to retake tests when, in the opinion of Engineer, work of welder creates reasonable doubt as to welder's proficiency. Engineer may witness any required retesting. Tests shall be at no expense to Owner.

1.4 TOLERANCES

- A. Monitor tolerance control of installed products to produce acceptable work. Do not permit tolerances to accumulate.
- B. Comply with manufacturer's tolerances. Should manufacturer's tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

1.5 REFERENCES

- A. For products or workmanship specified by association, trade, or other consensus standards, comply with the requirements of the standard, except where more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current on date of Contract Documents, except where a specified date is established by code.
- C. Obtain copies of standards when required by product specification sections.
- D. The contractual relationship, duties, and responsibilities of the parties in Contract and those of the Engineer shall not be altered from the Contract Documents by mention or interference otherwise in any reference document.

PART 2 – PRODUCT *Not Used*

PART 3 – EXECUTION *Not Used*

END OF SECTION

SECTION 01525

Construction Aids

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDE:

- A. Each Contractor: Provide and maintain for his forces all other construction aids required to complete his work.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Materials may be new or used. Comply with specified codes and standards.
- B. Maintain facilities and equipment in first class condition until the project is complete.

2.2 TEMPORARY ENCLOSURES

- A. Provide temporary weather-tight enclosure of exterior walls for successive areas of building as work progresses, to provide acceptable working conditions, provide weather protection for materials, allow for effective construction heating, and to prevent entry of unauthorized persons.
 - 1. Provide temporary exterior doors with self-closing hardware and padlocks.
 - 2. Provide other enclosures, removable, for work and handling of materials.

PART 3 – EXECUTION

3.1 PREPARATION

- A. Consult with Engineer, review site conditions and factors that affect construction procedures and construction aids, including adjacent properties and public facilities, which may be affected by execution of the work.

3.2 REMOVAL

- A. Remove temporary materials, equipment and services.
 - 1. When construction needs can be met by authorized use of permanent construction or when authorized by the Engineer.
- B. Clean and repair damage caused by installation or use of temporary facilities.
- C. Restore facilities used for temporary purposes to original condition.

END OF SECTION

SECTION 01540

Security

PART 1 – GENERAL

1.1 REQUIREMENTS INCLUDE

- A. Each Contractor:
 - 1. Protect work, stored materials and construction equipment from theft and vandalism.
 - 2. Protect premises from entry by unauthorized persons.
 - 3. Protect Owner's operations at site from theft, vandalism or damage from Contractor's work or employees.

1.2 RELATED REQUIREMENTS

- A. NONE

1.3 MAINTENANCE OF SECURITY

- A. Initiate security program acceptable to the Owner prior to mobilization.
- B. Maintain security program throughout construction period until Owner's acceptance precludes need for Contractor security.

1.4 ENTRANCE CONTROL

- A. Provide control of all persons and vehicles entering and leaving project site.
- B. Allow no visitors except with issuance of temporary identification.
- C. Maintain log of all visitors

1.5 REPLACEMENT OF LOST EQUIPMENT

- A. Contractor shall be responsible for replacement of any lost or stolen equipment.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

SECTION 01561

Construction Cleaning

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDE

- A. Each Contractor provides cleaning and disposal of waste materials, debris and rubbish during construction.

1.2 RELATED REQUIREMENTS

- A. Specified elsewhere:
 - 1. 01700 – Contract Closeout
 - 2. Individual Specification Sections: specific cleaning for product or work.

PART 2 - PRODUCTS

2.1 EQUIPMENT

- A. Provide covered containers for deposit of waste materials, debris and rubbish.

PART 3 - EXECUTION

3.1 CLEANING

- A. Maintain areas under Contractor's control free of waste materials, debris and rubbish.
- B. Remove debris and rubbish from pipe chases, plenums, crawlspaces and other closed or remote spaces, prior to closing the space.
- C. Periodically clean interior areas to provide suitable conditions for work.
- D. Clean interior areas prior to start of surface finishing. Continue cleaning on an as-needed basis.
- E. Control cleaning operations so that dust and other particulates will not adhere to wet or newly coated surfaces.

3.2 DISPOSAL

- A. Regularly remove waste materials, debris and rubbish from site and dispose of off-site.

END OF SECTION

SECTION 01610

Product Requirements

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Products
- B. Transportation and Handling
- C. Storage and Protection
- D. Product Selection
- E. Product Options

1.2 PRODUCTS

- A. “Products” means: new material, machinery, components, equipment, fixtures, and systems forming the work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the work. Products may also include existing materials or components required for reuse.
- B. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract documents.
- C. Provide interchangeable components of the same manufacturer for components being replaced.

1.3 TRANSPORTATION AND HANDLING

- A. Transport and handle products in accordance with manufacturer’s instructions.
- B. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

1.4 STORAGE AND PROTECTION

- A. Store and protect products in accordance with manufacturer's instructions with seals and labels intact and legible.
- B. Store sensitive products in weather-tight, climate-controlled enclosures.
- C. Fabricated products requiring exterior storage shall be placed on sloped supports, above ground.
- D. Provide bonded, off-site storage and protection when site does not permit on-site storage or protection.
- E. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation or potential degradation of product.
- F. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- G. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- H. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

1.5 PRODUCT SELECTION

- A. Provide products that comply with the requirements of the Contract Documents, that are undamaged and, unless otherwise noted, unused at the time of installation.
- B. Provide products complete with accessories, trim, finish, safety guards and other devices and details needed for the installation and for the intended use and effect.
- C. Standard Products: Provide standard products of types that have been produced and used successfully in similar conditions on other projects.
- D. Proprietary Specification Requirements: Where only a single product or manufacturer is named, or where "No Substitution" is indicated, provide the product indicated. No substitutions will be permitted.

- E. Semi-Proprietary Specification Requirements: Where two or more products or manufacturers are named, provide one of the products indicated. No substitutions will be permitted.
- F. Where products are specified by name, accompanied by the term “or approved equivalent,” comply with provisions for “substitutions” to obtain approval for use of an unnamed product.
- G. Descriptive Specification Requirements: Where specifications describe a product, listing characteristics required without use of a brand name, furnish a product that provides the characteristics and otherwise complies with requirements.
- H. Performance Specification Requirements: Where specifications stipulate compliance with performance requirements, provide products that comply and are recommended for the application. Manufacturer’s recommendations may be contained in product literature, or by certification of performance.
- I. Visual Selection: Where requirements include the phrase “as selected from manufacturer’s standard colors, patterns, textures” or a similar phrase, provide a product that complies with designated requirements. The Engineer will select color, pattern, and texture from the approved product line.
- J. Compliance with Standards: Where specifications require compliance with a standard, select a product that complies with the standard specified.
- K. Visual Matching: Where specifications require matching a sample, the Engineer’s decision on whether a proposed product matches will be final. Where no product matches and complies with other requirements, comply with provisions for “Product Substitutions” for selection of a matching product in another category.

1.6 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.

PART 2 – PRODUCTS *Not Used*

PART 3 – EXECUTION *Not Used*

END OF SECTION

SECTION 01700

Contract Closeout

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.2 SUMMARY

- A. This section includes administrative and procedural requirements for contract close-out including, but not limited to, the following:
 - 1. Inspection procedures
 - 2. Project record document submittal
 - 3. Operation and maintenance manual submittal
 - 4. Submittal of warranties
 - 5. Final cleaning
- B. Close-out requirements for specific construction activities are included in the appropriate sections.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures:
Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request.
 - 1. If 100% completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the work is not complete.
 - 2. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents.

1.4 FINAL ACCEPTANCE

- A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.
1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include insurance certificates for products and completed operations where required.
 2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
 3. Submit a certified copy of the Engineer's final inspection list of items to be completed or corrected, endorsed and dated by the Engineer. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance and shall be endorsed and dated by the Engineer.
 4. Submit consent of surety to final payment.
 5. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Re-inspection Procedure:
The Engineer will reinspect the work upon receipt of notice that the work, including inspection list items from earlier inspections, has been completed, except for items whose completion is delayed under circumstances acceptable to the Engineer.
1. Upon completion of reinspection, the Engineer will prepare a certificate of final acceptance. If the work is incomplete, the Engineer will advise the Contractor of work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.

1.5 RECORD DOCUMENT SUBMITTALS

- A. General:
Do not use record documents for construction purposes. Protect record documents from deterioration and loss in a secure, fire-resistant location. Provide access to record documents for the Engineer's reference during normal working hours.

B. Record Drawings:

Maintain a clean, undamaged set of blue or black line white prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the work as originally shown. Mark which drawing is most capable of showing conditions fully and accurately. Where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.

1. Mark record sets with red erasable pencil. Use other colors to distinguish between variations in separate categories of the Work.
2. Mark new information that is important to the Owner but was not shown on Contract Drawings or Shop Drawings.

C. Maintenance Manuals: Organize operation and maintenance data into suitable sets of manageable size. Bind properly indexed data in individual, heavy-duty, 2-inch (51-mm) 3-ring, vinyl-covered binders, with pocket folders for folded sheet information. Mark appropriate identification on front and spine of each binder. Include the following types of information:

1. Emergency instructions
2. Spare parts list
3. Copies of warranties
4. Wiring diagrams
5. Recommended "turn-around" cycles
6. Inspection and adjustment procedures
7. Shop Drawings and Product Data

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

3.1 CLOSEOUT PROCEDURES

- A. Operation and Maintenance Instructions: Arrange for each Installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. Provide instruction by manufacturer's representatives if installers are not experienced in operation and maintenance procedures. Include a detailed review of the following items:
 - 1. Maintenance manuals
 - 2. Record documents
 - 3. Spare parts and materials
 - 4. Identification systems
 - 5. Control sequences
 - 6. Warranties and bonds
- B. As part of instruction for operating equipment, demonstrate the following procedures:
 - 1. Startup
 - 2. Shutdown
 - 3. Emergency operations

3.2 FINAL CLEANING

- A. Cleaning:
Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion.
 - a. Remove labels that are not permanent labels.

- b. Wipe surfaces of mechanical and electrical equipment. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.
 - c. Clean the site of rubbish, litter, and other foreign substances. Sweep paved areas broom clean; remove stains, spills, and other foreign deposits.
- B. Removal of Protection:
Remove temporary protection and facilities installed for protection of the work during construction.
- C. Compliance:
Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from the site and dispose of lawfully.
 - 1. Where extra materials of value remain after completion of associated work, they become the Owner's property. Dispose of these materials as directed by the Owner.

END OF SECTION

SECTION 01720

Project Record Documents

PART 1 – GENERAL

1.1 REQUIREMENTS INCLUDED

- A. Maintain at the site for the Owner one record copy of:
 - 1. Drawings
 - 2. Specifications
 - 3. Addenda
 - 4. Change Orders and Other Modifications to the Contract
 - 5. Engineer Field Orders or Written Instructions
 - 6. Approved Shop Drawings, Product Data, and Samples
 - 7. Field Test Records
 - 8. Construction Photographs

1.2 RELATED REQUIREMENTS

- A. Section 01340 – Shop Drawings, Product Data, and Samples

1.3 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Store documents and samples in Contractor's field office apart from documents used for construction.
 - 1. Provide files and racks for storage of documents.
 - 2. Provide locked cabinet or secure storage space for storage of samples.
- B. File documents and samples in accordance with CSI/CSC format.
- C. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.

- D. Make documents and samples available at all times for inspection by Engineer.

1.4 MARKING DEVICES

- A. Provide felt tip marking pens for recording information in the color code designated by Engineer.

1.5 RECORDING

- A. Label each document "Project Record" in neat, large-printed letters.
- B. Record information concurrently with construction progress.
 - 1. Do not conceal any work until required information is recorded.
- C. Drawings:
Legibly mark to record actual construction.
 - 1. Depths of various elements of foundation in relation to finish first floor datum.
 - 2. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - 3. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.
 - 4. Field changes of dimension and detail.
 - 5. Changes made by Field Order or by Change Order.
 - 6. Details not on original contract drawings.
- D. Specifications and Addenda, legibly mark each section to record:
 - 1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
 - 2. Changes made by Field Order or by Change Order.

PART 2 – PRODUCTS

Not Used

PART 3 – EXECUTION

Not Used

END OF SECTION

SECTION 01732

Selective Demolition

PART 1 - GENERAL

1.1 WORK INCLUDES

- A. Removal and disposal of equipment, foundation, piping, ductwork, structures, and associated work as detailed on the drawings.

1.2 RELATED SECTIONS

- A. Drawings and general provisions of the contract, including general and supplementary conditions and other division 1 sections.

1.3 DEFINITIONS

- A. Remove:
Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage:
Detach items from existing construction and deliver them to Owner ready for reuse.
- C. Remove and Reinstall:
Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- D. Existing to Remain:
Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.4 QUALITY ASSURANCE

- A. Demolition Firm Qualifications:
An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.
- B. Refrigerant Recovery Technician Qualifications:
Certified by an EPA-approved certification program.

C. Regulatory Requirements:

Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

D. Standards:

Comply with ANSI A10.6 and NFPA 241.

1.5 SCHEDULING

A. Perform Work in manner that shall provide least interference and most protection to public and existing construction. Contractor's operations subject to approval by Owner prior to commencement of Work.

B. Carefully coordinate time and manner of demolition work with Owner to assure continued operation of existing facilities and to maintain construction schedule requirements.

C. Owner's use of premises shall have priority over work in all Contract(s).

D. Contractor shall minimize outages.

E. Coordinate system outages with Owner and service utility. Notify Owner in writing at least 24 hours prior to outage. Indicate system to be disabled, areas affected, proposed date and time of outage, duration, and work to be performed. No more than two engine generators shall be out of service at any one time.

1.6 SITE PROTECTION

A. Protection:

1. Erect barriers, fences, guard rails, enclosures, chutes, and shoring to protect personnel, structures, and utilities remaining intact.

2. Protect existing objects designated to remain. Contractor shall immediately make repairs or replacements of damaged objects at no additional cost to Owner. Owner shall approve all repairs and replacements.

3. Cooperate with Owner in all operations to minimize conflict and to facilitate Owner usage of plant for normal operations.

- B. Protect underground facilities encountered during excavation until it is determined whether they are active or inactive. Repair, without compensation, existing active facilities shown on Drawings damaged during operations.
- C. Notify Engineer and Owner of unexpected subsurface conditions and discontinue Work in area until Owner provides notification to resume Work.
- D. Dust, smoke, fumes, and noise control:
 - 1. Site demolition:
Moisten surfaces as required to prevent dust from being a nuisance to public, neighbors, and concurrent performance of other work on and off site.
- E. Plant demolition:
Erect heavy-duty polyethylene walls as required to minimize spread of construction and demolition dust beyond construction area. Contractor shall provide temporary ventilation as required to facilitate dust removal to exterior.

1.7 HAZARDOUS MATERIALS

- A. It is not expected that hazardous materials will be encountered in the Work.
- B. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner.

PART 2 – PRODUCTS *Not Used*

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extend of selective demolition required.
- C. Inventory and record the conditions of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Engineer.

- E. Engage a professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.

3.2 DEMOLITION - GENERAL

- A. Remove existing construction as specified and shown and as required to permit new construction.
- B. Perform removal in manner that shall minimize dust, noise, and other nuisance. Maintain haul routes for disposal of material clean and free of debris.
- C. Remove existing construction carefully providing for neat and orderly junctions at construction to remain in place. Final appearance of exposed surfaces shall be similar and equal to that of adjacent existing work. Grind off rough surfaces to remove sharp projections and foreign material.
- D. Perform demolition operations in manner that in no way endangers personnel, public, existing structures, utilities, roadways, or facilities not to be demolished.
- E. Any portion of existing construction whether structural or accessory that has become unstable through removal of other parts of construction shall be removed as soon as practical and no such unstable part shall be left free-standing or inadequately braced against causes of collapse at end of each day's work.
- F. No demolition shall be performed on piping, electrical circuits, or equipment until system has been isolated by Owner. Contractor shall verify isolation of system.
- G. Contractor shall relocate existing active miscellaneous piping, conduit, and electrical circuits and devices not detailed on Drawings but required for installation of equipment and items installed by this Contract.
- H. To reduce fire hazards during demolition, Contractor shall:
 - 1. Before removing any parts, remove volatile or flammable materials such as fuel oil, gasoline, kerosene, benzene, cleaning fluids, paints, thinners, cloth, loose paper, combustible trash, coal, and similar materials that might serve as fuel for small fires.
 - 2. Maintain stairways in usable condition to highest or lowest level until that portion of structure is removed.

3. Maintain sufficient number of fire extinguishers to check and extinguish small fires in areas where Work is being performed.
 4. Wherever cutting torch or other equipment that might cause fire is being used, fire extinguishers shall be kept nearby and ready for instant use. Users of such equipment shall be instructed in proper method of preventing and extinguishing fires.
 5. Fires shall not be permitted in Project area.
 6. Burning of waste lumber and other building materials or trash on site shall not be permitted.
- I. All debris shall be disposed of off-site.
 - J. Use of crane wrecking balls for demolition work is not permitted.
 - K. Use of blasting shall not be permitted.
 - L. Provide temporary personnel and vehicle protection at openings or ledges made by demolition.

3.3 DEMOLITION – ARCHITECTURAL, STRUCTURAL AND SITE MATERIALS

- A. Remove as shown and specified or as required to permit new construction.
- B. Structural steel.
 1. Provide temporary support or complete new work required for support prior to removal. Maintain existing parts until equipment supported by part is removed or modified.
 2. Where applicable, remove anchor bolts. Make provisions to ensure smooth surface where removed.
 3. Care shall be taken not to damage any portion of existing structural steel that is to remain intact.
 4. Material shall be removed completely from work areas and other areas that are to remain. Contractor shall make special inspections by its job superintendent and quality control personnel to ensure that material is not left in areas where they can get into operating systems.

3.4 DEMOLITION – MECHANICAL

- A. Remove existing construction as specified and shown and as required to permit new construction.
- B. Perform removal in manner that shall minimize dust, noise, and other nuisance. Maintain haul routes for disposal of material clean and free of debris.
- C. Remove air conditioning equipment without releasing refrigerants.
- D. Drain all piping prior to cutting and removing, into proper disposal locations.
- E. Provide temporary caps and covers for any piping or ductwork connections to existing.

3.5 DISPOSAL OF MATERIALS

- A. Storage of materials to be removed not permitted to accumulate on site. Promptly remove and dispose of non-salvageable equipment and materials.
- B. Debris shall not be allowed to accumulate on roofs, floors, or areas outside of and around buildings being removed. Waste materials and debris resulting from Work shall be removed and disposed of daily by Contractor in disposal area obtained by Contractor.
- C. Burning of waste lumber and other building materials or trash on site is not permitted.
- D. No material, obstructions, or debris shall be placed or allowed to accumulate within 15' of any fire hydrant. Fire hydrants shall be accessible at all times.

3.6 PATCHING

- A. Patch openings in walls, foundations, floors, and grating caused by demolition. Use materials comparable to adjacent undisturbed surfaces for patching.

3.7 REPAIR AND RESTORATION

- A. Contractor shall be responsible for damage to personnel, public, roadways, streets, structures, utilities, facilities, and equipment caused by operations and shall repair any damage at its own expense or replace items damaged beyond repair.

- B. Do not operate vehicles or equipment on existing construction or roadways that could be damaged.
- C. Replace construction removed to facilitate operations with construction of equal quality to that removed.

3.8 CLEAN-UP

- A. Maintain public streets, alleys, or other thoroughfares used in carrying out disposal free of litter or soil attributable to this operation. Load trucks or other vehicles to prevent leakage, blowing off, or other escape of any portion of whatsoever is being hauled. Cost incurred by Owner in cleaning up such litter shall be charged to Contractor and deducted from monies due or to become due it under this Contract.
- B. Upon completion of demolition work in each area, thoroughly clean area of materials not to remain.
- C. Remove materials (except paint) adhered to construction to remain.
- D. Leave areas in broom clean and vacuumed condition.

END OF SECTION

SECTION 02000

Subsurface Exploration & Engineering Recommendations

The following soil boring data is presented for the bidder's information. It should not be considered as all-inclusive. The bidder is advised to perform any investigations he deems necessary to prepare his bid. To arrange to perform investigative "digs", the bidder should contact Chris Couch, the Project Manager, at BHMGE Engineers, Inc. (636-237-7823).

A report by a 3rd party Engineer is placed behind this cover page.



Foundation Engineering Report
**Village of Rantoul Power Plant
Substation Transformer Replacement**
Rantoul, Champaign County, Illinois
BHMGE Engineers, Inc.

May 2026

May 21, 2026

Mr. Chris Couch
Project Manager
BHMG Engineers, Inc.
9735 Landmark Parkway Dr., Suite 110A
St. Louis, MO 63127

RE: Village of Rantoul Power Plant Substation Transformer Replacement
Rantoul, Champaign County, Illinois

Dear Mr. Couch:

Hanson Professional Services Inc. (Hanson) has completed geotechnical engineering services for the proposed Village of Rantoul Power Plant Substation Transformer Replacement in Rantoul, Champaign County, Illinois.

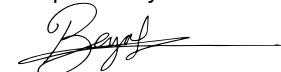
The attached Foundation Engineering Report presents geotechnical recommendations for the planned development. These recommendations are based on data collected from one boring as part of the subsurface exploration performed by Hanson. This report has been prepared for the exclusive use of BHMG Engineers, Inc. (BHMG) for specific application to this project for planning purposes. The analysis, conclusions, and recommendations included in this report are based on conditions at the time and location of the field exploration performed by Hanson and supplemented by others. It should be noted that subsurface conditions can vary from location to location.

This report has been prepared in accordance with the scope of services described in our April 22, 2026, proposal letter to you and authorized by BHMG Purchase Order No. 3869HNS01. Please let us know if there are any questions or needed clarifications concerning the information included herein.

Sincerely,

HANSON PROFESSIONAL SERVICES INC.

Prepared by:



Beya Kazadi, P.E.
Geotechnical Engineer



Reviewed by:



James Knutelski, P.E.
Senior Geotechnical Engineer

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Figure 1: Project Location
Figure 2: Boring Location

Appendices

Appendix A – Field Investigation

PLATE 1 - Measurements of Relative Density & Consistency for Soils and Estimates of Quality & Strength
Descriptions for Rocks
Boring Log

Appendix B - Laboratory Investigation

Key to Symbols and Terms Laboratory Soils Test Data
Laboratory Test Results

Appendix C – Construction Standards For Drilled Pier Foundations

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Executive Summary

A subsurface investigation was performed during May 2026, for the proposed Village of Rantoul Power Plant Substation Transformer Replacement in Rantoul, Champaign County, Illinois. One soil boring was completed at the proposed site, and laboratory testing was performed on samples recovered from the boring to obtain the data necessary to make recommendations for design and construction of the proposed improvements.

The proposed transformer replacement is located within an existing substation. The material encountered during the subsurface exploration consists predominantly of fine-grained material. The materials were developed from loess, and glacial till.

We expect that deep foundations (drilled piers) will develop adequate axial bearing capacity through side resistance and tip resistance, and the depth of the piers will be controlled by the lateral or axial loads to be applied to the foundations.

Fair support conditions for shallow foundations are present at this location.

Subsequent sections of this report contain more specific information regarding the subsurface conditions that were encountered, and present more complete design and construction recommendations for the proposed structures.

1. Introduction

This report presents the results of a subsurface investigation by Hanson Professional Services Inc. (Hanson) for the proposed Village of Rantoul Power Plant Substation Transformer Replacement to be constructed in Rantoul in Champaign County, Illinois.

The geotechnical exploration was performed for the proposed transformer replacement with the following anticipated development and the client preferred foundation system:

- (1) – 69 kV Transformer Foundation – thickened slab foundation for support of the equipment anticipated (Oil containment and detailing effort excluded from scope of service)

Structures with high axial or lateral loading will typically be supported by drilled shaft foundations. Lightly loaded structures will typically be supported by slab-on-grade foundations. The agreed scope of services for this project includes:

- Perform soil boring at accessible location within the limits of the proposed development.
- Complete laboratory classification and testing on select samples to determine index and soil design parameters.
- Perform engineering analysis required to develop necessary geotechnical recommendations to support the different structures that will be part of the transformer replacement.
- Compile a geotechnical engineering report to consolidate site information relative to the project.

Recommendations presented within this report have been developed from: (1) results of one test boring made at the site by Midwest Engineering and Testing Inc. (MET) of Champaign, Illinois; (2) results of laboratory testing on samples obtained from the boring; and (3) analyses of foundation conditions as related to the proposed construction.

The location of the Village of Rantoul Power Plant Substation is shown in Figure 1. The boring layout is shown in Figure 2.

A typed field log that records the changes encountered in the subsurface strata, reports the depth of groundwater encountered while drilling and at end of drilling, summarizes the field sampling completed, and includes the results of laboratory testing for moisture content and the unconfined compressive strength of cohesive soil samples was prepared by MET.

A summary of the field investigation procedures used by MET and the typed field log for this site are included in Appendix A of this report.

A summary of the laboratory investigation procedures performed by MET and results of the laboratory investigation are included in Appendix B of this report.

2. Project Information

2.1 Project Location

The proposed transformer replacement within the Village of Rantoul Power Plant Substation is located in Rantoul, Illinois (approximately latitude: 40.312060° N and approximately Longitude: 88.160196° W) as shown in Figure 1. The site for the proposed development is located within an existing substation adjacent to private residential properties.

Details of the proposed transformer structures at the substation were not available at the time of this report preparation. Information provided to Hanson indicates that the improvements at the Substation will be constructed near the boring location shown on Figure 2. Based on our comprehension, the client prefers the use of thickened slab foundation systems to support the transformer structures.

2.2 Project Limitations

Field explorations have been performed to the degree allowable within the agreed scope and budget limitations for the project. The conditions expressed on the boring log should be taken to represent conditions only at the borehole location. Subsurface profile generalizations are intended for purposes of planning and designing for a typical condition and do not express Hanson's opinion of the soil profile beyond the immediate boring location.

The data and recommendations provided within this report should be considered in their entirety with respect to design and construction recommendations. All data provided within and appended to this report have been prepared for the use of BHMGE Engineers Inc. for specific application to this project, in accordance with acceptable engineering practices and according to the project limitations. All reported conditions represent the conditions as observed at the specific time and specific location of Hanson's field investigation. No other warranty, expressed or implied, is made.

3. Geology

3.1 Geology and Pedology

The project area under investigation lies within the Bloomington Ridged Plain subsection of Illinois and is included within the Till Plains section of the Central Lowlands Physiographic Province of the United States. The Bloomington Ridged Plain consists of nearly featureless till plains that lie between the gentle end moraines of the Wisconsin glaciers. Thin windblown deposits and moderately thick glacial deposits of Wisconsin and older ages underlie the land surface.

3.2 Bedrock and Unconsolidated Deposits

Public information developed by the Illinois State Geological Survey (ISGS) was reviewed in order to determine the geological characteristics at the project site. The project site is situated in an area with a total drift thickness between 300 and 400 ft. Wind deposit (loess) composed of Peorian Loess covers the ground surface at the project site and makes up between 1 and 5 ft of the drift thickness. Underlying the loess is glacial drift belonging to the Batestown Member of the Lemont Formation within the Wedron Group.

The Batestown Member consists of calcareous, gray, medium textured (loam) diamicton that contains lenses of gravel, sand, silt, and clay and is between 25 and 75 feet thick.

Bedrock underlying the proposed substation is comprised of New Albany Group (DMna) and ranges in age from Middle Devonian to Lower Mississippian. DMna is a continuous body of black, gray, and greenish-gray shale interbedded with other sedimentary rock that locally may include coarse grained clastic rock, carbonates, and/or coal.

According to USDA Web Soil Survey for the proposed site, the surficial soil consists of Urban Land. There are no soil properties available for the urban land soil due to disturbance in urban areas.

3.3 Groundwater

Groundwater was not encountered during the drilling program. Groundwater levels recorded on the boring log are only representative of the levels on the day that the boring was completed. The assumed groundwater depth for design is an estimate for the project over the entire year and is not considered overly conservative or under conservative.

The groundwater depth encountered during construction may differ considerably from the groundwater depth recorded on the boring log and the assumed groundwater depth for design due to variations in precipitation and other factors that may have changed between the date of the soil boring and the date of construction.

3.4 Coal Mining

Maps of documented coal mines provided by the Illinois State Geological Survey (ISGS) indicate that the proposed substation site has not been undermined.

3.5 Karst

The project site is not situated in an area with reported karst features.

3.6 Seismicity

ASCE 7-22 was used to classify the substation location based on the results of the subsurface information obtained from the soil borings. The site can be defined as Class D – Stiff Soil. The PGA for a 975-year return period seismic event is 0.048 g at this location.

4. Field Exploration

A total of one standard penetration test (SPT) boring was completed for this study to evaluate the general nature and condition of the subsurface material at the project site and to compare with existing soil information available for the site. The soil boring was completed in May 2026.

The boring location is shown in Figure 2.

5. Laboratory Testing

Disturbed and undisturbed soil samples were obtained within existing geological units. Per the scope of this project, routine laboratory testing: moisture content, Atterberg limit, and particle size distribution (sieve and hydrometer analysis) were performed on representative soil samples. Complex laboratory testing: one-dimensional consolidation, unconfined compression strength, and unit weight tests were also performed on selected recovered soil samples. Laboratory testing was completed in May 2026, by MET. Laboratory test results are provided in Appendix B.

6. Subsurface Profile

A generalized subsurface profile has been developed for this project to provide a basis for discussion of foundation support conditions. The profile is based upon the field test data and boring log supplied by the drilling contractor and the laboratory testing program conducted by MET. The profile consists of predominantly fine-grained material. The materials were developed from loess, and glacial till. The various materials encountered at the site are described below. The generalized profile is shown in the boring log.

- | | |
|-------------|---|
| Stratum I | Pavement – Asphalt Cement Concrete (ACC) surface course and aggregate base course was encountered at the ground surface. The pavement section consists of 3 inches of ACC and 13 inches of base course. |
| Stratum II | Dark brown silty clay (loess) was encountered beneath Stratum I. The silty clay loess layer had a thickness of 1.17 ft. Unconfined compression strength test (Q_u) value of 1.50 tsf, and moisture content (MC) value of 22 percent were recorded in the silty clay loess layer. |
| Stratum III | Brown and gray silty clay (till) with sand and gravel was encountered beneath Stratum II. The silty clay till layer extended to the boring termination depth of 41.5 ft. Standard penetration test (SPT) N values between 6 and 12 blows per foot penetration (9 average), Q_u value between 0.53 and 1.6 tsf (1.25 average) and MC values between 12 and 16 percent (14 average) were recorded in the silty clay till layer. |

7. Conclusion and Recommendations

7.1 Shallow foundations

Information from the boring and the subsequent laboratory investigation indicates that fair support conditions for spread footings exist at a relatively shallow depth at this site. For the proposed transformer replacement within the substation, shallow foundations founded within the existing silty clay till materials (Stratum III) may be proportioned for an allowable net bearing pressure of 2,500 psf, that includes a FOS of 3, provided that footing excavations are carefully checked, and that any soft soil pockets encountered at the base of footing excavations during construction are removed and replaced with lean concrete or a well-compacted fill.

Spread footings may also be placed in engineered fill, provided the fill is placed in thin lifts (6 in. to 8 in., loose, depending on the type of compaction equipment used) and compacted to 95 percent of the maximum dry density as obtained by the Standard Proctor Compaction Test (ASTM D698). Spread footings founded within new fill materials may be proportioned for an allowable net bearing pressure of 2,500 psf, provided

that footing excavations are carefully checked, and that any soft soil pockets encountered at the base of footing excavations during construction are removed and replaced with lean concrete or a well-compacted fill.

Shallow foundations designed in accordance with the above recommendations are expected to experience long-term settlement of less than one inch.

For slabs constructed according to the above recommendations, a subgrade modulus of 75 pci may be used for structural design.

For mat type foundations with an applied bearing pressure of 1.50 ksf, a depth of 5 ft, and approximate dimensions of 30 ft X 40 ft, long term settlement is expected to be less than 1.0 inches. A subgrade modulus of 75 pci may be used for mat foundation structural design.

A frost depth below finished grade of 33 in. is recommended for exterior footings. However, local building codes may require a greater depth, and this depth should be used to satisfy code requirements. Interior footings beneath permanently controlled heated areas may be founded immediately beneath the slab-on-grade.

Slab-on-grade foundations used for support of structures should be constructed on material that is not susceptible to frost action, such as clean sand, clean gravel, or base materials used for roadway or highway construction. The more common Illinois Department of Transportation (IDOT) designations for such materials are fine aggregate FA-1, 2, 3, 6 and 7 (Specification Section 1003.01) and coarse aggregate CA-6 or 7 (Specification Section 1004.01). Removal and replacement of the surficial soils should be performed to a depth of 33 in. where slab-on-grade foundations will be utilized. Slab-on-grade foundations constructed on the above noted cohesionless soils may be proportioned for an allowable net bearing pressure of 2,000 psf.

7.2 Drilled Shafts

The table below provides the foundation recommendations (including soil parameters necessary for the input required by the software LPile) for the Village of Rantoul Power Plant Substation Transformer Replacement. The assumed groundwater table depth for design is 3.0 ft below the ground surface. If necessary, the design values for ultimate end bearing resistance provided below (q_{BN}) can also be used in conjunction with the ultimate side resistance values (f_{SN}) if the bottoms of the shaft excavations are cleaned of all loose, or sloughed materials prior to placing concrete.

A factor of 0.8 should be multiplied by the ultimate side resistances below and a factor of 0.2 should be multiplied by the ultimate end bearing resistances below for design of axially loaded drilled shafts if both side resistance and end bearing resistance are used. A factor of safety of 2.5 should be applied to f_{SN} and q_{BN} to determine the allowable loads. The side resistance for the upper 3 ft of the soil profile should be neglected at this location due to seasonal moisture changes in near surface soils.

The LPile soil type provided below is only intended for program input and is not a measure of the consistency or strength of the material indicated at those depths.

Cobbles, boulders, and/or sand pockets that are not documented on the boring log may be encountered during excavation for foundations. Should boulders be encountered during drilling for pier installation,

coring techniques or work with air hammers could become necessary to break up and remove the boulders so that the individual pier excavation could continue. A basis of payment for controlling the cost of necessary extra work associated with the removal of boulders should be carefully established prior to beginning construction.

Pumping may be necessary to remove water from the pier excavation prior to placing concrete.

Appendix C "Construction Standards for Drilled Pier Foundations" should be viewed as being supplementary to this subsection. It is intended to assist the designer and specification writer, as it points out many issues and procedures associated with drilled pier construction.

B-1

Date Drilled	5/1/26
Ground Elevation at Boring	0.00
Boring Coordinates	N W
Groundwater Depth	Dry

DD - GW encountered during drilling

EOB - GW level at the end of drilling with augers removed

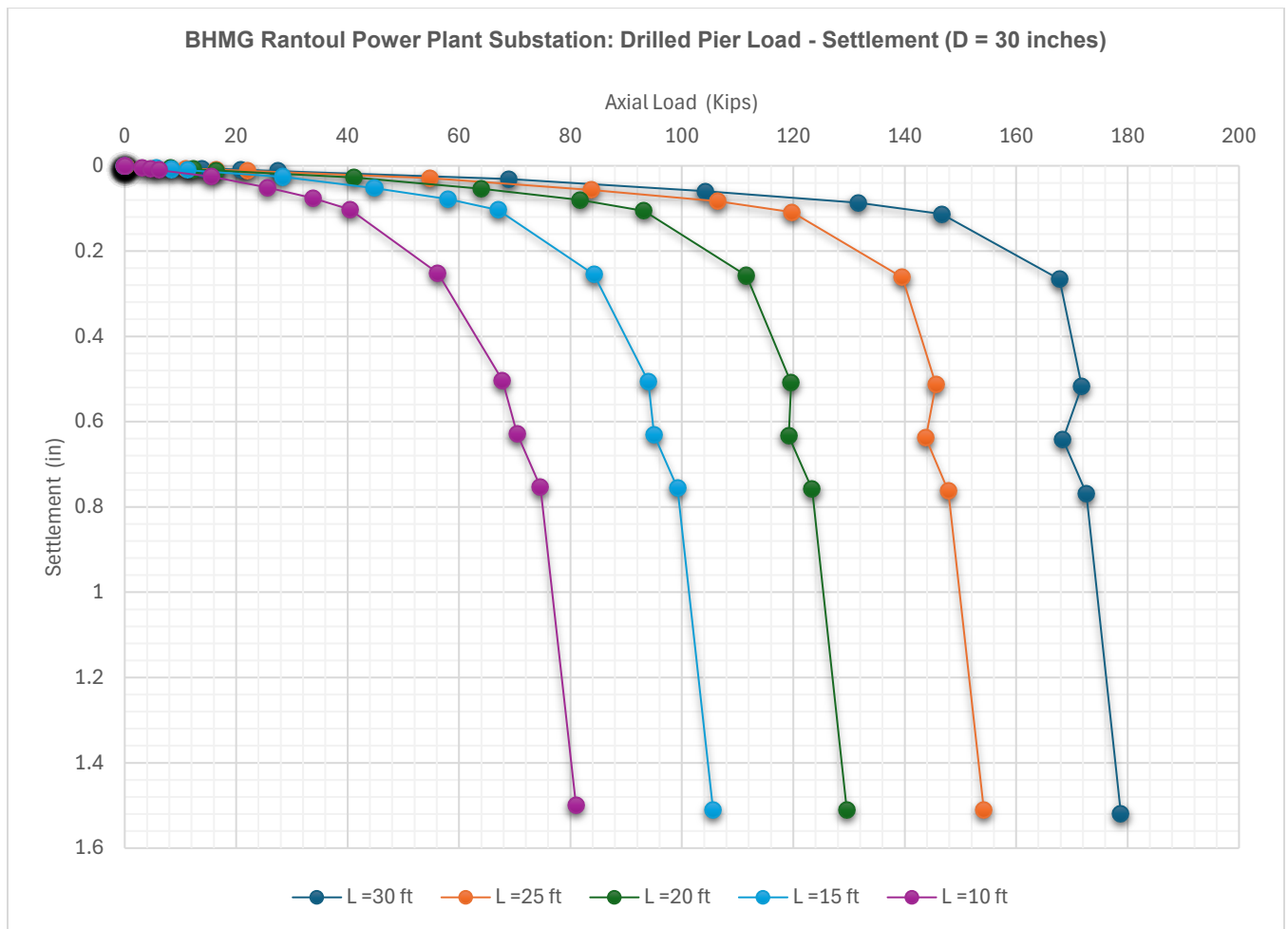
		Soil Parameters			Rock Properties				Drilled Foundation		LPile Parameters	
Depth (ft)	LPILE Soil Type	γ' (lb/ft ³)	c (lb/ft ²)	ϕ' (°)	q_u (lb/in ²)	E_{irm} (lb/in ²)	RQD (%)	k_{rm}	f_{SN} (lb/ft ²)	q_{BN} (lb/ft ²)	k (pci)	ϵ_{50}
0.0	Soft Clay (Matlock)	115	250						0		30	0.020
3.0		115	250						0		30	0.020
3.0	Stiff Clay w/o Free	63	1,300						0		500	0.007
5.0	Water	63	1,300						0		500	0.007
5.0	Stiff Clay w/o Free	63	530						290	4,800	100	0.010
7.5	Water	63	530						290	4,800	100	0.010
7.5	Stiff Clay w/o Free	63	1,360						750	12,200	500	0.007
20.0	Water	63	1,360						750	12,200	500	0.007
20.0	Stiff Clay w/o Free	63	1,360						750	12,200	500	0.007
41.5	Water	63	1,360						750	12,200	500	0.007

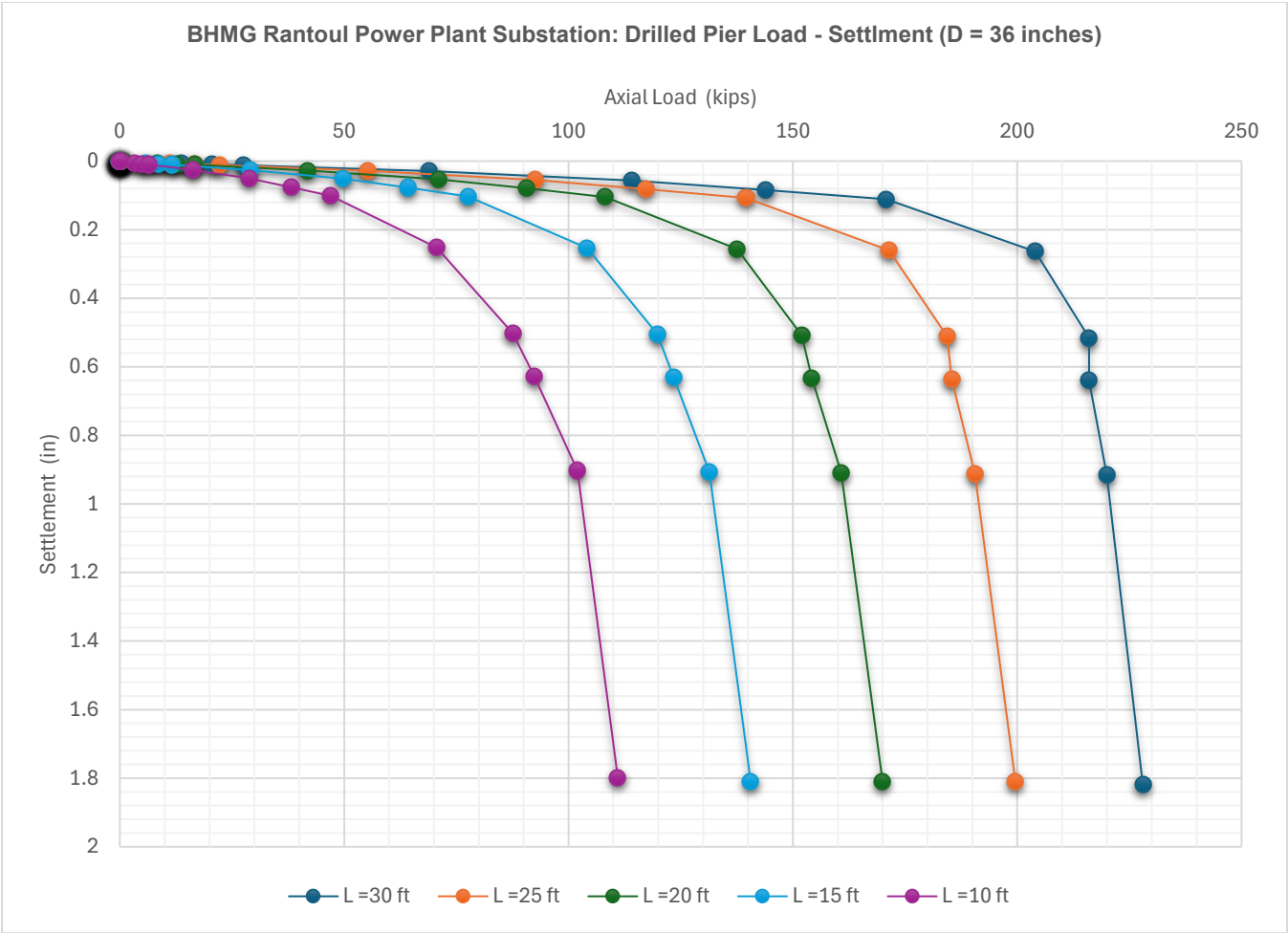
Special recommendations: A temporary casing should be available if necessary during wet periods with seasonally high ground water, or if sloughing soils become a problem during construction.

Note: Groundwater depth is 3.0 ft below grade for design purposes.

Seismic site Class D - Stiff soil

The estimated settlement for drilled piers constructed using the above recommendations is provided on the charts below.







Prior to foundation construction or fill placement the construction area should be stripped of all asphalt pavement, and any other loose surface materials. After stripping these materials, it is recommended that the exposed subgrade surface be proof rolled with several passes of a heavy static roller or a heavily loaded dump truck. If soft or loose pockets are detected that cannot be effectively compacted by repeated passes of the roller or truck, then those areas should be undercut and backfilled with well-compacted fill material. Care should be taken during wet construction periods so that proof rolling operations do not disturb the subgrade.

Exposed subgrade should be protected against an increase in moisture because high moisture contents may affect performance of the construction equipment due to rutting and pumping of the soil surface, especially during and after periods of wet weather. If the natural moisture content is determined to be high and cannot be brought to the moisture content required to facilitate adequate compaction, one of the

following methods should be considered: 1) drying by natural means (could impact schedule), 2) chemical treatment (e.g. lime placement) to reduce the moisture content, or 3) removal and replacement with select fill.

Ideally, any additional fill needed to bring the site to grade near the structures should be placed before the foundations are built or excavations are made. This would give the compressible natural materials beneath the fill time to settle under the fill load and thus minimize differential settlements of the superstructure. This procedure would also facilitate more uniform placement and compaction of the fill and would result in better compaction since larger equipment could be used.

7.4 Excavation

For all excavations, permanent slopes in natural soils should be excavated to an inclination of 3.0 horizontal to 1.0 vertical, or flatter. Short-term, shallow, temporary slopes less than 10 feet in height may be excavated to an inclination of 1.5 horizontal to 1.0 vertical. Temporary slopes may experience some sloughing and the contractor should take caution and follow the appropriate OSHA regulations with respect to excavations.

At this location, the seasonal high groundwater table is generally between 0.0 and 6.0 feet below the ground surface during the spring. The depth to groundwater is variable during the remainder of the year, depending on precipitation. Groundwater may be a concern when completing excavations during wetter periods.

The soil materials from the cut sections are suitable for use as backfill in fill areas.

7.5 Fill

The fill material should be placed in loose lifts not to exceed 8 inches. Fill material should be compacted to a minimum of 95% standard proctor maximum dry density within 2% of the optimum moisture content.

If selected fill materials do not exhibit a well-defined moisture density relationship, they should be compacted to 75 percent relative density (ASTM D 4253 and D 4254). Soil fill material for use below structures, where acceptable to the engineer, should be free from organic and other deleterious substances, should have a plasticity index less than 25 (ASTM D 4318) and a liquid limit less than 40 (ASTM D 4318), and should be conditioned to the proper moisture content. Soil materials not meeting the above criteria for backfill below structures may be placed as general fill at the other non-structural areas of the site with engineer's approval.

When filling on slopes steeper than 1V:6H, the existing slope should be benched prior to the placement of fill materials.

7.6 Special Construction Techniques

An investigation with regards to the risk of corrosion of steel and degradation of concrete in the in-situ soils present at the site was outside the scope of this subsurface exploration. Literature review of available site data, including records from the USDA Natural Resources Conservation Service (NRCS), yielded insufficient data to definitively characterize the soil's corrosion potential regarding buried steel and concrete elements. The design engineer should determine what, if any, methods should be used to protect buried steel and to determine if the use of sulfate resistant concrete would be appropriate.

7.7 Liquefaction

Due to the presence of predominantly stiff material at the site, and the relatively low peak ground acceleration value, liquefaction of the foundation soil is not likely during the design seismic event.

References

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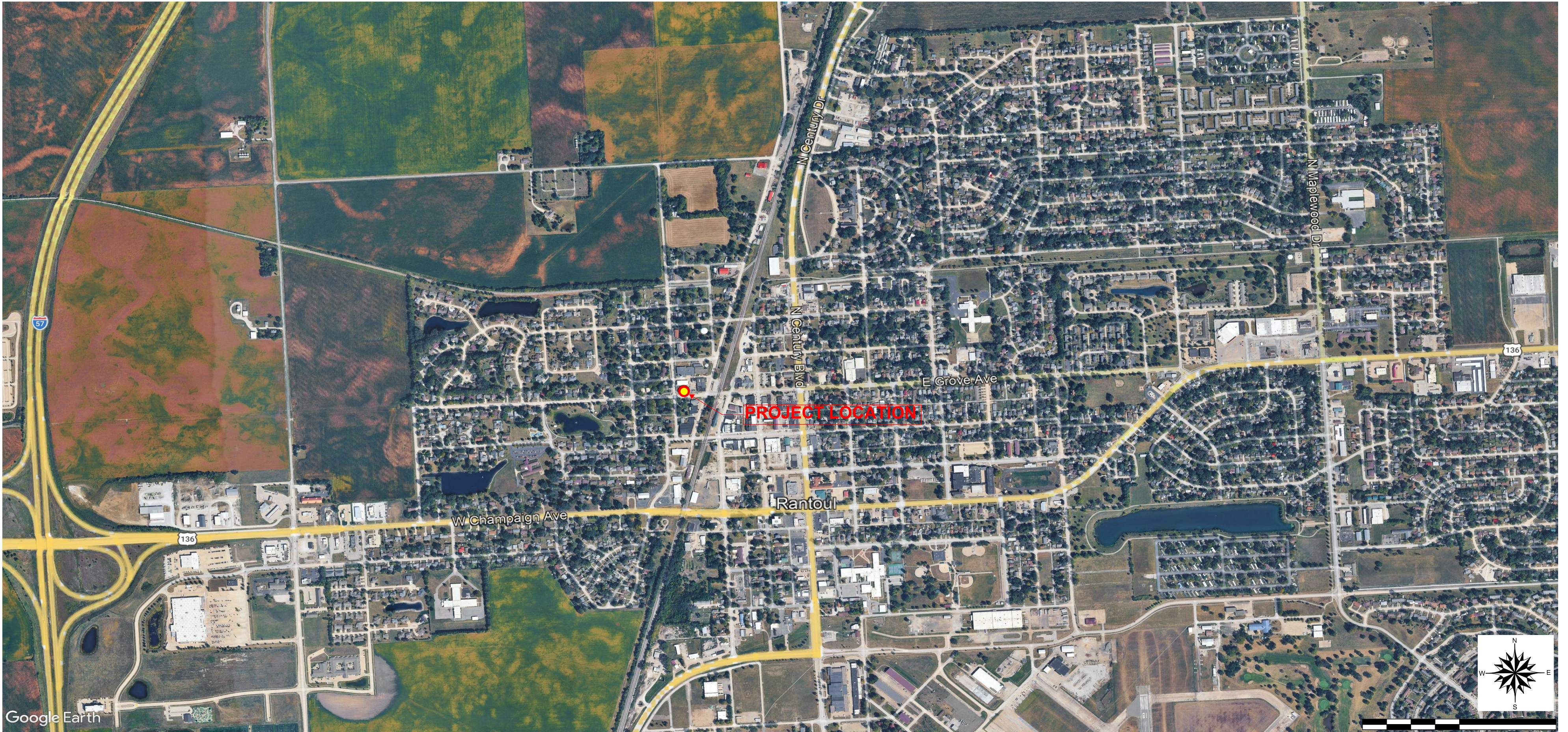
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Figures



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PROJECT LOCATION

VILLAGE OF RANTOUL POWER PLANT SUBSTATION
TRANSFORMER REPLACEMENT

RANTOUL, CHAMPAIGN COUNTY, ILLINOIS

JOB NO. 26E0037A_00

FIGURE 1



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BORING LOCATION

VILLAGE OF RANTOUL POWER PLANT SUBSTATION
TRANSFORMER REPLACEMENT

RANTOUL, CHAMPAIGN COUNTY, ILLINOIS

JOB NO. 26E0037A_00

FIGURE 2



Appendix A

Field Investigation

Appendix A – Field Investigation

The field investigation program for this project encompassed several items of work, including: exploratory borings, sampling of the subsoils, field testing of the subsoils, and visual classifications by the boring foreman of the soil materials encountered.

To permit proper laboratory identification and classification of the subsurface strata, representative samples of the subsoil were taken at regular intervals within each boring. These samples were recovered by driving a 2 in. O.D. (1 3/8 in. I.D.) split-barrel sampler in conformance with the requirements of ASTM Standard D 1586. The recovered samples were classified by the drilling foreman, sealed in properly identified glass jars, and stored in boxes for later shipment to MET's laboratory. Supplemental sampling was also carried out with the use of hydraulically pushed thin-walled Shelby tubes in conformance with the requirements of ASTM Standard D 1587. This latter sampling procedure results in much less alteration of the mechanical properties of the soil and permits a better laboratory estimation of the in situ stress-strain characteristics of the subsoils. The soils thus recovered were sealed within the same tubes used for sampling, labeled for proper identification, and carefully stored for later testing in the laboratory.

The field testing consisted of recording the resistance of the various substrata to penetration of the split-barrel sampler, in conformance with the requirements of ASTM Standard D1586, and a calibrated (pocket) penetrometer was also used on recovered, intact samples to provide approximate unconfined compressive strength data. The penetration resistance testing procedure consists of dropping a 140 lb. hammer from a height of 30 in. onto the drill rods guiding the sampler. The number of blows (N) necessary to produce a penetration of 1 ft is recorded as the penetration resistance. To avoid seating errors, the blows for the first 6 in. of penetration are not taken into account; those required to increase the penetration from 6 in. to 18 in. are recorded as the N-value. Standard penetration test results can usually be correlated with the pertinent physical properties of the subsoil, as shown in Table 1 of Plate 1. The correlation for clays can be regarded as no more than a crude approximation, but for sands that is often reliable enough to permit the use of N-values in foundation design.

MEASUREMENTS OF RELATIVE DENSITY & CONSISTENCY FOR SOILS AND ESTIMATES OF QUALITY & STRENGTH DESCRIPTIONS FOR ROCKS

**Table 1: Penetration Resistance and Soil Properties on Basis
of the Standard Penetration Test**

Sands (Fairly Reliable)		Clays (Rather Unreliable)	
Number of Blows per ft, N	Relative Density	Number of Blows per ft, N	Consistency
0-4	Very Loose	Below 2	Very Soft
4-10	Loose	2-4	Soft
10-30	Medium	4-8	Medium
30-50	Dense	8-15	Stiff
Over 50	Very Dense	15-30	Very Stiff
		Over 30	Hard

Table 2: Qualitative and Quantitative Expressions for Consistency of Clays

Consistency	Field Identification	Unconfined Compressive Strength qu (tons/sq ft)
Very Soft	Easily penetrated several inches by fist.	Less than 0.25
Soft	Easily penetrated several inches by thumb.	0.25-0.5
Medium	Can be penetrated several inches by thumb with moderate effort.	0.5-1.0
Stiff	Readily indented by thumb but penetrated only with great effort.	1.0-2.0
Very Stiff	Readily indented by thumbnail.	2.0-4.0
Hard	Indented with difficulty by thumbnail.	Over 4.0

**Table 3: Relation of RQD and
in situ Rock Quality**

RQD (%)	Rock Quality
90-100	Excellent
75-90	Good
50-75	Fair
25-50	Poor
0-25	Very Poor

**Table 4: Classification of Intact Rocks
According to Strength**

Description Strength	Unconfined Compressive Strength (lb/sq in)
Very High	Over 32,000
High	16,000-32,000
Medium	8,000-16,000
Low	4,000-8,000
Very Low	Less than 4,000

SOIL BORING LOG

MET Midwest Engineering and Testing, Inc.

Project Name: Rantoul Power Plant Substation Project
 Rantoul, Illinois
 Hanson Project 26E0037

Boring: B-1
 Project No.: B63039
 Date of Boring: May 1, 2026
 Field Representative: Jake Hedenberg

VISUAL SOIL CLASSIFICATION	Feet	Sample No.	N	Q _p (tsf)	Q _u (tsf)	MC (%)	Dd (pcf)	Remarks
3" Asphalt over 13" Crushed Stone								
Dark brown silty CLAY (CL)		1-AU	-	1.5	-	22	-	
		2-SS	7	1.3	1.3	15	116	
	5							
		3-ST	-	-	-	-	-	Dry during and upon completion of drilling
		4-SS	7	2.0	1.4	16	117	
	10							
		5-SS	6	1.5	1.0	15	118	
	15							
		6-SS	11	-	-	-	-	
	20							
		7-SS	10	2.5	1.5	12	134	
	25							
		8-SS	11	2.5	1.6	12	129	
	30							
		9-SS	10	2.3	0.9	12	140	
	35							
		10-SS	12	2.0	1.5	12	143	
	40							
		11-SS	11	1.8	1.6	12	144	
END OF BORING AT 41.5 FEET								

Lines of Demarcation represent an approximate boundary between soil types. Variations may occur between sampling intervals and between boring locations, and the transition may be gradual. Dashed lines are indicative of potentially erratic or unknown changes, such as fill-to-natural soil zone transitions.

Appendix B

Laboratory Investigation

Appendix B – Laboratory Investigation

The field samples delivered to the laboratory were subjected to a program of routine laboratory testing which included: soil type classifications by visual methods as recommended in ASTM Standard D 2488, moisture content determinations according to ASTM Standard D 2216, density (unit weight) weight determination according to ASTM Standard D 7263, and unconfined compressive strength measurements (of cohesive soil samples) in general conformance with ASTM Standard D 2166. The data obtained from these standard test methods are grouped by boring and recorded on the Laboratory Soil Test Data sheets contained in Appendix B.

In the unconfined compressive strength test, a cylinder of soil having a height of 1 1/2 to 2 times the average diameter is loaded to failure, in simple compression, quickly enough that the water content of the soil does not change. The failure load (or if the sample does not fail outright, the load required to produce 20 percent strain) is expressed as the load per unit of cross sectional area, in tons per square foot. Table 2 of Plate 1 indicates the relationship between the qualitative terms used to describe consistency and the quantitative values of the unconfined compressive strength. A calibrated penetrometer was also employed to provide supplemental data on consistency or to test samples unsuitable for unconfined compressive strength testing. However, the values from the penetrometer tests are considered only as approximate indicators of consistency.

The results of the unconfined compression tests on the split-barrel samples are subject to interpretation considering the disturbance inherent to the sampling procedure that is used. Generally, shear strength determinations on split-barrel samples are considered slightly to moderately conservative depending upon the sensitivity of the subsoil strata being investigated. The compressive shear strengths obtained from laboratory tests on the less disturbed Shelby tube samples are considered more reliable indicators in situ conditions, and greater emphasis has been placed on these results in regard to foundation analysis and design.

An accurate forecast of the settlement performance of the proposed construction required that the in situ stress-strain properties of the subsoils be determined as accurately as possible. To provide such data, one-dimensional consolidation test was conducted on a Shelby tube sample taken from the most critical strata within the profile.

Special testing performed by MET to further classify the subsoil encountered at the site includes laboratory determinations of particle-size characteristics (ASTM D6913 and D7928), liquid limit, and plasticity index (ASTM D4318).

KEY TO SYMBOLS AND TERMS LABORATORY SOIL TEST DATA

<u>BOR.</u>	—	BORING NUMBER
<u>SAMP.</u>	—	SAMPLE NUMBER
		3 (SPLIT SPOON SAMPLE)
		4-2 (SHELBY TUBE SAMPLE)
		SHELBY TUBE # <u> </u> / <u> </u> \ SAMPLE # WITHIN TUBE
<u>DEPTH</u>	—	DEPTH TO BOTTOM OF SAMPLE. DEPTH MEASURED FROM GROUND SURFACE AT BORING LOCATION.
<u>ELEV.</u>	—	ELEVATION OF BOTTOM OF SAMPLE. ELEVATIONS BASED ON SITE DATUM GIVEN IN REPORT.
<u>N</u>	—	STANDARD PENETRATION VALUE. DEFINED AS NUMBER OF BLOWS OF 140-LB. HAMMER DROPPED 30 INCHES REQUIRED TO DRIVE 2-IN. O.D. SPLIT SPOON SAMPLER FOR LAST 12 INCHES OF PENETRATION, OR FRACTION THEREOF.

ROUTINE LABORATORY TESTS

<u>Q_u</u>	—	UNCONFINED COMPRESSIVE STRENGTH IN TONS PER SQ. FT. MODE OF FAILURE (M) DESCRIBED AS SHEAR TYPE (SH), BULGE TYPE (B), OR SPLIT TYPE (SP)
<u>P</u>	—	ESTIMATE OF UNCONFINED COMPRESSIVE STRENGTH IN TONS PER SQ. FT. BASED ON CALIBRATED PENETROMETER.
<u>W</u>	—	NATURAL WATER CONTENT AS % OF DRY WEIGHT.
<u>γ_w</u>	—	WET UNIT WEIGHT IN POUNDS PER CUBIC FT.
<u>γ_D</u>	—	DRY UNIT WEIGHT IN POUNDS PER CUBIC FT.

SPECIAL LABORATORY TESTS

<u>AL</u> — ATTERBERG LIMITS	<u>SP</u> — SWELLING-PRESSURE TEST
<u>GS</u> — GRAIN SIZE DISTRIBUTION	<u>P</u> — PERMEABILITY TEST
<u>SG</u> — SPECIFIC GRAVITY	<u>C</u> — CONSOLIDATION TEST
<u>OC</u> — ORGANIC CONTENT	<u>TS</u> — TRIAXIAL SHEAR TEST
<u>US</u> — UNRESTRAINED SWELL TEST	<u>DS</u> — DIRECT SHEAR TEST

SAMPLE DESCRIPTION

SAMPLE DESCRIPTIONS BY VISUAL METHODS. CLASSIFICATIONS ACCORDING TO UNIFIED SYSTEM GIVEN IN PARENTHESES.



Via email: kmueller@metgeotech.com

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May 19, 2026

Ms. Kelsey R Mueller
Midwest Engineering and Testing, Inc.
1701 W. Market Street, Suite B
Bloomington, Illinois 61701

Re: Summary of Laboratory Testing Services
Rantoul Power Plant Substation
Hanson Project 226E0037
MET Job B63039
UES Job No. A25128.00014.000-3007

Dear Ms. Mueller:

Included in this report are test results of one Shelby tube sample received in our laboratory on May 8, 2026. The sample was tested in general accordance with the test methods listed below.

<u>Test to Determine</u>	<u>Method of Test</u>
Unconfined Compression Strength of Cohesive Soil	ASTM D2116
Water (Moisture) Content of Soils	ASTM D2216
One-Dimensional Consolidation Properties of Soil	ASTM D2435
Identification of Soils (Visual-Manual Procedures)	ASTM D2488
Liquid Limit, Plastic Limit and Plasticity Index of Soils	ASTM D4318
Particle Size Distribution of Soil Using Sieve Analysis	ASTM D6913
Density (Unit Weight) of Soil Specimens	ASTM D7263
Particle Size Distribution of Soil Using Hydrometer Analysis	ASTM D7928

This report has been prepared for Midwest Engineering and Testing, Inc. Our scope of services was limited to performing specific tests on a provided sample and did not include engineering or interpretation of the test results.

* * * * *



We trust this is the information you require. Please contact the undersigned if you have any questions regarding this report.

Respectfully submitted,

UES

Janet M. May
Illinois Laboratory Manager

JMM/LPH:jmm

Attachments: Summary of Laboratory Results
Atterberg Limits' Results
Grain Size Distribution
Unconfined Compression Strength Results
Consolidation Results
Laboratory Log of Tube Sample
Testing Assignments



SUMMARY OF LABORATORY TEST RESULTS

MET Job B63039

Boring Number	Depth, feet	ASTM D2216	ASTM D7263	ASTM D2166
		Moisture Content, %	Dry Unit Weight, pcf	Undrained Shear Strength, tsf
B-1	5.0-7.0	16.0	115.2	0.53

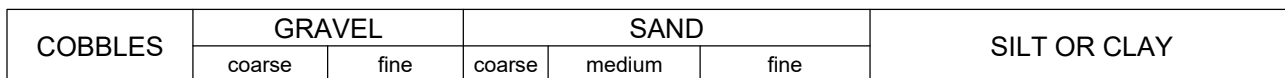
Boring Number	ASTM D4318 (Method A)			ASTM D1140	ASTM D2488
	Liquid Limit	Plastic Limit	Plasticity Index	% Passing No. 200	Visual Description
B-1	28	15	13	70.1	Olive-brown, LEAN CLAY with SAND - CL

Notes and Abbreviations:

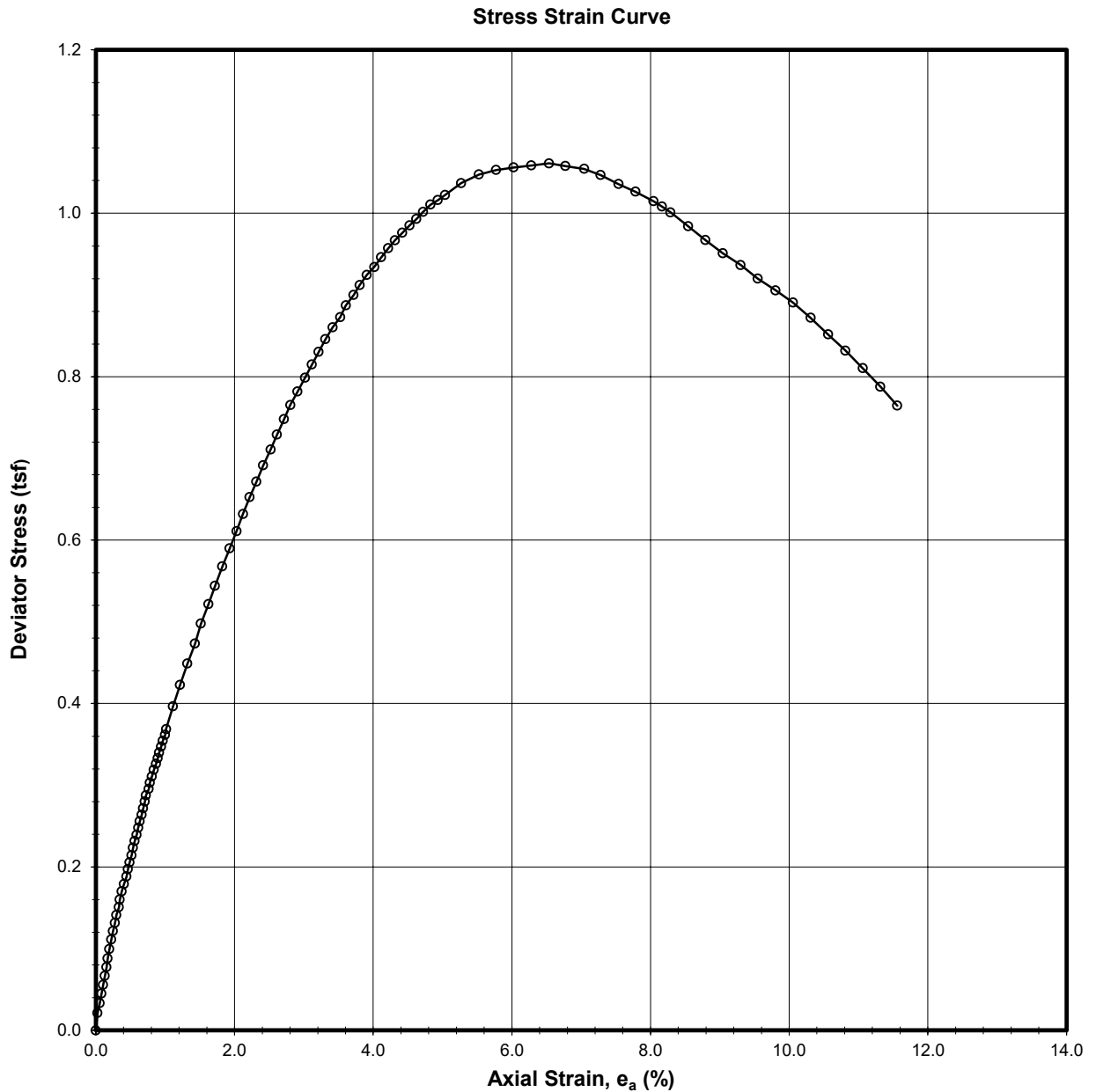
% - Percent

pcf - Pounds per cubic foot

tsf – Tons per square foot



Location: Rantoul, Illinois



SAMPLE INFORMATION

Boring: B-1 Sample: -- Depth: 5.0-7.0 feet

SAMPLE DATA

Moisture Content (%): 16.0
Dry Unit Weight (pcf): 115.2

RESULTS

Undrained Shear Strength (tsf): 0.53
Failure Strain (%): 6.5

Tested By: JMM	Calc'd By: JMM	Check'd By: ESS
Date: 5/11/2026	Date: 5/19/2026	Date: 5/19/2026



B63039

**Rantoul Power Plant Substation
Rantoul, Illinois**

**UNCONFINED COMPRESSIVE STRENGTH OF
COHESIVE SOIL ASTM D2166**

Project Number: A25128.00014.000-3007

U_c COMPRESSION TEST: (ASTM D 2166)



DATE 5/11/2026		PROJECT NAME Rantoul, Illinois		PROJECT NO.: A25128.00014.000-3007	
BORING NO. B-1		SAMPLE NO. --		DEPTH (ft) 5.0-7.0	
TEST TYPE ☐ UC ☐ Density		SPECIMEN TYPE ☐ Undisturbed ☐ Remolded		CELL No.: X	

SPECIMEN DIAMETER (in): 2.876

SPECIMEN LENGTH (in): 6.493

SPECIMEN AREA (in²): 6.493

SPECIMEN VOLUME (in³): 42.16

Elapsed Time (min)	Vertical Load (lbf)	Vertical Deformation (in)	Strain ϵ_1	Average Cross-sectional Area (in ²)	Deviator Stress (tsf)	Shear Strength t (tsf)
0.00	0.00	0.000	0.00	6.493	0.00	0.00
0.03	1.93	0.002	0.03	6.495	0.02	0.01
0.07	3.01	0.004	0.05	6.497	0.03	0.02
0.08	4.05	0.005	0.08	6.498	0.04	0.02
0.12	5.03	0.007	0.10	6.500	0.06	0.03
0.13	6.02	0.008	0.13	6.502	0.07	0.03
0.17	6.99	0.010	0.15	6.503	0.08	0.04
0.18	7.96	0.011	0.17	6.504	0.09	0.04
0.22	8.98	0.013	0.20	6.506	0.10	0.05
0.23	10.06	0.014	0.22	6.507	0.11	0.06
0.27	11.00	0.016	0.25	6.509	0.12	0.06
0.28	11.89	0.018	0.28	6.511	0.13	0.07
0.32	12.77	0.019	0.30	6.512	0.14	0.07
0.33	13.64	0.022	0.33	6.515	0.15	0.08
0.37	14.49	0.023	0.35	6.516	0.16	0.08
0.40	15.41	0.024	0.37	6.517	0.17	0.09
0.42	16.23	0.026	0.41	6.520	0.18	0.09
0.45	17.06	0.029	0.44	6.522	0.19	0.09
0.47	17.88	0.030	0.46	6.523	0.20	0.10
0.50	18.64	0.032	0.49	6.525	0.21	0.10
0.52	19.43	0.034	0.52	6.527	0.21	0.11
0.55	20.27	0.035	0.54	6.528	0.22	0.11
0.57	21.02	0.036	0.56	6.530	0.23	0.12
0.60	21.72	0.038	0.59	6.531	0.24	0.12
0.62	22.50	0.040	0.61	6.533	0.25	0.12
0.65	23.23	0.041	0.63	6.534	0.26	0.13
0.67	23.95	0.043	0.66	6.536	0.26	0.13
0.70	24.68	0.044	0.68	6.538	0.27	0.14
0.72	25.43	0.046	0.71	6.539	0.28	0.14
0.75	26.14	0.047	0.72	6.540	0.29	0.14
0.78	26.86	0.050	0.76	6.543	0.30	0.15
0.80	27.56	0.051	0.78	6.544	0.30	0.15
0.83	28.26	0.052	0.81	6.546	0.31	0.16
0.85	29.00	0.054	0.84	6.548	0.32	0.16
0.88	29.68	0.056	0.87	6.550	0.33	0.16
0.90	30.32	0.058	0.89	6.552	0.33	0.17
0.93	30.96	0.059	0.91	6.553	0.34	0.17
0.95	31.63	0.061	0.94	6.555	0.35	0.17
0.98	32.29	0.063	0.97	6.556	0.35	0.18
1.00	32.95	0.065	1.00	6.559	0.36	0.18
1.03	33.59	0.066	1.01	6.560	0.37	0.18
1.13	36.18	0.072	1.11	6.566	0.40	0.20
1.23	38.60	0.079	1.22	6.573	0.42	0.21
1.33	41.02	0.086	1.32	6.580	0.45	0.22
1.43	43.30	0.093	1.43	6.587	0.47	0.24
1.53	45.57	0.098	1.51	6.593	0.50	0.25
1.63	47.83	0.106	1.63	6.600	0.52	0.26
1.73	49.91	0.112	1.72	6.607	0.54	0.27

U_c COMPRESSION TEST: (ASTM D 2166)

DATE 5/11/2026	PROJECT NAME Rantoul, Illinois	PROJECT NO.: A25128.00014.000-3007
BORING NO. B-1	SAMPLE NO. --	DEPTH (ft) 5.0-7.0
TEST TYPE ☐ UC ☐ Density	SPECIMEN TYPE ☐ Undisturbed ☐ Remolded	CELL No.: X

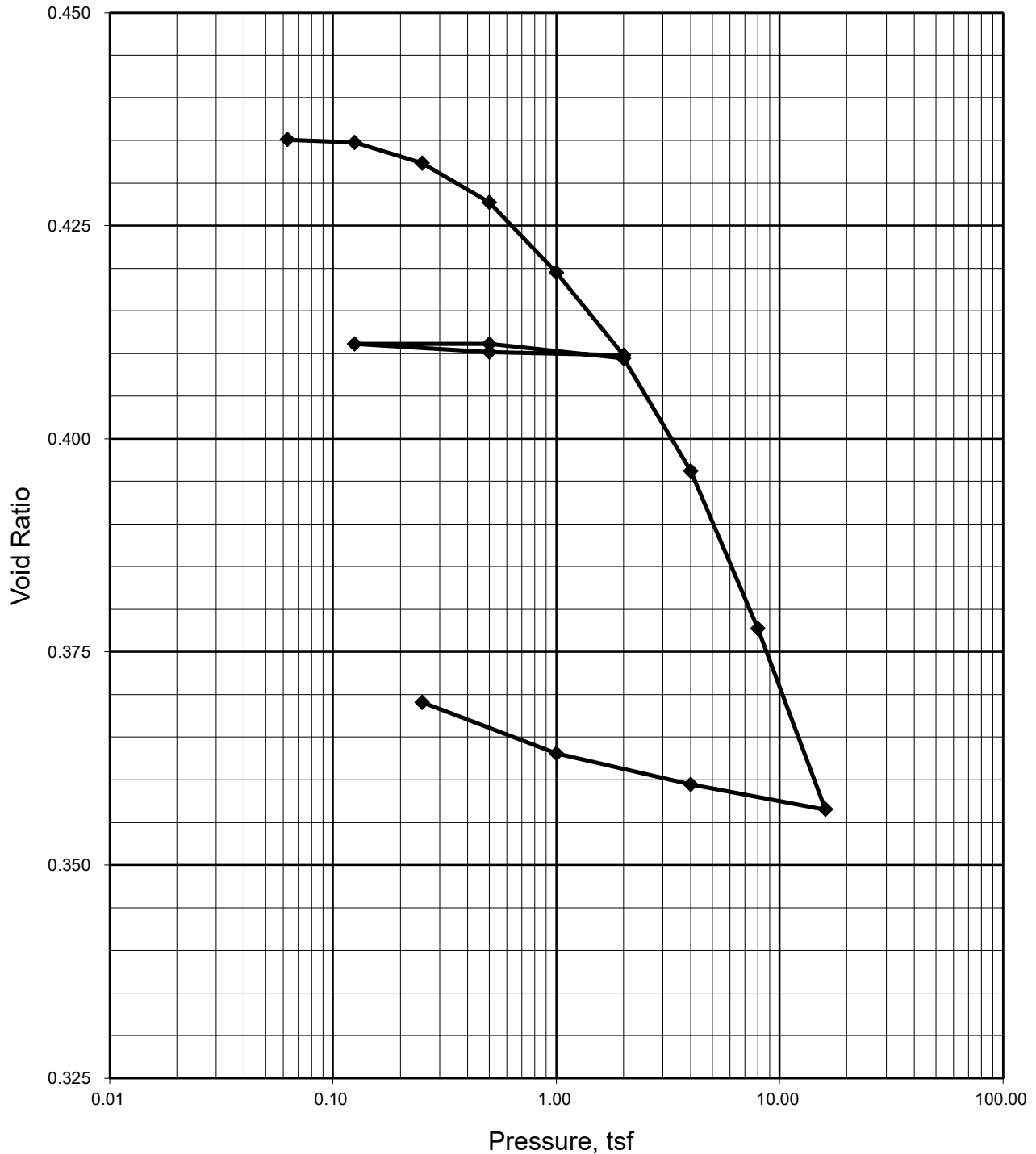
SPECIMEN DIAMETER (in): 2.876SPECIMEN LENGTH (in): 6.493SPECIMEN AREA (in²): 6.493SPECIMEN VOLUME (in³): 42.16

Elapsed Time (min)	Vertical Load (lbf)	Vertical Deformation (in)	Strain ϵ_1	Average Cross- sectional Area (in ²)	Deviator Stress (tsf)	Shear Strength t (tsf)
1.83	52.15	0.118	1.82	6.614	0.57	0.28
1.93	54.23	0.125	1.93	6.621	0.59	0.29
2.03	56.23	0.132	2.03	6.628	0.61	0.31
2.13	58.23	0.138	2.12	6.634	0.63	0.32
2.23	60.18	0.144	2.22	6.640	0.65	0.33
2.33	61.98	0.150	2.31	6.647	0.67	0.34
2.43	63.89	0.157	2.41	6.654	0.69	0.35
2.53	65.76	0.164	2.52	6.661	0.71	0.36
2.63	67.51	0.170	2.61	6.667	0.73	0.36

CONSOLIDATION TEST

Rantoul Power Plant Substation
Rantoul, Illinois

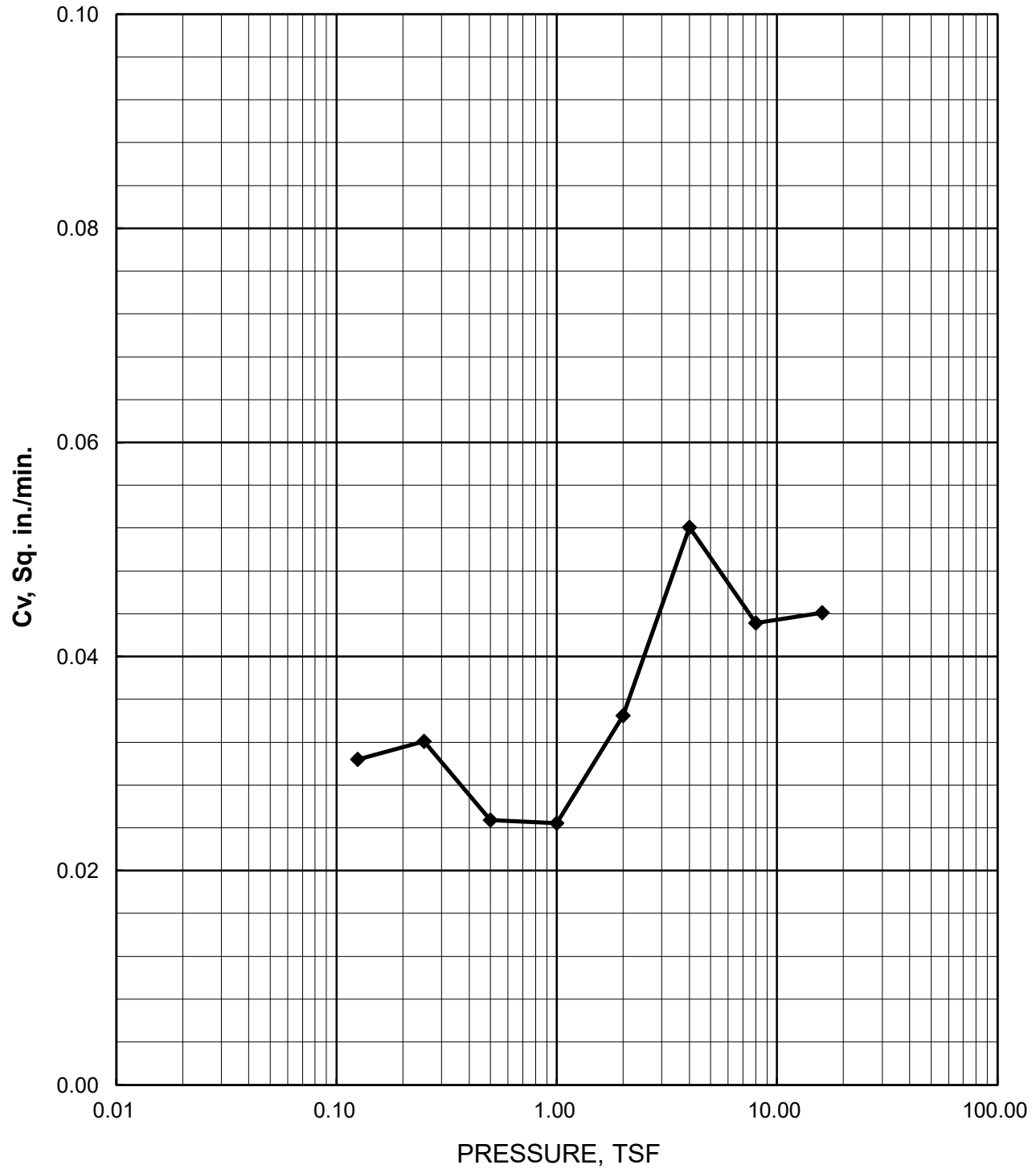
Boring B-1, Sample at 5.0-7.0 Feet
Dry Unit Wt. = 118.7 pcf; Moisture Content = 15.5%



CONSOLIDATION TEST

Rantoul Power Plant Substation
Rantoul, Illinois

Boring B-1 Sample at 5.0-7.0 Feet
Dry Unit Wt. = 118.7 pcf; Moisture Content = 15.5 %



**CONSOLIDATION
TEST DATA**
Log of Time Method

JOB NUMBER: A25128.00014.000-3007	INITIAL MOISTURE:	FINAL MOISTURE:	INITIAL DATA:
BORING NUMBER: B-1	WET WT SPLE + RING 208.04	WET WT SPLE + RING 205.97	SAMPLE HT.: 0.746
SAMPLE NUMBER: --	DRY WT SPLE + RING 190.41	DRY WT SPLE + RING 190.41	SAMPLE DIA.: 2.500
DEPTH (Feet): 5.0-7.0	WT OF RING 76.38	WT OF RING 76.38	VOLUME: 59.968
	DRY WT OF SAMPLE 114.03	DRY WT OF SAMPLE 114.03	SPECIFIC GRAV.: 2.730
WET UNIT WT = 137.1	WT OF WATER 17.63	WT OF WATER 15.56	HT. OF SOLIDS: 0.519
DRY UNIT WT = 118.7	MOISTURE CONTENT 15.5	MOISTURE CONTENT 13.6	VOID RATIO: 0.436

PRESSURE	D100	MACHINE DEFLECTION	CORR. FACTOR	CORR. D100 *0.0001"	CONSOLIDATION (Percent)	VOID RATIO CHANGE	VOID RATIO	D 50 UNCORR	H 50 CORR	t 50 or t ₉₀	Cv (SQ IN/MIN)
0.000	0.0	0.0	0.0	0.0	0.00	0.0000	0.436				
0.063	4.0	1.0	0.0	3.0	0.04	0.0006	0.435				
0.125	19.0	14.0	0.0	5.0	0.07	0.0010	0.435	14.5	0.7455	0.90	0.0304
0.250	39.5	22.0	0.0	17.5	0.23	0.0034	0.432	34.8	0.7442	0.85	0.0321
0.500	82.5	41.0	0.0	41.5	0.56	0.0080	0.428	68.3	0.7428	1.10	0.0247
1.000	138.0	54.0	0.0	84.0	1.13	0.0162	0.420	120.5	0.7389	1.10	0.0244
2.000	205.5	71.0	0.0	134.5	1.80	0.0259	0.410	186.8	0.7339	0.77	0.0345
0.500	206.0	56.0	17.5	132.5	1.78	0.0255	0.410				
0.125	185.0	40.0	17.5	127.5	1.71	0.0246	0.411				
0.500	193.0	48.0	17.5	127.5	1.71	0.0246	0.411				
2.000	227.0	73.0	17.5	136.5	1.83	0.0263	0.409				
4.000	295.0	90.0	0.0	205.0	2.75	0.0395	0.396	274.0	0.7271	0.50	0.0521
8.000	412.0	111.0	0.0	301.0	4.04	0.0580	0.378	377.5	0.7189	0.59	0.0431
16.000	543.0	132.0	0.0	411.0	5.51	0.0792	0.357	505.0	0.7082	0.56	0.0441
4.000	525.0	109.0	20.0	396.0	5.31	0.0763	0.359				
1.000	488.0	91.0	20.0	377.0	5.06	0.0726	0.363				
0.250	436.0	70.0	20.0	346.0	4.64	0.0666	0.369				

LABORATORY LOG OF TUBE SAMPLE

Project No.: 425/28.00014.
000-3007 Project Name.: Rantoul Date Opened: 5/11/26 By: JMM

Boring No.: B-1 Sample No.: - Depth (ft): 5.0 to 7.0

Type ☒ Std. "Shelby" ☐ Other: _____

Tube Dimensions: Outside Diameter (in): 3

Recovery (in): 23

Tube Condition:	Dented	End(s) not sealed	Other:

Sample Condition	Good	Fair	Poor	Disturbed
	☒			

Remarks:

Tube Scale (in)	Sample Use (Test Type)	Soil Identification and Processing Remarks (Draw lines to indicate top and bottom of soil's surface and where sample was taken. Identify cut lines with: "Cut" "Date: m/d/y" "Your Initials")
0.0		<u>olive-brown, LEAN CLAY with SAND - (CL)</u> Q_p = 2.25 tsf
2.0		
4.0		
6.0		
8.0		
10.0		
12.0		
14.0		
16.0		
18.0		
20.0		<u>Atterberg Limits</u> <u>LL = 28</u> <u>PL = 15</u> <u>PI = 13</u>
22.0		
24.0		

Ave. Height (in.): _____ Ave. Diameter (in.): _____ Specimen Wt. (gms): _____

Natural Moisture Content				
Tare Number	Wet Mass + Tare (g)	Dry Mass + Tare (g)	Tare Mass (g)	Water Content (%)

Wet Unit Weight: _____ pcf Dry Unit Weight _____ pcf

Tested By: _____
 Date: _____

Calculated By: _____
 Date: _____

Checked By: _____
 Date: _____



Midwest Engineering and Testing, Inc.
geotechnical - environmental - materials engineers
1701 W. Market St., Suite B
Bloomington, Illinois 61701
309-821-0430
www.metgeotech.com

May 7, 2026

UES
11 French Village Industrial Park
Fairview Heights, Illinois 62208
Attn: Janet May

Re: **Lab Testing**
Rantoul Power Plant Substation
Rantoul, Illinois
Hanson Project #26E0037
MET Job B63039

UES No. A25128.00014.000-3007

Dear Janet:

Please complete testing on the thin-walled tube soil sample from the referenced project, as described below.

Requested tests:

- Shelby tube log
- Consolidation Test
- Unconfined compressive strength test
- Grain Size Analysis
- Atterberg Limits

If there is not enough suitable material to run all the requested tests, please prioritize the consolidation test.

Samples:

- B-1 (5 – 7 ft.)

I can be contacted at 309-821-0430 or by email at kmueller@metgeotech.com if you have any questions. The test results can be sent to me by email.

Sincerely,

Midwest Engineering and Testing, Inc.

Kelsey Mueller

Digitally signed by Kelsey R. Mueller
DN: cn=Kelsey R. Mueller, o=Midwest Engineering and
Testing, Inc., ou, email=kmueller@metgeotech.com,
c=US
Date: 2026.05.07 09:50:13 -05'00'

Kelsey R. Mueller, P.E.
Bloomington Division Manager



Appendix C

Construction Standards for Drilled Pier Foundations

Appendix C – Construction Standards For Drilled Pier Foundations

C.1 General

All observation of drilled pier construction should be under the supervision of a qualified geotechnical and foundation engineer or technician. No pier can be poured before the observer 1) approves the bearing stratum, 2) assures that the bottom of the pier is clean, and 3) checks the pier dimensions.

Verification of pier bearing area and cleanliness is necessary for all piers. Underreamed (belled) piers usually require down-hole observation through remote viewing (such as with a down-hole camera). Straight-sided piers (no bell) can sometimes be observed from the ground surface at the discretion of the engineer. The drilled pier contractor is required to provide full depth temporary casing for the protection of construction and observation personnel who must enter the pier shaft. The contractor also is required to be familiar with and comply with all OSHA regulations, EPA regulations, and any other Federal, State, or local requirements that pertain to this work.

A preconstruction meeting involving the independent testing agency and the drilled pier contractor should be held prior to the first working day. The general contractor and/or the architect-engineer should also be present. The purpose of such a meeting is to discuss the construction procedures and problems that might occur, and to agree on the minimum equipment that is necessary. The responsibilities and authority of all concerned should also be clearly defined.

C.2 Drilled Pier Cleanliness

Loose material or free water in quantities sufficient to soften the base or affect concrete strength, as determined by the observer, will be removed from the bottom of drilled piers. For drilled piers with end bearing requirements, it is necessary that the bottoms of piers be completely free of soft "mud," since even an inch of this material can cause measurable settlement under structure loads. A minimal volume of scattered dry cuttings on the pier bottoms can sometimes be permitted by the observer. All underreamed piers should be cleaned with machine methods, and these methods may need to be supplemented with hand cleaning (down-hole personnel) in order to remove cuttings from the underreamed portion of the drilled pier.

Except for drilled piers constructed under "wet" conditions (with a head of water or slurry kept in the excavation to prevent blow-in of granular material due to hydrostatic pressure from groundwater), the bottoms of piers should be completely clean and dry prior to final observation and concrete placement. Generally, water can be sealed off effectively by oversizing the shaft and seating casing into an impermeable layer beneath a water bearing layer, or by seating casing into the bearing stratum. The shaft can then be drilled to the design diameter below the bottom of the casing seal. The diameter of the seated casing shall be a minimum of 6 in. greater than the diameter of the shaft below the casing. However, under certain circumstances for a straight-sided shaft, it may be possible to use a casing that is the same size as the shaft design diameter. This condition may occur if the casing can be pushed to the bearing stratum and sealed (no further machine excavating necessary). For underreamed piers, the vertical distance between the bottom of the seated casing and the top of the underreamed portion shall be made great enough to prevent "blowing" the seal.

When water cannot be completely prevented from intruding into the pier after the use of a seated casing seal, then the contractor should have the capability of removing excess or seeping water with the use of a

down-the-hole submersible pump. Significant standing water shall not be allowed in the bottom of a straight shaft (no bell) or in the pilot hole of an underreamed pier. The most desirable procedure to use when water is seeping into an underreamed pier is to construct a small pilot hole in the center, which can be used as a sump to pump the water out.

The specific depth or quantity of water an engineer allows for a particular project will depend on the type and size of pier, the character of the bearing stratum, the strength of the concrete, and its method of placement. However, this matter should be anticipated and covered in the job specifications, or clearly defined at the preconstruction meeting.

C.3 Casing and Concrete Placement

Protective casing used to prevent cave-ins and to seal off groundwater can be withdrawn only as the shaft is filled with concrete. A "head" of concrete adequate to balance outside soil or water pressure (but not less than 5 ft) should be maintained above the bottom of the casing at all times during withdrawal. This requirement is necessary to prevent intrusion of water or soil into the concrete. Where casing is removed during placement of concrete, the concrete shall have a slump between 4 in. and 6 in. The inside of the casing should be free of dried concrete or soil, and vibration of concrete will not be allowed until after the casing is pulled. These precautions will minimize adhesion of the concrete to the sides of the casing and will prevent arching of the concrete during casing withdrawal.

In some instances, loose fitting casing (hung from the drill rig - not sealed) is used primarily as a precautionary measure to protect construction and observation personnel who must enter the hole. In this situation, the casing can sometimes be pulled out of the hole before concrete is placed. This procedure is obviously more desirable than pouring concrete into the casing, if the casing can be pulled out cleanly without pushing soil into the shaft.

Free fall of concrete may be allowed provided the concrete is directed through a hopper, or equivalent, so that the fall is vertical down the center of the shaft without hitting the sides of the hole or the reinforcing. Any water or soil (trapped behind sealed casing) that emerges on top of the concrete as the casing is pulled should be removed before completing the pier. A sufficient amount of concrete should be available at the job site to construct the pier in one continuous operation. Construction joints will not be allowed.

For concrete placed underwater or slurry, a tremie should be used. The diameter of the tremie should be 6 times the maximum aggregate size and at least 10 inches in diameter. The tremie should be sealed prior to immersion in the water or slurry. Concrete should not be placed until the tremie is placed at the base of the shaft excavation. The discharge end shall be immersed at least 5 ft in concrete at all times after starting the flow of concrete, and the flow of concrete shall be continuous.

C.4 Summary

The preceding paragraphs have discussed many of the standard practices and requirements that we consider necessary for good drilled pier construction. They are intended for use as a guide only for architects and engineers involved in projects that require drilled pier foundations. Since every project differs in one or several aspects, verbatim use of these paragraphs in job specifications is discouraged without prior consultation with the geotechnical engineer involved in the project.

BHMG Engineers, Inc.

ELECTRICAL SUBSTATION INSTALLATION SPECIFICATION

GENERAL REQUIREMENTS FOR ELECTRICAL CONTRACTORS

DIVISION 16 – ELECTRICAL

Rev No.	Date	Revisions	By
0	July 2026	Initial Issue	LCP

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Section 16A – General Electrical Requirements

Section 16B – Grounding System Installation

Section 16C – Conduit, Cable Tray, and Duct Bank

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Section 16F – Disconnect Switches and Instrument Transformers

Section 16G – Power Transformers

Section 16H – Bus Work and Connections

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Section 16J – Control Enclosure / Control Building

Section 16K – Protection and Control Panels

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Section 16Q – Station Batteries and Battery Chargers

Section 16R – Construction Quality Assurance and Inspection

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Section 16T – Environmental Requirements

Section 16U – Record Drawings and Project Turnover

Section 16V – Equipment Labeling and Identification

Section 16W – Galvanized Metal Repair

SECTION 16A – GENERAL ELECTRICAL REQUIREMENTS

1.0 INTRODUCTION

1.1 Scope

This section covers the general requirements applicable to all Division 16 electrical work on substation construction projects. These requirements shall govern the Contractor's performance of all electrical installation activities unless specifically modified by individual sections herein.

Division 16 specifies requirements for contractor-furnished materials and the Owner's instructions which complement and/or supplement equipment manufacturers' instructions for assembly, installation, and connection of both Owner-furnished and Contractor-furnished equipment.

Conflicts between this specification and manufacturers' recommendations shall be referred to the Engineer for resolution. The Engineer's decision shall be final.

1.2 Definitions

Company/Owner – The project owner or its designated agents, successors, and assigns.

Engineer – The Owner's engineer or engineering representative responsible for design.

Construction Supervisor – The Owner's designated field liaison between Contractor and Owner. Also referred to as Inspector.

Contractor – The party performing the Work and providing material specified herein.

Subcontractor – Any party the Contractor has assigned any portion of the Work.

Plans – All drawings, diagrams, schedules, and documents issued for construction.

Non-Conformance Report (NCR) – Formal process for documenting deviations from design or specification requirements.

Request for Information (RFI) – Formal process by which the Contractor requests clarification from the Engineer.

Project Change Request (PCR) – A formal change in work scope. PCRs must be approved in writing prior to execution.

Day – A calendar day commencing at 12:00 a.m.

Work – All labor, methods, material, equipment, structures, services, and transportation to be provided by the Contractor.

Final Completion – The Work is 100% complete per the Contract Documents.

Substantial Completion – The Work is substantially complete per the Contract Documents.

Storage Site – The primary material storage site provided by the Owner.

Material Shortage – Owner-supplied material of which an insufficient quantity was delivered.

1.3 Codes and Standards

Work performed under these specifications shall comply with the following:

Work	In Accordance With
General Electrical	ANSI / IEEE / ICEA / UL / NESC
Electrical Safety	NFPA 70E Standard for Electrical Safety in the Workplace
General Electrical	NFPA 70 National Electrical Code (NEC)
General	NEMA / OSHA / ASTM
Structural Welding	AWS D1.1 / D1.2
Structural Steel	AISC Steel Construction Manual
Grounding	IEEE 80, IEEE 81

2.0 GENERAL REQUIREMENTS

2.1 Nothing in these specifications shall relieve Contractor of responsibility for construction means, methods, techniques, sequences, procedures, or safety precautions associated with performance of the Work.

2.2 Unless otherwise specified as Owner-furnished, Contractor shall furnish all material, tools, equipment, labor, and supervision for complete electrical installations per the Plans and Specifications.

2.3 Contractor shall be properly licensed and qualified to perform electrical work in the project jurisdiction and shall maintain all required licenses, certifications, and insurance.

2.4 All Work shall comply with OSHA regulations, NESC, NEC, and all other applicable codes. Contractor shall conform to all Owner safety practices and procedures.

2.5 All work involving electrical equipment shall comply with NFPA 70E.

2.6 Energized work shall be avoided whenever feasible.

2.7 Work on energized electrical conductors or circuit parts operating at 50 volts or greater shall not be performed unless de-energization introduces additional hazards, is infeasible due to equipment design or operational limitations, or has been specifically approved by the Owner.

2.8 Work shall only be performed from Plans labeled 'Issued for Construction.' Contractor shall ensure all documentation is the most current version.

2.9 Contractor shall provide seven (7) days' notice prior to starting, one (1) day notice to restart after a shutdown, and seventy-two (72) hours' notice prior to leaving the site.

2.10 Contractor shall work harmoniously with Owner personnel and other contractors. Owner's access to equipment and property shall be maintained at all times.

2.11 Contractor shall follow all Owner NCR and RFI processes. Any deviation from this specification shall be documented with a dispositioned RFI from the Engineer.

2.12 If manufacturer's requirements conflict with the Owner's standards herein, the Contractor shall submit an RFI for disposition. Manufacturer requirements shall govern unless specifically waived by the Engineer in writing.

2.13 Equipment not specifically mentioned in Division 16 shall be installed per manufacturers' drawings, construction drawings, and Owner-provided vendor prints.

2.14 Items described as 'field-located' shall be suitably and securely mounted and wired in the area indicated on the construction drawings.

2.15 Install equipment in accordance with manufacturer instructions unless otherwise specifically directed by the Engineer.

3.0 MATERIAL HANDLING AND STORAGE

3.1 Contractor shall verify receipt of all material against packaging lists prior to releasing shipping contractors. Report discrepancies to the Construction Supervisor.

3.2 Contractor shall inspect all items for damage prior to accepting. Damage reported immediately. Document overages, shortages, and damages per the Owner's OS&D process.

3.3 Contractor assumes responsibility for all material after acceptance and shall replace lost, damaged, or stolen material at no cost to the Owner.

3.4 All galvanized materials shall be stored off the ground on wood timbers. Oak cribbing and railroad ties shall NOT be used with galvanized material. Timbers between layers for free air circulation and maximum rainwater runoff.

3.5 Electronic devices, panels, and relay equipment shall be stored in enclosed trailers, connex boxes, or control enclosures free from weather, in the upright position.

3.6 Contractor shall protect all work until completion. Incomplete work left unattended shall be secured in a safe manner.

4.0 DOCUMENTATION

4.1 Contractor shall maintain accurate as-built documentation. All as-builts, settings files, test results, and commissioning forms shall be returned within thirty (30) days of the in-service date.

4.2 Contractor shall submit daily progress reports and schedule updates at minimum biweekly intervals.

4.3 Upon completion, the site shall be clean, debris removed, and temporary facilities dismantled.

END OF SECTION 16A

SECTION 16B – GROUNDING SYSTEM INSTALLATION

1.0 INTRODUCTION

1.1 Scope

This section covers the installation of below-grade and above-grade grounding systems per the design drawings including ground grid, ground rods, risers, and all connections to substation equipment, structures, and fences.

1.2 Reference Sections

Section 16A – General Electrical Requirements

Section 16N – Soil Resistivity Testing

1.3 Codes and Standards

Work	In Accordance With
Grounding Design	IEEE Std 80
Grounding Testing	IEEE Std 81
General	NEC / NESC
Materials	ASTM B-3, ASTM B-227, ASTM B-8
Welded Joints	IEEE Std 837

2.0 MATERIALS

2.1 Ground Conductor – Bare copper, stranded per ASTM B-8, soft drawn per ASTM B-3, size per drawings.

2.2 Ground Rods – Copper-clad steel core (Copperweld or equivalent).

2.3 Exothermic Weld – Cadweld or approved equal. Heavy-duty molds for existing grid; standard-duty for new-to-new.

2.4 High-Compression Connectors – DMC Power or equivalent hydraulic cold-weld fusion.

2.5 Bolted Connectors (above-grade) – Copper alloy with copper alloy hardware per IEEE Std 837.

3.0 INSTALLATION

3.1 Install all sub-surface ground rods, grid, switch ground mats, and risers per the Grounding Plan.

3.2 Bury ground wire at depth specified, typically two (2) feet below the rock layer.

3.3 Ground rods driven to minimum ten (10) feet. If obstructions, notify Construction Supervisor.

3.4 All below-grade connections bonded using exothermic welding or approved high-compression fittings.

3.5 All joints shall meet the applicable manufacturer and IEEE Std 837 acceptance requirements.

- 3.6 Compression fittings per manufacturer's instructions. Joints must pass gauge test and continuity.
- 3.7 Notify Construction Supervisor before covering below-grade joints for inspection.
- 3.8 Above-grade connections per Grounding Plan using bolted connectors. Control enclosures grounded on all four corners.
- 3.9 Trenching with trenchers only. Backhoe not allowed without authorization.
- 3.10 Within existing substations, only 'soft dig' or 'hand dig' unless authorized.
- 3.11 Back-fill as soon as conductor laid and tested. Rock/sand not acceptable. Compact mechanically.

4.0 TESTING

- 4.1 Test each grounding connection with a four-wire low-resistance ohmmeter (0.001-ohm resolution minimum). The resistance of each connection shall not exceed twice that of an equivalent length of unspliced conductor of the same size and material. Repair and retest all connections that fail to meet this requirement before backfill.
- 4.2 Connections that fail shall be re-installed at installer's expense.
- 4.3 Ground Grid Commissioning per IEEE 80 and 81 using Fall of Potential method.
- 4.4 Locate the current probe at a sufficient distance to obtain a valid fall-of-potential curve in accordance with IEEE Std 81. For traditional fall-of-potential testing, use a distance of approximately five times the largest grounding-grid dimension where practicable. Reduced spacing may be used only with an approved computer-based test method.
- 4.5 Max grid resistance: 0.5 ohm or within 10% above computed value.
- 4.6 Submit marked-up ground layout with connection locations and values.
- 4.7 Test equipment calibrated within one (1) year. Proof submitted with report.

END OF SECTION 16B

SECTION 16C – CONDUIT, CABLE TRAY, AND DUCT BANK

1.0 INTRODUCTION

1.1 Scope

This section covers installation of control conduit, precast cable tray, underground power ducts, and duct bank systems per construction drawings.

1.2 Reference Sections

Section 16A – General Electrical Requirements

Division 2 – Excavation, Backfilling, Trenching

1.3 Codes

Work	In Accordance With
General	NEC / NESC
Materials	ASTM F2160, NEMA TC-2, UL 651

2.0 MATERIALS

2.1 Control Conduit – PVC type DB. Above ground: Schedule 40+. Vertical elbows 24" sweep; horizontal 36" sweep. Detectable tape on buried conduits.

2.2 Precast Cable Tray – Modular precast concrete, HS20-rated lids minimum.

2.3 Power Ducts – 5" PVC type EB-35. All elbows 36" minimum radius.

2.4 Duct Seal – For sealing conduit entrances against moisture and rodents.

2.5 Pull Tape – 2,500-pound rated flat pulling tape.

3.0 INSTALLATION

3.1 Trenches 1'-6" to 4' deep. Slope away from control house at 0.5%.

3.2 Conduits direct buried on sand bed. Detectable tape. Min cover 1'-6".

3.3 Joined with couplings and PVC cement. All entrances sealed with duct seal.

3.4 Power ducts terminated with coupling and removable plug flush with concrete.

3.5 All ducts swabbed clean with pull tape installed. 10 feet extending outside plug.

3.6 Precast cable tray on compacted earth with 4" sand bedding.

3.7 Install 4/0 ground cable in trench system. Bond to ground grid at crossings.

3.8 Power duct banks concrete encased 2" minimum. Top at least 36" below grade.

3.9 Fiber optic cables segregated by dedicated innerduct or conduit.

- 3.10 Mark all duct runs with buried markers inside and outside substation fence.

END OF SECTION 16C

SECTION 16D – STEEL ERECTION AND ANCHORS

1.0 INTRODUCTION

1.1 Scope

This section covers erection of substation steel structures and anchor bolt installation.

1.2 Reference Sections

Section 16A – General Electrical Requirements

Section 16B – Grounding

Section 16W – Galvanized Metal Repair

1.3 Codes

Work	In Accordance With
General	ANSI / IEEE / NESC
Structural Welding	AWS D1.1
Structural Steel	AISC
Safety	OSHA
Materials	ASTM, A36, A572, A992, F1554, F3125

2.0 HANDLING AND STORAGE

2.1 Steel members shall NOT be dragged across any surface.

2.2 Store off ground on wood timbers. Oak cribbing/railroad ties NOT used with galvanized. Timbers between layers for air circulation.

2.3 Nylon slings for all lifting. No metallic slings on galvanized. If a different method is recommended, contractor shall clear with engineer on record.

2.4 No welding or drilling on tubular steel without written Engineer approval per AWS D1.1.

3.0 ASSEMBLY AND ERECTION

3.1 Verify packaging list. Inspect for damage. Accept and assume responsibility. Replace lost/damaged at no cost.

3.2 Clean dirt, mud, and foreign material before erection.

3.3 Erect per diagrams, drawings, and construction lists. No member stressed beyond design.

3.4 Holes shall NOT be forced with drift pins. Blind holes reported to Construction Supervisor.

3.5 Bolt Installation: One nut, two flat washers per bolt. Vertical: heads in/nuts out. Horizontal: heads bottom/nuts top. No deforming wrenches. Damaged bolts replaced at Contractor expense.

3.6 Galvanized bolts fully pretensioned shall NOT be reused.

3.7 Anchor bolts per drawings. Space between concrete and base plate not exceeding 2x bolt diameter. Minimum two threads past nut. Mark with paint stick after final pretension.

3.8 Post-install anchors per manufacturer specs. OSHA crystalline silica requirements.

3.9 Davit/cross arms: temporary construction weights at arm tip, minimum 10% arm weight.

4.0 FIELD QUALITY CONTROL

4.1 Plumb Tolerance: One (1) inch in forty (40) feet.

4.2 Turn-of-Nut or Calibrated Wrench Method per AISC (minimum 70% tensile strength).

4.3 Galvanized damage shall be repaired per Section 16W.

4.4 A325 Bolt Minimum Pretension

Diameter (in.)	Min. Pretension (kips)
1/2	12
5/8	19
3/4	28
7/8	39
1	51
1-1/8	56
1-1/4	71
1-3/8	85
1-1/2	103

4.5 A325 Bolt Torque Values (Galvanized + Waxed)

Diameter (in.)	Min. Torque (ft-lbs)	Max. Torque (ft-lbs)
1/2	50	58
5/8	99	120
3/4	175	213
7/8	284	343
1	425	508
1-1/8	600	722
1-1/4	844	1,021
1-3/8	1,111	1,341
1-1/2	1,475	1,788

4.6 Contractor shall follow Anchor bolt tightening requirements as specified by steel manufacturer using measurable/calculated torque/preload methods.

END OF SECTION 16D

SECTION 16E – POWER CIRCUIT BREAKERS

1.0 INTRODUCTION

1.1 Scope

This section covers installation of outdoor power circuit breakers including SF6, vacuum, and oil-type. Work includes receiving, unloading, assembling, installing, grounding, and connecting per construction drawings and manufacturer's instruction books.

1.2 References

Section 16A, 16B, 16C, 16H

1.3 Codes

Work	In Accordance With
General	ANSI/IEEE/NESC/NEC
Safety	OSHA
SF6 Gas	IEEE C37.122 Manufacturer

2.0 STORAGE

2.1 SF6 Short-Term (<3 mo): Tanks/bushings protected. Cabinets sealed with desiccant, vents sealed, doors closed. Off ground on timbers.

2.2 SF6 Long-Term (>3 mo): Maintain 5 PSIG. Cabinet heaters powered. Vents open. Minimum 6" off ground. Crates indoors.

2.3 Vacuum: 5-15 PSIG dry air. <5 deteriorates interrupter; >15 risks bushing failure. Heaters powered. Parts indoors.

3.0 INSTALLATION

3.1 Breakers may ship preassembled or frames separate. Manufacturer rep required when bushing covers removed.

3.2 Nylon slings rated for weight per nameplate. Special care with composite bushings. Verify sling config per manufacturer.

3.3 Receive, unload, assemble, install per drawings and instruction book. Bushings marked for specific poles.

3.4 Oil Breaker Removal: Coordinate oil removal with Construction Supervisor. PCB analysis. Approved recycling only.

3.5 SF6 Breaker Removal: Evacuate gas to rated cylinders per EPA. Max 5 PSIG for relocation.

3.6 Foundation: Pre-cast or adhesive anchors by Contractor. Weld shim/hold-down plates and coat with galvanized repair compound per Section 16W.

- 3.7 Grounding: Secure to foundations and ground per plan. NO-OX ID on mating galvanized frame surfaces.
- 3.8 BCT Orientation per one-line, three-line, and station plan. Verify polarity and ratios.
- 3.9 Provide all conduit, fittings, cabling. Tag/label cables. Tails to furthest terminal plus slack. Duct seal all entrances.
- 3.10 Do NOT operate until filled to manufacturer's minimum operating pressure.

4.0 GAS PROCESSING

- 4.1 Fill per manufacturer. Test each cylinder for dryness (<100 ppm moisture).
- 4.2 Weigh cylinders before and after filling. Bottle heater recommended.
- 4.3 Owner-provided SF6 cylinders. Contractor provides hoses, fittings, manifolds, evacuation equipment.

5.0 MISCELLANEOUS

- 5.1 Temporary power to cabinet heaters if permanent not available.
- 5.2 Coordinate with project requirements and responsibilities to determine testing responsibilities.
- 5.3 Primary jumpers NOT tightened until testing complete.
- 5.4 Clean porcelain with cotton rags. Composite with water or denatured alcohol. Do NOT energize 24 hours after cleaning.

END OF SECTION 16E

SECTION 16F – DISCONNECT SWITCHES AND INSTRUMENT TRANSFORMERS

1.0 INTRODUCTION

1.1 Scope

Installation of disconnect switches (100 kV+), current transformers, potential transformers, CCVTs, and surge arresters.

1.2 References

Section 16A, 16B, 16H

2.0 DISCONNECT SWITCHES

- 2.1 Receive, unload, inspect, assemble, install per manufacturer's drawings and instruction book.
- 2.2 Document overages, shortages, damage per Owner's OS&D process.
- 2.3 Install grounding studs at jaw and hinge sides per manufacturer's drawing.
- 2.4 Mount on support steel with manufacturer-supplied brackets only. No drilling/welding without RFI.
- 2.5 Final adjustment with each pole in final position and conductors landed. Re-evaluate if landing changes.
- 2.6 Manual operators: center of rotation 42 to 48 inches above final rock grade. Handle hangs freely for padlock.
- 2.7 Motor operators: back-up manual operator center at 42-48". Emergency swing handle per manufacturer.
- 2.8 Operating mechanism over-toggles in both open and closed. Visible break-over in pipe linkage.
- 2.9 Piercing bolts NOT driven until adjustment approved. Hand tools only.
- 2.10 Mechanical interlocks prevent simultaneous close. Electrical interlocks verified by relay tester.
- 2.11 Clean contacts; apply Dow #5 or equivalent lubricant to current-carrying contacts.
- 2.12 Verify nameplates match serial numbers per Owner's standard.

3.0 CURRENT TRANSFORMERS

- 3.1 Verify polarity/ratio per nameplate vs one-line diagrams. Report discrepancies.
- 3.2 Mount per construction drawings. Verify positions match schematics.
- 3.3 Megger, ratio, and polarity testing documented per Owner's requirements.

4.0 PTs AND CCVTs

- 4.1 Verify ratio/polarity per nameplate vs design.
- 4.2 CCVTs: verify carrier accessories per project documentation.
- 4.3 Verify shipping grounds removed before energization.
- 4.4 Verify nameplate values match project documentation.

5.0 SURGE ARRESTERS

- 5.1 Install per manufacturer and construction drawings.
- 5.2 Ground per Grounding Plan. Verify rating matches design.
- 5.3 Power factor tests by Owner or Owner's testing contractor.

END OF SECTION 16F

SECTION 16G – POWER TRANSFORMERS

1.0 INTRODUCTION

1.1 Scope

Contractor responsibilities for power transformer receiving, inspection, assembly assistance, and ancillary installations. Assembly, vacuum processing, oil filling, and specialized testing by Owner or Owner's contractor.

1.2 References

Section 16A, 16B, 16H, Manufacturer's Instruction Book

2.0 GENERAL

- 2.1 Assembly, testing, vacuum and oil filling – see scope and manufacturer's instruction book.
- 2.2 Transformers shipped without oil in dry air. Positive pressure at all times tanks are open. Do NOT open if temp <10°C above dew point, rain threatening, humidity ≥65%, high winds, or dusty.
- 2.3 Fall protection required on top. Never enter tank unless oxygen 19.5%-25%. Follow Confined Space Entry Procedure.
- 2.4 Ground all tankers, drums, pumping equipment, shielded hoses, and receiving vessels. Ground bushing terminals. Maintain grounding until all oil processing activities are complete and equipment has been disconnected in accordance with the manufacturer's instructions.

3.0 CONTRACTOR RESPONSIBILITIES

- 3.1 Receiving Inspection: Inspect for shipping damage. Report immediately.
- 3.2 Nameplate Verification: Verify voltage, MVA, impedance, and vector group match design.
- 3.3 Grounding per Grounding Plan. Neutral bushing to tank bottom ground pad or through neutral reactor, not both.
- 3.4 Verify tap changer set to desired no-load tap per design prior to energization.
- 3.5 Cooling: Check fans (correct rotation) and pumps manually and automatically. Verify blocked during lockout.
- 3.6 Tap Changer Controls: Wire check and operation check. Verify SCADA remote control.
- 3.7 Sudden Pressure Relays: Test and operate per manufacturer's instructions.
- 3.8 CT Verification: Verify polarity and ratios per design.
- 3.9 Monitoring/Alarms: Verify transformer monitoring and analog data communicating to SCADA with remote communications.

3.10 Anchoring: Weld base to embedded steel beams per manufacturer and Owner's foundation details.

4.0 WORK BY OTHERS

4.1 Oil processing, vacuum/oil filling, power factor testing, SFRA, TTR, winding resistance, core ground verification, and bushing power factor tests by Owner or Owner's specialized testing contractor.

END OF SECTION 16G

SECTION 16H – BUS WORK AND CONNECTIONS

1.0 INTRODUCTION

1.1 Scope

Installation of rigid bus, strain bus, jumpers, and all associated connections including insulators and electrical connections.

1.2 References

Section 16A, 16B, 16D

2.0 MATERIALS

- 2.1 Bus Conductor – Aluminum or copper rigid bus per drawings.
- 2.2 Strain Bus – Stranded aluminum, ACSR, or AAC per drawings.
- 2.3 Compression Connectors – Factory-filled with joint compound. Use manufacturer tools and dies.
- 2.4 Bolted Connectors – Aluminum or copper alloy. Stainless or silicon bronze hardware.
- 2.5 Joint Compound – NO-OX ID ‘A-Special’ or approved equivalent on all connections.
- 2.6 Insulators – Bus support and strain insulators per drawings.

3.0 INSTALLATION

- 3.1 Install per drawings and sag/tension charts. Bus straight and true with proper support spacing.
- 3.2 Compression: Coat with compound, scratch-brush with stainless wire brush, fill voids. Compress with manufacturer tools. Verify with gauges.
- 3.3 Bolted: Coat with inhibitor, scratch brush, re-coat. Torque alternately in crisscross to manufacturer values. Do not get inhibitor on threads.
- 3.4 Flat Pad: Stainless bolt (304), two flat washers (316), one Belleville (301), one nut (316). Split/lock washers NOT allowed.
- 3.5 Aluminum-to-copper/bronze: copper/bronze terminal on bottom to avoid corrosion from copper salts.
- 3.6 Wipe excess compound leaving small bead as moisture seal.
- 3.7 Insulators inspected for cracks. Clean with cotton rags. Cracked insulators not installed.
- 3.8 End caps in open pipe bus to prevent nesting.
- 3.9 Primary connections NOT tightened until testing complete.

3.10 Bolted Connection Torque Values

Unless otherwise specified by connector manufacturer:

Bolt Diameter	Aluminum (lb-in)	Stainless Steel (lb-in)
3/8"	168	240
1/2"	300	480
5/8"	480	660
3/4"	720	840

END OF SECTION 16H

SECTION 16J – CONTROL ENCLOSURE / CONTROL BUILDING

1.0 INTRODUCTION

1.1 Scope

This section covers the Contractor's responsibilities for electrical installation, grounding, and maintenance of the control enclosure or control building. The control enclosure will be delivered, mechanically assembled, and set on its foundation by others.

1.2 References

Section 16A, 16K, 16L

2.0 INSTALLATION

- 2.1 Welding of control enclosure base channel to embedded foundation plates by Contractor. Welding to piers may be by enclosure vendor.
- 2.2 Ground enclosure on all four (4) corners per the Grounding Plan.
- 2.3 Install station service cable and energize station service as soon as possible after delivery.
- 2.4 Verify all AC station service equipment is safe and operational.
- 2.5 Verify all main and secondary power cables tight on safety switches, ATS, and AC panelboards prior to energizing.
- 2.6 Contractor shall understand ATS operation by reviewing manufacturer's manual before initial energizing. ATS damage caused by Contractor repaired/replaced at Contractor's expense.
- 2.7 If initial power is temporary generator, follow applicable temporary generator installation requirements.
- 2.8 Before first energizing, verify correct system voltage by comparing source voltage at safety switch with equipment rating nameplate on ATS.
- 2.9 Before first energizing, verify AC supply to battery charger is switched OFF to prevent inadvertent energizing of battery system.
- 2.10 ASAP after energizing, verify proper operation of interior lights, exterior lights, exit lights, doors, receptacles, and HVAC. Notify Construction Supervisor of any damage.
- 2.11 Secure enclosure with Owner's padlock during non-work hours. Locked at all times when Contractor not present.
- 2.12 Seal all cable tray entrances using Owner-provided materials (fire pillow blocks, Roxtec sealing modules, or engineering-approved type). Conduit entrances sealed with duct seal.

- 2.13 Stairs: Cast-in-place by civil contractor. Pre-cast stairs unloaded, installed (including railing), and handrails grounded by Electrical Contractor.
- 2.14 Inspect and replace HVAC intake/return filters throughout construction. All filters replaced at final turnover.
- 2.15 Remove temporary floor coverings and clean enclosure floors prior to completion.
- 2.16 Panel-to-panel wiring and building internal AC/DC wiring by others. Contractor terminates all control, power, and security cables at both ends.
- 2.17 Cable riser covers shall remain in place when not pulling cables to minimize heat/cooling loss.
- 2.18 Security equipment by others. Contractor assists with security cabling and routing.
- 2.19 Vent fan timers: fifteen (15) minutes every eight (8) hours.
- 2.20 HVAC thermostat: 68°F to 72°F. Temperature alarms: 85°F rising, 60°F falling.

SECTION 16K – PROTECTION AND CONTROL PANELS

1.0 INTRODUCTION

1.1 Scope

Installation of protection and control panels, relay panels, and control cabinets within the control enclosure.

1.2 References

Section 16L, 16M, 16A

2.0 STORAGE

- 2.1 Panels shipped upright and crated. Doors/covers may be packaged separately.
- 2.2 Store in enclosed trailers, connex boxes, or control enclosures, upright, free from weather.
- 2.3 Temporary DC/AC power for preliminary settings and testing with Construction Supervisor approval.

3.0 INSTALLATION

- 3.1 Unload, inspect, install per drawings. Align parallel to adjacent panels. Anchor to floor/adjacent panels/bracing with stainless steel hardware.
- 3.2 Replacement panel fronts: special care with vibration-sensitive relays. Plasma torch may be required. Cut edges free of burrs.
- 3.3 Assemble covers, doors, hardware per manufacturer's instructions.

4.0 WIRING

- 4.1 Internal wiring: No. 14 AWG stranded tinned copper 600V. CT circuits: No. 12 AWG minimum.
- 4.2 Insulated ring terminals (Sta-Kon nylon or AMP PDIG) for relay terminals in close proximity. Non-insulated ring terminals (Burndy YAV or equivalent) for field cables and terminal blocks.
- 4.3 Install all compression terminals using the connector manufacturer's specified crimp tool and die set. Maintain crimping tools in accordance with the manufacturer's recommendations. Perform pull testing only when required by the connector manufacturer or the Owner's quality assurance procedures.
- 4.4 Wiring neat in gutters/raceways, no tension on terminals. Verify continuity against drawings before turnover. Mis-wires corrected at no cost.
- 4.5 Panel-to-panel wiring by control enclosure manufacturer. Shipping split wires completed by manufacturer's reps.

- 4.6 Contractor terminates all outdoor control, power, and security cables. Installs all fiber optic patch cords.
- 4.7 External wiring through terminal blocks. Terminal blocks mounted long dimension vertical. Slide links open toward external wiring (fall open if horizontal).
- 4.8 Shielded cable: AMP #330003 foil tape barrel connector with #10 bare copper to panel ground bar or 4/0 ground loop with split bolt.
- 4.9 Field wiring pulled into same panel as terminations. Spare conductors cut to bottom of panel or furthest terminal block.
- 4.10 Label all wiring with cable and wire numbers per design. Intra-panel wiring labeled with destination point.
- 4.11 All panels connected to ground loop via copper ground bus or 4/0 ground loop along cable tray.
- 4.12 Clean all panels of dust, dirt, debris before turnover.

5.0 NAMEPLATES

- 5.1 Front and rear of panels above equipment per drawings. Adhesive-backed; surfaces cleaned before attaching.
- 5.2 Remove old nameplates completely when replacing. Do NOT stack new over old.
- 5.3 If backlite not available, use printed labels. Handwritten markers on panels NOT approved.

END OF SECTION 16K

SECTION 16L – POWER AND CONTROL CABLES

1.0 INTRODUCTION

1.1 Scope

Installation, termination, and testing of power and control cables between yard equipment and control enclosure.

1.2 References

Section 16A, 16C, 16K

2.0 INSTALLATION

2.1 Pull cables maintaining manufacturer-specified bend radii. Route in cable tray, conduit, or duct bank per plans.

2.2 Label all cables with cable and wire numbers per design at both ends. Labels durable, legible, weather-resistant.

2.3 Terminate at both ends. Spare conductors cut to reach bottom of panel or furthest terminal block.

2.4 Shielded cable grounding per design: AMP #330003 with #10 bare copper to ground bar or 4/0 ground loop with split bolt.

2.5 Seal all cable tray and conduit entrances per Section 16J.

3.0 TESTING

3.1 Megger all new cables at 1,000V DC to ground before energization. 500V DC for legacy with written Engineer permission.

3.2 Proper device isolation required for insulation testing.

3.3 Minimum acceptable: 10 megohm new, 1 megohm existing.

3.4 Record all megger readings on circuit schematics near ground point.

END OF SECTION 16L

SECTION 16M – FIBER OPTIC INSTALLATION

1.0 INTRODUCTION

1.1 Scope

Installation, splicing, and testing of single-mode and multimode fiber optic cables including fusion splicing, testing, labeling, and documentation.

1.2 References

Section 16A, 16C, 16K

1.3 Codes and Standards

Work shall comply with:

Standard	Description
ANSI/TIA-598-D	Optical Fiber Cable Color Coding
ANSI/TIA-568	Building Telecom Wiring
GR-20-CORE	Optical Fiber Requirements
GR-771-CORE	Fiber Splice Closures
IEEE 1428, 525, C2 (NESC)	Fiber Optic Cable Installation
ITU-T G.652.D	Optical Fiber Requirements
IEC-61300-3-25	Connector End Face Inspection
ANSI Z136.2	Safe Use of Optical Fiber
Telcordia GR-765	Fusion Splicing Standards
NESC / NEC	General Electrical
FOA	Fiber Optic Association

2.0 WORKER QUALIFICATIONS

- 2.1 FOA certifications required: CFOT, CFOS/S, and CFOS/T.
- 2.2 Training through AFL Light Brigade or equivalent.
- 2.3 Minimum two (2) years fiber optic splicing and testing experience. Resumes on request.
- 2.4 Trained on specific equipment make/model with certificates.
- 2.5 No personnel perform work until qualifications approved by Owner.
- 2.6 One-year warranty on all fiber optic splicing and testing quality.

3.0 MATERIALS

- 3.1 Fiber: ITU-T G.652.D single-mode (Corning SMF-28 or equivalent).
- 3.2 Heat-shrink splice protectors: Tyco/Raychem SMOUV or equivalent.
- 3.3 Approved splicer manufacturers: AFL, Corning, Sumitomo Electric.

- 3.4 Test equipment: EXFO (preferred), Viavi, AFL, Fluke. Calibrated.
- 3.5 Splice enclosures per project documentation. Substitutions require written Owner approval.

4.0 INSTALLATION

- 4.1 Mechanical protection where cable runs along surface/edge. Handle per manufacturer. Report damage immediately.
- 4.2 Store minimum 25 feet on A-frame and 25 feet inside fiber rack for future maintenance.
- 4.3 Seal cable ends if stored overnight. Splice boxes fully assembled/sealed/labeled before testing.
- 4.4 Fiber segregated by tray, conduit, or innerduct. Not shared with power/control without approval.
- 4.5 Mark conduits leaving property. Cable ties NOT acceptable for fiber. Use Velcro or encapsulated padding.

5.0 SPLICING

- 5.1 Single fusion splicing ONLY. Ribbon splicing NOT accepted. Splice in protected enclosure on the ground.
- 5.2 Active Core Alignment and LID methods per Telcordia GR-765-CORE.
- 5.3 Splice attenuation: no greater than 0.05 dB at machine. Break and remake until met.
- 5.4 Visual inspection each splice for abnormalities (thickening, bubble). Re-splice if found.
- 5.5 Tension test after visual. Heat-shrink sleeve (Tyco/Raychem SMOUV) applied with heat oven only.
- 5.6 Bi-directional at 1550 nm: max 0.10 dB. Individual up to 0.20 dB if enclosure average ≤ 0.05 dB.
- 5.7 Straight-through (1st to 1st) unless noted. Rolled fibers corrected before final testing.
- 5.8 Color codes per ANSI/TIA-568. Dissimilar fiber types not spliced unless explicitly stated.
- 5.9 Clean workspace; remove all bare glass fragments; replace dust caps.

6.0 TESTING

- 6.1 OTDR at 1550 nm after splicing to confirm specification.
- 6.2 Bi-directional OTDR after all splicing complete.
- 6.3 End-to-End Acceptance by independent entity: connector inspection at 400X, OLTS, OTDR, Optical Spectrum Analyzer.
- 6.4 OLTS at 1310/1550/1625 nm (SM) or 850/1300 nm (MM). Max Loss = $(A \times L) + (S \times N) + (C \times n)$ dB.

6.5 OTDR bi-directional: fusion points ≤ 0.1 dB averaged or 0.3 dB one direction. Smallest practical pulse width.

6.6 Results within five (5) working days in native format and Excel.

7.0 LABELING

7.1 Per ANSI/TIA/EIA-606-A and UL 969. NO handwritten labels.

7.2 Modules labeled A-D (48-count) or A-F (72-count).

7.3 Post-installation photos: minimum five per splice closure.

7.4 As-built redlines within three (3) weeks of completion.

END OF SECTION 16M

SECTION 16N – SOIL RESISTIVITY TESTING

1.0 INTRODUCTION

1.1 Scope

Measurement and documentation of site soil resistivity data to support grounding system design per IEEE Std 80 and 81.

1.2 References

Section 16A, 16B

1.3 Codes

Work	In Accordance With
Grounding	IEEE 80, IEEE 81
Testing	ASTM G57
General	NEC / NESC

2.0 EQUIPMENT

2.1 Equipment in good working order with service records available.

2.2 Calibrated within one (1) year or in accordance with the manufacturer's recommended calibration interval.

2.3 Injection frequencies 15-50 Hz. Other frequencies not acceptable unless device has rejection filtering.

3.0 METHODS

3.1 Wenner Four-Electrode method preferred per IEEE 81. Fall of Potential also accepted.

3.2 Other methods require written Engineer approval.

4.0 REQUIREMENTS

4.1 Undisturbed soil. Depths >2 feet undisturbed ≥1 year. Compacted soil considered undisturbed 2 weeks after final compaction.

4.2 No conductive paths. Min 100 feet from distribution, 300 feet from transmission. Perpendicular paths at >1.5x max spacing not influential.

4.3 Wenner probe depth 'B' = twelve (12) inches.

4.4 Two sets of twenty (20) measurements N-S and two sets E-W. Parallel lines differ by ≥50 feet. Spacing 0.5 to 55 feet.

4.5 Reschedule if: wet soil >50% moisture, impediments, rocky soil/pavement, or inclement weather.

5.0 DOCUMENTATION

- 5.1 Report within one (1) business week.
- 5.2 Include apparent resistivity with example calculation, KMZ/PDF overlay, raw Excel data.
- 5.3 Note field conditions, difficulties, or deviations.

END OF SECTION 16N

SECTION 16P – RELAY TESTING AND COMMISSIONING

1.0 INTRODUCTION

1.1 Scope

Scope of work for all external personnel performing relay maintenance, testing, and substation equipment commissioning. Tester provides labor, equipment, tools, and material to perform Work to Owner's required quality.

This is a general summarization supplementing the Plans and Specifications. Commissioning of certain equipment excluded lies in other Division 16 sections.

1.2 References

Section 16A, 16B, 16F, 16G, 16K, Manufacturer's Instruction Books

1.3 Standards

Standard	Description
IEEE C37 Series	Protection and Control
IEEE C37.103	Commissioning Guide
NERC PRC-005	Protection System Maintenance
NERC FAC-008	Facility Ratings
NETA ATS	Acceptance Testing Specifications

2.0 QUALIFIED WORKER

- 2.1 OSHA electrically qualified to enter Owner's premises.
- 2.2 Lead: minimum seven (7) years utility-grade substation experience with approved apprentice program or associates degree.
- 2.3 NETA certification required. Lead: Level 3 minimum, Level 4 preferred.
- 2.4 Resumes available upon request. Subordinate workers under qualified lead direction.
- 2.5 Workers qualified through Owner's security process including background checks and NERC training.

3.0 EQUIPMENT

- 3.1 Three-phase test set interfacing with relay test software (e.g. Enoserv RTS) with GPS time synchronization.
- 3.2 Capable of steady-state, dynamic-state, and transient simulation.
- 3.3 Calibrated with documentation available upon request.
- 3.4 Laptops with relay manufacturer software (SEL AcSElerator etc.), DFR software, RTU config software.

4.0 GENERAL EXPECTATIONS

- 4.1 Work only from Plans labeled 'Issued for Construction.'
- 4.2 Work harmoniously with Owner and other contractors. Maintain Owner's access at all times.
- 4.3 Seven (7) days' notice to start, one (1) day to restart, seventy-two (72) hours before leaving.
- 4.4 PCR work approved in writing by Construction Supervisor before starting.
- 4.5 As-builts and documentation within thirty (30) days of in-service date.

5.0 TESTING SCOPE OF WORK

5.1 Removals

Verify wiring, schematics, and removal drawings before removals. Oversee Electrical Contractor wiring removals. Coordinate with Construction Supervisor.

5.2 Wiring Checks

Point-to-point continuity using AC source for CT circuits, DMM for PT/control circuits. Verify point-to-point continuity of CT secondary circuits using a suitable low-voltage test source that does not damage connected equipment. Document successful continuity prior to energization. CT ground lifted prior to wire checking. Megger CT circuits (1000V new / 500V existing). Acceptable: 10 Mohm new, 1 Mohm existing. Record on schematic. Yellow-line schematics.

5.3 Insulation Testing

High-voltage megger on complete circuits before energization. 1,000V DC new; 500V legacy with permission. Proper device isolation required.

5.4 Microprocessor Relaying

Install Owner-supplied settings to memory. Test relay elements and logic. Test protection and logic together as complete scheme. Document as-left settings and test results.

5.5 Metering

Verify proper scaling in RTU. Verify communications. Calibrate before energization.

5.6 Relay Calibration

Test all functions to verify settings/adjustments meet accuracy. Applies to electromechanical relays. Document and save each test.

5.7 End-to-End Testing

GPS-synchronized testing of DCB, 87L, DCUB, POTT, DUTT, PUTT schemes. No later than next workday after in-service for pilot schemes. Complete carrier and fiber testing first.

5.8 Primary Current Injection

Verify new/modified bus differential schemes. Verifies CT ratios and secondary circuit wiring. Test plans approved by Construction Supervisor.

5.9 Secondary Phasing

Verify voltage magnitudes and phase angles at all fuses, relays, and meters. Before energization, verify fuses installed at PT source and removed in control house.

5.10 Load Checks

Required for all new relays and metering before service. Verify CT ratio, polarity, phasing, rotation. Force current through neutral elements. Use relay metering tools to verify analogs.

5.11 Trip / Operation Checks

Operate each contact and electrical path per design schematics. After wire checks complete with all control voltages energized.

5.12 SCADA / HMI

Upload RTU/HMI program. Verify all status, control, digital, and analog points with Transmission Operations or Distribution Dispatch.

6.0 COMMISSIONING SCOPE OF WORK

6.1 PTs, CCVTs, Station Service VTs

Verify installed per schematics and one-line. Verify nameplate. Verify shipping grounds removed. CCVTs: verify carrier accessories.

6.2 Power Circuit Breakers

Verify bushing orientation. Verify CT positions match schematics. Check contacts. Verify nameplate. Verify SCADA status and alarm points.

6.3 Grounding

Verify design meets safety criteria. Provide Rmat values via fall-of-potential method.

6.4 GPS Clocks

Verify clock signals and GPS antenna per manufacturer's commissioning practices.

6.5 Station Service / ATS

Wire check and operation check all circuits per schematic. Verify breaker sizing and nameplates. Apply set points per design.

6.6 Power Transformers

Verify nameplate, tap position, grounding. Check alarms to SCADA. Verify fans/pumps manually/automatically and blocked during lockout. Wire check tap changer controls and SCADA. Test sudden pressure relays. Verify CT polarity/ratios. Verify monitoring and remote comms.

6.7 Batteries and Chargers

Apply settings. Verify SCADA indication and alarms. Verify load sharing diode if applicable.

6.8 Digital Fault Recorders

Apply settings. Verify triggering and accuracy. Verify remote communications.

6.9 Carrier Systems

Wave trap frequency sweep and blocking verification. Tuner, carrier, hybrid testing. Verify signal levels, reflected power, frequency coordination with remote terminal.

6.10 Communication Devices

Function test and program all non-IT devices per settings. IT-owned devices out of scope.

6.11 Fiber Optics

Functionally check jumper cabling between relays, meters, RTU, monitoring, and pilot comms using device diagnostics.

7.0 DOCUMENTATION AND DELIVERABLES

7.1 Testing documents completed and provided toward end of project.

7.2 As-built drawings and as-left settings within thirty (30) days of in-service date.

7.3 Marked hard copy left at station. Confirm via email to Owner's Maintenance and Project Engineers.

7.4 Level-3 Project Schedule with biweekly updates.

END OF SECTION 16P

SECTION 16Q – STATION BATTERIES AND BATTERY CHARGERS

1.0 INTRODUCTION

1.1 Scope

This section covers receiving, storage, installation, inspection, testing, charging, commissioning, and turnover of station battery systems, battery chargers, DC distribution panels, and associated equipment.

1.2 References

Section 16A – General Electrical Requirements; Section 16J – Control Enclosure / Control Building; Section 16K – Protection and Control Panels; IEEE 450; IEEE 1188; NETA ATS; manufacturer instructions.

2.0 STORAGE AND HANDLING

2.1 Store batteries and chargers indoors in a clean, dry, temperature-controlled environment protected from construction dust, moisture, direct sunlight, and physical damage.

2.2 Battery terminals shall be protected from accidental short circuit. Tools used around batteries shall be insulated or otherwise suitable for battery work.

2.3 Batteries held in storage shall be maintained in accordance with manufacturer recommendations, including periodic charging where required. Contractor shall provide records upon request.

2.4 Batteries shall not be stacked, dropped, tipped, or lifted by terminals. Damaged jars, covers, terminals, or racks shall be reported immediately.

3.0 INSTALLATION

3.1 Install battery racks level, plumb, and securely anchored per drawings and manufacturer instructions.

3.2 Verify required seismic restraints, insulating hardware, spill containment, and protective covers are installed where specified.

3.3 Verify battery polarity prior to making inter-cell, inter-tier, charger, and DC distribution connections.

3.4 Torque all battery, charger, and DC distribution connections to manufacturer requirements. Record final torque values.

3.5 Apply approved anti-corrosion compound to exposed battery terminals and connection hardware where required by the manufacturer.

3.6 Battery charger AC input, DC output, alarms, and ground detection circuits shall be wired and labeled per the design drawings.

3.7 Battery room or control enclosure ventilation shall be verified prior to placing batteries in service.

4.0 TESTING AND COMMISSIONING

4.1 Record individual cell voltages, total string voltage, float voltage, charger output voltage, charger current, and AC ripple voltage/current as applicable.

4.2 Verify charger float, equalize, alarm, current limit, and temperature compensation settings against approved settings.

4.3 Verify battery ground detection circuitry and local/remote alarms.

4.4 Perform battery acceptance testing in accordance with the battery manufacturer's requirements and the applicable IEEE standard for the installed battery type.

- IEEE-450 - VLA (Flooded) Batteries

- IEEE-1188 - VRLA Batteries

- IEEE-1106 - Ni-Cd Batteries

4.5 Verify all battery charger, DC system, and battery alarms communicate to SCADA or the designated alarm processor.

4.6 No DC system shall be placed in final service until polarity, labeling, alarms, and charger operation have been verified.

5.0 DOCUMENTATION

5.1 Submit battery installation checklist, initial cell voltage readings, charger settings, acceptance test results, alarm verification records, and manufacturer startup documentation.

5.2 Submit as-left DC one-line markups and any field wiring redlines required to document final installed condition.

END OF SECTION 16Q

SECTION 16R – CONSTRUCTION QUALITY ASSURANCE AND INSPECTION

1.0 INTRODUCTION

1.1 Scope

This section defines minimum construction quality assurance, inspection, testing, documentation, and final acceptance requirements for Division 16 electrical work.

1.2 General

Contractor is responsible for quality of workmanship, compliance with drawings and specifications, and timely notification of inspections. Owner inspection does not relieve Contractor of responsibility for conformance.

2.0 HOLD POINTS

2.1 Contractor shall notify the Construction Supervisor a minimum of twenty-four (24) hours prior to each required hold point unless a longer notice period is specified elsewhere.

2.2 Work shall not proceed beyond a hold point until approval is received from the Construction Supervisor or designated inspector.

2.3 Required hold points include:

- Ground grid and below-grade grounding prior to backfill
- Below-grade conduit, duct bank, and cable tray prior to cover
- Reinforcing steel, embedded conduit, and anchor bolts prior to concrete placement
- Equipment foundation acceptance prior to equipment setting
- Control cable installation prior to concealment where applicable
- Final wiring verification prior to energization
- Pre-energization inspection
- Major equipment setting and final alignment before conductors, bus, or cable terminations are made.

3.0 WITNESS POINTS

3.1 Owner may witness compression connections, exothermic welds, fiber splicing, breaker assembly, transformer accessory installation, battery testing, relay commissioning, SCADA point checkout, and other construction or testing activities.

3.2 Failure of Owner to witness a witness point does not waive Contractor obligation to perform work in accordance with the Contract Documents.

4.0 NON-CONFORMANCE AND CORRECTIVE ACTION

- 4.1 Deviations from drawings, specifications, approved materials, or manufacturer instructions shall be documented using the Owner non-conformance process.
- 4.2 Contractor shall stop affected work when continued work may conceal, compound, or make correction more difficult.
- 4.3 Contractor shall submit a corrective action plan for review. Corrective work shall not proceed until disposition is approved where approval is required.
- 4.4 Rework, replacement, retesting, and associated schedule impacts resulting from Contractor non-conformance shall be at Contractor expense unless otherwise directed in writing.

5.0 PHOTO DOCUMENTATION

- 5.1 Contractor shall provide clear digital photographs documenting below-grade grounding, conduit, duct bank, foundation embeds, equipment anchorage, cable routing, fiber installations, completed equipment, nameplates, and corrected punch list items.
- 5.2 Photographs shall be organized by date, location, and subject. Concealed work photos shall be provided before backfill, cover, or enclosure.

6.0 FINAL ACCEPTANCE

- 6.1 Final acceptance requires completed punch list items, submitted test reports, redlines, equipment documentation, turnover package, and confirmation that the work area is clean and restored.
- 6.2 Outstanding exceptions shall be documented with responsible party, corrective action, and target completion requirements.

END OF SECTION 16R

SECTION 16S – SCADA AND SUBSTATION COMMUNICATIONS

1.0 INTRODUCTION

1.1 Scope

This section covers installation, labeling, testing, and turnover of substation SCADA and communication equipment, including RTUs, SEL RTACs or equivalent automation controllers, Ethernet switches, serial devices, cellular equipment, microwave interfaces, communication processors, GPS clocks, and associated cabling.

2.0 INSTALLATION

2.1 Install all SCADA and communication equipment in accordance with construction drawings, approved network drawings, manufacturer instructions, and Owner standards.

2.2 Copper and fiber communication cabling shall be routed and supported to avoid damage, excessive bend radius, and interference from power circuits.

2.3 Communication wiring shall be labeled at both ends and at intermediate termination points. Labels shall match drawings, point lists, and network documentation.

2.4 Network equipment power supplies, grounding, surge protection, and cabinet ventilation shall be verified.

2.5 Time synchronization equipment, including GPS clocks, IRIG-B, PTP, or NTP devices, shall be installed and configured per the approved design.

3.0 TESTING

3.1 Verify communications to all required IEDs, meters, relays, RTUs, processors, communication devices, and monitoring equipment.

3.2 Verify all supervisory controls, status points, alarms, analog values, counters, metering values, and time synchronization signals.

3.3 SCADA checks shall be coordinated with Transmission Operations, Distribution Dispatch, Owner communications personnel, or other designated Owner representatives as applicable.

3.4 Controls shall not be released for service until correct device operation, indication, and permissive/interlock behavior have been verified.

3.5 Communication failures, addressing conflicts, incorrect point mapping, firmware issues, or configuration errors shall be documented and corrected prior to final acceptance.

4.0 DOCUMENTATION

4.1 Submit final point lists, IP address documentation, port assignments, device names, communication drawings, network diagrams, settings files, configuration backups, and SCADA checkout records.

4.2 Submit as-left files in native electronic format where available and PDF format for review and archival.

END OF SECTION 16S

SECTION 16T – ENVIRONMENTAL REQUIREMENTS

1.0 INTRODUCTION

1.1 Scope

This section defines minimum environmental protection requirements during substation construction, equipment installation, oil handling, SF6 handling, waste disposal, and site restoration activities.

1.2 General

Contractor shall comply with all applicable federal, state, local, Owner, and project-specific environmental requirements. More stringent requirements shall govern.

2.0 SPILL PREVENTION AND RESPONSE

2.1 Contractor shall maintain spill response materials onsite in quantities appropriate for fuel, oil, hydraulic fluid, and other materials used during construction.

2.2 Spills, releases, or suspected releases shall be immediately reported to the Construction Supervisor.

2.3 Fueling and maintenance of equipment shall occur only in approved locations using appropriate containment and spill prevention measures.

2.4 Contaminated soil, absorbents, water, or debris shall be handled and disposed of in accordance with applicable regulations and Owner direction.

3.0 OIL-CONTAINING EQUIPMENT

3.1 Oil-filled equipment shall be protected from uncontrolled release during receiving, storage, assembly, filling, processing, testing, and removal.

3.2 Temporary containment shall be used as required around oil processing equipment, hoses, pumps, drums, valves, and connection points.

3.3 Transformer oil, breaker oil, and other insulating fluids shall be handled by qualified personnel using clean, compatible equipment.

4.0 SF6 HANDLING

4.1 SF6 shall be recovered, transferred, filled, evacuated, and processed using approved equipment and qualified personnel.

4.2 Contractor shall record quantities of SF6 removed, added, stored, or returned where required by Owner procedures.

4.3 Leaks, pressure loss, damaged fittings, or suspected emissions shall be reported immediately.

4.4 Prior to returning recovered SF6 to equipment, verify gas quality meets the equipment manufacturer's requirements for purity, moisture content, and decomposition products, where applicable. Document test results upon request.

5.0 WASTE DISPOSAL AND SITE RESTORATION

5.1 Waste materials shall be segregated, stored, labeled, transported, recycled, or disposed of in accordance with applicable requirements.

5.2 No waste, oil, solvents, concrete washout, or construction debris shall be buried onsite unless specifically approved in writing.

5.3 Upon completion, the site shall be restored, debris removed, temporary erosion controls addressed, and work areas left clean and safe.

END OF SECTION 16T

SECTION 16U – RECORD DRAWINGS AND PROJECT TURNOVER

1.0 INTRODUCTION

1.1 Scope

This section establishes minimum record drawing, redline, closeout, and project turnover requirements for Division 16 electrical work.

2.0 REDLINES

2.1 Contractor shall maintain current redline drawings throughout construction. Redlines shall be available onsite for Owner review.

2.2 Redlines shall clearly identify field changes, installed routing, equipment or terminal substitutions, cable number changes, conduit changes, ground grid deviations, SCADA point changes, and as-left settings references.

2.3 Redlines shall be neat, legible, dated, and marked by drawing number. Ambiguous field changes shall be clarified before turnover.

2.4 Where electronic redlines are used, file names shall clearly identify project, drawing number, revision, and date.

3.0 TURNOVER PACKAGE

3.1 Contractor shall submit a complete turnover package prior to final acceptance unless otherwise approved.

3.2 Required Contents Turnover package shall include construction redlines, testing reports, relay settings, as-left settings, SCADA point checkout records, fiber test reports, ground grid testing, soil resistivity reports where applicable, battery and charger records, equipment startup reports, commissioning records, NCR/RFI closeout records, material substitutions, warranties, and final punch list disposition.

4.0 ELECTRONIC FILE REQUIREMENTS

4.1 Deliver PDF files for final review and archival. Native electronic files shall be provided where available or required.

4.2 File names shall match project document numbering, equipment identification, or Owner naming convention.

4.3 Large data sets, settings files, relay test files, OTDR files, and configuration backups shall be organized by equipment, location, and date.

5.0 FINAL COMPLETION

5.1 Final completion requires all deficiencies corrected, documentation submitted, equipment accepted, temporary facilities removed, and Owner acceptance received.

5.2 No final payment or release of retainage shall be recommended until required turnover documents are complete unless otherwise approved by Owner.

END OF SECTION 16U

SECTION 16V – EQUIPMENT LABELING AND IDENTIFICATION

1.0 INTRODUCTION

1.1 Scope

This section defines minimum labeling and identification requirements for substation equipment, panels, relays, cables, wires, conduit, fiber optic infrastructure, communication devices, and field-installed components.

2.0 GENERAL REQUIREMENTS

2.1 Labels shall be machine generated, durable, legible, and suitable for the installed environment.

2.2 Handwritten labels are not acceptable for final installation.

2.3 Outdoor labels shall be UV resistant, weather resistant, and mechanically secured or adhesive-backed as appropriate for the application.

2.4 Labels shall match construction drawings, one-line diagrams, panel drawings, cable schedules, SCADA names, and asset records.

2.5 Incorrect, duplicate, missing, or inconsistent labels shall be corrected prior to final acceptance.

3.0 CABLE AND WIRE IDENTIFICATION

3.1 All cables shall be labeled at both ends and at accessible intermediate points such as pull boxes, cable trays, splice points, and termination cabinets.

3.2 Control wire labels shall match schematic and wiring diagrams. Spare conductors shall be labeled and terminated or secured as specified.

3.3 Labels shall remain legible after cable pulling, termination, heat shrink, lacing, bundling, or tray installation.

4.0 EQUIPMENT IDENTIFICATION

4.1 Major equipment labels shall identify equipment name, number, phase designation where applicable, and any Owner-required asset designation.

4.2 Relay panels, control cabinets, AC/DC panels, batteries, chargers, communication cabinets, and RTUs shall be labeled on front and rear where accessible.

4.3 Nameplates shall not cover ventilation openings, warning labels, manufacturer nameplates, or safety markings.

5.0 FIBER AND COMMUNICATION LABELING

5.1 Fiber optic labels shall identify source, destination, fiber count or strand designation, and splice closure or panel identification.

5.2 Fiber labels shall match splice records, OTDR documentation, patch panel assignments, and communication drawings.

5.3 Network devices, ports, patch cords, serial cables, GPS/IRIG-B cables, and communication processors shall be labeled according to the final communication documentation.

6.0 VERIFICATION

6.1 Contractor shall verify labeling against drawings and final field condition as part of pre-energization and project turnover.

6.2 Owner may require correction of labels that are unclear, inconsistent, poorly located, damaged, or not suitable for the environment.

END OF SECTION 16V

SECTION 16W – GALVANIZED METAL REPAIR

1.0 INTRODUCTION

1.1 Scope

This section covers requirements for field galvanizing repairs on galvanized steel structures, including but not limited to columns, beams, baseplates, shafts, arms, appurtenances, support steel, and related substation structural components.

1.2 References

Section 16A – General Electrical Requirements; Section 16D – Steel Erection and Anchors; ASTM A780, Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings; OSHA requirements; SSPC-SP11; SSPC-SP2; manufacturer instructions.

1.3 General

ASTM A780 describes acceptable repair methods for damaged galvanized coatings. For field repairs under this specification, acceptable methods are repair using zinc-based alloys and repair using paints containing zinc dust. Repair using sprayed zinc/metallizing is not permitted for field repairs unless specifically approved in writing by the Engineer and Owner.

2.0 DEFINITIONS AND ACRONYMS

2.1 Cold Galvanized Repair – Aerosol or brush application of zinc-rich coating used for touch-up repair of galvanized structural steel.

2.2 Hot Stick Repair – Use of zinc-based alloy solder, typically in rod or powder form, for repair of galvanized coatings on structural steel.

2.3 DFT – Dry Film Thickness.

2.4 MAD – Minimum Approach Distance.

2.5 SSPC – Steel Structures Painting Council.

3.0 SUBMITTALS AND APPROVALS

3.1 Contractor shall submit proposed galvanizing repair procedures and repair materials to the Engineer and Owner for review prior to implementation.

3.2 Submittals shall be made a minimum of seven (7) days prior to beginning galvanizing repair work unless otherwise approved.

3.3 No galvanizing repair work shall be performed until the repair procedure and repair materials have been approved.

3.4 Suppliers or specialty contractors performing field work shall use repair procedures that comply with ASTM A780 and have been approved for the project.

4.0 SAFETY

- 4.1 All work shall be performed in accordance with applicable OSHA requirements and the manufacturer's printed instructions and specifications for the repair material or hot stick product.
- 4.2 When working on or around energized equipment, Contractor shall coordinate with the Construction Supervisor to verify that the work complies with applicable Minimum Approach Distance requirements.
- 4.3 Hot work, grinding, preheating, soldering, and coating application shall be conducted using appropriate personal protective equipment, ventilation, fire prevention, and environmental controls.

5.0 GALVANIZING REPAIR USING PAINTS CONTAINING ZINC DUST

- 5.1 Paints containing zinc dust shall be formulated for use on steel surfaces and shall be suitable for repairing damaged galvanized coatings. Paints containing zinc dust with zinc concentrations in the range of 65 to 69 percent or above 92 percent in the dry film are considered acceptable when approved for the project.
- 5.2 Surfaces to be repaired shall be clean, dry, and free of oil, grease, preexisting paint, and corrosion by-products.
- 5.3 Cold galvanizing shall only be applied when the surface and ambient temperature are above 45°F (7°C). Cold galvanizing shall not be applied to wet or damp surfaces.
- 5.4 Prepare the surface to bare metal in accordance with SSPC-SP11, Power Tool Cleaning to Bare Metal, or another method approved by the Engineer. Where conditions do not allow blasting or power tool cleaning, SSPC-SP2 hand tool cleaning may be used when approved.
- 5.5 Surface preparation shall extend a minimum of one (1) inch into the surrounding undamaged galvanized coating. Feather the area to be repaired to obtain a smooth transition.
- 5.6 Where repairs include welds, remove all weld flux residue and weld spatter by mechanical means such as chipping, grinding, or power scaling before coating application.
- 5.7 Spray or brush-apply the zinc-rich coating to the prepared area in accordance with the manufacturer's printed instructions. Application shall extend into the surrounding undamaged galvanized coating.
- 5.8 Apply the zinc-rich coating in accordance with the manufacturer's written instructions to achieve the specified dry film thickness for the selected repair system. Verify the applied DFT using a calibrated coating thickness gauge. All field galvanizing shall comply with ASTM A780 requirements.
- 5.9 Allow adequate curing time before subjecting repaired items to service conditions. Curing shall be in accordance with the manufacturer's printed instructions.
- 5.10 Take thickness measurements with a magnetic, electromagnetic, or eddy-current gage to verify that the applied coating meets the specified DFT. Measuring devices shall be adequately calibrated.

5.11 Clean up and disposal shall be performed in accordance with manufacturer instructions and applicable environmental requirements.

6.0 GALVANIZING REPAIR USING ZINC-BASED SOLDERS / ALLOYS

6.1 Zinc-based solders or hot stick repair materials may be used for galvanizing repairs. Repair materials shall comply with ASTM A780 and the manufacturer's recommendations.

6.2 Clean the surface to be repaired using a wire brush, light grinding action, mild blasting, or another approved method.

6.3 Surface preparation shall extend a minimum of one (1) inch into the surrounding undamaged galvanized coating.

6.4 Where repairs include welds, remove all weld flux residue and weld spatter by mechanical means prior to repair.

6.5 Preheat the repair area to the temperature specified by the repair material manufacturer. Do not overheat the surrounding galvanized coating or otherwise damage the base metal or existing galvanizing.

6.6 Rub the cleaned and preheated area with the repair stick to deposit an evenly distributed layer of zinc alloy. Application shall extend into the surrounding undamaged galvanized coating.

6.7 When powdered zinc alloys are used, sprinkle the powder on the cleaned and preheated surface and spread it using a spatula or similar tool.

6.8 When the repair is complete, remove flux residue by rinsing with water or wiping with a damp cloth.

6.9 Take thickness measurements using a magnetic, electromagnetic, or eddy-current gage. Measuring devices shall be adequately calibrated. Recommended DFT shall not be less than four (4) mils unless otherwise approved.

7.0 DOCUMENTATION

7.1 Galvanizing repairs associated with structural steel modifications shall be documented with a Non-Conformance Report or other Engineer-approved documentation process.

7.2 Minor galvanizing touch-up repairs for damage due to shipping, unloading, hauling, jacking, or erection do not require Non-Conformance Report documentation unless directed by the Engineer or Owner.

7.3 Documentation shall identify the location of the repair, material used, repair method, date completed, person or contractor performing the repair, and inspection disposition when required.

8.0 INSPECTION

8.1 Except for minor damage due to shipping, unloading, hauling, jacking, or erection, galvanizing repairs shall be visually inspected by the Construction Supervisor, Engineer, Owner, or designated inspector.

8.2 No repair requiring inspection shall be considered complete until accepted by the Construction Supervisor, Engineer, Owner, or designated inspector.

8.3 Final inspection shall verify surface preparation, coating continuity, repair coverage into surrounding galvanized surface, uniform surface profile, and required dry film thickness.

END OF SECTION 16W

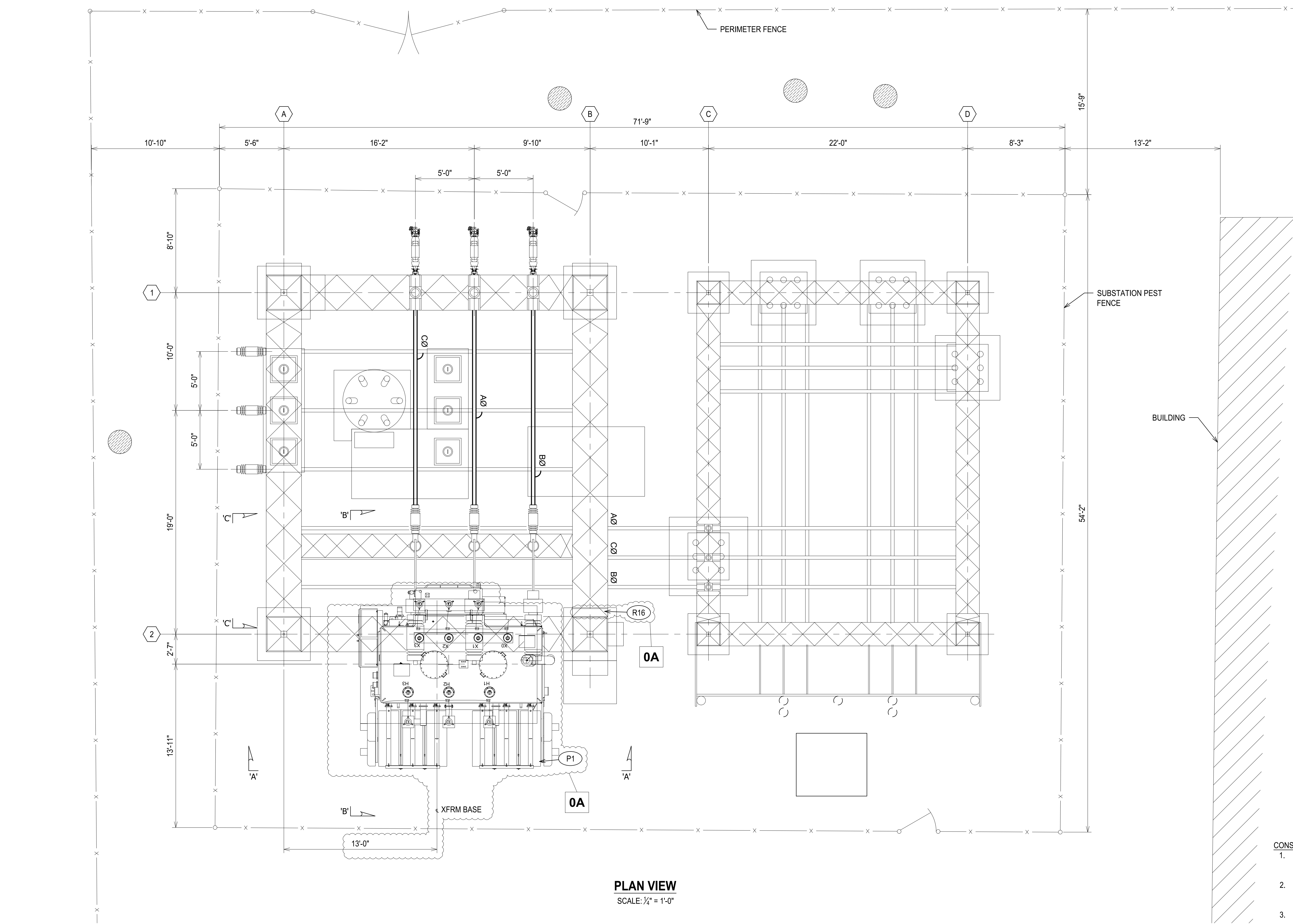
END OF DIVISION 16 – ELECTRICAL



Drawing List

Project Owner		Village of Rantoul, IL						
Project Title		Power Plant Substation 69/13.8KV						
Project Number		3953						
Project Engineer		Jack Sykut						
Drawing List								
Rev			Description					
0A		IFB						
F. EQUIPMENT ASSEMBLY								
Size	DGN#	SH	REM	Title			Rev.	STATUS
24X36	PWPL-21.1-1	1	X	EQUIPMENT GENERAL ARRANGEMENT			0A	
24X36	PWPL-21.2-1	1	X	EQUIPMENT ELEVATIONS			0A	
24X36	PWPL-28.1-1	1		JUNCTION BOX DETAILS			0A	
G. BILL OF MATERIAL								
Size	DGN#	SH	REM	Title			Rev.	STATUS
11X17	PWPL-91.1			EQUIPMENT BILL OF MATERIAL			0A	
11X17	PWPL-91.2			OUTDOOR NAMEPLATE BILL OF MATERIALS			0A	
I. STRUCTURE - CONCRETE & BUILDING								
Size	DGN#	SH	REM	Title			Rev.	STATUS
24X36	PWPL-11.0-1	1		GENERAL NOTES			0A	HANSON
24X36	PWPL-11.1-1	1	X	FOUNDATION PLAN			0A	
24X36	PWPL-11.3-1	1		FOUNDATION DETAILS, XFMR			0A	HANSON
J. GROUNDING AND CONDUIT								
Size	DGN#	SH	REM	Title			Rev.	STATUS
24X36	PWPL-12.2-1	1		GROUNDING DETAILS			0A	
24X36	PWPL-13.1-1	1		CONDUIT PLAN			0A	
24X36	PWPL-13.2-1	1		CONDUIT DETAILS			0A	

CABLE LIST								
Project Title	City of Rantoul PWPL Transformer Replacement							
Document Name	IFB Cable List (PWPL-13.4)							
REV	0 IFB							
DATE	6/22/2026							
CABLE	DESCRIPTION	FROM	TO	WIRE	WIRE ROUTING	RACEWAY SIZE	LENGTH (FT)	COMMENT
YARD EQUIPMENT								
AC1-1	AC POWER	TERM CAB #2 (AC CABINET 1 CKT xx & xx)	PWPL-XFMR-1	4C#8	CONDUIT	VARIES	50	
DC1-1	DC POWER	TERM CAB #2 (DC CABINET 1 CKT xx & xx)	PWPL-XFMR-1	4C#8	CONDUIT	VARIES	50	
DC1-2	DC POWER	TERM CAB #2 (DC CABINET 2 CKT xx & xx)	PWPL-XFMR-1	4C#8	CONDUIT	VARIES	50	
PT-1	AC CONTROLS	TERM CAB #2 (15KV BUS PT)	PWPL-XFMR-1 LTC	4C#10	CONDUIT	VARIES	50	
RTU-1	RTU ALARMS	TERM CAB #2 (ALARM PANEL)	PWPL-XFMR-1	12C#12	CONDUIT	VARIES	50	
T1-1	XFMR CONTROL	TERM CAB #2 (MISC RLY CTRL)	PWPL-XFMR-1	12C#12	CONDUIT	VARIES	50	
T1-2	XFMR CONTROL	TERM CAB #2 (MISC RLY CTRL)	PWPL-XFMR-1	12C#12	CONDUIT	VARIES	50	
T1-3	XFMR CONTROL	TERM CAB #2 (MISC RLY CTRL)	PWPL-XFMR-1	12C#12	CONDUIT	VARIES	50	
T1CT-1	CURRENT	TERM CAB #2 (CT#1)	PWPL-XFMR-1	4C#10	CONDUIT	VARIES	50	
T1CT-2	CURRENT	TERM CAB #2 (CT#2)	PWPL-XFMR-1	4C#10	CONDUIT	VARIES	50	
T1CT-3	CURRENT	TERM CAB #2 (CT#3)	PWPL-XFMR-1	4C#10	CONDUIT	VARIES	50	
T1CT-4	SPARE CURRENT	TERM CAB #2 (CT#4)	PWPL-XFMR-1	4C#10	CONDUIT	VARIES	50	



PLAN VIEW
SCALE: 1/4" = 1'-0"

LEGEND:

- (XX) - INDICATES BOM ITEM # - SEE DWG PWPL-91.1
- - INDICATES TRANSMISSION/DISTRIBUTION WOOD POLE

REFERENCE DRAWINGS:
EQUIPMENT ELEVATIONS _____ PWPL-21.2-1
FOUNDATION PLAN _____ PWPL-11.1-1
CONDUIT PLAN _____ PWPL-13.1-1
EQUIP. BILL OF MATERIAL _____ PWPL-91.1



0A	07/14/26	ISSUED FOR BID
THE REGISTRANT OF THE NEWLY APPLIED SEAL, DATED --/--/26, ONLY ASSUMES RESPONSIBILITY FOR CHANGES AS INDICATED BY THE FOLLOWING REVISION(S) 0.		
REV #	DESCRIPTION	DATE

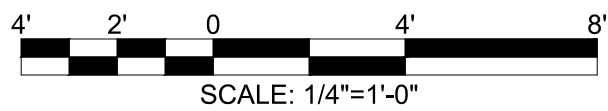
0	FIRST ISSUE	--/--/26	GAM	GAM	JS
REV #	DESCRIPTION	DATE	DWN	DSN	APPR



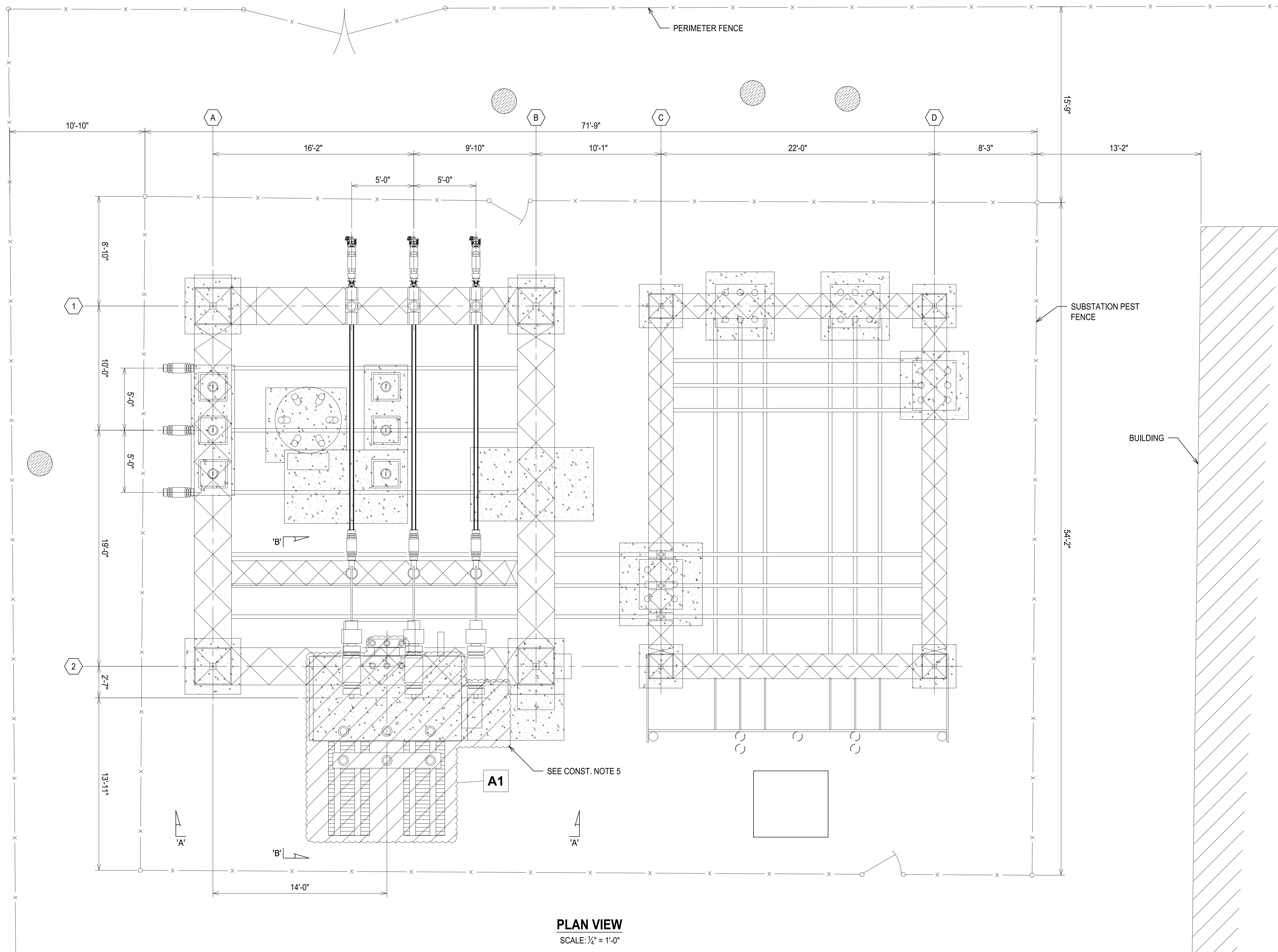
TITLE: EQUIPMENT GENERAL ARRANGEMENT	
POWER PLANT SUBSTATION	
DATE: --/--	SCALE: 1/4" = 1'-0"

DESIGNER: GAM
APPROVED: JS
DRAWING #: PWPL-21.1-1
SHEET: 1 OF 1

- CONSTRUCTION NOTES:
- DIMENSIONS AND LOCATIONS SHOWN ARE APPROXIMATE AND WERE DEVELOPED FROM THE "26E0037 POINT CLOUD" FILE PROVIDED BY HANSON PROFESSIONAL SERVICES, INC. AND RECEIVED ON 6/11/2026.
 - ALL EQUIPMENT, FOUNDATIONS, STRUCTURES, CONDUIT, AND OTHER FACILITIES SHOWN BUT NOT SPECIFICALLY IDENTIFIED AS PART OF THIS PROJECT SCOPE ARE EXISTING AT APPROXIMATE LOCATIONS SHOWN.
 - CONTRACTOR SHALL FIELD VERIFY ALL SCOPED EQUIPMENT AND FOUNDATION LOCATIONS PRIOR TO INSTALLATION AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
 - DIMENSIONS SHOWN TO CL OF EQUIPMENT. SEE FOUNDATION LAYOUT DWG. PWPL-11.1-1 FOR FOUNDATION LOCATIONS AND DIMENSIONS.



ISSUED FOR BID
NOT FOR CONSTRUCTION



PLAN VIEW
SCALE: 1/4" = 1'-0"

ISSUED FOR BID
NOT FOR CONSTRUCTION

FOR REMOVAL

- CONSTRUCTION NOTES:
- DIMENSIONS AND LOCATIONS SHOWN ARE APPROXIMATE AND WERE DEVELOPED FROM THE "26E0037 POINT CLOUD" FILE PROVIDED BY HANSON PROFESSIONAL SERVICES, INC. AND RECEIVED ON 6/11/2026.
 - ALL EQUIPMENT, FOUNDATIONS, STRUCTURES, CONDUIT, AND OTHER FACILITIES SHOWN BUT NOT SPECIFICALLY IDENTIFIED AS PART OF THIS PROJECT SCOPE ARE EXISTING AT APPROXIMATE LOCATIONS SHOWN.
 - CONTRACTOR SHALL FIELD VERIFY ALL SCOPED EQUIPMENT AND FOUNDATION LOCATIONS PRIOR TO INSTALLATION AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
 - DIMENSIONS SHOWN TO CL OF EQUIPMENT. SEE FOUNDATION LAYOUT DWG. PWRP-11.1-1 FOR FOUNDATION LOCATIONS AND DIMENSIONS.
 - CONTRACTOR TO VERIFY CONDUIT RUNS PRIOR TO CONCRETE SECTION REMOVAL.

LEGEND:

- xx - INDICATES BOM ITEM # - SEE DWG PWPL-91.1
- - INDICATES TRANSMISSION/DISTRIBUTION WOOD POLE

REFERENCE DRAWINGS:
EQUIPMENT ELEVATIONS _____ PWRP-21.2-1
FOUNDATION PLAN _____ PWRP-11.1-1
CONDUIT PLAN _____ PWRP-13.1-1
EQUIP. BILL OF MATERIAL _____ PWRP-91.1

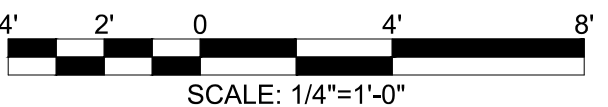


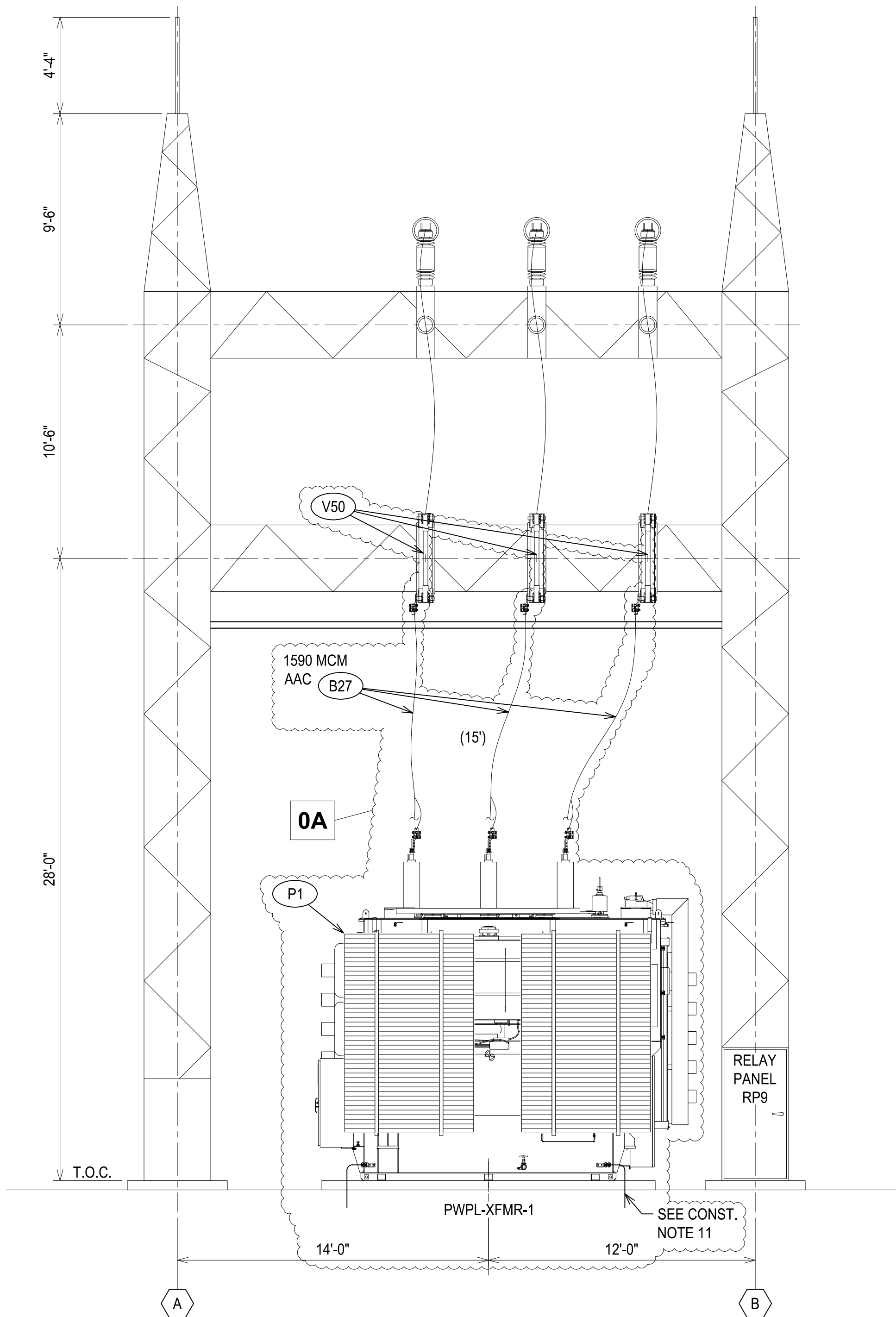
6/18/26	ISSUED FOR BID
THE REGISTRANT OF THE NEWLY APPLIED SEAL, DATED 6/18/26, ONLY ASSUMES RESPONSIBILITY FOR CHANGES AS INDICATED BY THE FOLLOWING REVISION(S)	
0	

0	FIRST ISSUE	6/18/26	GAM	GAM	JS
REV #	DESCRIPTION	DATE	DWN	DSN	APPR

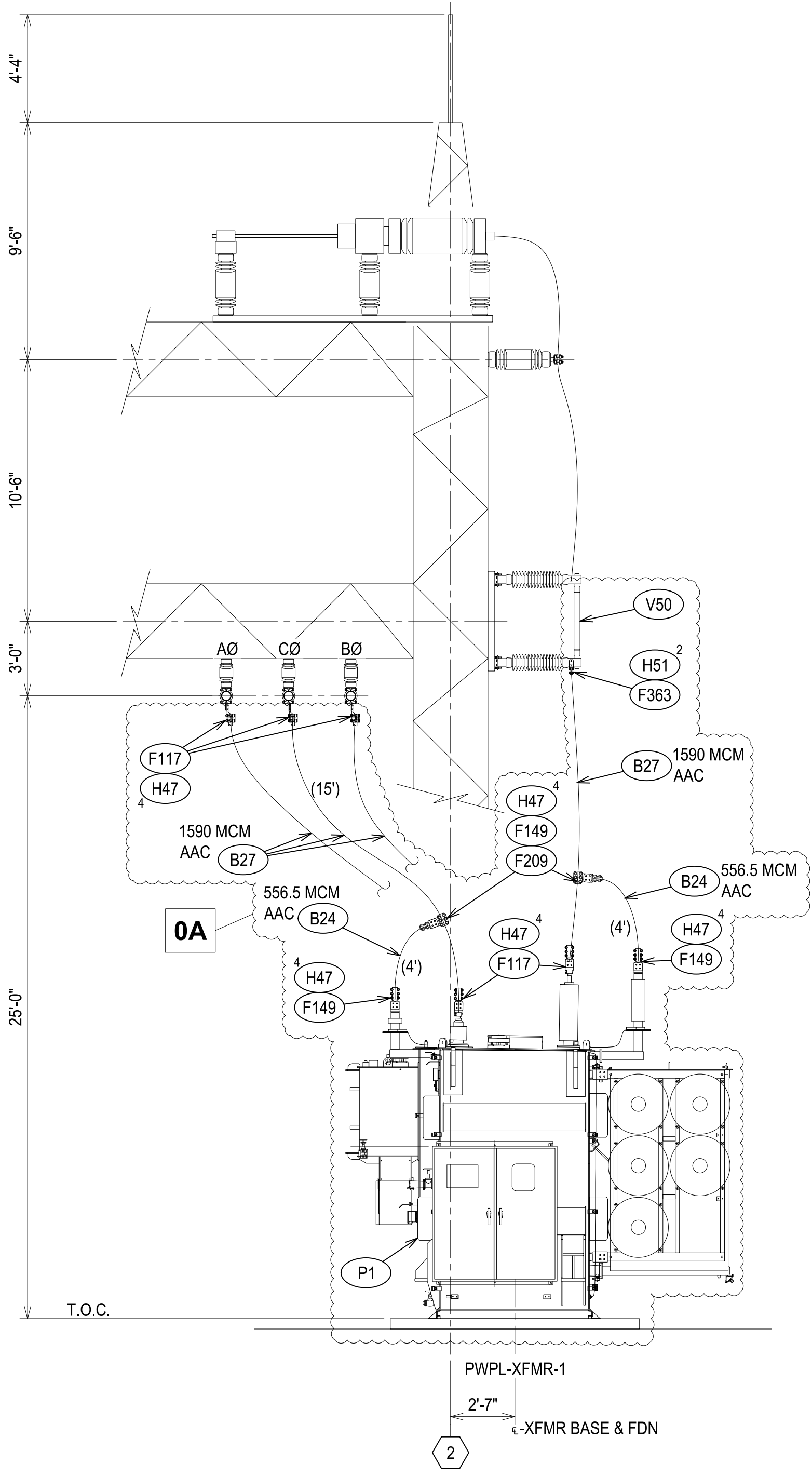


TITLE: EQUIPMENT GENERAL ARRANGEMENT **REMOVALS ONLY** POWER PLANT SUBSTATION		DESIGNER: GAM
DATE: 6/18/26		APPROVED: JS
SCALE: 1/4" = 1'-0"		DRAWING #: PWRP-21.1-1
		SHEET: 1 OF 1

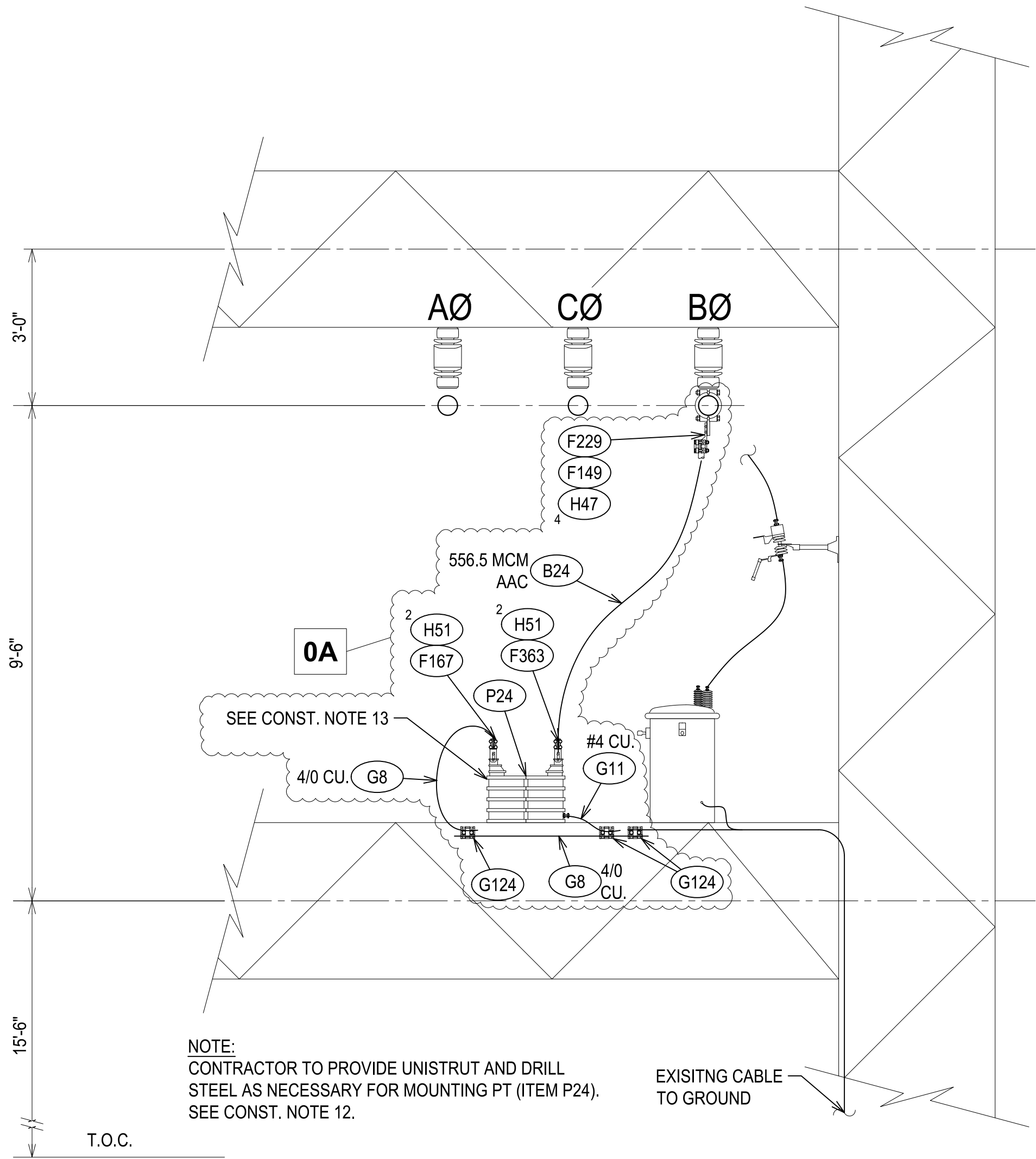




SECTION 'A-A'
SCALE: 1/4" = 1'-0"



SECTION 'B-B'
SCALE: 1/4" = 1'-0"



SECTION 'C-C'
SCALE: 1/2" = 1'-0"

CONSTRUCTION NOTES:

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- CONTRACTOR SHALL FIELD VERIFY ALL SCOPED EQUIPMENT AND FOUNDATION LOCATIONS PRIOR TO INSTALLATION AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
- ALL CONTRACTOR PROVIDED ITEM QUANTITIES ARE TO BE VERIFIED BY CONTRACTOR. CONDUIT AND HARDWARE IS ESTIMATED, CONTRACTOR IS TO PROVIDE ALL NECESSARY HARDWARE.
- THE OWNER SUPPLIED ITEMS WILL BE PURCHASED AND DELIVERED TO CLIENTS WAREHOUSE. THE CONTRACTOR IS RESPONSIBLE FOR ALL LIFTING, RIGGING, HAULING AND MANPOWER TO BRING EQUIPMENT TO SITE. THE CONTRACTOR ACCEPTS LIABILITY FOR ITEMS DURING TRANSPORT.
- CONTRACTOR IS RECOMMENDED TO PURCHASE SPARE QUANTITIES OF CONTRACTOR SUPPLIED ITEMS IF QUANTITIES ARE INCORRECT, OR DAMAGED DURING CONSTRUCTION.
- ALL VERTICAL DIMENSIONS ARE MEASURED FROM TOP OF CONCRETE (T.O.C.) UNLESS NOTED OTHERWISE. MEASURE CABLE LENGTHS PRIOR TO CUTTING. ALL LENGTHS LISTED IN SECTIONS ARE APPROXIMATE.
- ALL EQUIPMENT TO STRUCTURAL STEEL MOUNTING TO USE GALVANIZED BOLTS (SIZE PER B.O.M.) AND 1 GALVANIZED FLAT WASHER PER BOLT UNLESS NOTED OTHERWISE.
- ALL CONDUCTOR TO BE SINGLE 1590 KCMIL AAC UNLESS NOTED OTHERWISE.
- ALL ELECTRICAL CONNECTIONS TO USE 1/2" S.S. BOLTS (SIZE PER B.O.M.), (2) S.S. FLAT WASHERS (ITEM H69) PER BOLT, AND (1) S.S. BELLEVILLE SPRING WASHER (ITEM H70) PER BOLT UNLESS NOTED OTHERWISE.
- CONTRACTOR TO REUSE EXISTING GROUND EXTENSION RISERS FOR GROUNDING OF NEW XFMR. SEE 'DETAIL G11' ON DWG PWPL-12.2-1.
- ALL DAMAGED OR EXPOSED STEEL TO BE COATED WITH ONE COAT OF ZRC COLD GALVANIZING COMPOUND OR EQUIVALENT
- RELOCATE PT (ITEM P24) FROM THE EXISTING TRANSFORMER TO THE STEEL LATTICE CROSS BEAM. CONTRACTOR SHALL PROVIDE ALL MATERIALS, MOUNTING HARDWARE, AND FIELD FABRICATION REQUIRED FOR A COMPLETE INSTALLATION. HOT-DIP GALVANIZED UNISTRUT OR APPROVED EQUIVALENT IS ACCEPTABLE.

LEGEND:

XX - INDICATES BOM ITEM # - SEE DWG PWPL-91.1

REFERENCE DRAWINGS:

EQUIP. GENERAL ARRANGEMENT _ _ _ _ _ PWPL-21.1-1
FOUNDATION PLAN _ _ _ _ _ PWPL-11.1-1
CONDUIT PLAN _ _ _ _ _ PWPL-13.1-1
EQUIP. BILL OF MATERIAL _ _ _ _ _ PWPL-91.1

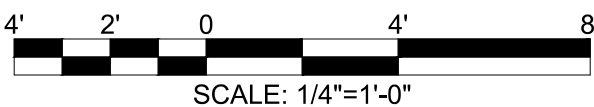


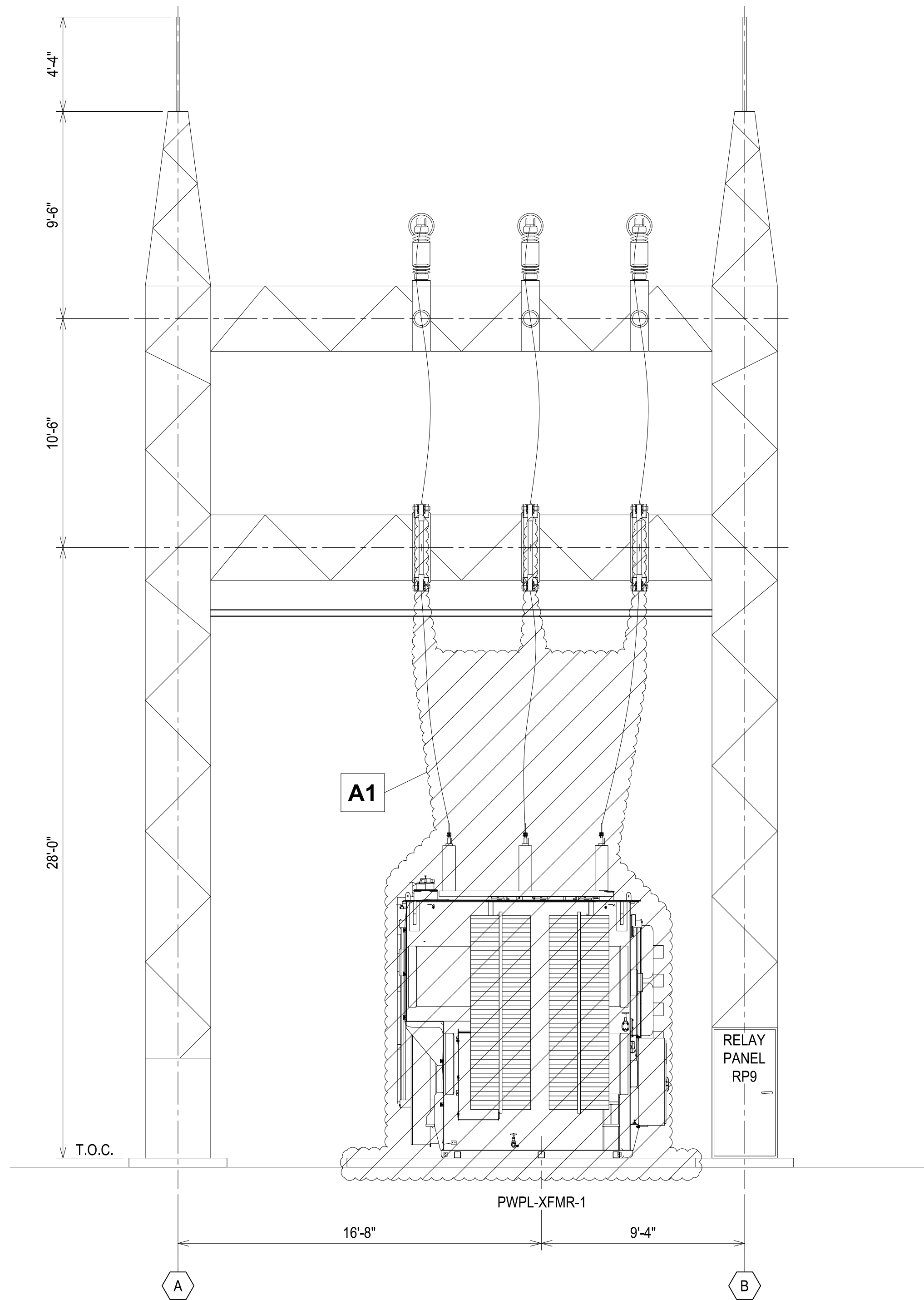
0A	07/14/26	ISSUED FOR BID
THE REGISTRANT OF THE NEWLY APPLIED SEAL, DATED --/--/26, ONLY ASSUMES RESPONSIBILITY FOR CHANGES AS INDICATED BY THE FOLLOWING REVISION(S) 0.		
REV #:	DESCRIPTION:	DATE:
0	FIRST ISSUE	--/--/26
DESIGNER:	DWN:	DSN:
APPROVED:	JS	APPR:

0	FIRST ISSUE	--/--/26	GAM	GAM	JS
REV #:	DESCRIPTION:	DATE:	DWN:	DSN:	APPR:



TITLE: EQUIPMENT ELEVATIONS		DESIGNER: GAM
		APPROVED: JS
		DRAWING #: PWPL-21.2-1
POWER PLANT SUBSTATION		SHEET: 1 OF 1
DATE: --/--	SCALE: 1/4" = 1'-0"	

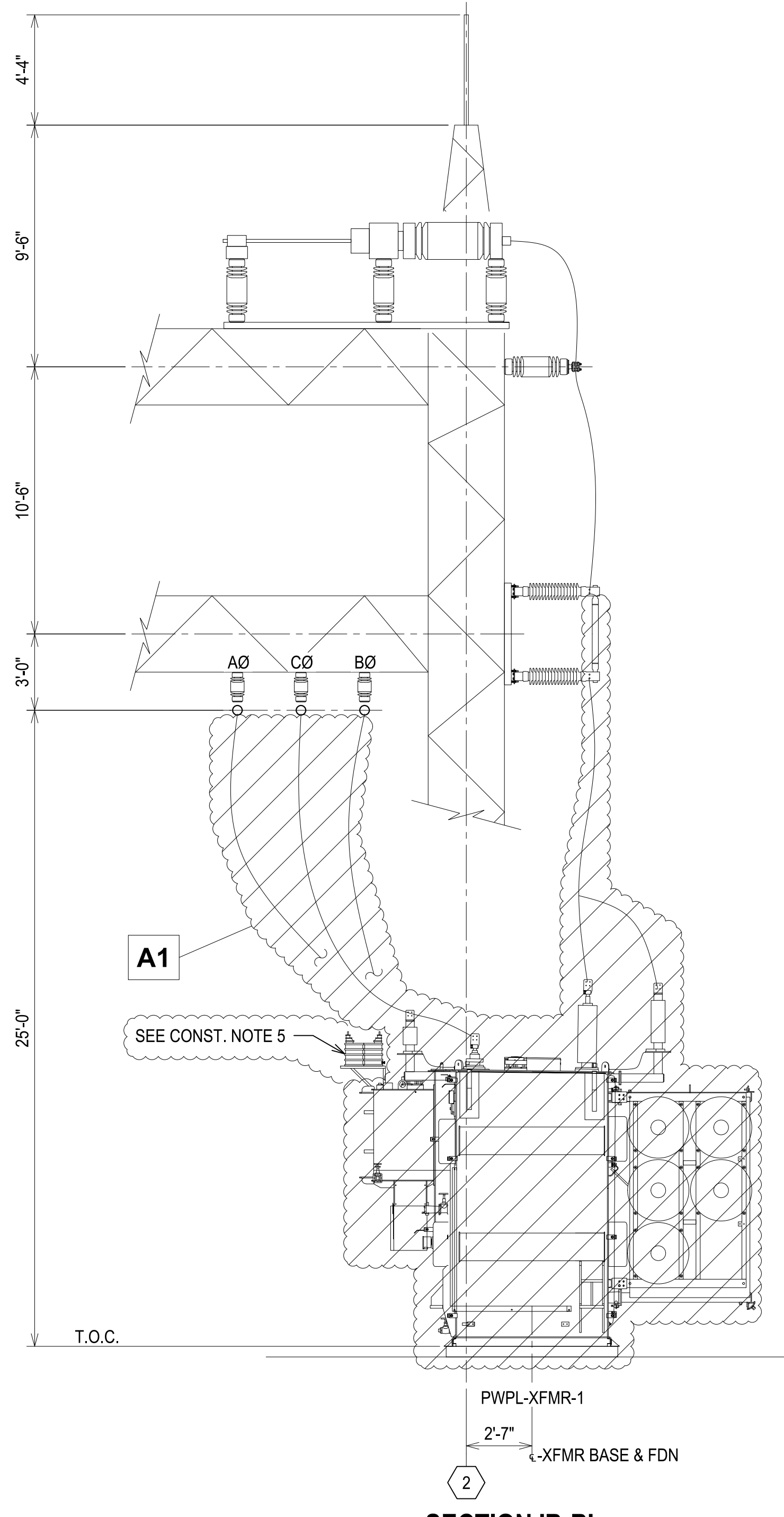




A1

RELAY
PANEL
RP9

SECTION 'A-A'
SCALE: 1/4" = 1'-0"



A1

PWPL-XFMR-1

2'-7"

←XFMR BASE & FDN

SECTION 'B-B'
SCALE: 1/4" = 1'-0"

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- CONTRACTOR SHALL FIELD VERIFY ALL SCOPED EQUIPMENT AND FOUNDATION LOCATIONS PRIOR TO INSTALLATION AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
- ALL CONTRACTOR PROVIDED ITEM QUANTITIES ARE TO BE VERIFIED BY CONTRACTOR. CONDUIT AND HARDWARE IS ESTIMATED, CONTRACTOR IS TO PROVIDE ALL NECESSARY HARDWARE.
- REMOVE & RELOCATE PT (ITEM P24) FROM THE EXISTING TRANSFORMER TO THE STEEL LATTICE CROSS BEAM AS INDICATED IN DWG PWPL-21.2-1. CONTRACTOR SHALL PROVIDE ALL MATERIALS, MOUNTING HARDWARE, AND FIELD FABRICATION REQUIRED FOR A COMPLETE INSTALLATION. HOT-DIP GALVANIZED UNISTRUT OR APPROVED EQUIVALENT IS ACCEPTABLE.

LEGEND:

XX - INDICATES BOM ITEM # - SEE DWG PWRP-91.1

REFERENCE DRAWINGS:

EQUIP. GENERAL ARRANGEMENT _ _ _ _ _ PWRP-21.1-1
FOUNDATION PLAN _ _ _ _ _ PWRP-11.1-1
CONDUIT PLAN _ _ _ _ _ PWRP-13.1-1
EQUIP. BILL OF MATERIAL _ _ _ _ _ PWRP-91.1



BHM ENGINEERS INC.
9735 LANDMARK PARKWAY DRIVE, SUITE 110A
ST. LOUIS, MISSOURI 63127
TELE: (636) 296-8600
WWW.BHMG.COM

THE REGISTRANT OF THE NEWLY
APPLIED SEAL, DATED --/--/26 ,
ONLY ASSUMES RESPONSIBILITY
FOR CHANGES AS INDICATED BY THE
FOLLOWING REVISION(S) 0 .

ILLINOIS LICENSE NO. - 184004266-002

REV #	DESCRIPTION	DATE	DWN	DSN	APPR
0	FIRST ISSUE	--/--/26	GAM	GAM	JS



TITLE:
**EQUIPMENT ELEVATIONS
REMOVALS ONLY**

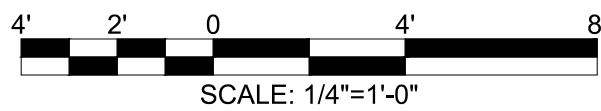
POWER PLANT SUBSTATION

DATE: --/--

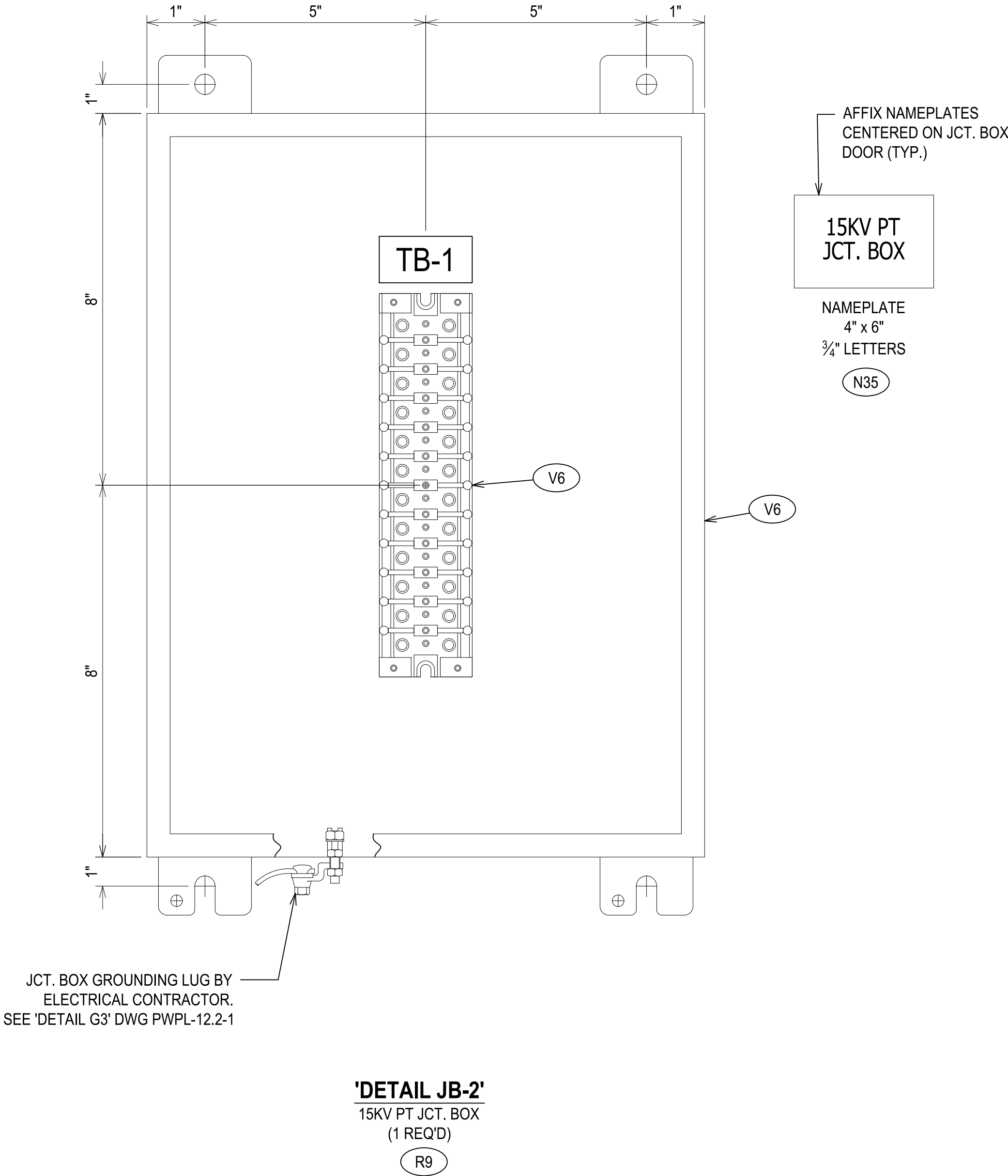
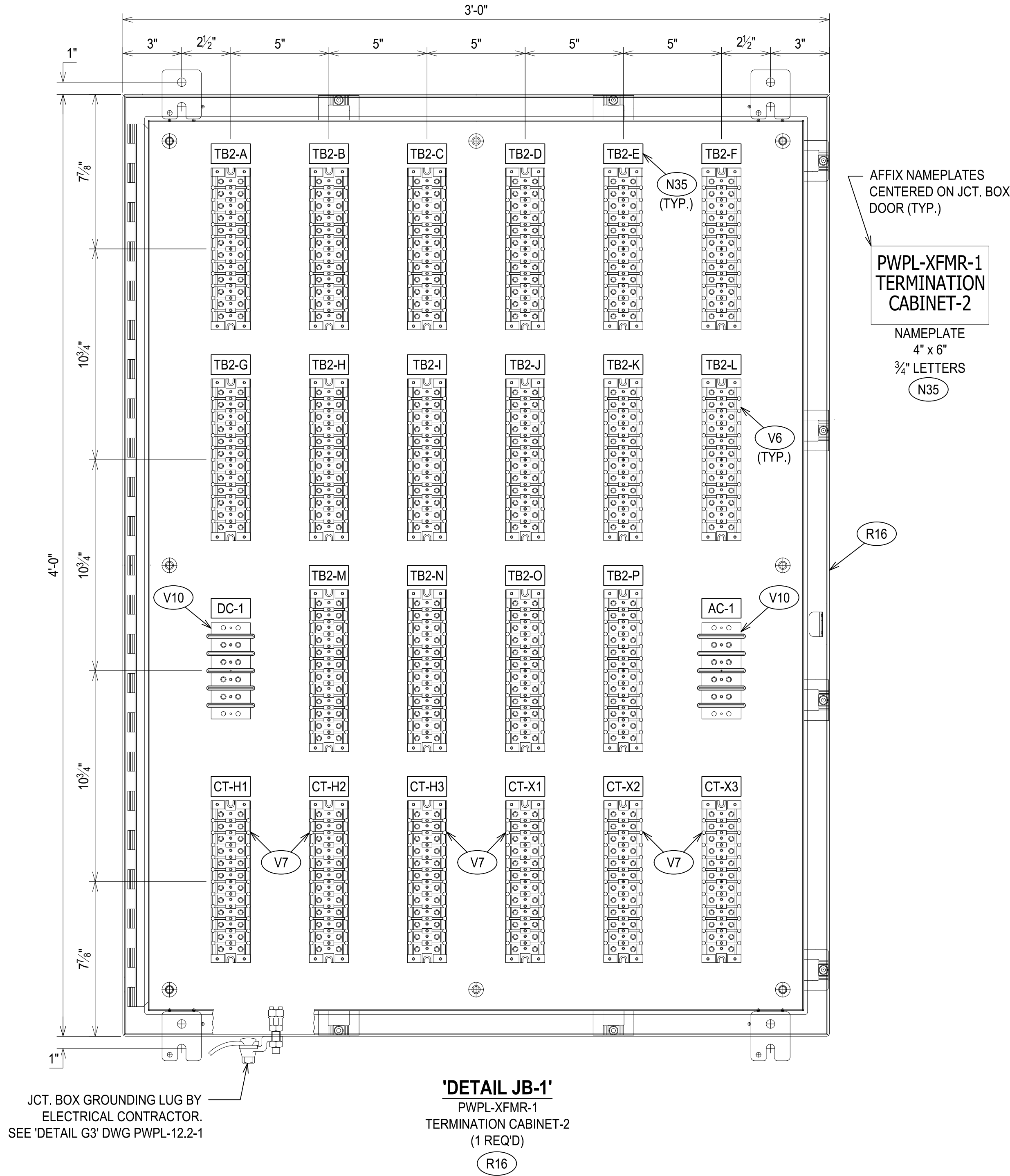
DESIGNER: GAM
APPROVED: JS
DRAWING #:
PWRP-21.2-1
SHEET: 1 OF 1

ISSUED FOR BID
NOT FOR CONSTRUCTION

FOR REMOVAL



BILL OF MATERIAL				
ITEM #	QTY	QTY	DESCRIPTION	MANUFACTURER
	R16	R9		
R9		1	JUNCTION BOX, 16"H X 12"W X 6" DP ALUM, NEMA 4X, W/ BACK PLATE	HOFFMAN #A16H1206ALLP, #A16P12 AL
R16	1		JUNCTION BOX, 48"H X 36"W X 8"DP, ALUM, NEMA 4X, W/ BACK PANEL	HOFFMAN #A36H3012ALLP, #A36P30 AL
N35	25	2	NAMEPLATE, AS INDICATED	
V6	18	1	TERMINAL BLOCK, 12 POLE	STATES #CM-25012
V7	6		TERMINAL BLOCK, 12 POLE, SHORTING TYPE	STATES #CM-25112-G
V10	2		TERMINAL BLOCK, 4 POLE, HEAVY DUTY, 70A	MARATHON #604-GP-04-PSB



LEGEND

XX INDICATES BOM ITEM # SEE PWPL-91.1

NOTES:

- CONTRACTOR TO FIELD DRILL HOLES AND PROVIDE UNISTRUT OR EQUIVALENT AS NECESSARY TO ATTACH JUNCTION BOX TO STRUCTURES. ALL EXPOSED STEEL AREA TO BE COATED WITH ONE COAT OF ZRC COLD GALVANIZING COMPOUND OR EQUIVALENT.
- SEE CONDUIT PLAN FOR JUNCTION BOX LOCATIONS.

REFERENCE DRAWINGS:

CONDUIT PLAN _____ PWPL-13.1-1
GROUNDING DETAILS SH. 1 _____ PWPL-12.2-1
EQUIP. BILL OF MATERIAL _____ PWPL-91.1



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REV #	DESCRIPTION	DATE	DWN	DSN	APPR
0	FIRST ISSUE	--/--/26	GAM	GAM	JS



TITLE: EQUIPMENT JUNCTION BOX DETAILS		DESIGNER: GAM
		APPROVED: JS
		DRAWING #: PWPL-28.1-1
DATE: --/--/26	SCALE: AS NOTED	SHEET: 1 OF 1



69/13.8KV SUBSTATION BILL OF MATERIALS													
DATE	REVISION	DFT	REV	APP									
06/18/26	0A	GAM	GAM	JS		POWER PLANT 69-13.8KV SUBSTATION							
07/22/26	0B	GAM	GAM	JS		PWPL-91.1							
						REV_0B							
						IFB PACKAGE							
Item	Category	Quantity	Adder	Total to Order	Unit	Description					Manufacturer	Model #	Supplied By
B - BUS/CONDUCTOR													
B24	CONDUCTOR	60		60	FT.	556.5 MCM AAC, 19 STR, BARE AL. DAHLIA							CONTRACTOR
B27	CONDUCTOR	120		120	FT.	1590 ACSR, 45, BARE AL., LAPWING							CONTRACTOR
C - CONDUIT - NON-METALLIC													
C3	CONDUIT	100		100	FT.	4" DIA., RIGID NON-METALLIC, BELLED END, PVC, SCH 40, LENGTH 10 FEET, COLOR GRAY					CARLON	49015-010	RANTOUL
C5	CONDUIT	60		60	FT.	2" DIA., RIGID NON-METALLIC, BELLED END, PVC, SCH 40, LENGTH 10 FEET, COLOR GRAY					CARLON	49011-010	RANTOUL
C6	CONDUIT	10		10	FT.	1-1/2" DIA., RIGID NON-METALLIC, BELLED END, PVC, SCH 40, LENGTH 10 FEET, COLOR GRAY					CARLON	49010-010	RANTOUL
C11	CONDUIT	20		20	FT.	4", LIQUIDTIGHT FLEXIBLE, UL LISTED FOR OUTDOOR USE & SUNLIGHT RESISTANT, COLOR GRAY							RANTOUL
C13	CONDUIT	10		10	FT.	2", LIQUIDTIGHT FLEXIBLE, UL LISTED FOR OUTDOOR USE & SUNLIGHT RESISTANT, COLOR GRAY							RANTOUL
C14	CONDUIT	20		20	FT.	1 1/2", LIQUIDTIGHT FLEXIBLE, UL LISTED FOR OUTDOOR USE & SUNLIGHT RESISTANT, COLOR GRAY							RANTOUL
C17	CONDUIT	2		2	EA.	4" DIA., 90 DEGREE SWEEP, 3' RADIUS, RIGID NON-METALLIC CONDUIT, PVC, SCHEDULE 40, GRAY							RANTOUL
C18	CONDUIT	4		4	EA.	4" DIA., 90 DEGREE SWEEP, 2' RADIUS, RIGID NON-METALLIC CONDUIT, PVC, SCHEDULE 40, GRAY							RANTOUL
C19	CONDUIT	2		2	EA.	4" DIA., 45 DEGREE SWEEP, 3' RADIUS, RIGID NON-METALLIC CONDUIT, PVC, SCHEDULE 40, GRAY							RANTOUL
C34	CONDUIT	2		2	EA.	2" DIA., 90 DEGREE SWEEP, 2' RADIUS, RIGID NON-METALLIC CONDUIT, PVC, SCH. 40, GRAY							RANTOUL
C35	CONDUIT	3		3	EA.	2" DIA., 45 DEGREE SWEEP, 3' RADIUS, RIGID NON-METALLIC CONDUIT, PVC, SCH. 40, GRAY							RANTOUL
C42	CONDUIT	2		2	EA.	1-1/2" DIA., 90 DEGREE SWEEP, 2' RADIUS, RIGID NON-METALLIC CONDUIT, PVC, SCH. 40, GRAY							RANTOUL
C67	CONDUIT	4		4	EA.	4" PVC, COUPLER SCHEDULE 40							RANTOUL
C69	CONDUIT	2		2	EA.	2" PVC, COUPLER SCHEDULE 40							RANTOUL
C70	CONDUIT	2		2	EA.	1 1/2" PVC, COUPLER SCHEDULE 40					CARLON	E940H	RANTOUL
C81	CONDUIT	2		2	EA.	4" PVC - FITTING TYPE LR, WITH GASKET AND COVER							RANTOUL
C82	CONDUIT	4		4	EA.	4" PVC - FITTING TYPE LB, WITH GASKET AND COVER							RANTOUL
C104	CONDUIT	4		4	EA.	4" PVC, MALE ADAPTER, SCHEDULE 40					CARLON	E942N	RANTOUL
C110	CONDUIT	4		4	EA.	4" PVC, FEMALE ADAPTER, SCHEDULE 40							RANTOUL
C112	CONDUIT	2		2	EA.	2" PVC, FEMALE ADAPTER, SCHEDULE 40							RANTOUL
C113	CONDUIT	2		2	EA.	1-1/2" PVC, FEMALE ADAPTER, SCHEDULE 40							RANTOUL
C118	CONDUIT	8		8	EA.	4", STRAIGHT FITTING, UL LIQUIDTIGHT							RANTOUL
C120	CONDUIT	4		4	EA.	2", STRAIGHT FITTING, UL LIQUIDTIGHT							RANTOUL
C121	CONDUIT	4		4	EA.	1 1/2" STRAIGHT FITTING, UL LIQUIDTIGHT							RANTOUL
C127	CONDUIT	8		8	EA.	4" PVC BUSHING							RANTOUL
C129	CONDUIT	2		2	EA.	2" PVC BUSHING					ABB THOMAS & BETTS	227	RANTOUL
C130	CONDUIT	2		2	EA.	1 1/2" PVC BUSHING							RANTOUL
C135	CONDUIT	8		8	EA.	4" GALVANIZED LOCKNUT FOR PVC CONNECTOR							RANTOUL
C137	CONDUIT	2		2	EA.	2" GALVANIZED LOCKNUT FOR PVC CONNECTOR							RANTOUL
C138	CONDUIT	2		2	EA.	1 1/2" GALVANIZED LOCKNUT FOR PVC CONNECTOR							RANTOUL
C141	CONDUIT	2		2	EA.	4" PVC MOUNTING CLAMP					CARLON	E977NC-CAR	RANTOUL
D - CONDUIT - METALLIC													
D6	CONDUIT	30		30	FT.	1-1/2" DIA., RIGID METALLIC, THREADED, RMC, LENGTH 10 FEET					ATKORE	278911	RANTOUL
D70	CONDUIT	2		2	EA.	1 1/2" RMC, COUPLER							RANTOUL
D93	CONDUIT	2		2	EA.	1-1/2" RMC - FITTING TYPE LB, WITH GASKET AND COVER							RANTOUL
D145	CONDUIT	5		5	EA.	1 1/2" RMC MOUNTING CLAMP							RANTOUL
D162	CONDUIT	2		2	EA.	1.5" RMC, WATER TIGHT CONDUIT HUB, WITH LOCKNUT					ATKORE	NHUBD150-ICKON	RANTOUL
E - BUS & CABLE FITTINGS (COMPRESSION)													
F - BUS & CABLE FITTINGS (BOLTED)													
F117	CONNECTOR	9	1	10	EA.	1590 AAC/ACSR TO 4" 4-HOLE PAD, TERMINAL, BOLTED AL., RANGE 1500-2000AAC/1272-1590ACSR					SEFCOR	AFNC-49-4B	RANTOUL
F149	CONNECTOR	13	1	14	EA.	556.5 AAC/ACSR TO 4" 4-HOLE PAD, TERMINAL, BOLTED AL., RANGE 350-650AAC/336-556ACSR, T= 3/8"					SEFCOR	AFNC-24-4B	RANTOUL
F167	CONNECTOR	3	1	4	EA.	1/0 TO 500 MCM TO 2-HOLE FLAT, TERMINAL, SPADE TYPE, BRONZE					SEFCOR	FNCT-20H-2B	RANTOUL
F209	CONNECTOR	6	1	7	EA.	1590 ACSR/AAC, CABLE TEE TO 4" 4-HOLE PAD, BOLTED, AL., 1500-2000 MCM AAC RANGE (1272-2034 MCM ACSR RANGE)					SEFCOR	ACF-49-4B	RANTOUL
F363	CONNECTOR	4	1	5	EA.	1590 AAC/ACSR TO 2-HOLE PAD, TERMINAL, BOLTED AL., RANGE 1200-1600AAC/1113-1431ACSR					SEFCOR	AFNC-43-2B	RANTOUL
G - GROUNDING													
G8	GROUNDING	42		42	FT.	4/0 KCMIL, 19 STR, BARE CU., SOFT DRAWN, 1000' REEL							CONTRACTOR
G11	GROUNDING	12		12	FT.	#4 AWG, BARE, SOLID, HARD DRAWN							CONTRACTOR
G27	GROUNDING	1	1	2	EA.	#8 SOL. - #2 STR. TO SINGLE HOLE FLAT VERSILUG, COPPER					BURNDY	EA.2C	CONTRACTOR
G32	GROUNDING	1	1	2	EA.	#10 - 3 CU STR, SERVIT POST CU TO FLAT PAD, 3/8"-16 STUD X 1-1/8" L, LEADED BRONZE ALLOY					BURNDY	K2C22 B1N	RANTOUL
G124	GROUNDING	6	1	7	EA.	(2) #4 - 300 CU. TO FLAT, BRONZE, 2 BOLT; ONE OR TWO CABLES TO FLAT, BRONZE					SEFCOR	GTT2-14-N-B	RANTOUL
H - HARDWARE													
H47	HARDWARE	88		88	EA.	1/2" X 2 1/2" LG. 304 GRADE HEX. HD., MACHINE BOLT, W/ 316 GRADE HEX. NUT, STAINLESS STEEL, 13 TPI							CONTRACTOR
H51	HARDWARE	10		10	EA.	1/2" X 2" LG. 304 GRADE HEX. HD., MACHINE BOLT, W/ 316 GRADE HEX. NUT, STAINLESS STEEL, 13 TPI							CONTRACTOR
H53	HARDWARE	4		4	EA.	1/2" X 1 1/2" LG. 304 GRADE HEX. HD., MACHINE BOLT, W/ 316 GRADE HEX. NUT, STAINLESS STEEL, 13 TPI							CONTRACTOR



Item	Category	Quantity	Adder	Total to Order	Unit	Description	Manufacturer	Model #	Supplied By
H69	HARDWARE	204		204	EA.	1/2" DIA. FLAT WASHER, 316 GRADE STAINLESS STEEL, 1" DIAMETER, 3/32" THICKNESS			CONTRACTOR
H70	HARDWARE	102		102	EA.	1/2" BELLEVILLE SPRING WASHER 301 GRADE STAINLESS STEEL, 1" DIAMETER, .1" THICKNESS, xxx COMPRESSION RATING			CONTRACTOR
J - RELAYS & COMM. EQUIPMENT									
K - CONTROL/POWER CABLE									
K17	CABLE	80		80	FT.	4/C #8 AWG, 600/1000V	OKONITE	112-10-3845	CONTRACTOR
K30	CABLE	860		860	FT.	12/C #12 AWG, 600/1000V	OKONITE	202-10-3412	CONTRACTOR
L - LIGHTING & SECURITY									
M - MANHOLES/HANDHOLES									
N - FENCING & SIGNAGE									
N35	SIGNAGE	1		1	LOT.	OUTDOOR NAMEPLATES, SEE PWPL-91.2 FOR DETAILS			RANTOUL
P - MAJOR EQUIPMENT (XFMR'S, ARRESTERS, INSULATORS, SWITCHES, ETC...)									
P1	POWER XFMR	1		1	EA.	TRANSFORMER, 69/13.8KV, 22.4/29.8/37.33 MVA, ONAF	VIRGINIA TRANSFORMER	HB644B	RANTOUL
P24	INSTRUMENT XFMR	1		1	EA.	POTENTIAL TRANSFORMER, 15KV, 60HZ, 110KV BIL, SINGLE BUSHING, .3ZZ ACCURACY, 8,660V PRI, 115/67V SEC, 75/130:1:1		**EXISTING LTC PT**	RANTOUL
R - RACEWAY/JUNCTION BOX/MISC.									
R9	JUNCTION BOX	1		1	EA.	JUNCTION BOX, 16"H X 12"W X 6" DP ALUM, PT BOX, NEMA 4X, W/ BACK PLATE	HOFFMAN CAT.	A16H1206ALLP, A16P12 AL	CONTRACTOR
R16	JUNCTION BOX	1		1	EA.	JUNCTION BOX, 48"H X 36"W X 8" DP ALUM, BREAKER BOX, NEMA 4X, PRE-ASSEMBLED	HOFFMAN CAT.	A48H3608 ALLP, A48P36 AL	RANTOUL
S - STRUCTURES									
T - ANCHOR BOLTS									
T2	ANCHOR BOLT	6		6	EA.	ANCHOR BOLT, 1" DIAMETER, 18" THREADED ROD, WITH 2 HEAVY HEX NUTS AND 1 WASHER			RANTOUL
V - MISC. ELECTRICAL (FUSES, BKR'S, SLUGS, TERMINAL BLOCKS, ETC...)									
V6	MISC. ELEC.	16		16	EA.	TERMINAL BLOCK, 12 POLE	STATES	CM-25012	RANTOUL
V7	MISC. ELEC.	6		6	EA.	TERMINAL BLOCK, 12 POLE, SHORTING TYPE	STATES	CM-25112-G	RANTOUL
V10	MISC. ELEC.	2		2	EA.	TERMINAL BLOCK, 4 POLE, HEAVY DUTY, 70A	MARATHON	604-GP-04-PSB	RANTOUL
V50	MISC. ELEC.	3		3	EA.	FUSE, SLOW, 175E, 69KV	S&C ELECTRIC	SMD-1A 175E	RANTOUL
V75	MISC. ELEC.	2		2	EA.	NOALOX ANTI-OXIDANT JOINT COMPOUND, 8oz	IDEAL ELECTRICAL	NOALOX 30-030	CONTRACTOR



**POWER PLANT SUBSTATION
OUTDOOR NAMEPLATE
BILL OF MATERIALS
PWPL-91.2**

CREATED BY: BHMG
JOB #: 3953
DATE: 06/18/26
PROJECT ENG: JACK SYKUT

No. Req.		SIZE OF PLATE	SIZE OF CHARACTERS	MOUNTING LOCATION
1	PWPL-XFMR-1 69/13.8KV	4"L X 6"W	1"	ON XFMR CONTROL CABINET DOOR
1	PT JB-1 FUSE BOX 30A 40250/115/67V	4"L X 6"W	3/4"	ON P.T. JCT. BOX DOOR
4	ØA	3"L X 3"W	1 1/2"	ON STEEL STRUCTURE
4	ØB	3"L X 3"W	1 1/2"	ON STEEL STRUCTURE
4	ØC	3"L X 3"W	1 1/2"	ON STEEL STRUCTURE

GOVERNING CODE:

GC-1. GOVERNING CODE AND REFERENCES:

- INTERNATIONAL BUILDING CODE 2024
- ASCE 7-22 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES
- AISC 16TH EDITION STEEL CONSTRUCTION MANUAL
- ACI 318 - 19 - BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE

GC-2. DESIGN CRITERIA:

- ASCE 7 BUILDING RISK CATEGORY IV

GC-3. SEISMIC LOADS:

- SITE CLASS = D
- S_s = 25.0% g (0.2 SECOND MCE SPECTRAL ACCELERATION)
- S_1 = 10.0% g (1.0 SECOND MCE SPECTRAL ACCELERATION)
- SEISMIC DESIGN CATEGORY = D
- S_{ds} = 21.0% g
- S_{d1} = 14.0% g

GC-4. WIND LOADS:

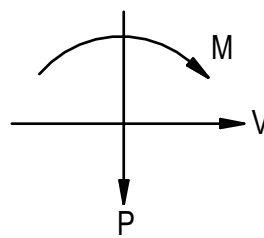
- BASIC WIND SPEED (3 SECOND GUST) = 120 (MPH), STRENGTH WIND SPEED
- WIND EXPOSURE = C
- FOR SERVICEABILITY CALCULATIONS, THE BASIC WIND SPEED = 76 MPH (SERVICE WIND SPEED BASED ON THE 10 YEAR MEAN REOCCURRENCE INTERVAL).

GC-5. DEAD LOADS (TOTAL INCLUDING FRAMING):

- SELF WEIGHT OF STRUCTURAL SYSTEM

GC-6. FOUNDATION PRELIMINARY LOADING (P = AXIAL, V = HORIZONTAL, M = MOMENT, T = TENSION):

- ELECTRICAL EQUIPMENT:
 1. TRANSFORMER FOUNDATION: P = 145.00 K
 - a. BASIS OF DESIGN: VIRGINIA TRANSFORMER CORP. DRAWING NO. 47020MA024U DATED AUGUST 28, 2025
- REPORTED ELECTRICAL EQUIPMENT REACTIONS WERE DEVELOPED WITH UNFACTORED LOADS



NOTE: LOADING DIAGRAM DEMONSTRATES POSITIVE SIGN CONVENTION AS SHOWN. REPORTED MOMENT AND SHEAR LOADING ACT IN THE SAME DIRECTION AND SHALL BE CONSIDERED REVERSIBLE

GENERAL NOTES:

G-1. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, COORDINATES AND EXISTING CONDITIONS PRIOR TO CONSTRUCTION. NOTIFY THE OWNER'S REPRESENTATIVE OF ANY DISCREPANCY IMMEDIATELY.

G-2. COORDINATE STRUCTURAL SHEETS WITH ALL OTHER SHEETS FOR PIPE SIZES AND LOCATIONS, BEAM POCKETS, GRATING LEDGES, BLOCK OUTS, ELECTRICAL REQUIREMENTS AND ANCHOR BOLTED ATTACHMENTS.

G-3. STRUCTURAL SYSTEM IS DESIGNED TO WORK AS A COMPLETED SYSTEM, ANY TEMPORARY SHORING, OR BRACING NEEDED DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR; CONTRACTOR IS RESPONSIBLE FOR ADEQUACY OF TEMPORARY SHORING.

G-4. SEE ELECTRICAL PLANS FOR ADDITIONAL SLEEVES, INSERTS, ETC.

G-5. ALL SUBTERRANEAN STRUCTURES, UTILITIES, PIPING, ETC. IN THE AREA OF ALL EXCAVATIONS TO BE LOCATED AND MARKED BY CONTRACTOR PRIOR TO EARTH REMOVAL WORK. FLAGS OR PAINT ARE ACCEPTABLE METHODS. CONTRACTOR TO MAINTAIN MARKERS UNTIL ALL EXCAVATION ACTIVITIES HAVE CEASED. COORDINATE WITH OWNER.

G-6. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL SITE SAFETY AND ALL ACCIDENTS WHICH RESULT IN DEATH, PERSONAL INJURY OR DAMAGE TO PROPERTY ARISING OUT OF OR IN CONNECTION WITH PERFORMANCE OF THE WORK, WHETHER ADJACENT TO OR AT THE SITE.

G-7. NO PIPES OR SLEEVES FOR MECHANICAL TRADES SHALL PASS THROUGH STRUCTURAL MEMBERS WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER.

G-8. ALL SECTIONS, DETAILS AND NOTES SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR SITUATIONS ELSEWHERE UNLESS OTHERWISE SHOWN.

G-9. SHOP DRAWINGS PREPARED BY SUPPLIERS AND SUBCONTRACTORS SHALL BE REVIEWED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTING TO ARCHITECT. STRUCTURAL ENGINEER'S REVIEW SHALL BE FOR SIZES AND GENERAL CONFORMANCE WITH INFORMATION GIVEN IN CONSTRUCTION DOCUMENTS ONLY. NO WORK SHALL BE STARTED WITHOUT SUCH REVIEW. BASED ON SUCH REVIEWS, ACTIONS WILL BE NOTED FOR EACH SHOP DRAWING SUBMITTAL AS LISTED BELOW:

- **NO EXCEPTIONS TAKEN:** FABRICATION, MANUFACTURING OR CONSTRUCTION MAY PROCEED ON THE BASIS THAT THE SUBMITTAL IS IN CONFORMANCE WITH THE DESIGN CONCEPT AND THE CONTRACT DOCUMENTS.
- **FURNISH AS CORRECTED:** FABRICATION, MANUFACTURING OR CONSTRUCTION MAY PROCEED AFTER MAKING THE NOTED CORRECTIONS TO SATISFY COMPLIANCE WITH THE DESIGN CONCEPT AND/OR THE CONTRACT DOCUMENTS.
- **REVISE AND SUBMIT:** NO FABRICATION, MANUFACTURING OR CONSTRUCTION MAY PROCEED. RESUBMIT FOR REVIEW AFTER REQUESTED REVISIONS ARE MADE.
- **SUBMIT SPECIFIED ITEM:** NO FABRICATION, MANUFACTURING OR CONSTRUCTION MAY PROCEED. SUBMIT SPECIFIED ITEM TO HANSON FOR REVIEW.
- **REJECTED-SEE REMARKS:** NO FABRICATION, MANUFACTURING OR CONSTRUCTION MAY OCCUR FOR REASONS STATED IN "REMARKS".

G-10. ALL ASTM DESIGNATIONS SHALL BE THE LATEST UNLESS NOTED OTHERWISE.

CONCRETE:

C-1. MATERIAL PROPERTIES (U.N.O.)

- TYPE I/II CEMENT TYPICAL
- CONCRETE 28-DAY COMPRESSIVE STRENGTH - F'_c = 4,500 psi
- WATER-CEMENTITIOUS MATERIALS RATIO $\leq$ 0.45
- AIR CONTENT = 6% +/- 1.5%
- SLUMP
 1. SLABS: 6" +/-1.5" WITH VERIFIED SLUMP OF 4" +/-1" BEFORE ADDING WATER REDUCING ADMIXTURE
- CONCRETE REINFORCEMENT - F_y = 60 ksi ASTM A615 GR 60 UNLESS NOTED OTHERWISE

C-2. PROTECTIVE COVERING FOR REINFORCEMENT BARS SHALL BE AS FOLLOWS UNLESS OTHERWISE NOTED ON THE PLANS:

- CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH = 3"
- CONCRETE EXPOSED TO EARTH OR WEATHER = 2"

C-3. ALL REINFORCEMENT BARS SHALL BE FABRICATED IN ACCORDANCE WITH THE LATEST CRSI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES AND SHALL BE CLEAN AND FREE OF GREASE AND SCALING RUST.

C-4. CONTINUOUS TOP AND BOTTOM BARS, WHEN SHOWN IN SECTION ONLY, SHALL BE LAPPED AS FOLLOWS: TOP BARS NEAR MIDSPANS, BOTTOM BARS DIRECTLY OVER SUPPORTS.

C-5. A 3/4" x 3/4" CHAMFER SHALL BE PROVIDED AT THE EDGE OF ALL FINISHED AND EXPOSED EDGES. ALL SURFACES SHALL HAVE BRUSHED FINISH.

C-6. PROVIDE CONTROL OR CONSTRUCTION JOINTS IN SLAB-ON-GRADE AT 15 FEET MAXIMUM SPACES EACH DIRECTION. CONTRACTOR SHALL SUBMIT PLANS OF JOINT LOCATIONS FOR APPROVAL.

C-7. ALL CONTROL JOINTS SHALL BE TOOLED OR SAWN.

C-8. LAP ALL BARS AS FOLLOWS U.N.O. (CLASS B), FOR EPOXY COATED BARS, PROVIDE 1.3 TIMES THE INDICATED LAP LENGTH. FOR TOP BARS, PROVIDE AN ADDITIONAL 1.3 TIMES THE INDICATED LAP LENGTH:

#3=1'-7"	#4=2'-1"	#5=2'-7"
#6=3'-1"	#7=4'-6"	#8=5'-2"
#9=5'-10"	#10=6'-7"	#11=7'-4"

C-9. HOOK REINFORCEMENT BARS AT DISCONTINUOUS ENDS, TYPICAL UNLESS OTHERWISE NOTED. EXTEND REINFORCEMENT TO FAR FACE OF PEDESTALS AND / OR COLUMNS UNLESS NOTED OTHERWISE.

C-10. PITCH CONCRETE AS REQUIRED TO FLOOR DRAINS 1/4" PER FOOT UNLESS OTHERWISE NOTED. SEE ARCHITECTURAL AND PLUMBING DRAWINGS.

C-11 ALL EXTERIOR CONCRETE SURFACES (E.G. SLABS, STAIRS, RAMPS) SHALL BE ROUGHENED BY BROOMING IN THE DIRECTION PERPENDICULAR TO THE MAIN TRAFFIC ROUTE IMMEDIATELY AFTER TROWEL FINISHING IS COMPLETED.

C-12. REFER TO DIVISION 03 SPECIFICATION "CAST-IN-PLACE CONCRETE FOR CONCRETE FINISH REQUIREMENTS.

C-13. FORMWORK AND SHORING OF FORMWORK SHALL BE DESIGNED BY THE CONTRACTOR.

C-14. CONCRETE TESTING TO BE COMPLETED BY A THIRD PARTY ACI CERTIFIED TESTING FIRM AND TECHNICIAN:

- TESTING FREQUENCY: ONE COMPOSITE SAMPLE FOR EACH DAY'S POUR PLUS ONE ADDITIONAL SET FOR EACH ADDITIONAL 50 CY
- SLUMP (ASTM C 143): ONE TEST AT POINT OF PLACEMENT FOR EACH COMPOSITE SAMPLE
- AIR CONTENT (ASTM C 321): PRESSURE METHOD, ONE TEST PER COMPOSITE SAMPLE
- CONCRETE TEMPERATURE (ASTM C 1064): ONE TEST PER COMPOSITE SAMPLE
- COMPRESSION TEST SPECIMENS (ASTM C 31): CAST AND LABORATORY CURE ONE SET OF FOUR (4) STANDARD CYLINDERS FOR TESTING TWO (2) AT 7-DAYS AND TWO (2) AT 28-DAYS
- SAMPLES FOR SLUMP AND AIR TESTING SHALL NOT BE TAKEN UNTIL AFTER ALL OF THE WATER AND ANY ADMIXTURES HAVE BEEN ADDED TO THE MIXER; ALSO DO NOT OBTAIN SAMPLES FROM THE VERY FIRST OR LAST PORTIONS OF THE BATCH DISCHARGE. (NOTE: NO SAMPLES SHALL BE TAKEN BEFORE 10% OR AFTER 90% OF THE BATCH HAS BEEN DISCHARGED.)
- SAMPLES FOR TEST CYLINDERS SHALL NOT BE TAKEN UNTIL ALL WATER AND ADMIXTURES HAVE BEEN ADDED IN THE FIELD. FIELD ADDITION OF WATER OR ADMIXTURES SHALL BE NOTED ON BATCH TICKET AND CYLINDER BREAK REPORTS.

FOUNDATION:

F-1. NET ALLOWABLE SOIL BEARING PRESSURE = 2,500 PSF FOR MAT FOUNDATIONS PER HANSON PROFESSIONAL SERVICES INC. FOUNDATION ENGINEERING REPORT DATED MAY 2026.

F-2. ALL FOOTING EXCAVATIONS SHALL BE CLEAN AND FREE OF DEBRIS, STANDING WATER AND LOOSE SOIL AND BE INSPECTED AND APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO PLACEMENT OF CONCRETE.

F-3. ALL FILL MATERIAL SHALL BE APPROVED FOR USE IN ADVANCE OF PLACEMENT BY THE OWNER'S REPRESENTATIVE. NO FILL SHALL BE PLACED OVER FROZEN, MUDDY OR OTHER DELETERIOUS MATERIAL. LIFT THICKNESS SHALL BE MINIMIZED TO ALLOW EFFICIENT COMPACTION. NO FILL MAY BE PLACED OVER A PREVIOUS LIFT THAT HAS NOT BEEN ADEQUATELY COMPACTED AND ACCEPTED BY THE OWNERS REPRESENTATIVE.

F-4. BACKFILL AGAINST FOUNDATION WALLS SHALL BE PLACED EVENLY ON ALL SIDES IN ORDER TO ACHIEVE GENERALLY BALANCED LOADINGS.

F-5. COORDINATE WITH CIVIL DRAWINGS FOR MISCELLANEOUS FOUNDATIONS NOT SHOWN ON STRUCTURAL DRAWINGS.

F-6. REFERENCE THE GEOTECHNICAL REPORT FOR REQUIREMENTS FOR EXCAVATION AND CONTROL OF GROUND WATER DURING CONSTRUCTION. EXISTING SOILS MAY EXPERIENCE A LOSS OF STRENGTH IF SURFACE WATER IS ALLOWED TO ACCUMULATE IN THE EXCAVATIONS; DO NOT ALLOW SURFACE WATER TO ACCUMULATE IN THE BOTTOM OF EXCAVATIONS.

STRUCTURAL STEEL:

S-1. MATERIAL PROPERTIES (U.N.O.)

- ANCHOR BOLTS - PER STEEL STRUCTURE MANUFACTURER OR AS INDICATED BELOW.
 1. F_y = 55 KSI (ASTM F1554 Gr 55, GALVANIZED)

S-2. ALL DETAILING, FABRICATION, AND ERECTION OF STRUCTURAL STEEL MEMBERS SHALL BE IN ACCORDANCE WITH THE AISC - "STEEL CONSTRUCTION MANUAL", FOURTEENTH EDITION.

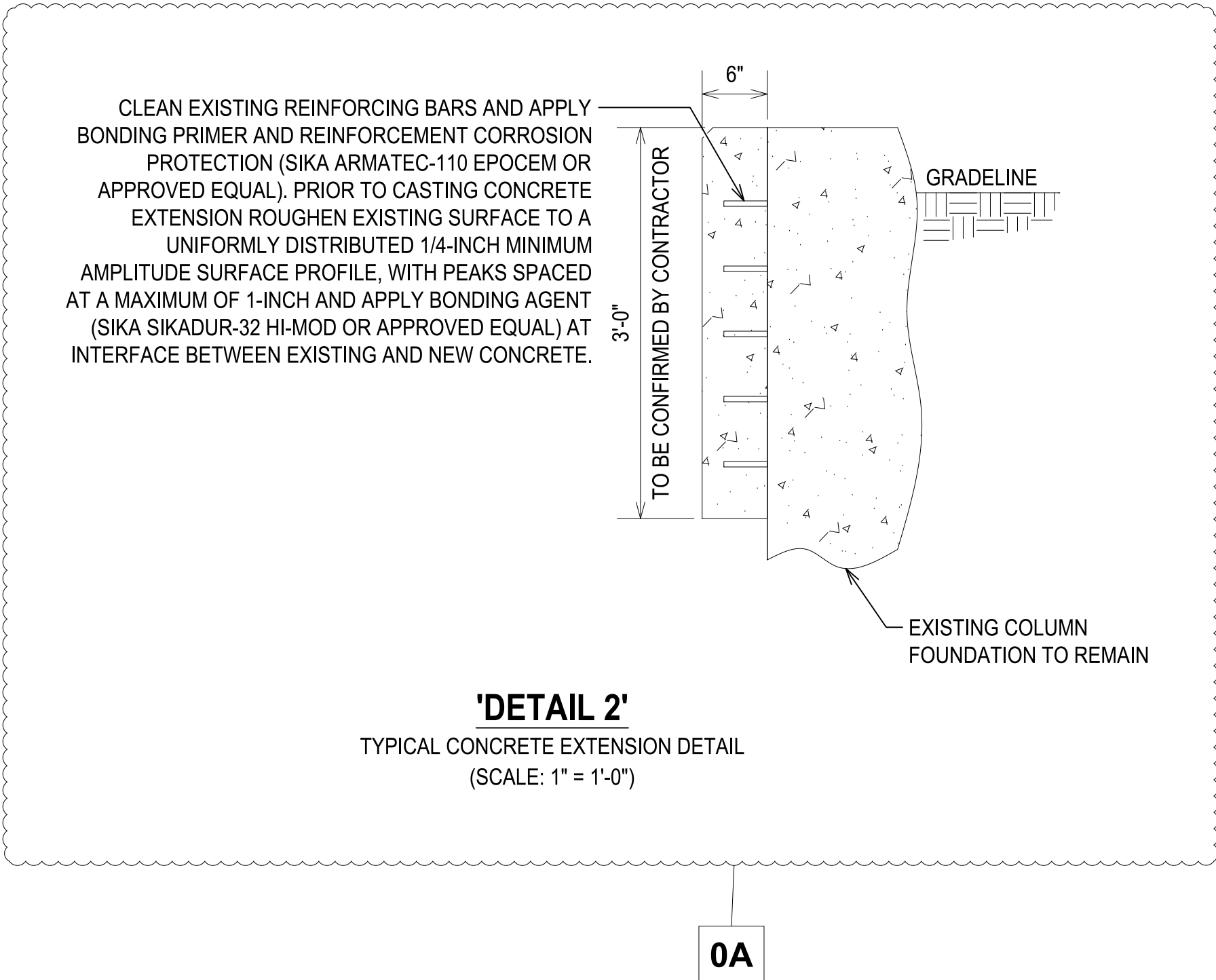
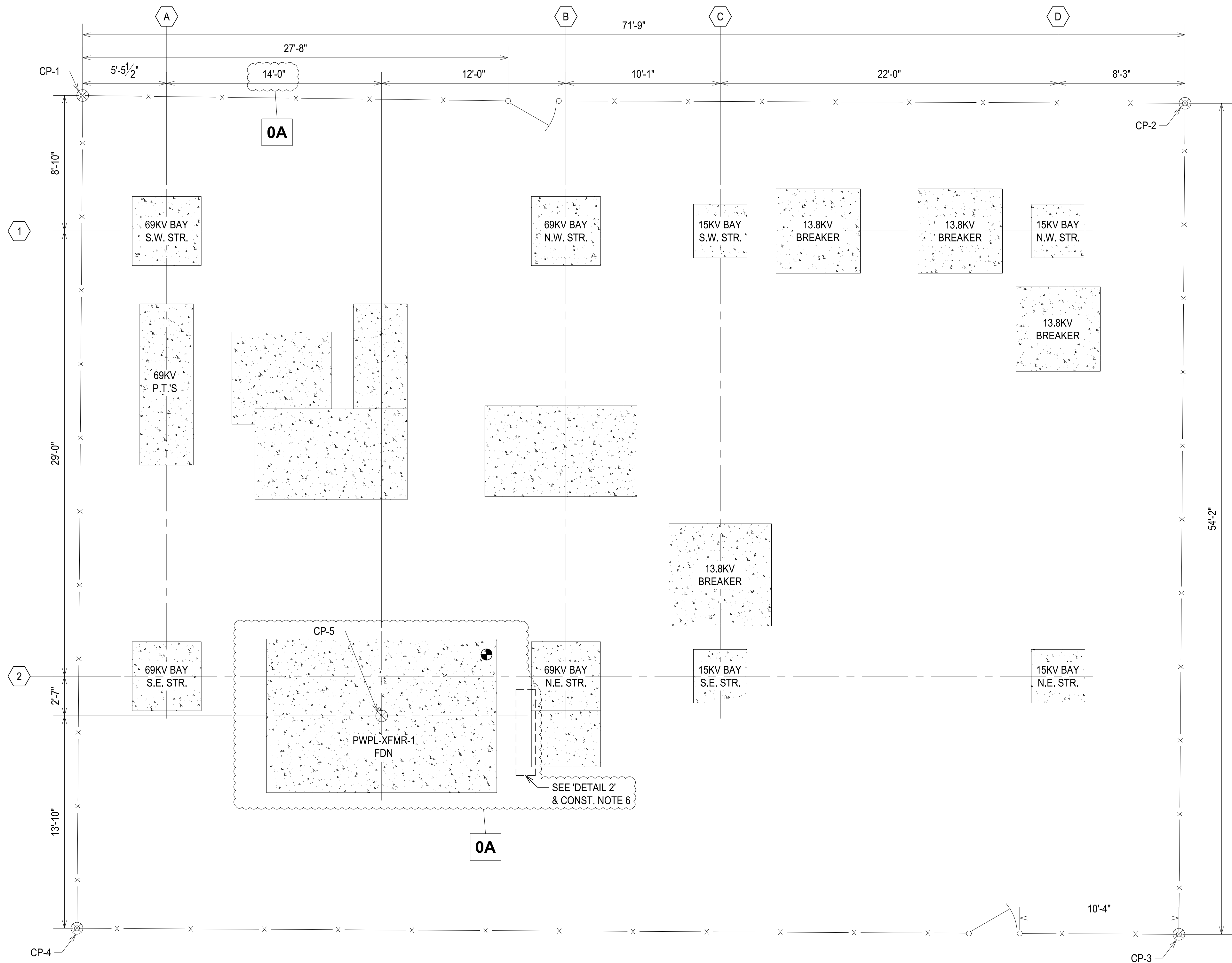
S-3. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND DIMENSIONS PRIOR TO STRUCTURAL STEEL FABRICATION.

	04		
	03		
	02	07/22/2026	XFMR EQUIPMENT PLACEMENT UPDATE
	01	06/30/2026	ISSUED FOR BIDDING

00	ISSUED FOR CONSTRUCTION	RKN	KRF	RMF
REV #:	DESCRIPTION:	DATE:	DWN:	DSN:
			APPR:	



TITLE: GENERAL NOTES		DESIGNER: KRF
		APPROVED: RMF
		DRAWING #:
POWER PLANT SUBSTATION		PWPL-11.0-1
DATE: 06/22/2026	SCALE: 12" = 1'-0"	SHEET: 1 OF 1



NOTES:
1. FOR FOUNDATION ELEVATIONS AND DETAILS SEE CIVIL DWGS. PWPL-11.3-1.

CONTROL POINTS (IL83-EF)			
TAG	DESCRIPTION	EASTING	NORTHING
CP-1	FENCE S.W. CORNER	1032487.80	1327633.07
CP-2	FENCE N.W. CORNER	1032487.48	1327704.85
CP-3	FENCE N.E. CORNER	1032541.61	1327705.09
CP-4	FENCE S.E. CORNER	1032542.05	1327633.33
CP-5	PWPL-XFMR-1	1032527.99	1327653.01

NOTE: CONTROL POINTS ARE APPROXIMATE AND **NOT** OFFICIAL SURVEY COORDINATES. SEE CONST. NOTES 1 THRU 3.

LEGEND:

- GEO-REFERENCED LOCATION (IL83-EF E. ILLINOIS)
- INDICATES FOUNDATION ORIENTATION MARK

REFERENCE DRAWINGS:
EQUIP. GENERAL ARRANGEMENT _____ PWPL-21.1-1
FOUNDATION DETAILS, XFMR _____ PWPL-11.3-1



0A	07/14/26	ISSUED FOR BID
THE REGISTRANT OF THE NEWLY APPLIED SEAL, DATED --/--/26, ONLY ASSUMES RESPONSIBILITY FOR CHANGES AS INDICATED BY THE FOLLOWING REVISION(S) 0.		
ILLINOIS LICENSE NO. -	184004266-002	

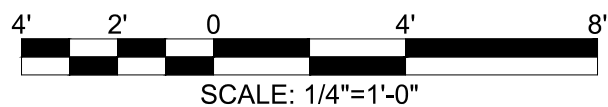
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REV #:	DESCRIPTION:	DATE:	DWN:	DSN:	APPR:

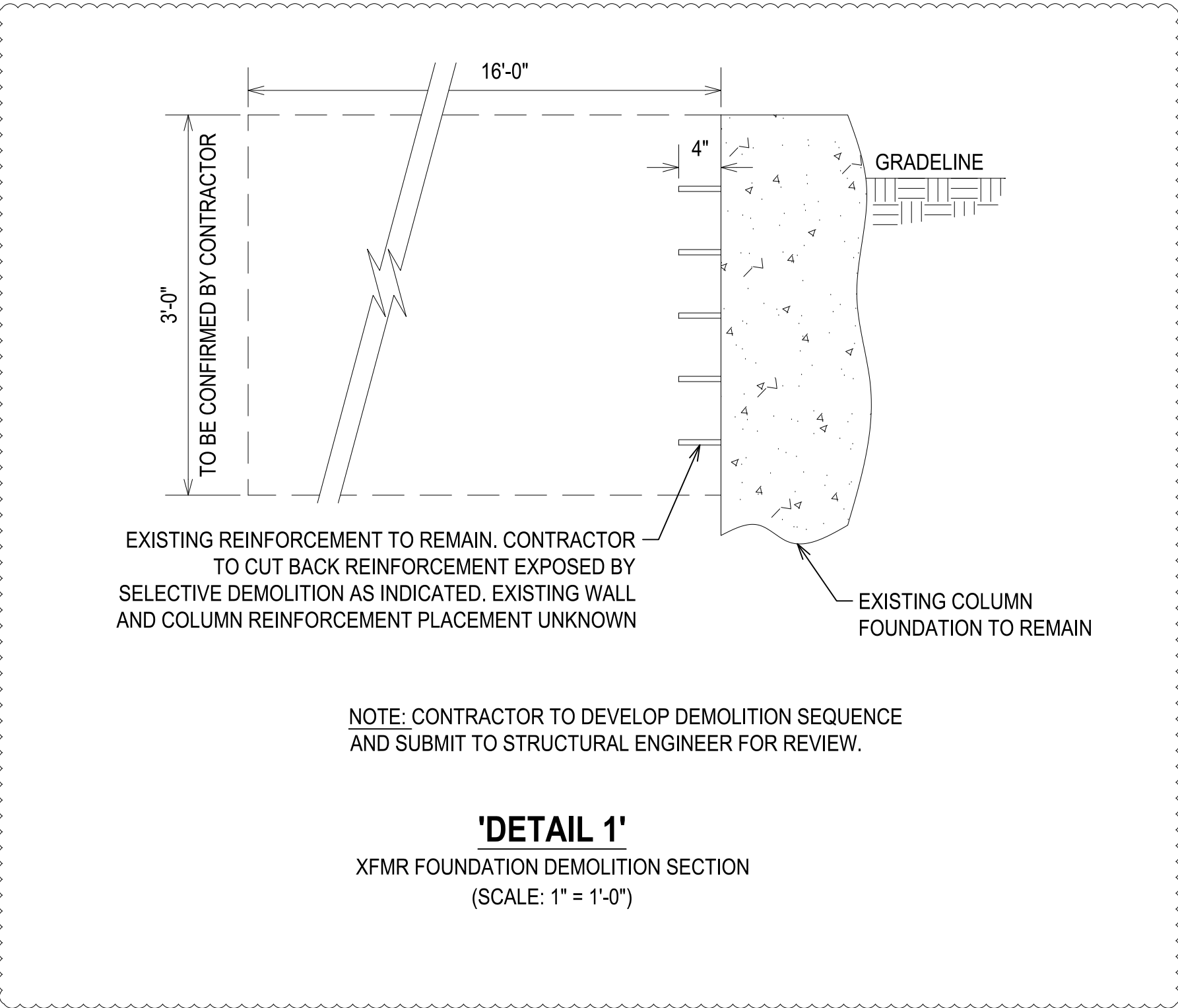
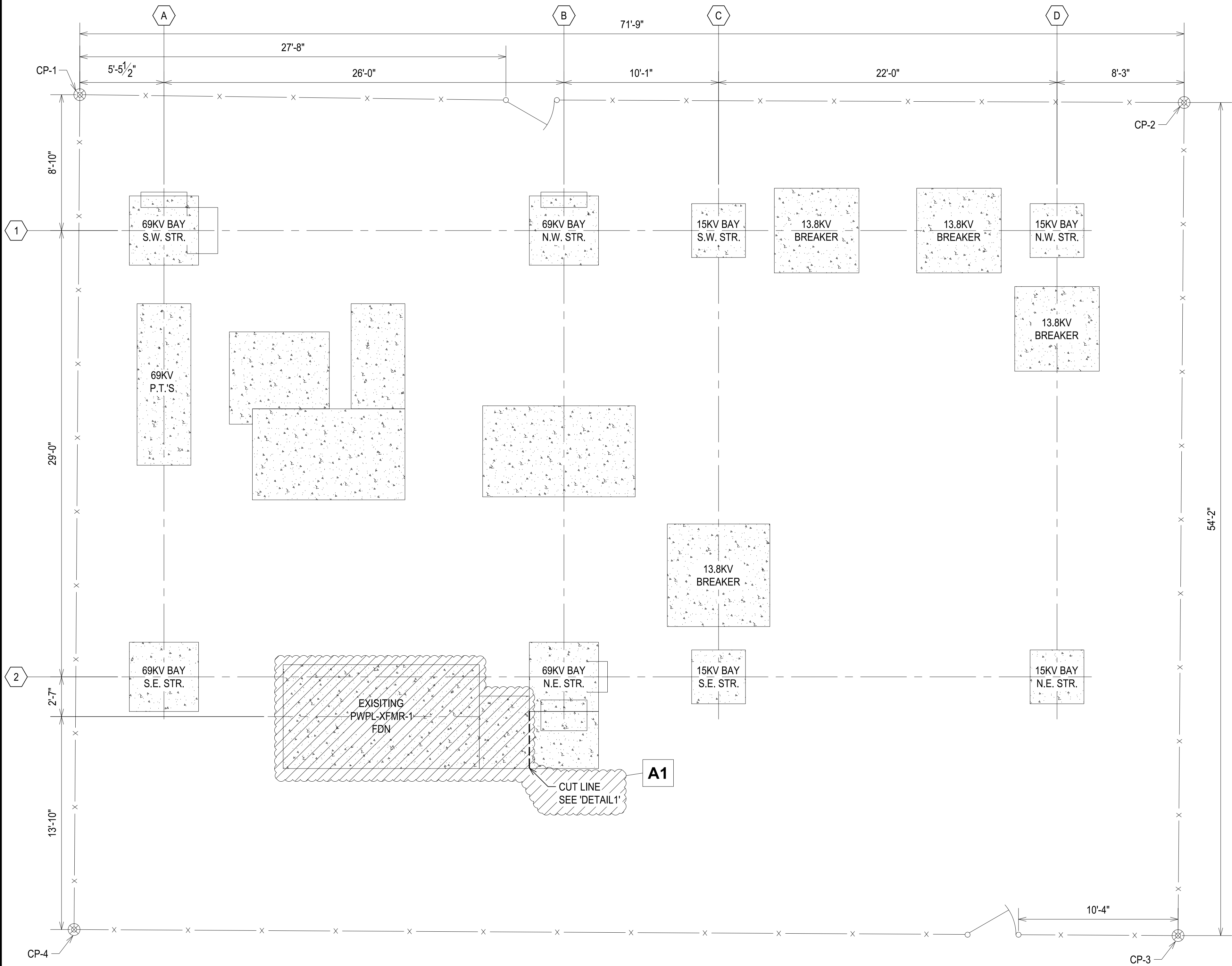


TITLE: FOUNDATION PLAN		DESIGNER: GAM
		APPROVED: JS
		DRAWING #: PWPL-11.1-1
DATE: --/--	SCALE: 1/4" = 1'-0"	SHEET: 1 OF 1

ISSUED FOR BID
NOT FOR CONSTRUCTION

- CONSTRUCTION NOTES:
- DIMENSIONS AND LOCATIONS SHOWN ARE APPROXIMATE AND WERE DEVELOPED FROM THE "26E0037 POINT CLOUD" FILE PROVIDED BY HANSON PROFESSIONAL SERVICES, INC. AND RECEIVED ON 6/11/2026.
 - ALL EQUIPMENT, FOUNDATIONS, STRUCTURES, CONDUIT, AND OTHER FACILITIES SHOWN BUT NOT SPECIFICALLY IDENTIFIED AS PART OF THIS PROJECT SCOPE ARE EXISTING AT APPROXIMATE LOCATIONS SHOWN.
 - CONTRACTOR SHALL FIELD VERIFY ALL SCOPED EQUIPMENT AND FOUNDATION LOCATIONS PRIOR TO INSTALLATION AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
 - ALL EQUIPMENT TO STRUCTURAL STEEL MOUNTING TO USE GALVANIZED BOLTS (SIZE PER B.O.M.) AND 1 GALVANIZED FLAT WASHER PER BOLT UNLESS NOTED OTHERWISE.
 - EXISTING GROUND RISERS AND GROUND CONDUCTORS SHALL BE REUSED. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT DAMAGE TO EXISTING GROUNDING MATERIALS DURING EXCAVATION AND FOUNDATION REMOVAL. ANY DAMAGED GROUNDING MATERIALS SHALL BE REPAIRED OR REPLACED AS DIRECTED BY BHM ENGINEERS INC.
 - CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT DAMAGE TO EXISTING TRANSFORMER CABLES AND BELOW-GRADE CONDUIT DURING EXCAVATION. EXISTING TRANSFORMER CABLES AND BELOW-GRADE CONDUIT SHALL BE REUSED.





CONTROL POINTS (IL83-EF)			
TAG	DESCRIPTION	EASTING	NORTHING
CP-1	FENCE S.W. CORNER	1032487.80	1327633.07
CP-2	FENCE N.W. CORNER	1032487.48	1327704.85
CP-3	FENCE N.E. CORNER	1032541.61	1327705.09
CP-4	FENCE S.E. CORNER	1032542.05	1327633.33

NOTE: CONTROL POINTS ARE APPROXIMATE AND NOT OFFICIAL SURVEY COORDINATES. SEE CONST. NOTES 1 THRU 3.

LEGEND:

⊗ - GEO-REFERENCED LOCATION (IL83-EF E. ILLINOIS)

REFERENCE DRAWINGS:
EQUIP. GENERAL ARRANGEMENT ----- PWPL-21.1-1 HOLD
FOUNDATION DETAILS, XFMR ----- PWPL-11.2-1

BHMG
BHMG ENGINEERS INC.
9735 LANDMARK PARKWAY
DRIVE, SUITE 110A
ST. LOUIS, MISSOURI 63127
TELE: (636) 296-8600
WWW.BHMG.COM

BHMG
A1 6/18/26 ISSUED FOR BID
THE REGISTRANT OF THE NEWLY
APPLIED SEAL, DATED 6/18/26,
ONLY ASSUMES RESPONSIBILITY
FOR CHANGES AS INDICATED BY THE
FOLLOWING REVISION(S) 0.

ILLINOIS LICENSE NO. - 184004266-002

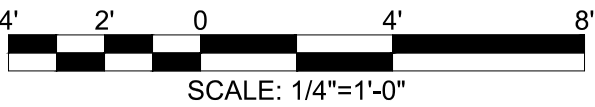
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0	FIRST ISSUE	6/18/26	GAM	GAM	JS

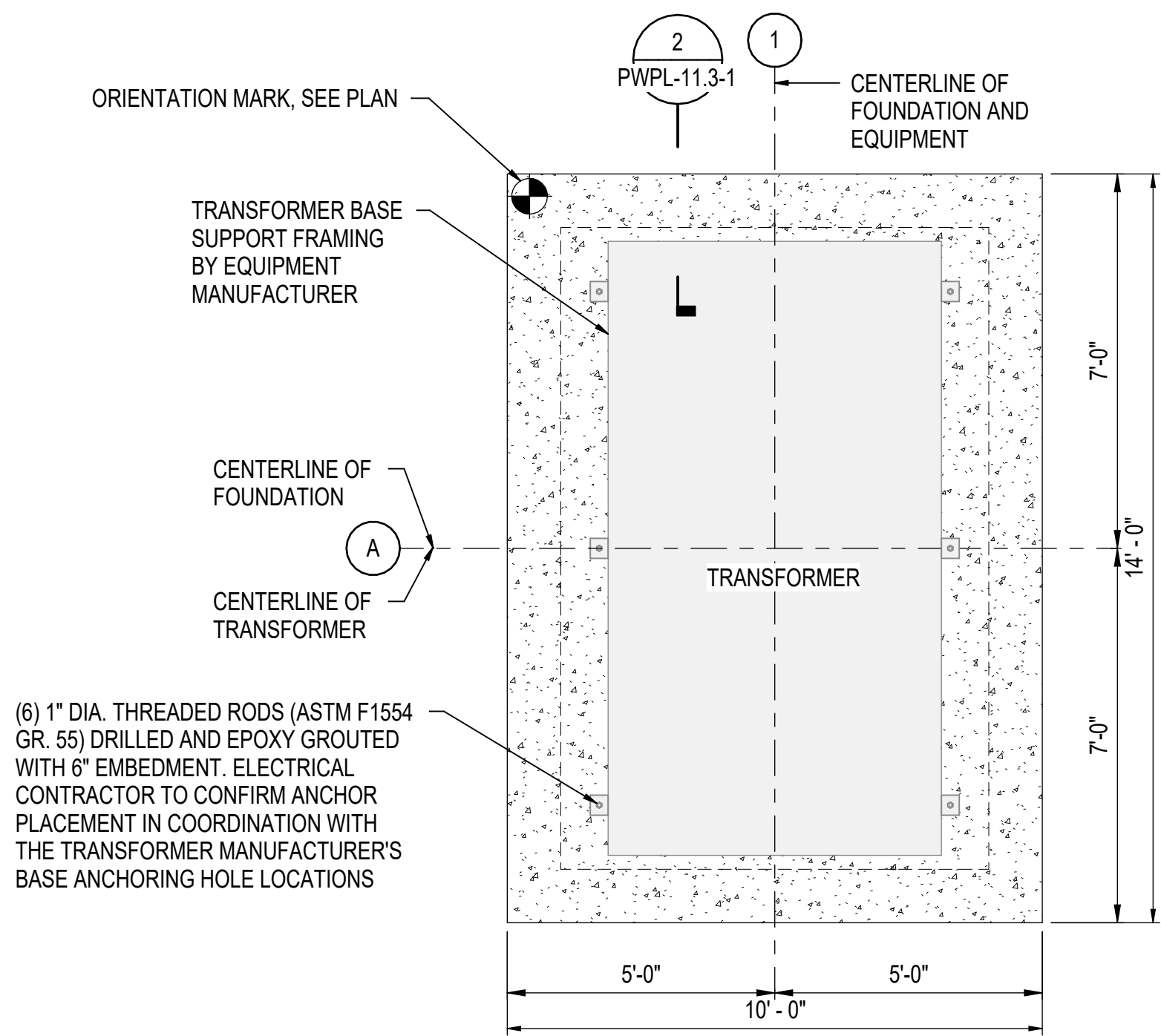


TITLE: FOUNDATION PLAN **REMOVALS ONLY**		DESIGNER: GAM
		APPROVED: JS
DRAWING #: PWPL-11.1-1		
DATE: 6/18/26	SCALE: 1/4" = 1'-0"	SHEET: 1 OF 1

CONSTRUCTION NOTES:

- DIMENSIONS AND LOCATIONS SHOWN ARE APPROXIMATE AND WERE DEVELOPED FROM THE "26E0037 POINT CLOUD" FILE PROVIDED BY HANSON PROFESSIONAL SERVICES, INC. AND RECEIVED ON 6/11/2026.
- ALL EQUIPMENT, FOUNDATIONS, STRUCTURES, CONDUIT, AND OTHER FACILITIES SHOWN BUT NOT SPECIFICALLY IDENTIFIED AS PART OF THIS PROJECT SCOPE ARE EXISTING AT APPROXIMATE LOCATIONS SHOWN.
- CONTRACTOR SHALL FIELD VERIFY ALL SCOPED EQUIPMENT AND FOUNDATION LOCATIONS PRIOR TO INSTALLATION AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
- EXISTING GROUND RISERS AND GROUND CONDUCTORS SHALL BE REUSED. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT DAMAGE TO EXISTING GROUNDING MATERIALS DURING EXCAVATION AND FOUNDATION REMOVAL. ANY DAMAGED GROUNDING MATERIALS SHALL BE REPAIRED OR REPLACED AS DIRECTED BY BHMG ENGINEERS INC.
- CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT DAMAGE TO EXISTING TRANSFORMER CABLES AND BELOW-GRADE CONDUIT DURING EXCAVATION. EXISTING TRANSFORMER CABLES AND BELOW-GRADE CONDUIT SHALL BE REUSED.



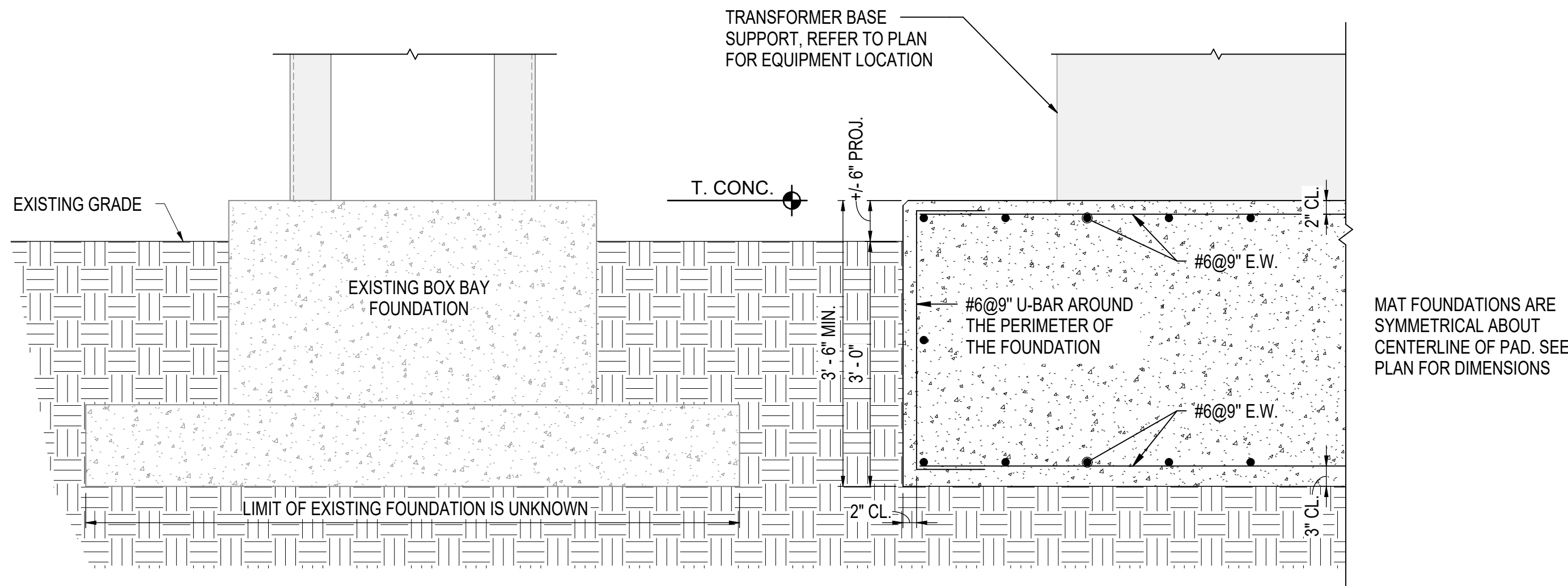


PRIOR TO PROCEEDING WITH EXCAVATION ACTIVITY, THE CONTRACTOR IS TO MONITOR LOCAL WEATHER FORECAST AND PROCEED ONLY IF WIND SPEEDS DURING THE DURATION OF TRANSFORMER FOUNDATION INSTALLATION ARE NOT ANTICIPATED TO BE GREATER THAN 30 MPH.

TRANSFORMER MANUFACTURER BASIS OF DESIGN VIRGINIA
TRANSFORMER COMPANY DRAWING NO. 47020MA024U

NOTE: SEE PLAN VIEW FOR LOCATIONS OF EXISTING FOUNDATIONS

1 TRANSFORMER MAT FOUNDATION PLAN VIEW
3/8" = 1'-0"



NOTE: THE CONTRACTOR SHALL VERIFY THAT THE REQUIRED EXCAVATION DEPTH FOR INSTALLATION OF THE NEW TRANSFORMER FOUNDATION DOES NOT EXCEED THE ELEVATION OF THE BOTTOM OF THE EXISTING BOX BAY FOUNDATIONS. NOTIFY THE STRUCTURAL ENGINEER OF RECORD IF THE EMBEDMENT DEPTH OF THE NEW TRANSFORMER FOUNDATION REQUIRES ADJUSTMENT FROM WHAT IS DETAILED OR IF THE NEW FOUNDATION IS IN CONFLICT WITH EXISTING FOUNDATION ELEMENTS.

2 TRANSFORMER MAT FOUNDATION SECTION
3/4" = 1'-0"

DETAIL A - 69kV TRANSFORMER

ISSUED FOR BID
NOT FOR CONSTRUCTION

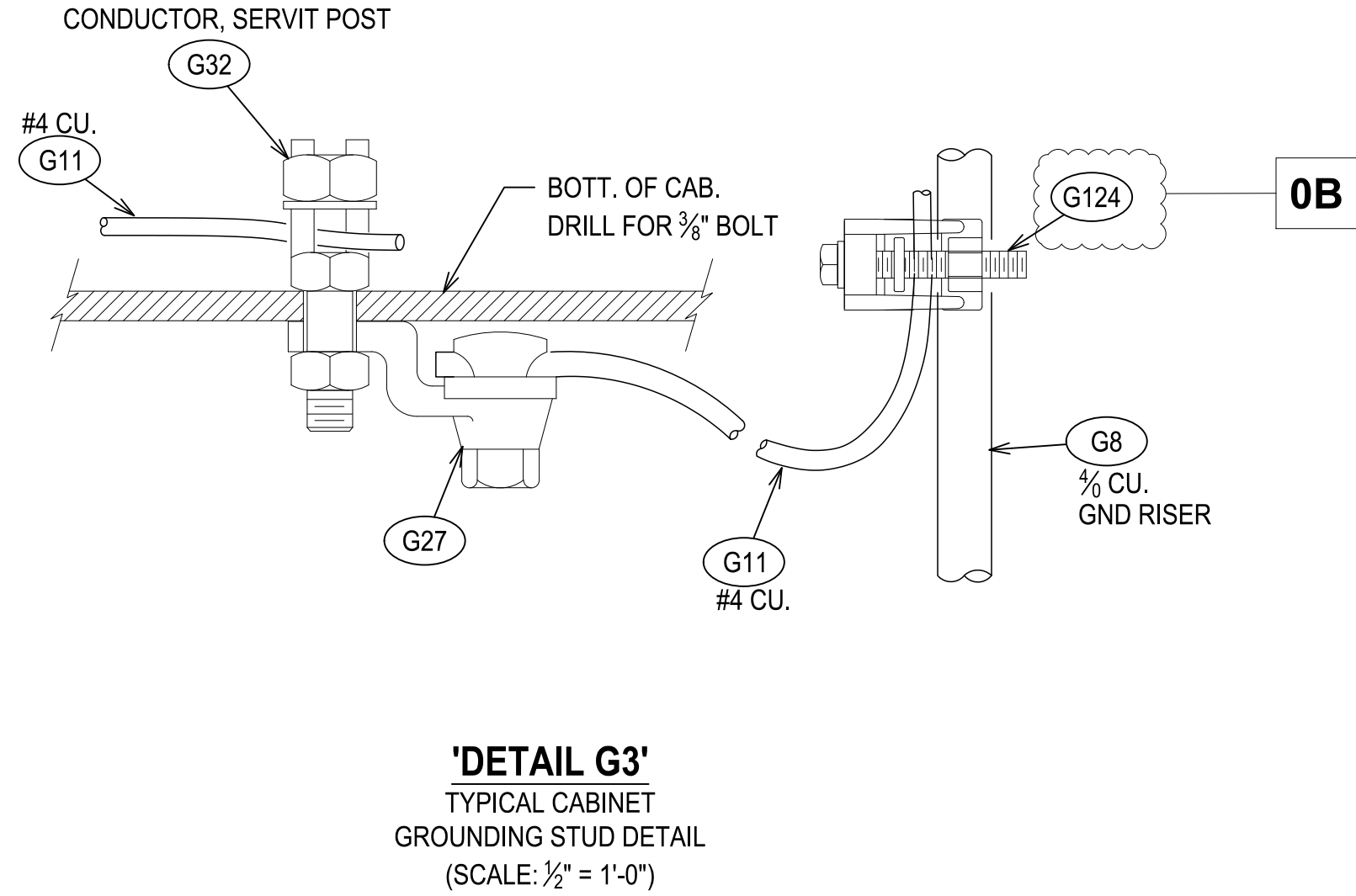
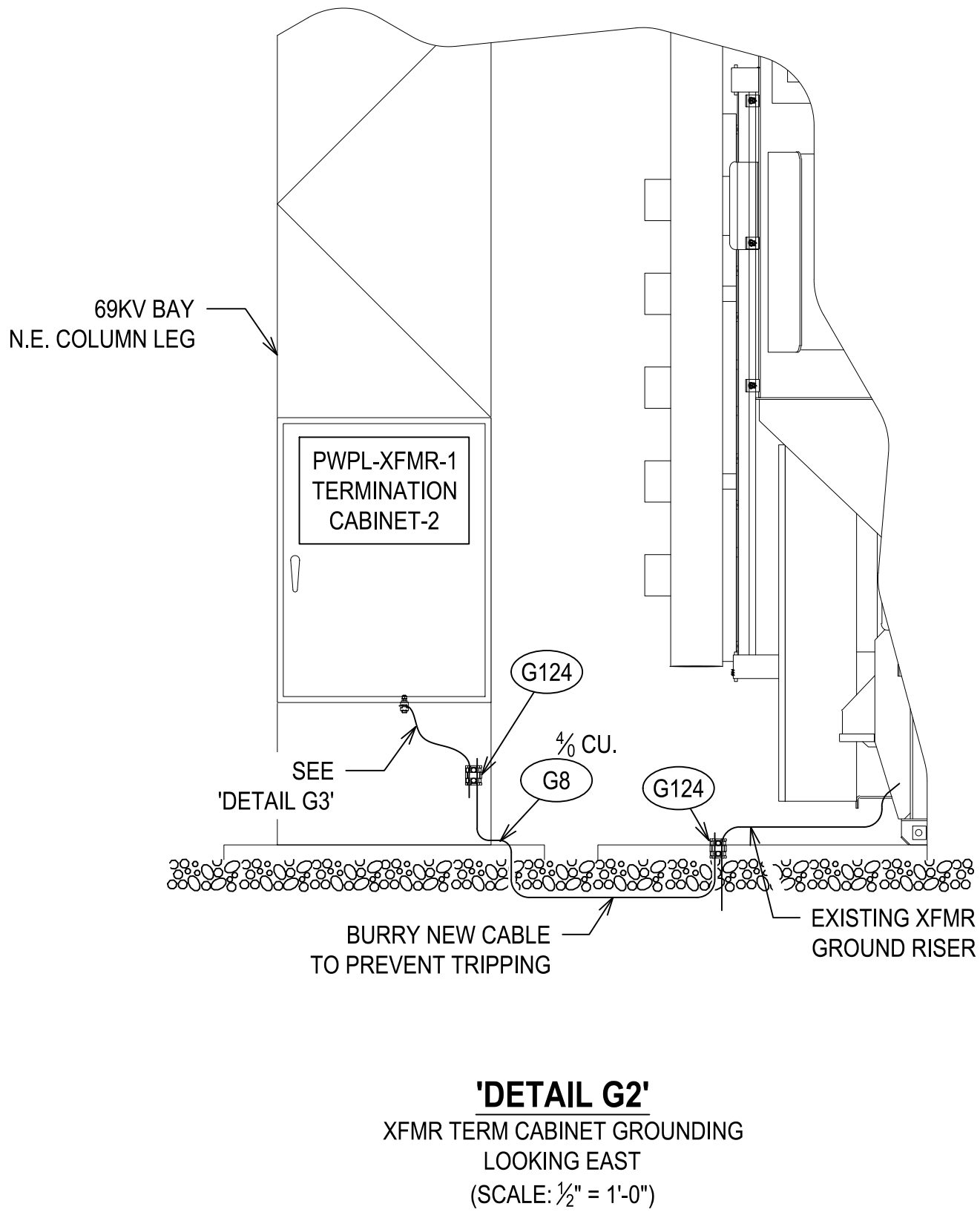
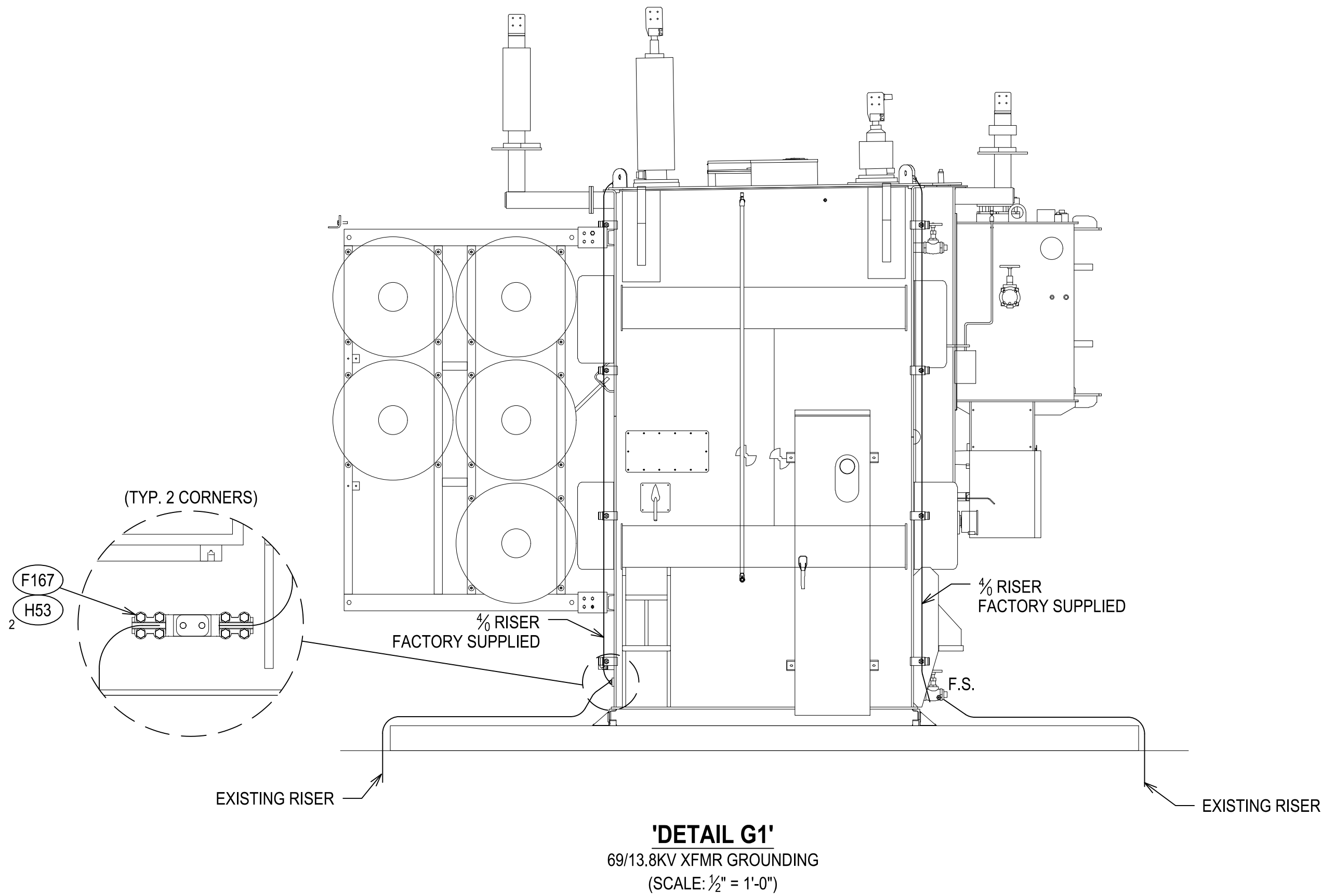
BHMG	04		
	03		
	02	07/22/2026	XFMR EQUIPMENT PLACEMENT UPDATE
	01	06/30/2026	ISSUED FOR BIDDING

00	ISSUED FOR CONSTRUCTION		RKN	KRF	RMF
REV #:	DESCRIPTION:	DATE:	DWN:	DSN:	APPR:



HANSON
Hanson Professional Services Inc.
1525 S. 6th Street
Springfield, IL 62568
phone: 217-788-2450
www.hanson-inc.com
ILLINOIS LICENSE NO. - 184-001084

TITLE: FOUNDATION DETAILS TRANSFORMER POWER PLANT SUBSTATION	DESIGNER: KRF
	APPROVED: RMF
	DRAWING #: PWPL-11.3-1
	SHEET: 1 OF 1
DATE: 06/22/2026	SCALE: As indicated



ISSUED FOR BID
NOT FOR CONSTRUCTION

LEGEND

- XX INDICATES BOM ITEM # - SEE DWG PWPL-91.1
- GROUND WIRE, 4/0 MCM COPPER (UNLESS NOTED OTHERWISE)

REFERENCE DRAWINGS:
EQUIPMENT ELEVATIONS _____ PWPL-21.2-1
EQUIP. BILL OF MATERIAL _____ PWPL-91.1



BHMG ENGINEERS INC.
9735 LANDMARK PARKWAY
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TELE: (636) 296-8600
WWW.BHMG.COM

THE REGISTRANT OF THE NEWLY
APPLIED SEAL, DATED 07/14/26
ONLY ASSUMES RESPONSIBILITY
FOR CHANGES AS INDICATED BY THE
FOLLOWING REVISION(S)

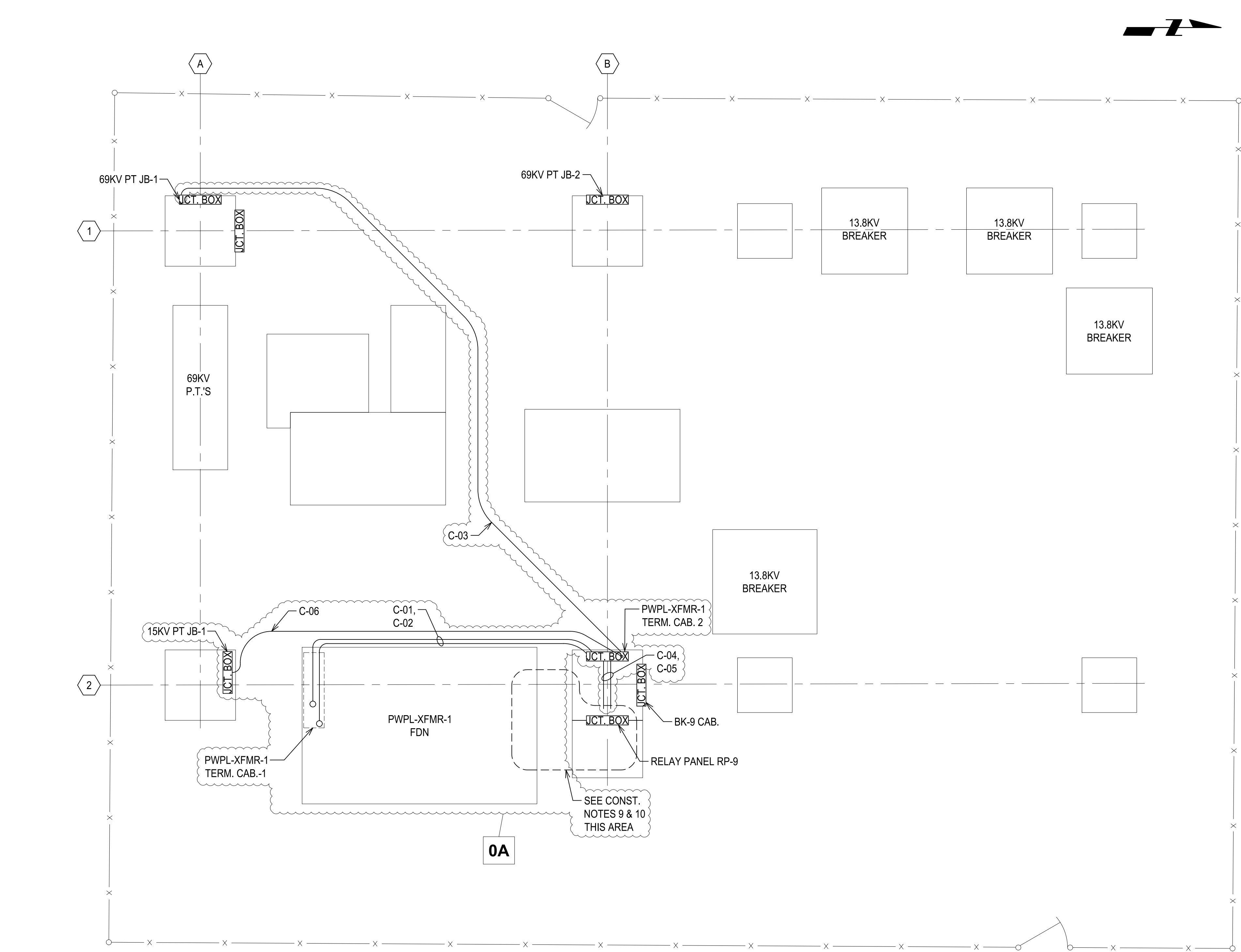
0A	07/14/26	ISSUED FOR IFB
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REV #:	DESCRIPTION:	DATE:	DWN:	DSN:	APPR:

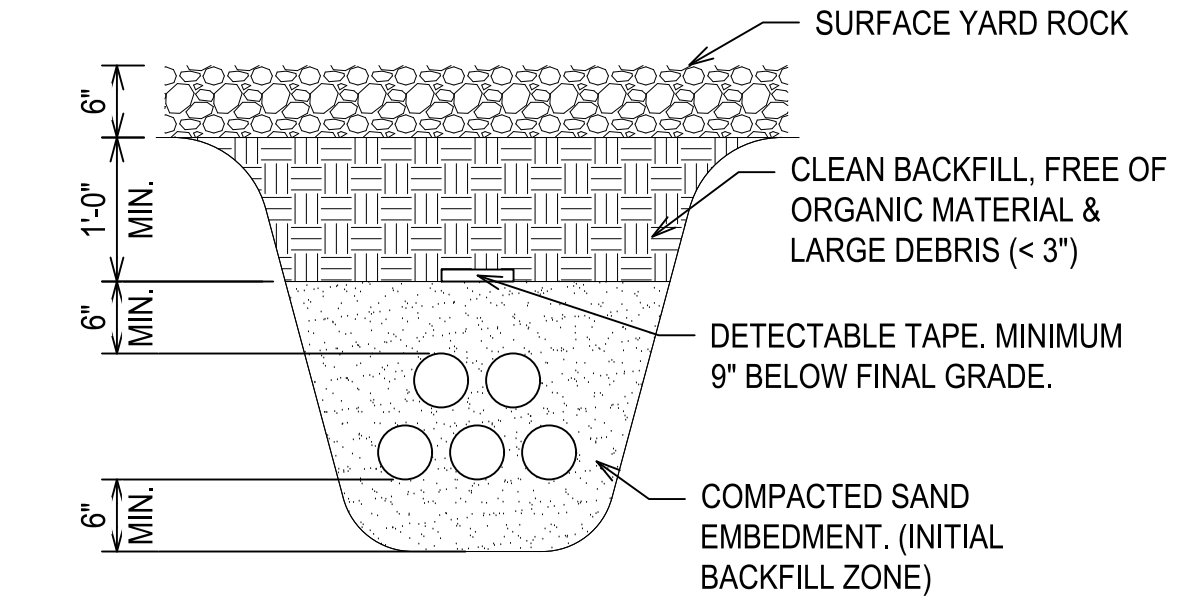


TITLE:	DESIGNER:
GROUNDING DETAILS	GAM
TITLE:	APPROVED:
POWER PLANT SUBSTATION	JS
DATE:	DRAWING #:
07/14/26	PWPL-12.2-1
SCALE:	SHEET:
AS NOTED	1 OF 1

- NOTES:
- FIELD DRILL AND TAP HOLES AS NECESSARY TO ATTACH GROUND CONNECTOR TO STRUCTURES. ALL EXPOSED STEEL AREA TO BE COATED WITH ONE COAT OF ZRC COLD GALVANIZING COMPOUND OR EQUIVALENT.
 - (2) S.S. FLAT WASHERS (ITEM H69) PER BOLT, AND (1) S.S. BELLEVILLE SPRING WASHER (ITEM H70) PER BOLT TO BE USED WHERE S.S. BOLTS ARE CALLED FOR.



CONDUIT SCHEDULE					
CND #	FROM	TO	SIZE	LENGTH	DETAIL
C-01	PWPL-XFMR-1 TERM. CAB.-1	PWPL-XFMR-1 TERM. CAB.-2	4	22'-0"	'DET. C1' 'DET. C3'
C-02	PWPL-XFMR-1 TERM. CAB.-1	PWPL-XFMR-1 TERM. CAB.-2	4	22'-0"	'DET. C1' 'DET. C3'
C-03	PT JB-1	PWPL-XFMR-1 TERM. CAB.-2	2	47'-6"	'DET. C2' 'DET. C3'
C-04	PWPL-XFMR-1 TERM. CAB.-2	RELAY PANEL RP-9	4	3'-6"	'DET. C1'
C-05	PWPL-XFMR-1 TERM. CAB.-2	RELAY PANEL RP-9	4	3'-6"	'DET. C1'
C-06	15KV PT JB-1	PWPL-XFMR-1 TERM. CAB.-2	1.5	27'-6"	'DET. C4' 'DET. C1'



- NOTES:**
- TYPICAL CONDUIT TRENCH BACKFILL. SIZE AND QUANTITY OF CONDUIT WILL VARY.
 - INITIAL BACKFIL SHALL BE HAND PLACED AND COMPACTED IN A CONTROLLED MANNER TO PREVENT DAMAGE OR DISPLACEMENT OF CONDUIT.
 - BACKFILL SHALL BE COMPACTED IN LIFTS (MIN. 6" LIFTS) TO 90% MIN. STANDARD PROCTOR DENSITY (ASTM D698) UNLESS NOTED OTHERWISE.

'DETAIL 1'
TYPICAL BURIED CONDUIT
(SCALE 3/4" = 1'-0")

- LEGEND**
- C-## CONDUIT PVC SCH. 40 (SEE TABLE FOR DETAILS)
 - JCT. BOX EQUIPMENT JUNCTION BOX
 - XX INDICATES BOM ITEM # - SEE DWG PWPL-91.1

- REFERENCE DRAWINGS:**
- CONDUIT DETAILS PWPL-13.2-1
 - JCT. BOX DETAILS PWPL-28.1-1
 - EQUIPMENT GENERAL ARRANGEMENT PWPL-21.1-1
 - EQUIP. BILL OF MATERIAL PWPL-91.1

ISSUED FOR BID
NOT FOR CONSTRUCTION

BHMG ENGINEERS INC.
9735 LANDMARK PARKWAY
DRIVE, SUITE 110A
ST. LOUIS, MISSOURI 63127
TELE: (636) 296-8600
WWW.BHMG.COM

THE REGISTRANT OF THE NEWLY
APPLIED SEAL, DATED --/--/26 ,
ONLY ASSUMES RESPONSIBILITY
FOR CHANGES AS INDICATED BY THE
FOLLOWING REVISION(S) 0 .

ILLINOIS LICENSE NO. - 184004266-002

REV #	DESCRIPTION	DATE	DWN	DSN	APPR
0	FIRST ISSUE	--/--/26	GAM	GAM	JS

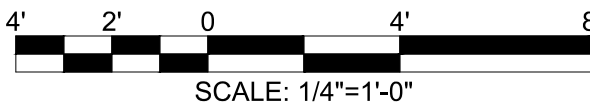


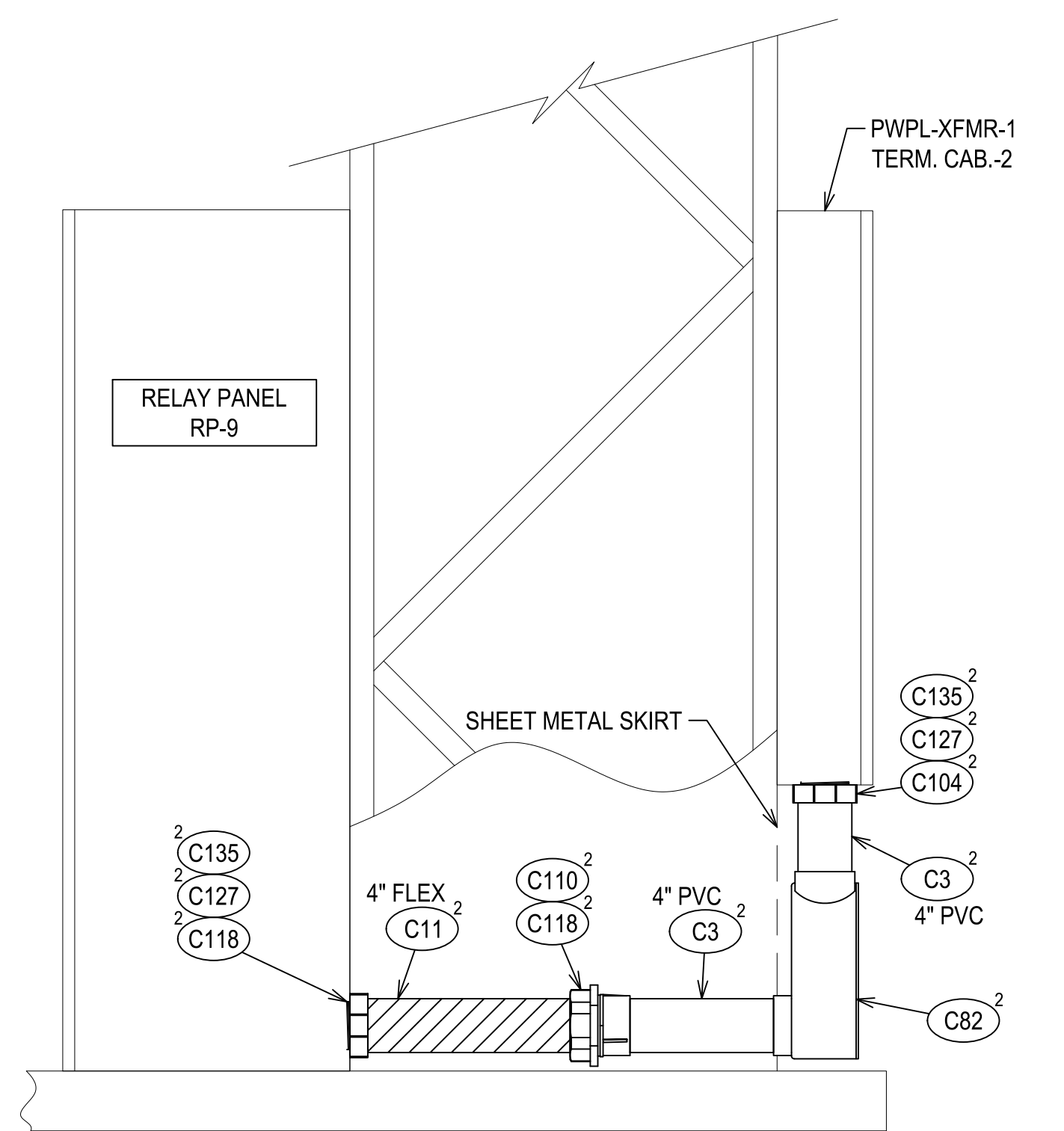
BHMG ENGINEERS INC.
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ST. LOUIS, MO. 63127 (636) 296-8600
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ILLINOIS LICENSE NO. - 184004266-002

TITLE: CONDUIT PLAN		DESIGNER: GAM
		APPROVED: JS
		DRAWING #: PWPL-13.1-1
DATE: --/--/26	SCALE: 1/4" = 1'-0"	SHEET: 1 OF 1

- CONSTRUCTION NOTES:**
- DIMENSIONS AND LOCATIONS SHOWN ARE APPROXIMATE AND WERE DEVELOPED FROM THE "26E0037 POINT CLOUD" FILE PROVIDED BY HANSON PROFESSIONAL SERVICES, INC. AND RECEIVED ON 6/1/2026.
 - ALL EQUIPMENT, FOUNDATIONS, STRUCTURES, CONDUIT, AND OTHER FACILITIES SHOWN BUT NOT SPECIFICALLY IDENTIFIED AS PART OF THIS PROJECT SCOPE ARE EXISTING AT APPROXIMATE LOCATIONS SHOWN.
 - CONTRACTOR SHALL FIELD VERIFY ALL SCOPED EQUIPMENT AND FOUNDATION LOCATIONS PRIOR TO INSTALLATION AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
 - ALL CONTRACTOR PROVIDED ITEM QUANTITIES ARE TO BE VERIFIED BY CONTRACTOR. CONDUIT AND HARDWARE IS ESTIMATED, CONTRACTOR IS TO PROVIDE ALL NECESSARY HARDWARE.
 - CONTRACTOR IS RECOMMENDED TO PURCHASE SPARE QUANTITIES OF CONTRACTOR SUPPLIED ITEMS IF QUANTITIES ARE INCORRECT, OR DAMAGED DURING CONSTRUCTION.
 - ALL EQUIPMENT TO STRUCTURAL STEEL MOUNTING TO USE GALVANIZED BOLTS (SIZE PER B.O.M.) AND 1 GALVANIZED FLAT WASHER PER BOLT UNLESS NOTED OTHERWISE.
 - ALL CONDUITS INTO ENCLOSURES OR JUNCTION BOXES TO BE SEALED WITH DUCT SEAL.
 - INSTALL PRESKO 6" OR EQUIVALENT DETECTABLE TAPE 9" INCHES BELOW GRADE ABOVE ALL CONDUIT RUNS WHERE POSSIBLE.
 - CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT DAMAGE TO EXISTING TRANSFORMER CABLES AND BELOW-GRADE CONDUIT DURING EXCAVATION. EXISTING TRANSFORMER CABLES AND BELOW-GRADE CONDUIT SHALL BE REUSED.
 - CONTRACTOR SHALL REMOVE EXISTING CONTROL CABLES FROM THE EXISTING XFMR TERM. CAB. AND PULL THEM BACK TO RELAY PANEL RP-9 FOR REUSE. EXISTING CONTROL CABLES SHALL BE PULLED INTO NEW PWPL-XFMR-1 TERM. CAB.-2 VIA NEW 4-INCH CONDUITS C-04 AND C-05. CONTRACTOR SHALL INSTALL NEW CONTROL CABLES BETWEEN PT JB-1 AND NEW PWPL-XFMR-1 TERM. CAB.-2 VIA C-03. EXISTING CONTROL CABLES BETWEEN PT JB-1 AND THE EXISTING XFMR TERM. CAB. SHALL BE CUT BELOW GRADE AND ABANDONED.
 - FIELD TO COORDINATE WITH P&C CONTRACTOR FOR REMOVING AND LANDING ELECTRICAL CONTACTS. SEE WIRING DIAGRAMS PWPL-52.2-1 & PWPL-52.3-1 FOR CONTRACTOR DIVISION OF ELECTRICAL RESPONSIBILITY.

HOLD





CONSTRUCTION NOTES:
CONTRACTOR SHALL CUT EXISTING STRUCTURE SHEET METAL SKIRTING AS REQUIRED TO ACCOMMODATE NEW CONDUITS C-04 AND C-05. ALL CUT EDGES SHALL BE SMOOTHED AND TREATED WITH COLD GALVANIZING COMPOUND. ALL WORK SHALL BE PERFORMED IN A NEAT AND WORKMANLIKE MANNER.

PT JB-1

EXISTING CONDUIT

2" FLEX C13

EXISTING CONDUIT

2" PVC C5

C69

C34

2" PVC C5

TO PWPL-XFMR-1 TERM. CAB-2

C137

C129

C120

C112

C120

CONSTRUCTION N
CONTRACTOR SHA
CABLES RUNNING
CAB. AND "PT JB-1"
ASSOCIATED WITH
SHALL BE CUT BEL
CONDUITS SHALL
INSTALLED IN THE
CONDUIT. SEE CO

Diagram illustrating the 15KV PT Grounding System. The system shows the grounding path for a 15KV PT, including the PT, grounding conductor, and various components like couplers, clamps, and flexible conduit, leading to the terminal cabinet (CAB.-2).

Key components and labels:

- 15KV PT
- D162
- D6 1½" RMC
- D93
- D6 1½" RMC
- D70 1½" COUPLER WHERE REQ'D.
- D145 MTG. CLAMP 5FT SPACING (TYP.)
- D6 1½" RMC
- R9
- C138
- C130
- C121
- D6 1½" RMC
- D93
- D162
- C113
- C121
- C14 1½" FLEX
- C6 1½" PVC
- C70
- C42
- TO PWPL-XFMR-1 TERM. CAB.-2

CABINET BOTTOM CUTOUT SECTIONS

3'-5½"

2'-0"

2'-0"

1'-3"

¾"

XFMR

PLAN VIEW
XFMR REMOVED FOR CLARITY

TITLE: CONDUIT DETAILS		DESIGNER: GAM	
		APPROVED: JS	
		DRAWING #: PWPL-13.2-1	
DATE: --/--/26		SCALE: AS NOTED	
		SHEET: 1 OF 1	