



City of Wentzville
Kimberly Butts, Director of Procurement
310 W. Pearce Blvd.
Wentzville, Missouri 63385
(636) 639-2005

Invitation for Bids
IFB #16-295

Water Reclamation Center (WRC) Surge Protection Project

June 1, 2016

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City Of Wentzville
Kimberly Butts, Director of Procurement
310 W. Pearce Blvd.
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**BID NOTICE
INVITATION FOR BIDS #16-295**

June 1, 2016

The City of Wentzville (the "City") is requesting sealed bids, in duplicate from qualified Contractors for:

Water Reclamation Center (WRC) Surge Protection Project

The WRC Surge Protection Project ("Project") shall consist of modifications to the existing electrical system at the Wentzville Wastewater Reclamation Center to correct instrumentation failures due to surge events.

Sealed bids will be accepted by the City of Wentzville, Procurement Department, City Hall, 310 W. Pearce Blvd., Wentzville, MO 63385 until 2 p.m. prevailing local time on June 23, 2016 at which time they will be publicly opened and read aloud. The sealed envelope shall be clearly marked with the IFB #16-295, WRC Surge Protection Project, and Bidder Name on the outside of envelope.

Site visits may be scheduled by contacting Alice Winkelman, Senior Procurement Specialist at Alice.Winkelman@Wentzvillemo.org.

All questions regarding this project shall be submitted to Alice Winkelman, Senior Procurement Specialist at Alice.Winkelman@Wentzvillemo.org and be in writing by June 16, 2016 end of business day.

The City reserves the right to reject any or all bids and to waive any irregularities therein, and accept the best most advantageous to the City of Wentzville.

Bid security in the amount of five percent (5%) of the total bid amount (if total bid price exceeds \$50,000.00) shall accompany each bid in accordance with the Exhibit A, paragraph 8.

The successful bidder shall be required to comply in all respects with the State Statutory provisions concerning the payment of prevailing wages on Public Works, RSMo 290.210 thru 290.340 and shall pay to all workmen performing the work under the Contract not less than the prevailing hourly rate of wages as determined by the Department of Labor and Industrial Relations of the State of Missouri.

City of Wentzville

Kimberly Butts, CPPO, CPSM
Director of Procurement

INFORMATION FOR BIDDERS

1. **Background and Funding:** The Project will include the installation of several surge protection devices, installation of grounding and bonding improvements, field instrumentation Analog shielding and Surge suppression installation, and removal of any obsolete equipment and related circuits in accordance with the City's Surge Protection Analysis Report provided herein as Exhibit E.

This project is fully funded through City of Wentzville funding.

2. **Questions:** All questions must be submitted in writing via email to Alice Winkelman, Senior Procurement Specialist, at Alice.Winkelman@Wentzvillemo.org with the project name in the subject line before time and date indicated. No verbal interpretation will be recognized; any and all such interpretations shall be confirmed in an addendum to the bid by the City.

In order to ensure all potential bidders receive the same information, the City will post its response on the City's website:

http://www.wentzvillemo.org/departments/procurement/current_bidding_opportunities.php.

Bidders are responsible for checking the City's website for the issuance of any addendums. The Bidding Opportunities website shall be the official site for information as related to this IFB.

To ensure fair consideration for all bidders, the City prohibits communication to or with any City department(s), board member(s), or employee(s) during the submission process, except as provided above. Additionally, the City prohibits communications initiated by a bidder to the City official(s) or employee(s) evaluating or considering the bids prior to the time an award decision is made. Any communication between Bidder and the City will be initiated by the appropriate City official(s) or employee(s) in order to obtain information or clarification needed to develop a proper, accurate evaluation of the bid. Such communications initiated by a bidder may be grounds for disqualifying the offending bidder from consideration for award of the bid and/or any future bid(s).

3. **Amendments:** The City may add, delete, or amend services as it may deem advisable.
4. **Seal Bids Required:** No type of electronic submittal (fax, email, etc.) of bid proposals will be accepted.
5. **Bidder Documentation:** All responses, inquiries, or correspondence relating to, or in reference to, this Invitation for Bid, and all reports, charts, displays, schedules, exhibits and other documentation by the Bidder shall become the property of the City when received. All bids submitted shall also become the property of the City. If any proprietary information is contained in the bid, it should be clearly identified. Marking the entire bid as proprietary will be neither accepted nor honored. If a request is made to view a Bidder's bid submission, the City will comply according to Missouri Sunshine Law.
6. **Bid Opening:** Bids will be opened promptly and read aloud on the date and time and at the location indicated. The Bidder is solely responsible for insuring its Bid Proposal is received at the time, date, and location specified. The bid opening is public and anyone may attend. No bid information, other than the bid tabulation, will be made available to the public during the evaluation period between the bid opening and the award of the bid.
7. **Waive Irregularities; Rejection of Bid:** The City of Wentzville expressly reserves the right to waive minor or slight irregularities in a bid which in the City's judgment are in the best interest of

the public and do not provide a material advantage to the bidder over all the other bidders. The City of Wentzville reserves the right to reject any or all bids received in part or entirely.

8. **Examination of Bid/Contract Documents and Site of Work.** The Bidder is expected to carefully examine the site of proposed work, the specifications, and the Bid/Contract documents before submitting a bid. The submission of a bid shall be considered prima facie evidence that the Bidder has made such examination and is satisfied to the conditions to be encountered in performing the work and as to the requirements of the Bid/Contract documents.
9. **Product Substitutions:** Requests for product substitutions will not be considered during bidding. If Contractor's bid includes substitutions it shall be at the Contractor's risk and responsibility to demonstrate that the substitution is a "functional equivalent" product during submittal reviews. During the review process, if substituted products are determined not to be functionally equivalent, Contractor shall provide products as specified at no additional cost to City.
10. **Laws to be Observed:** The Contractor shall at all times observe and comply with all Federal and State laws, all local laws, ordinances, and regulations existing at the time of or enacted subsequent to the execution of the contract which, if in any manner, affect the prosecution of the work. The Contractor and his surety shall indemnify and save harmless the City and all of his representatives, engineers, consultants, and employees against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by himself, his employees, or his subcontractors.

Changes may be made to this contract as a result of any ordinance, law and/or directive issued by the City and/or the State of Missouri and/or the Federal Government. Should such a change occur, the contract documents and Specifications shall be amended reflecting such change and signed by both parties acknowledging the change(s).

11. **Taxes:** This project is exempt from all sales taxes for construction materials and supplies used directly in fulfilling contract requirements. Sales tax shall not be included in the prices.
12. **Prevailing Wage:** The successful Bidder shall be required to comply in all respects with Federal and State Wage Rates, including applicable statutory provisions concerning payment of prevailing wages on public works projects, Sections 290.210 through 290.340 RSMo. (most current version), as currently amended, and shall pay to all workmen performing under work contract not less than prevailing hourly rate of wages as determined by the Department of Labor and Industrial Relations of the State of Missouri.

As such, the Bid Proposal for this project shall be based upon the required payment by the Contractor for wages for each craft or type of workmen required to execute the Contract. A schedule of such prevailing hourly rate of wages as determined by the Department of Labor and Industrial Relations of Missouri, pursuant to said statutory provisions is attached hereto and made a part of this Contract.

13. **OSHA:** The successful Bidder shall require all on-site employees to complete a ten-hour Occupational Safety and Health Administration (OSHA) construction safety program provided by the contractor which includes a course in construction safety and health approved by OSHA or a similar program approved by MoDOLIR which is at least as stringent as an approved OSHA program, as required under Subsection 292.675 RSMo. All employees are required to complete the program within sixty days of beginning work under this contract. The successful bidder shall also require all subcontractors under the contractor to provide the ten-hour training program required under Subsection 292.675 RSMo to such subcontractors' on-site employees.
14. **Equal Employment Opportunity.** The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, or disability. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment; advertising; layoff or termination; rates of pay or other forms of

compensation; and selection of training, including apprenticeship. The Contractor shall state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, or disability. The Contractor shall incorporate the foregoing requirements of this paragraph in all of its subcontracts for work performed under the terms and conditions of this Contract. A breach of this provision may be grounds for termination of this Contract.

15. **American Products:** The City encourages every Public Works project in excess of \$5,000 to use American products. These products are to be used whenever the quality and price are comparable with other goods.
16. **Buy Missouri Preference:** Contractors are encouraged to purchase commodities and tangible property manufactured, produced, or grown within the local area and in the State of Missouri, and from all firms, corporations, or individuals with licensed businesses in the State of Missouri. This guideline pertains to all commodities and tangible property when quality is equal or better and the delivered price is the same or less, or when competing bids, in their entirety, are comparable.
17. **Method of Award:** The solicitation shall be awarded to the lowest, responsive, responsible bidder. **The City may or may not award all line items.**
The City reserves the right, in its sole discretion, to reject any or all bids, or portions thereof, to waive technicalities or deficiencies in any or all the bids. The City of Wentzville reserves the right to cancel this IFB in part or in its entirety. This IFB does not commit the City of Wentzville to award a contract or to pay any costs to bidders in preparation of their bid.
18. **DBE:** The City of Wentzville hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this solicitation, disadvantaged business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.
19. **Notice of Award:** Upon approval of the bidder by the Board of Aldermen, the successful bidder will receive a Notice of Award listing supportive documentation that the bidder is required to submit, which includes but is not limited to the following:
 - City-Contractor Agreement (*sample included with this solicitation*)
 - Affidavit of Participation in Federal Work Authorization Form (*sample included with this solicitation.*)
 - E-Verify Memorandum of Understanding (*showing electronic signatures of Contractor and Homeland Security*)
 - Insurance
 - Bonds
20. **Performance Bond.** If the Contractor's Bid is in excess of \$50,000.00, the Contractor shall also furnish within ten (10) days of notification of contract award a satisfactory Performance Bond in the full amount of the Bid based on the bid quantities listed on the Bid Proposal form. The Performance Bond furnished shall guarantee the faithful performance of the Work and warrant the Work for the guaranty period established in this City Contractor Agreement.
21. **Payment Bond.** If the Contractor's Bid is in excess of \$50,000, the Contractor shall furnish within ten (10) days of notification of contract award a satisfactory Payment Bond in the full amount of the Contract Sum. The Payment Bond furnished shall meet all requirements of Section 107.170 of the Revised Statutes of Missouri, as amended, and shall guarantee the payment of any and all materials, incorporated, consumed or used in connection with the construction of such work, and all insurance premiums, both for compensation, and for all other kinds of insurance, said work, and for all labor performed in such work whether by subcontractor or otherwise, including payment of prevailing wage requirements of the State of Missouri.

22. **Notice to Proceed:** Upon submittal and acceptance of all items as outlined in the Notice of Award, the successful bidder will receive Notice to Proceed and will be required to attend a Pre-Construction Meeting prior to beginning work.

QUALIFICATIONS

The Contractor shall provide responsible and trained field technician(s) that meet the following qualifications and that are capable of performing the services listed in the scope of services.

Documentation of qualifications shall be provided within the bid:

- a. Experience & capability to install, remove, troubleshoot & repair equipment, machinery, related components and parts.
- b. Knowledge of the City's safety requirements and OSHA standards and training in electrical safety. Contact Jared Conaway, Wastewater Department Safety Coordinator, at 636-639-2072 to receive the City's safety requirements.
- c. An electrical degree, License or certification.

EXHIBIT A BID PROPOSAL

For: IFB #16-295 – WRC Surge Protection Project

To: Procurement Department
City of Wentzville
310 W. Pearce Blvd.
Wentzville, MO 63385

Pursuant to and in compliance with your Invitation for Bid, the Information for Bidders, Contract Document and Specifications and other documents relating thereto, the undersigned Bidder hereby proposes and agrees/guarantees that:

1. They have visited and examined the project site(s) and have carefully examined the Contract Documents and Specifications and any and all Addenda, as indicated below.
2. If this Invitation for Bid is accepted, to furnish all tools, equipment, labor, materials, supplies, and services to construct the project in strict conformance with the Contract Documents and Specifications, within the time set forth therein, for the price indicated in this Exhibit A Bid Proposal). These prices are to cover all expenses incurred in performing the work required under the Agreement of Services, of which this Bid Proposal is a part.
3. If awarded the Contract for the above work, they will have a maximum of ten (10) calendar days; excluding holidays from the date of the Notice of Award letter to submit supportive documentation as outlined in the notification letter. Failure to complete the outlined requirements within such timeframe shall be subject to forfeiture of the subject contract.
4. Time is of the essence. The Contractor will commence construction of the work promptly upon receipt of the Notice to Proceed, after the Pre-Construction Meeting, and will complete the project without delay in accordance with the Contract Documents and Specifications.
5. The Contractor will complete the said work within **sixty (60) calendar days** after receiving the Notice to Proceed, and if the Contractor fails to complete the work in the time specified or such additional time as may be allowed by the Engineer under the Contract, the amount of liquidated damages to be recovered shall per the Agreement of Services.
6. Bid proposals will be considered firm for 90 days from the bid opening date. By written mutual agreement with bidder(s), the bid(s) may be held firm for an additional period of time to allow the City additional evaluation time, etc.
7. Bidder understands and will comply with all terms and conditions of these Bid Documents, the City-Contractor Agreement, and the Contract Documents and Specifications and any subsequent award or contract.
8. Bid bond required if total bid price exceeds \$50,000.00: The bid bond (5% of bid amount) submitted with this Bid Proposal is from a surety that is authorized to do business in the State of Missouri and is authorized to issue bonds in the State of Missouri.

BID PROPOSAL, Exhibit A (Continued)

Note: The City may or may not award all line items.

Line Item No.	Description	QTY	Total Price (Lump Sum)
1	Verify Distribution Grounding and Bonding	1	\$
2	Add Surge Protection to SCADA Panel	1	\$
3	Add Surge Protection to Field Instrumentation	1	\$
4	Add Surge Protection to Collection Building	1	\$

Indicate below all Addenda received on which the above bid proposal is based:

Addendum No. _____ Dated: _____
 Addendum No. _____ Dated: _____
 Addendum No. _____ Dated: _____

The Contractor understands and agrees that by signing the Invitation for Bid the Bidder is certifying that Contractor employs only personnel authorized to work in the United States in accordance with applicable federal and state laws. This certification applies to State of Missouri Immigration Alien Laws and statutes required local government(s) to have proof of a person's lawful presence within the United States before distributing "Public Benefits" (contracts, purchase orders, etc.) to that Bidder.

Name of Bidder: _____

Indicate whether () Individual; () Partnership; () Corporation, () LLC Incorporated in the State of _____.

Signature: _____

Name (Printed): _____

Title: _____

Business Address: _____

City: _____

State: _____ Zip: _____

Telephone No: _____ Fax No: _____

State Charter #: _____

Email address: _____

ATTEST: _____
Title Dated

Attach Corporate Seal, if Applicable

Bid Submittal: Exhibit A – Bid Proposal Form
 Exhibit B – Reference Form
 Exhibit C - Non-Collusive Affidavit
 Exhibit D – Subcontractor Form
 Documentation of Qualifications
 Bid Security of 5% of Bid Amount if Bid Amount exceeds \$50,000

**EXHIBIT B
REFERENCES FORM**

Bidder shall provide with their bid submission, at least three references of current clients (within the past two years). Failure to provide references may be cause for rejection of bid.

Company: _____

Address: _____

Contact Person: _____

Telephone: _____

Email: _____

Type of service provided: _____

Dates/year(s) service was provided: _____

Company: _____

Address: _____

Contact Person: _____

Telephone: _____

Email: _____

Type of service provided: _____

Dates/year(s) service was provided: _____

Company: _____

Address: _____

Contact Person: _____

Telephone: _____

Email: _____

Type of service provided: _____

Dates/year(s) service was provided: _____

Bidder name: _____



**EXHIBIT C
AFFIDAVIT OF NON-COLLUSION (PRIME BIDDER)**

State of _____)
S.S.

County of _____)

_____, being first duly sworn, deposes and says that:

1. They are the (owner, partner, officer, representative, or agent) of _____, the Bidder that has submitted the attached Bid;
2. They are fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;
3. Such bid is genuine and is not a collusive or sham bid; and that all statements made and fact set out in the Invitation for Bid are true and correct;
4. Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest including this affidavit, has in any way colluded, considered, connived, or agreed, directly or indirectly with any other bidder, firm, or person, to submit a sham bid in connection with the Contract for which the attached bid has been submitted or to refrain from bidding in connection with such Contract; or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other bidder, firm, or person to fix the price or prices in the attached Bid or of any other bidder, or to fix the overhead, profit, or cost element of the Bid price of the other bidder, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against the City of Wentzville or any person interested in the Proposed Contact.
5. The price or prices quoted in the attached Bid are fair and proper, and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affidavit; and
6. They further certify that bidder is not financially interested in or financially affiliated with any other Bidder on this project.

Signed: _____

Title:

Subscribed and sworn to before me this _____ day of _____, 2016.

Notary Public

My Commission expires: _____

**EXHIBIT D
SUBCONTRACTOR FORM**

This form must accompany and be part of your sealed bid response. If you do not plan to use subcontractors, indicate below and return this form with your bid.

Name of Bidder: _____

The above referenced Bidder intends to subcontract for materials, services, supplies, specialty contractors, etc. as follows:

Subcontractor Name	Address (Street, City, State)	Nature of Participation	Dollar Value of Subcontract

Presented as Sample Enclosure
CITY - CONTRACTOR AGREEMENT
WRC Surge Protection Project

Contract # _____

This CITY-CONTRACTOR AGREEMENT (this "Agreement"), is made and entered into as of this ____ day of _____, 2016, by and between _____, a _____ having a principal office at _____ (the "Contractor"), and the City of Wentzville, a Missouri municipal corporation located in St. Charles County (the "City"). *All capitalized terms used and not defined herein shall have the meanings ascribed to them in the Contract Documents (as hereinafter defined).*

RECITALS

A. In response to Invitation for Bid #16-295 for the WRC Surge Protection Project, the Contractor has submitted a certain bid in accordance with the Bid Documents to perform the Services.

B. After due consideration, the City has accepted the bid of the Contractor and the parties hereto desire to enter into this Agreement whereby the Contractor shall undertake the performance of the Services in accordance with the Contract Documents and the City shall pay the Contractor as hereinafter specified.

AGREEMENT

NOW, THEREFORE, in consideration of the foregoing recitals and of the mutual promises hereinafter set forth the City and the Contractor hereby agree as follows:

1. **Contract Documents:** This Agreement shall consist of: (i) Invitation for Bid #16-295 including, without limitation:
 1. Invitation for Bids
 2. Bid and Bid Proposal-Exhibit A (submitted by Contractor)
 3. References – Exhibit B
 4. Affidavit of Non-Collusion-Exhibit C
 5. Subcontractor Form – Exhibit D
 6. Surge Protection Analysis Report – Exhibit E
 7. E-Verify Memorandum of Understanding with Electronic Signatures
 8. Affidavit of Participation in Federal Work Authorization Program Form
 9. City-Contractor Agreement (executed by City and Contractor)
 10. Terms and Conditions
 11. General Conditions
 12. Certificate of Insurance
 13. Notice of Award (issued by City)
 14. Notice to Proceed (issued by City)

and shall also include any exhibits to the above documents, any addenda issued

prior to receipt of bids, any duly-issued modifications, and all other documents contained or specified within the Surge Protection Analysis Report as such may be on file in the office of the Procurement Department and Office of the City Clerk of Wentzville, Missouri (all of the foregoing collectively referred to as the "Contract Documents" are hereby incorporated in this Agreement by reference). When any provision(s) of the Contract Documents conflict, the provision(s) most advantageous to the City shall govern.

2. **Payment:** Contractor shall be paid for the quantities placed per the amount quoted on the Bid Proposal Form Exhibit A, and per the Methods of Measurement and Payment. The Contractor shall submit all invoices complete with necessary support documentation to the City and the City shall make payment within 30 days of receipt of an invoice after satisfactory performance of the delivery and receipt of the services as shown on the Bid Proposal Form Exhibit A. Payment Terms: net 30 days. Remit Address is Accounts Payable, 5 W. Pearce Blvd., Wentzville, MO 63385.

3. **The Work/Contract Sum.** The Contractor shall furnish all labor, materials, tools, equipment and services, and perform and complete the Work required for the Project in accordance with this Agreement which shall include provision of every item specified in the Contract Documents necessary to complete the Project as designed. The Contract Sum is \$ _____, which shall include all compensation to Contractor due for the Work, which shall include all such work within the Base Bid and additionally all such Work within selected Alternate Bids. Any additional Work not within the Base Bid and Alternate Bids that is hereinafter approved by the City in writing shall be incorporated into the contract pursuant to a Change Order.

4. **Time of Completion:** Contractor shall commence work under this Agreement immediately upon receipt of written notice from the City to proceed and shall fully complete all items of the Work within the time set forth in the Contract Documents. The parties understand that time is of the essence and that the rate of progress and prompt completion are essential conditions, and that in the event the Work is not fully completed within the period provided herein, the Contractor shall pay to the City the sums provided in the Contract Documents.

5. **Guaranty:** The Contractor hereby expressly guarantees the aforesaid Work as to workmanship and quality of materials used in connection herewith for a term of one (1) year, commencing on the date of Final Acceptance by the City, and binds itself, its successors or assigns, to make all repairs or replacements which may become necessary within said period due to construction defects and nonconformity with the Contract Documents. Whenever notified by the City that said repairs or replacements are required, the Contractor shall at once make the same as directed at its own expense. If the Contractor does not proceed with such repairs or replacements within five (5) days after receipt of written notice, the City may use (and the Contractor agrees and consents to such use) the Maintenance Bond, according to the terms thereof, to make any necessary repairs or replacements to any portion of the Work. Upon expiration of the one (1) year guaranty period, the City shall release the Maintenance Bond, less any amounts reasonably necessary to remedy any of the Contractor's performance and/or maintenance obligations under this Agreement that

may still be outstanding at the time of expiration of the guaranty period.

6. **Payment Bond:** If the Contractor's Bid is in excess of \$50,000, the Contractor shall furnish within ten (10) calendar days of notification of contract award a satisfactory Payment Bond in the full amount of the Contract Sum. The Payment Bond furnished shall meet all requirements of Section 107.170 of the Revised Statutes of Missouri, as amended, and shall guarantee the payment of any and all materials, incorporated, consumed or used in connection with the construction of such work, and all insurance premiums, both for compensation, and for all other kinds of insurance, said work, and for all labor performed in such work whether by subcontractor or otherwise, including payment of prevailing wage requirements of the State of Missouri.

7. **Performance Bond:** If the Contractor's Bid is in excess of \$50,000, the Contractor shall furnish within ten (10) calendar days of notification of contract award a satisfactory Performance Bond in the full amount of the Bid based on the bid quantities listed on the Bid Proposal form. The Performance Bond furnished shall guarantee the faithful performance of this Contract.

8. **Maintenance Bond:** Upon Final Acceptance the Contractor shall furnish a satisfactory Maintenance Bond in the amount of 10% of the final Contract Sum after any and all Change Orders and/or formal amendments. The Maintenance Bond shall be in full force for a one (1) year guarantee period from the date of Final Acceptance.

9. **Independent Contractor**. The Contractor shall be and operate as an independent Contractor in the performance of this Agreement. The Contractor shall have complete charge of the personnel engaged in the performance of the Services, and all persons employed by the Contractor shall be employees of said Contractor and not employees of the City in any respect.

10. **Contractor's Liability Insurance.** The Contractor shall obtain and maintain during the term of the Project and the City Contractor Agreement the insurance coverage's at least equal to the coverage's set forth in this paragraph 10, and as further provided in the General Conditions, but no event less than the individual and combined sovereign immunity limits established by Section 537.610 RSMo. Insurance policies providing required coverage's shall be with companies licensed to do business in the State of Missouri and rated no less than AA by Best or equivalent. All costs of obtaining and maintaining insurance coverage's are included in the Bid Amount and no additional payment will be made therefor by the City:

Comprehensive General Liability Insurance (including coverage for Bodily Injury and Property Damage)	\$1,000,000 per occurrence \$2,735,000 aggregate
Comprehensive Automobile Liability Insurance (including coverage for Bodily Injury and Property Damage)	\$1,000,000 per occurrence

Employer's Liability	\$1,000,000 bodily injury by accident (each accident) \$1,000,000 bodily injury by disease (each employee) \$1,000,000 bodily injury policy limit
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In addition, the Contractor and all subcontractors shall provide Worker's Compensation Insurance in at least statutory amounts for all workers employed at the Project site. The Contractor shall also provide a policy of Builder's Risk Insurance in the amount of 100% of the complete insurable value of the Project, which policy shall protect the Contractor and the City, as their respective interests shall appear.

Before commencing any work, the Contractor shall provide to the City certificates of insurance evidencing the issuance and maintenance in force of the coverage's required by this paragraph 10. Each such certificate shall show the City, and such other governmental agencies as may be required by the City to be insured by underlying grant or contract relating to the Project, as an additional insured, on a primary and non-contributory basis, and shall bear an endorsement precluding cancellation of or change in coverage without at least thirty (30) days written notice to the City.

The City may waive any insurance coverage's or amounts required by this paragraph 10 when the City deems such waiver to be in the interest of the public health, safety, and general welfare.

11. **Indemnification:** To the fullest extent permitted by law, the Contractor agrees to defend with counsel approved by the City, and indemnify and hold harmless the City, its officers, engineers, representatives, agents and employees from and against any and all liabilities, damages, losses, claims or suit, including costs and attorneys' fees, for or on account of any kind of injury to person, bodily or otherwise, or death, or damage to or destruction of property, or money damages, or trespass, or any other circumstances, sustained by the City or others, arising from the Contractor's breach of the Contract or out of services or products provided by the Contractor or its subcontractors under the terms of this agreement. The Contractor shall not be liable for any loss or damage attributable solely to the negligence of the City. To the extent required to enforce this provision, the Contractor agrees that this indemnification requires the Contractor to obtain insurance in amounts specified in the Contract Documents and that the Contractor has had the opportunity to recover the costs of such insurance in the compensation set forth in this Agreement.

In any and all claims against the City or any of its agents or employees by any employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by any one of them or anyone for whose acts any of them may be liable, this indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor under workmen's compensation acts, disability benefit acts or other employee benefit acts.

12. **Attorney Fees' and Costs:** The Contractor shall reimburse to the City any costs and attorneys' fees that the City may reasonably incur in pursuit of any remedies at law

or equity or enforcement of any rights established in this Agreement, which may result from the Contractor's breach of the Agreement, the Contractor's failure to perform any obligation or requirement contained herein, or the City's enforcement of this Agreement.

13. **Liquidated Damages:** The Contractor agrees and acknowledges that time is of the essence of this Agreement and that delay in the project becoming Available for Use, in Project Closeout, and in Final Acceptance will inconvenience the public and increase administrative costs of the City, the costs of which the Contractor and the City are incapable of ascertaining at this time. Should the Contractor, or in the case of Contractor's default, the surety, fail to complete the Work and/or receive Final Acceptance within the times stipulated in this Agreement, or within such extensions of time as may be allowed by the City in the manner set forth in the Contract Documents, the Contractor (or surety, as applicable) shall pay to the City as liquidated damages, and not as a penalty, the sum of **Two Hundred Dollars (\$200.00)** for each calendar day that the Work remains incomplete, plus **One Hundred Dollars (\$100.00)** for each calendar day of delay after each due date listed in the General Conditions paragraphs 8.01.3 and 8.01.4 that Work and Final Closeout Documents (including Maintenance Bond and Final Lien Waivers) remain incomplete. In the sole discretion of the City, the amount of the liquidated damages may be deducted from any money due the Contractor under this Agreement. Permitting the Contractor to finish the Work or any part thereof after the expiration of the time for completion or any approved extension, shall in no way operate as a waiver of the City of any of rights under this Agreement.
14. **Termination:** The City shall have the right to terminate this Agreement at any time for any reason by giving the Contractor written notice to such effect. The City shall pay to the Contractor in full satisfaction and discharge of all amounts owing to the Contractor under this Agreement an amount equal to the cost of all Services performed by the Contractor up to such termination date, less all amounts previously paid to the Contractor on account of this Agreement Price. The Contractor shall submit to the City its statement for the aforesaid amount, in such reasonable detail as the City shall request, within thirty (30) days after such date of termination. The City shall not be liable to the Contractor for any damages on account of such termination for loss of anticipated future profits with respect to the remainder of the Services.
15. **Compliance with Federal, State and Local Law:** The Contractor shall comply with all applicable federal, state and local law requirements for performance under this Agreement. The Contractor shall abide by all health and environmental requirements imposed by law in performance of its duties.
16. **Prevailing Wage:** The Contractor shall be required to comply with all applicable provisions concerning the payment of prevailing wages on public works projects, as provided in the General Conditions. A copy of the applicable Annual Wage Order and Incremental Increases for each occupational title required under this project is included in the Bid Documents and shall be included in the Contract Documents.
17. **Required OSHA Training:** Pursuant to Section 292.675 RSMo., Contractor shall require all on-site employees to complete the ten-hour training program as required

under Subsection 292.675.2 RSMo. This program shall be provided by Contractor and shall be a ten-hour Occupational Safety and Health Administration (OSHA) construction safety program for Contractor's on-site employees which includes a course in construction safety and health approved by OSHA or a similar program approved by the Missouri Department of Labor and Industrial Relations ("MoDOLIR") which is at least as stringent as an approved OSHA program. All employees are required to complete the program within sixty days of beginning work under this Agreement. Contractor shall further require all subcontractors under Contractor to provide the ten-hour training program required under Subsection 292.675.2 RSMo. to such subcontractors' on-site employees. On-site employees who have previously completed such ten-hour training program must hold documentation of prior completion of the program.

Notice is hereby given to Contractor that it shall be subject to the penalties set forth in Subsection 292.675.4 RSMo. and such penalties shall be forfeited to the City pursuant to such Subsection. MoDOLIR shall investigate any claim of violation of Section 292.675 RSMo. Upon City's receipt of notification from MoDOLIR of violations of 292.675 by Contractor and a determination by MoDOLIR that penalties shall be assessed for such violations, the City shall withhold and retain from the contract all sums and amounts due and owing to the City as a result of any violation of Section 292.675 RSMo. All words in this paragraph shall have the definitions as provided in Section 292.675.1 RSMo.

18. **Taxes:** The City is exempt from federal excise tax and Missouri sales tax and the Contractor shall not charge the same to the City and shall comply in all respects with the Special Sales Tax Provisions of the General Conditions.
19. **Other Representations, Warranties and Other Covenants by the Contractor:** The Contractor represents and warrants that the Contractor has been engaged in such work as is required for the Services and has provided services such as the ones to be performed under this Agreement to other municipalities and/or private enterprises and that the Contractor has sufficient expertise, knowledge, information and data, and engages sufficient personnel to perform the Contractor's obligations under this Agreement. The Contractor further represents and warrants that the Contractor is an equal opportunity employer. The Contractor agrees that the Contractor shall not use in any form or medium the name of the City for any advertising unless the Contractor receives the prior written consent of the City.
20. **Amendment; Waiver:** No amendment, modification or waiver of any provision of this Agreement shall be effective unless in writing signed by an authorized representative of the party against whom such provision as amended or modified or such waiver is sought to be enforced. Failure to insist upon strict compliance with any of the terms or conditions of the Agreement shall not be deemed a waiver of such term or condition.
21. **Accounting.** During the period of this Agreement, the Contractor shall maintain books of accounts of its expenses and charges in connection with this Agreement in

accordance with generally accepted accounting principles and practices. The City shall at reasonable times have access to these books and accounts to the extent required to verify all invoices submitted hereunder by the Contractor.

22. **Compliance with State Immigration Statutes.** As a condition for the award of this Agreement, the Contractor shall, by sworn affidavit and provision of documentation, affirm its enrollment and participation in a federal work authorization program with respect to the employees working in connection with the Services. The Contractor shall also sign an (Affidavit of Participation in Federal Work Authorization Program) affirming that it does not knowingly employ any person who is an unauthorized alien in connection with the Services. The Contractor shall not be required to provide these affidavits to the City if such affidavits have been previously provided to the City within the past year. All words in this paragraph shall have the definitions as provided in Section 285.525 RSMo.
23. **Governing/Choice of Law; Jurisdiction.** This Agreement shall be governed by and construed and interpreted in accordance with the internal laws of the State of Missouri, without regard to its principles of conflict of laws, and shall be deemed to be executed and performed in the County of St. Charles, Missouri. Any legal action arising out of, or relating to this agreement, shall be governed by the laws of the State of Missouri, and the parties agree to the exclusive jurisdiction and venue over them by a court of competent jurisdiction located in the County of St. Charles, Missouri, or the U.S. District Court for the Eastern District of Missouri.
24. **Headings:** The paragraph and section headings contained herein are for convenience only and are not intended to limit, vary, define or expand the content thereof.
25. **Representations.** Contractor agrees that it has not relied on any representations or warranties of the City, oral or written, other than expressly identified in this Agreement. The parties agree this Agreement represents the entire agreement between the parties.
26. **Severability:** The invalidity or unenforceability of any portion or provision of this Agreement shall not affect the validity or enforceability of any other portion or provision of this Agreement, which shall remain in full force and effect to the maximum extent permitted by law.
27. **Counterparts:** This Agreement may be executed in one or more counterparts each of which shall be deemed an original and all of which shall constitute one and the same agreement.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed as of the day and year first above written.

CONTRACTOR

CITY OF WENTZVILLE, MISSOURI

Signature

Nickolas Guccione, Mayor

Title

ATTEST:

Address

City Clerk

City, State, Zip

Date

Date

TERMS AND CONDITIONS

Independent Contractor. The Contractor shall be and operate as an independent Contractor in the performance of this Agreement. The Contractor shall have complete charge of the personnel engaged in the performance of the Services, and all persons employed by the Contractor shall be employees of said Contractor and not employees of the City in any respect.

Compliance with Laws. The Contractor shall comply with all applicable City ordinances and other laws and regulations, Federal, State, and any political subdivision thereof, including but not limited to, unemployment and workers' compensation, occupational safety, equal employment and affirmative action and wage and price laws insofar as applicable to the performance of this Agreement. In the event of a conflict between laws, codes and regulations of various governmental entities having jurisdiction over the Services, the Contractor shall notify the City of the nature and impact of such conflict.

Subcontracts. The Contractor shall not subcontract any of the Services to be performed by it hereunder without the express written consent of the City, except as provided herein. In the event Contractor utilizes a subcontractor, the Contractor shall ensure that any agreement between Contractor and such subcontractor complies with all requirements imposed for such agreement by federal, state, and local law. In addition, this Agreement shall not be assigned by the Contractor.

If the Contractor submits invoices to the City which include payments to be made on account of work performed by a subcontractor, such payments shall be conditioned upon submission by the Contractor of waiver of liens, or such other documents satisfactory to the City to protect the City's title to land, buildings, or improvements or to otherwise protect the City's interest. By submitting an invoice to the City, the Contractor warrants and guarantees that title to all land, buildings or improvements which may be subject to a lien under 429.015 RSMo, upon the receipt of such payment by the Contractor, will not be subject to a lien under 429.015 RSMo.

Indemnification. To the fullest extent permitted by law, the Contractor agrees to defend with counsel approved by the City, and indemnify and hold harmless the City, its officers, engineers, representatives, agents and employees from and against any and all liabilities, damages, losses, claims or suits, including costs and attorneys' fees, for or on account of any kind of injury to person, bodily or otherwise, or death, or damage to or destruction of property, or any other circumstances, sustained by the City or others, arising from breach of this Agreement or out of services negligently performed hereunder by the Contractor, or claims relating thereto, and including but not limited to the City's reliance on or use of the services or products provided by the Contractor under the terms of this agreement. The Contractor shall not be liable for any loss or damage attributable solely to the negligence of the City. To the extent required by law to enforce this provision, the Contractor agrees that this indemnification requires the Contractor to obtain insurance in amounts specified herein and that the Contractor has had the opportunity to recover the costs of such insurance in the compensation set forth in this Agreement.

No Aldermen, officer, administrator, director, board member, or employee of the City shall have any personal liability, directly or indirectly, under or in connection with this Agreement or any agreement made or entered into under or pursuant to the provisions of this Agreement. The Contractor shall look solely to the City for the satisfaction of any claims the Contractor may have arising under this Agreement.

Insurance. The Contractor shall furnish the City the certificates of insurance for workers' compensation, public liability, and property damage, including automobile coverage in the amounts specified by the City in the request for proposals, if any, otherwise in the amounts required by the City, if any, but in no event less than the maximum amounts of liability set forth in Chapter 537.610 RSMo, as amended, applicable to political subdivisions. The policies of insurance shall be in such form and shall be issued by such company or companies as may be satisfactory to the City. In addition to the foregoing, the Contractor shall maintain Professional Liability "errors and omissions" insurance in the form for the coverages satisfactory to City as indicated in the request for proposals, if any, but in no event less than the maximum amounts of liability set forth in Chapter 537.610 RSMo applicable to

political subdivisions unless otherwise approved by the City. The City, and such additional persons and entities as may be deemed to have an exposure to liability as a result of the performance of the Contractor's services, as determined by the City, shall be named as additional insured on a primary and non-contributory basis, with duty of defense on all insurance policies required hereunder.

Nondisclosure/Confidentiality. The Contractor agrees that it will preserve the confidentiality of all City data and account information and will not divulge to third parties without the written consent of the City any information obtained from or through the City in connection with the performance of this Agreement.

Changes. No change in this Agreement shall be made except in writing prior to the change in Services or terms being performed. The Contractor shall make any and all changes in the Services without invalidating this Agreement when specifically ordered to do so in writing by the City. The Contractor, prior to the commencement of such changed or revised Services, shall submit promptly to the City, a written cost or credit proposal for such revised Services. If the City and the Contractor shall not be able to agree as to the amount, either in consideration of time or money to be allowed or deducted, it shall nevertheless be the duty of the Contractor, upon written notice from the City, to immediately proceed with such alteration or change, and the Contractor shall be compensated the reasonable value of such Services. **No work or change shall be undertaken or compensated for without prior written authorization from the City and shall be subject to any required approval from state or federal departments or agencies.**

Multi-year contracts; Non-appropriation. Notwithstanding any provision herein to the contrary, the City is obligated only to make the payments set forth in the attached contract as may lawfully be made from funds budgeted and appropriated for that purpose during the City's then current fiscal year at the discretion of the City. If no funds are appropriated or otherwise made legally available to make the required payments for this Agreement during the next occurring fiscal year (an "**Event of Nonappropriation**"), this Agreement will terminate at the end of the then current fiscal year as if terminated expressly. The failure or inability of the City to appropriate funds for this Agreement in any subsequent fiscal year shall not be deemed a breach of this Agreement by any party. If applicable, this Agreement may be annually renewed at each fiscal year by inclusion of specific appropriation for this Agreement, from year to year not to exceed the maximum renewal period or term as set forth in the Agreement.

Accounting. During the period of this Agreement, the Contractor shall maintain books of accounts of its expenses and charges in connection with this Agreement in accordance with generally accepted accounting principles and practices. The City shall at reasonable times have access to these books and accounts to the extent required to verify all invoices submitted hereunder by the Contractor.

Other Contractors. The City reserves the right to employ other Contractors in connection with the Services.

Invitation for Bids. If the City issued an Invitation for Bids in connection with the Services, such Invitation for Bids and the bid proposal of the Contractor in response thereto are incorporated herein by reference and made a part of this Agreement. In case of any conflicts between the Invitation for Bids and the executed City-Contractor Agreement or proposal of the Contractor, the requirements of the City's Invitation for Bids and this executed City-Contractor Agreement shall control and supersede unless a change thereto is specifically stated in this Agreement.

Work Records and Work Product. The Contractor shall provide the City with copies of all documents pertinent to the Services which shall include, without limitation, reports, correspondence, meeting minutes, and originals of all deliverables. The City shall own all right, title and interest, including without limitations, all copyrights and intellectual property rights, to all documents and Work Product of the Contractor created in performance of or relating to this Agreement. The Contractor agrees to take all steps reasonably requested by the City to evidence,

maintain, and defend the City's ownership rights in the Work Product. Upon termination of this Agreement, the Contractor shall promptly deliver to City any documents, and work product, whether printed or electronic.

Personnel. The Services shall be performed exclusively by the personnel of the Contractor identified in the Contractor's proposal and no other personnel of the Contractor shall perform any of the Services without the express written approval of the City.

Compliance with State Immigration Statutes. As a condition for the award of this Agreement, the Contractor shall, by sworn affidavit and provision of documentation, affirm its enrollment and participation in a federal work authorization program with respect to the employees working in connection with the Services. The Contractor shall also sign an (Affidavit of Participation in Federal Work Authorization Program) affirming that it does not knowingly employ any person who is an unauthorized alien in connection with the Services. The Contractor shall not be required to provide these affidavits to the City if such affidavits have been previously provided to the City within the past year. All words in this paragraph shall have the definitions as provided in Section 285.525 R.S.Mo.

Representations. The Contractor agrees that it has not relied on any representations or warranties of the City, oral or written, other than expressly identified in this Agreement. The parties agree this Agreement represents the entire agreement between the parties.

Governing/Choice of Law; Jurisdiction. This Agreement shall be governed by and construed and interpreted in accordance with the internal laws of the State of Missouri, without regard to its principles of conflict of laws, and shall be deemed to be executed and performed in the County of St. Charles, Missouri. Any legal action arising out of, or relating to this Agreement, shall be governed by the laws of the State of Missouri, and the parties agree to the exclusive jurisdiction and venue over them by a court of competent jurisdiction located in the County of St. Charles, Missouri or the U.S. District Court for the Eastern District of Missouri.

Counterparts. This Agreement may be executed in one or more counterparts each of which shall be deemed an original and all of which shall constitute one and the same agreement.

Presented as example; not required with bid
**AFFIDAVIT OF PARTICIPATION IN
FEDERAL WORK AUTHORIZATION PROGRAM**

Comes now _____ as _____ first being duly sworn, on my
 (Name) (office held)
oath, affirm _____ is enrolled and will continue to participate in a
 (company name)
Federal work authorization program in respect to employees that will work in connection with the contracted services related to the services being provided to the City of Wentzville for the duration of the contract, if awarded, in accordance with Section 285.530.2, Revised Statutes of Missouri. I also affirm that _____ does not and will not knowingly
 (company name)
employ a person who is an unauthorized alien in connection with the contracted services for the duration of the contract, if awarded.

Attached to this affidavit is documentation of _____'s
 (company name)
participation in a federal work authorization program.

(ATTACH DOCUMENTATION SHOWING THAT COMPANY PARTICIPATES IN FEDERAL WORK AUTHORIZATION PROGRAM)

In Affirmation thereof, the facts stated above are true and correct (The undersigned understands that false statements made in this filing are subject to the penalties provided under Section 575.040, RSMo).

Signature (person with authority)

Printed Name

Title

Date

State of Missouri)
)
County of _____) ss.

Subscribed and sworn to before me this ____ day of _____, 2016.

My commission expires:

Notary Public

For bidder information – not required with bid

**PROOF OF E-VERIFICATION WITH U.S. DEPARTMENT OF
HOMELAND SECURITY**

Attach Electronic Signature Page

Methods of Measurements and Payment

Verify Distribution Grounding and Bonding

Description. Verify Distribution Grounding and Bonding shall consist of the completion of the recommendations as outlined within Section II of the Surge Protection Analysis Report (Exhibit E).

Method of Measurement. Verify Distribution Grounding and Bonding will not be measured.

Basis of payment. Payment for this item will be based on the Contract lump sum bid price for Verify Distribution Grounding and Bonding. Such payment shall include the whole cost of providing all labor, tools, equipment, materials, handling, and any other requirements and sundries associated with this item.

Add Surge Protection to SCADA Panel

Description. Add Surge Protection to SCADA Panel shall consist of the completion of the recommendations as outlined within Section III of the Surge Protection Analysis Report (Exhibit E).

Method of Measurement. Add Surge Protection to SCADA Panel will not be measured.

Basis of payment. Payment for this item will be based on the Contract lump sum bid price for Add Surge Protection to SCADA Panel. Such payment shall include the whole cost of providing all labor, tools, equipment, materials, handling, and any other requirements and sundries associated with this item.

Add Surge Protection to Field Instrumentation

Description. Add Surge Protection to Field Instrumentation shall consist of the completion of the recommendations as outlined within Section IV of the Surge Protection Analysis Report (Exhibit E).

Method of Measurement. Add Surge Protection to Field Instrumentation will not be measured.

Basis of payment. Payment for this item will be based on the Contract lump sum bid price for Add Surge Protection to Field Instrumentation. Such payment shall include the whole cost of providing all labor, tools, equipment, materials, handling, and any other requirements and sundries associated with this item.

Add Surge Protection to Collection Building

Description. Add Surge Protection to Collection Building shall consist of the completion of the recommendations as outlined within Section V of the Surge Protection Analysis Report (Exhibit E).

Method of Measurement. Add Surge Protection to Collection Building will not be measured.

Basis of payment. Payment for this item will be based on the Contract lump sum bid price for Add Surge Protection to Collection Building. Such payment shall include the whole cost of providing all labor, tools, equipment, materials, handling, and any other requirements and sundries associated with this item.

End of Methods of Measurement and Payment



GENERAL CONDITIONS

SECTION 1 DEFINITIONS

- 1.01 Available for Use (Substantial Completion):** The stage in the progress of the Work when the Work is sufficiently complete so that the City can occupy or use the Work for its intended use. The date on which a Project is deemed Available for Use is in the sole discretion of the City.
- 1.02 Change Order:** A written order to the Contractor signed by the City, issued after the execution of the Contract, authorizing a change in the Work or an adjustment in the Contract Sum or the Construction Schedule.
- 1.03 City:** City of Wentzville. The City is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term City means the City or its authorized representative. The City may be alternatively referred to as the "Owner."
- 1.04 Contract:** The Contract Documents form the Contract. The Contract represents the entire and integrated agreement between the parties hereto and supersedes all prior negotiations, representations or agreements, both written and oral, including the bidding documents. The Contract may be amended or modified only by a Modification as defined in Section 1.02.
- 1.05 Contract Documents:** Contract Documents shall include all those documents identified as the Contract Documents in the City-Contractor Agreement. The Contract Documents shall include any and all modifications as defined as (1) a written amendment to the Contract signed by both parties, or (2) an executed Change Order.
- 1.06 Contract Sum:** The total amount payable by the City to the Contractor for the performance of the Work as stated in the City-Contractor Agreement.
- 1.07 Contract Time/Contract Days:** Period of time allotted in the Contract Documents for completion of the Work. Said work shall include all punch list items deemed necessary by the City, exclusive of punch list items generated by any public authority having jurisdiction other than the City. The date of completion of the Contract shall be the date when all work including City punch list items have been approved in writing by the City.
- 1.08 Contractor:** The Contractor is the successful bidder awarded the work of constructing the project identified as such in the City-Contractor Agreement. The Contractor is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term Contractor means the Contractor or his authorized representative(s).
- 1.09 Date of Commencement of the Work:** Date established in the written Notice to Proceed on which the Contractor is to begin prosecution of the Work.
- 1.10 Day:** Calendar day.
- 1.11 Director:** Director of Public Works of the City of Wentzville, or his/her authorized representative(s)

- 1.12 Final Acceptance:** Written notice from the City to the Contractor stating that the Project including all Work, any deficiencies as outlined in the Final Inspection, and all Project Closeout items and activities have been completed and the City accepts the Project.
- 1.13 Final Inspection:** Inspection performed and provided by the City to the Contractor upon the Contractor's request and based upon his determination that the Project is Available for Use.
- 1.14 Final Payment:** Last payment made to the Contractor, typically retainage due, upon Final Acceptance of the Project.
- 1.15 Notice to Proceed:** Written notice from the City notifying the Contractor of the date on or before which he is to begin prosecution of the work.
- 1.16 Project:** The total construction of which the Work performed under the Contract Documents may be the whole or a part.
- 1.17 Project Closeout:** The time period of the Work after Available for Use when the Work and all administrative requirements have been or are being completed in their entirety. The Project Closeout period is typically 90 days.
- 1.18 Removal:** Removal of material and disposal of said material off-site.
- 1.19 Specifications:** City of Wentzville Construction Specifications and Standard Details, latest edition, unless otherwise specified.
- 1.20 Subcontractor:** A Subcontractor is a person or organization who has a direct contract with the Contractor to perform any of the Work. The term Subcontractor is referred to throughout the Contract Documents as if singular in number and masculine in gender and means a Subcontractor or his authorized representative.
- 1.21 Sub-subcontractor:** A Sub-subcontractor is a person or organization who has a direct or indirect contract with a Subcontractor to perform any of the Work. The term Sub-subcontractor is referred to throughout the Contract Documents as if singular in number and masculine in gender and means a Sub-subcontractor or an authorized representative thereof.
- 1.22 Work:** All labor necessary to complete the construction required by the Contract Documents, and all materials and equipment incorporated or to be incorporated in such construction.

SECTION 2 CONTRACT DOCUMENTS

2.01 Execution, Correlations, Intent, and Interpretations

2.01.1 The Contract Documents shall be signed by the City and Contractor.

2.01.2 The Contractor represents that he has visited the site, familiarized himself with the local conditions under which the Work is to be performed, and correlated his observations with the requirements of the Contract Documents.

2.01.3 The Contract Documents are complementary and what is required by any one shall be as binding as if required by all. The intention of the Contract Documents is to include all labor, materials, equipment and other items necessary for execution and completion of the Work. Words which have well-known technical or trade meanings are used herein in accordance with such recognized meanings.

2.02 Copies Furnished and Ownership

2.02.1 Unless otherwise provided in the Contract Documents, the Contractor will be furnished a maximum of five (5) copies, free of charge, of the Drawings and Specifications, if any, for the execution of the work.

2.02.2 Any Drawings, Specifications and copies thereof furnished by the City are and shall at all times remain property of the City. Such documents shall not be used on any other project. At the conclusion of the job, the Contractor shall submit one (1) set of drawings and specifications marked up throughout the course of work with any and all field changes.

SECTION 3 CITY

3.01 City's Right to Access and Observation

The City shall have access at all times to the Project for the purpose of observation and inspection. The Contractor shall provide proper and adequate facilities, specialized, tool and equipment for such access and observation.

3.02 City's Right to Stop Work

If the Contractor fails to correct defective Work or fails to supply materials or equipment in accordance with the Contract Documents, the City may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated.

3.03 City's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents, or fails to perform any provision of the Contract, the City may, after written notice to the Contractor and without prejudice to any other remedy the City may have, make good such deficiencies. In such case an appropriate Change Order shall be issued deducting from the payments then or hereafter due the Contractor the cost of correcting such deficiencies. If the payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the City promptly upon request.

3.04 City's Right to Award Separate Contracts

The City's reserves the right to award other contracts on other terms and conditions with other portions of the Project.

3.05 City's Right to Clean Up

If a dispute arises between separate contractors as to their responsibility for cleaning up as required by Section 4.08, the City may clean up and charge the cost thereof to the several contractors.

3.06 Status of the Director

The Work shall be subject at all times to the supervision and direction of the Director. To prevent disputes and litigation, it is mutually agreed that the Director shall, in all cases, determine the amount or quantity of the various kinds of work, and the quality of materials and workmanship to be paid for under this Contract, and he shall decide all questions which may arise relative to the performance of the work covered by the Contract. Any doubt as to the meaning of the Contract and any obscurity or discrepancy as to their working and intent will be explained by the Director, and this explanation shall be final and binding by both parties of this Contract. The Director may amend or correct any errors or omissions in the Specifications when such amendments or corrections are necessary to make definite the intent indicated by a reasonable interpretation of the Contract.

3.07 Authority of the Engineer

The engineer will decide all questions that may arise as to the quality, quantity, and acceptability of material furnished and the work performed, and as to the rate of progress of the work; all questions that may arise as to the interpretation of the plans and specification; all questions of classification; the power of compensation of the performance or breach of the contract; and all claims or controversies of any character whatsoever in connection with or growing out of the construction, whether claimed under the contract, under force account, under quantum merit or otherwise. The engineer's estimates and decisions shall be final, binding and conclusive upon all parties to the contract.

3.08 Authority and Duties of Inspector

As the immediate representative of the City, the Inspector has direct charge of the delivery of work and is delegated commensurate authority for the administration of the project. The Inspector may reject defective material and suspend and reject any work that is being improperly performed. The Inspector will have no authority to modify the contract except in accordance with the contract documents or when expressly authorized by the Engineer.

SECTION 4 CONTRACTOR

4.01 Supervision and Construction Procedures

4.01.1 The Contractor shall supervise and direct the Work, using his best skill and attention. He shall be solely responsible for all construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work.

4.01.2 All Work shall be in accordance with the Contract Document and Specifications

4.01.3 The contractor shall have at the work site at all times, as the contractor's agent, a competent individual capable of reading and thoroughly understanding the plans and specifications and thoroughly experienced in the type of work being performed, whom shall receive instructions from the engineer. That individual shall have full authority to execute orders or directions of the engineer without delay and to promptly supply material, equipment, tools, labor and incidentals as may be required.

4.02 Labor and Materials

4.02.1 Unless otherwise specifically noted, the Contractor shall provide and pay for all labor, materials, equipment, supplies, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for the proper execution and completion of the Work.

4.02.2 The Contractor shall at all times enforce strict discipline and good order among his employees and shall not employ on the Work any unfit person or anyone not skilled in the task assigned to him. If the City reasonably objects to any person employed by the Contractor, the employee shall be immediately dismissed.

4.02.3 The labor provided by the Contractor shall be directed to be a workman like character with respect to the methods of construction and quality of completed work; and, shall not encumber the premises or adjacent property or streets with materials and/or equipment.

4.02.4 The Contractor shall comply with, and is bound by, the provisions of Missouri law pertaining to the payment of wages on public works projects contained in Sections 290.210 through 290.340 RSMo., and any amendments thereto, including, but not limited to the following:

4.02.4.1 In accordance with Section 290.250 RSMo., as amended, the Contractor shall not pay less than the prevailing hourly rate of wages specified by the Missouri Department of Labor and Industrial Relations Division of Labor Standards to all workmen performing Work under the Contract.

4.02.4.2 In accordance with 290.250 RSMo., as amended, the Contractor shall forfeit as a penalty to the City one hundred dollars (\$100.00) for each workman employed for each calendar day, or portion thereof, such workman is paid less than the said stipulated rates for any Work done under the Contract, by him or by any Subcontractor under him and shall include provisions in all bonds guaranteeing the faithful performance of said prevailing hourly wage clause.

4.02.4.3 In accordance with 290.265 RSMo., as amended, the Contractor and each Subcontractor shall post a clearly legible statement of all prevailing hourly wage rates to be paid to all workmen employed to complete the Work in a prominent and easily accessible place at the site of the Work and such notice shall remain posted during the full time that any workmen shall be employed at the Work.

4.02.4.4 Certified payrolls shall also be submitted prior to final payment for all work completed by the Contractor or Subcontractors.

4.02.4.5 In accordance with Section 290.290 RSMo., as amended, before final payment is made an affidavit must be filed by the Contractor stating that he has fully complied with the prevailing wage law. No payment shall be made unless and until this affidavit is filled in proper form and order.

4.02.5 The Contractor shall execute and complete the Work in such a manner that avoids jurisdictional and other disputes among labor unions.

4.02.6 Except as otherwise required by law, during a period of excessive unemployment in the State of Missouri, the Contractor shall employ only Missouri laborers and laborers from nonrestrictive states on the Project, as provided in Sections 290.550 to 290.580 RSMo.

4.02.7 If the Contract Documents have indicated that the Project is financed in whole or in part from Federal funds, then this Contract shall be subject to all applicable federal statutes, rules and regulations, including provisions of the Davis-Bacon Act, 40 U.S.C. §3141 et seq., and the "Federal Labor Standards Provisions," incorporated into this Contract. Where the Missouri Prevailing Wage Law and the Davis-Bacon Act require payment of different wages for work performed under this Contract, the Contractor and all Subcontractors shall pay the greater of the wages required under either law.

4.02.8 The Contractor shall employ only personnel authorized to work in the United States in accordance with applicable federal and state laws. This certification applies to State of Missouri Immigration Alien Laws and statutes required local government(s) to have proof of a person's lawful presence within the United States before distributing "Public Benefits" (contracts, purchase orders, etc.) to that Bidder.

4.03 Warranty

The Contractor warrants to the City that all materials and equipment furnished under the Contract and incorporated in the Work will be new unless otherwise specified, and that all Work will be of good quality, free from faults and defects and in conformance with the Contract Documents. All Work not so conforming to these standards shall be considered defective. The Contractor shall furnish satisfactory evidence as to the kind and quality of all materials and equipment and shall guaranty the Work as provided in the City Contractor Agreement after substantial completion of the work.

4.04 Permits, Fees, Easements, Construction Limits and Notices

4.04.1 The Contractor shall secure and pay for all permits, governmental fees, and licenses necessary for the proper execution and completion of the Work, including those required to be obtained from the City, except fees imposed solely by the City shall be waived at the time of application.

4.04.2 For the purposes of operating and maintaining the Project, the City shall acquire the necessary lands, easements and rights-of-way privileges required for the same. The Contractor shall furnish and construct any necessary access roads or facilities.

4.04.3 The Contractor shall give all notices and comply with all laws, ordinances, rules, regulations and orders of any public authority bearing on the performance of the Work. If the Contractor observes that any of the Contract Documents are at variance therewith in any respect, he shall promptly notify the City in writing and any necessary changes shall be adjusted by appropriate Modification. If the Contractor performs any Work knowing it to be contrary to such

laws, ordinances, rules and regulations and without such notice to the City, the Contractor shall assume full responsibility therefor and shall bear all costs attributable thereto.

4.04.4 The construction limits consist of public areas and acquired easement areas, as shown in the Contract Documents. The Contractor shall limit his operations accordingly. No activity outside the public areas or easement areas shall be performed without the express written permission of the property owner.

4.04.5 The Contractor shall notify in writing all residents whose property is affected by the Work at least forty-eight (48) hours prior to commencement of any operation that will affect the residents' property. The City, before commencement of work on the Project, shall review and approve the form of all such notices.

4.05 Superintendent

4.05.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance on the Project site at all times during the progress of all work for the duration of the total project.

4.05.2 This person shall be a non-working superintendent who will be responsible for the satisfactory progression of the work and to ensure that all work is being completed in accordance with the plans and specifications. He is also to relay any conflicts or discrepancies that arise in the plans to the City's representative for resolution or interpretation.

4.05.3 The name of the person selected as superintendent and his qualifications shall be submitted and shall be approved in writing by the City. The superintendent shall not be changed except with the written consent or at the request of the City. The superintendent shall represent the Contractor and all communications given to the superintendent shall be as binding as if given to the Contractor.

4.05.4 The superintendent shall be the contact person whom the City will contact in the event of after-hours and weekend emergencies and the Contractor shall provide the City with the superintendent's contact information for such purpose.

4.06 Responsibility for Those Performing the Work and for the Work

4.06.1 The Contractor shall be responsible to the City for the acts and omissions of all his employees, all Subcontractors, and suppliers their agents and employees and all other persons performing any of the Work under a contract with the Contractor.

4.06.2 The Contractor shall at all times employ sufficient labor and equipment for prosecuting the work to full completion in the manner and time required by these specifications. All workmen shall have sufficient skill and experience to perform properly the work assigned to them.

4.06.3 Prior to the completion of the work by the Contractor and the acceptance thereof by the Owner, the work shall remain at the risk of the Contractor; and said Contractor shall be required to repair, replace, renew, and make good, at his own expense, all damages caused by force, vandalism, or violence of the elements or any other cause whatsoever provided; however, that in such cases the contractor shall be entitled to a reasonable extension of time which to complete said work. In case of suspension of work from any cause whatever, the Contractor shall be responsible for the project and shall take such precautions as may be necessary to prevent damage to the project, for normal drainage, and shall erect any necessary warning signs or barricades at his expense. The Contractor shall properly and continuously maintain the roadway for local traffic.

4.07 Drawings and Specifications at the Site

4.07.1 The Contractor shall maintain at the site for the City one copy of any Drawings, Specifications, Addenda, approved Shop Drawings, Change Orders and other Modifications, in good order and marked to record all changes made during construction.

4.07.2 The Drawings, marked to record all changes made during construction, shall be delivered to the City upon completion of the work. The Contractor shall also maintain on the project site a survey level, legs, and rod at all times, which are deemed adequate by the City.

4.08 Cleaning Up

4.08.1 The Contractor shall at all times keep the premises free from accumulation of waste materials, rubbish, and debris caused by his operations. The Contractor shall not "stockpile" any material on the jobsite and all excavated material shall be hauled off the site at the time of excavation.

4.08.2 Stockpiling of materials delivered and used on the same day will be allowed if all materials are in place or removed at the end of the day. Prior to final payment, Contractor shall restore and replace the surfaces of the project area to match the conditions existing prior to the work.

4.08.3 The Contractor shall be responsible for keeping clean, i.e. free from mud, dirt, rock, and debris at all times all City streets used by the Contractor in connection with the Work and the Project. Should any accumulation be deemed excessive, the City may direct the Contractor to thoroughly wash or remove the debris from the street at no cost to the City.

4.08.4 The Contractor shall make satisfactory arrangements to store material and equipment after delivery and during construction off of the City right-of-way. The City will assume no responsibility for these arrangements.

4.09 Utilities

4.09.1 Interference with Existing Water and Sewer Services and Mains

4.09.1.1 The Contractor shall minimize the outage of water and sewer service to residents. The cutting off of water and sewer service shall be only with the consent of the City. The Contractor shall notify the City and have their approval prior to commencing work on each water or sewer main or connection item.

4.09.1.2 The Contractor shall conduct his work in such a manner as not to endanger existing water or sewer mains, services or appurtenances. Mains and services shall be adequately supported where they cross or are adjacent to the excavation. The Contractor shall bear the cost of all repairs to water or sewer mains or appurtenances damaged because of his own carelessness or neglect.

4.09.1.3 When it becomes necessary to shut down any existing water or sewer main, a representative of the City shall be present during this operation. The total time for the main to be shut down should be held to a minimum and in no case shall any customer be without water or sewer service for more than eight (8) hours. The Contractor shall notify each water or sewer customer whose water or sewer service will be interrupted at least one hour prior to shut down. The Contractor shall assume full responsibility for shutting down the main and notifying the customers.

4.09.2 Coordination with Utilities

The Contractor shall contact and coordinate with all affected utilities prior to commencing any operations. Prior to commencement of any work involving excavation, demolition of facilities or the erection of posts, it will be the sole responsibility of the Contractor to notify all utilities of the planned work and request that the utilities suitably mark underground installations in the vicinity of the planned work, and arrange for disconnection of any necessary utilities.

4.10 Cash Allowances

The Contractor acknowledges and agrees that the Contract Sum includes all cash allowances as may be specified in the Contract Documents.

4.11 Equal Employment Opportunity

The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, or disability. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment; advertising; layoff or termination; rates of pay or other forms of compensation; and selection of training, including apprenticeship. The Contractor shall state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, or disability. The Contractor shall incorporate the foregoing requirements of this paragraph in all of its subcontracts for work performed under the terms and conditions of this Contract. A breach of this provision may be grounds for Contract termination.

4.12 Accident Prevention: OSHA

4.12.1 In the performance of this Contract, the Contractor shall comply with all applicable Federal, State, county and local laws governing safety health and sanitation. The Contractor and any subcontractor shall not require any worker or mechanic employed in performance of this Contract to work in surroundings or other working conditions which are unsanitary, hazardous, or dangerous to his health or safety, as determined under Construction Safety and Health Hazards, Title 29, Code of Federal Regulations, Part 1926.

4.12.2 The Contractor shall require all on-site employees to complete a ten-hour Occupational Safety and Health Administration (OSHA) construction safety program provided by the contractor which includes a course in construction safety and health approved by OSHA or a similar program approved by MoDOLIR which is at least as stringent as an approved OSHA program, as required under Subsection 292.675.2 RSMo. All employees are required to complete the program within sixty days of beginning work under this contract. The successful bidder shall also require all subcontractors under the contractor to provide the ten-hour training program required under Subsection 292.675.2 RSMo. to such subcontractors' on-site employees.

SECTION 5 SUBCONTRACTORS

5.01 Award of Subcontracts and other Contracts for Portions of the Work

5.01.1 Unless otherwise specified in the Contract Document, the Contractor shall submit a completed Subcontractor Utilization Form, naming each Subcontractor and Supplier the Contractor proposes to employ in performing the Work under this Contract and describing the portions of the Work each proposed Subcontractor shall perform or supply, along with other required Contract documents to the City. Contractor shall complete and submit a Supplemental Subcontractor Utilization form to the City in the event of any substitution or addition of a Subcontractor by the Contractor.

5.01.2 Prior to the award of the Contract, the City will notify the Bidder in writing if the City, after due investigation, objects to any such person or entity proposed by the Bidder pursuant to Section 5.01.1 above. If the City objects to any such proposed person or entity, the Bidder may, at his option, (1) withdraw his Bid, or (2) submit an acceptable substitute person or entity with no adjustment in his bid price.

5.01.3 The City reserves the right to reject a Subcontractor, if in the City's sole discretion, delays may result in the performance of Work as a result of a Subcontractor's other obligations. The Contractor shall be held responsible, in addition to the submission of the Subcontractor Utilization Form, to apprise the City of any additional work which a Subcontractor accrues throughout the duration of the project. This shall include work for the City under a different Contract, or any other person or entity. If such said additional work shall detrimentally impact the progression of the Work under this Contract, the City retains the right to require the Contractor to submit a substitute Subcontractor for this work at no additional cost to the City.

5.01.4 The Contractor shall not contract with any Subcontractor or any person or organization (including those who are to furnish materials or equipment fabricated to a special design), for proposed proportions of the Work designated in the Contract Documents or, if none is so designated, with any Subcontractor proposed for the principal portions of the Work, who has been rejected by the City.

5.01.5 If the City requires a change of any proposed Subcontractor or person or organization during the execution of the Work approved under the Contract, the Contract Sum shall be increased or decreased by the difference in cost resulting from such change and an appropriate Change Order shall be issued.

5.01.6 The Contractor shall not make any substitution for any proposed Subcontractor or person or organization that has not been accepted by the City prior to the Contract Award, unless the substitution is accepted by the City in writing prior to such substitution.

5.02 Subcontractual Relations

5.02.1 All work performed for the Contractor by a Subcontractor shall be pursuant to an appropriate agreement between the Contractor and Subcontractor (and where appropriate between Subcontractors and Sub-subcontractors) which shall contain provisions that:

5.02.1.1 Require the Work to be performed in accordance with the requirements of the Contract Documents;

5.02.1.2 Require submission to the Contractor of applications for payment under each subcontract to which the Contractor is a party, in reasonable time to enable the Contractor to apply for payment in accordance with Article 8 hereof;

5.02.1.3 Require that all claims for additional costs, extensions of time, damages for delays or otherwise with respect to subcontracted portions of the Work shall be submitted to the Contractor (via any Subcontractor or Sub-subcontractor where appropriate) in sufficient time so that the Contractor may comply in the manner provided in the Contract Documents for like claims by the Contractor upon the City;

5.02.1.4 Waive all rights the contracting parties may have against one another for damages caused by fire or other perils covered by the property insurance described in Paragraph 10.2, except such rights as they may have to the proceeds of such insurance held by the City as trustee under said Paragraph 10.2;

5.02.1.5 Obligate each Subcontractor specifically to consent to the provisions of this Paragraph 4.3;

5.02.1.6 Require the Subcontractor (and the Sub-subcontractor) to indemnify and hold harmless the City against all claims, damages, losses, expenses and attorneys' fees arising out of or resulting from the performance of the Work by Subcontractor, and its agents and employees, unless such claims, damages or losses are caused solely by the negligent act of the City.

5.03 Payment to Subcontractors

5.03.1 The Contractor shall pay each Subcontractor upon receipt of payment from the City, an amount equal to the percentage of completion allowed to the Contractor on account of such Subcontractor's Work, less the percentage retained from payments to the Contractor. The Contractor shall also require each Subcontractor to make similar payments to his Subcontractors.

5.03.2 If the City withholds payment to the Contractor for any cause which is the fault of the Contractor and not the fault of a particular Subcontractor, the Contractor shall pay that Subcontractor on demand for its Work to the extent completed.

5.03.3 The City shall not have any obligation to pay or to see to the payment of any sum to any Subcontractor or Sub-subcontractor.

SECTION 6 SEPARATE CONTRACTS

6.01 Mutual Responsibility of Contractors

6.01.1 The Contractor shall afford other contractors reasonable opportunity for the delivery and storage of their materials and equipment and the execution of their work, and shall properly connect and coordinate the Work with theirs. The Contractor shall employ, insofar as possible, such methods and means in carrying out the Work as will not cause any interruption or any interference with any other contractor.

6.01.2 If any part of the Work depends for proper execution or results upon the work of any other separate contractor, the Contractor shall inspect and promptly report to the City any apparent discrepancies or defects in such work that render it unsuitable for proper execution of the Work. Failure of the Contractor to so inspect and report shall constitute an acceptance of the other contractor's work as fit and proper to receive the Work, except as to defects which may develop in the other contractor's work after the execution of the Contractor's Work that could not have been discovered by the Contractor upon reasonable inspection.

6.01.3 If the Contractor causes damage to the work or property of any other contractor on the Project, and such separate contractor sues the City or initiates an arbitration proceeding on account of any damage alleged to have been so sustained, the City shall notify the Contractor who shall defend such proceedings at his own expense, and if any judgment or award against the City arises therefrom the Contractor shall pay or satisfy it and shall reimburse the City for all attorneys' fees and court arbitration costs which the City has incurred.

SECTION 7 MISCELLANEOUS PROVISIONS

7.01.1 Governing Law. The Contract shall be governed by and construed and interpreted in accordance with the internal laws of the State of Missouri, without regard to its principles of conflict of laws, and shall be deemed to be executed and performed in the County of St. Charles, Missouri. Any legal action arising out of, or relating to this agreement, shall be governed by the laws of the State of Missouri, and the parties agree to the exclusive jurisdiction and venue over them by a court of competent jurisdiction located in the County of St. Charles, Missouri, or the U.S. District Court for the Eastern District of Missouri. The Contractor shall at all times observe and comply with all Federal and State laws, all local laws, ordinances, and regulations existing at the time of or enacted subsequent to the execution of the Contract which, if in any manner, affect the prosecution of the Work.

7.01.2 The Contractor and his surety shall indemnify and save harmless the City and all of its representatives, engineers, consultants, and employees against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by himself, his employees, or his subcontractors.

7.01.3 Changes may be made to this contract as a result of any ordinance, law and/or directive issued by the City and/or the State of Missouri and/or the Federal Government. Should such a change occur the Contract shall be amended reflecting such change and signed by both parties acknowledging the change(s).

7.02 Successors and Assigns

The City and the Contractor each binds himself, his partners, successors, assigns and legal representatives to the other party hereto and to the partners, successors, assigns and legal representatives of such other party in respect to all covenants, agreements and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract without the prior written consent of the other, nor shall the Contractor assign any sums due or to become due to him hereunder, without the prior written consent of the City.

7.03 Notices

Any notice to any party pursuant to or in relation to the Contract shall be in writing and shall be deemed to have been duly given when delivered in person to the individual or member of the firm or to an officer of the corporation for whom it was intended, or when deposited in the United States mail, registered or certified with postage prepaid addressed to the last business address known to the party giving the notice.

7.04 Rights and Remedies

The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law.

7.05 Royalties and Patents

The Contractor shall pay all royalties and license fees payable on all designs, processes or products used in connection with the work or incorporated therein, unless otherwise agreed upon by the City. The Contractor shall defend all suits or claims for infringement of any patent rights and shall indemnify and hold the City harmless from and against any loss on account thereof.

SECTION 8 TIME

8.01 Progress and Completion

8.01.1 All time limits stated in the Contract Documents are of the essence of the Contract.

8.01.2 The Contractor shall begin the Work on the date of commencement provided in the Notice to Proceed.

8.01.3 The Contractor shall carry the Work forward expeditiously with adequate forces and shall make the Project Available for Use within the allotted number of Days as provided for in the Contract Documents and in accordance with the construction schedule.

8.01.4 The Contractor shall complete Project Closeout within 90 days of the Project being deemed Available for Use. Delay of Project Closeout can result in liquidated damages.

8.02 Hours of Work

The Contractor shall not perform any work nor move any equipment except between 7:00 A.M. and 6:00 P.M. Monday through Friday without the written consent of the City. No work shall be done on Saturday, Sunday, or City holidays, unless approved by the City in advance.

Unauthorized Work done outside of the working hours stated above is subject to rejection and removal and replacement at the Contractors expense.

8.03 Overtime

If overtime work is authorized, as per Section 8.02, and the Contractor fails to appear as scheduled, the City shall deduct the cost for the City's assigned personnel from the Contract Sum for the time period schedule.

8.04 City Holidays

No Work by the Contractor or Subcontractors shall be performed on City Holidays. Only Work considered "emergency work" shall be allowed, and shall be approved in advance by the Director. The following is a list of City Holidays:

New Year's Day, Martin Luther King Day, Presidents Day, Good Friday, Memorial Day, Independence Day, Labor Day, Columbus Day, Veterans Day, Thanksgiving Day, Friday after Thanksgiving, Christmas Eve, Christmas Day

8.05 Delays, Extensions of Time

8.05.1 Should the Contractor be delayed at any time during the execution of the Work by changes in the scope of work, or by strikes, lockouts, fire, unusual transportation delays, unavoidable casualties, or other delay beyond the control of and not reasonably foreseeable by the Contractor and such delay is approved by the City, the time for completion shall be extended for a period commensurate with the period of the delay by Change Order.

8.05.2 In such event, the Contractor shall submit a written request for a time extension within seven (7) calendar days of the occurrence of the event causing the delay.

8.05.3 Inclement weather shall not be considered a valid reason for extension of time, unless abnormal for the season and place of work. The Contractor shall make proper allowance for inclement weather in the bid submitted.

8.05.4 In case of continuing delay, a single request for time extension by the Contractor shall be sufficient.

8.06 Liquidated Damages

Time is of the essence with this Project and delay in the project becoming Available for Use and/or in Final Acceptance will inconvenience the public and increase administrative costs of the City, the costs of which are inherently difficult to quantify and which the City is incapable of ascertaining at this time. Should the Contractor, or in the case of Contractor's default, the surety, fail to complete the Work and/or receive Final Acceptance within the times stipulated in this Contract, or within such extensions of time as may be allowed by the City in the manner set forth in the Contract, the Contractor (or surety, as applicable) shall pay to the City liquidated damages, as chargeable per the Contract, not as a penalty, but rather as a reasonable measure of the damages, based on the City's experience and given the nature of the losses that may result from delay.

8.07 Suspension of Work:

The Engineer may suspend the work or any portion thereof by written notice to the contractor, which notice shall fix the date on which work shall be resumed. The contractor will resume that work on the date so fixed. The contractor will be allowed an extension of the contract time, directly attributable to any suspension.

SECTION 9 MEASUREMENT OF QUANTITIES, PAYMENTS, AND COMPLETION

9.01 Measurement of Quantities

9.01.1 Unless otherwise directed within the Job Specific Provisions, Technical Specifications and/or Methods of Measurement and Payment, the quantities for which payment will be made shall be those shown in the Contract for the various items, provided the project is constructed as shown on the plans. Contract quantities shall be used for final payment except when:

9.01.1.1 Errors are formed in the original computations in excess of 15% of the contract quantities.

9.01.1.2 An original cross section if found to have an average deviation from the true elevation in excess of one foot.

9.01.1.3 An authorized change in grade, slope or typical section is made.

9.01.1.4 Unauthorized deviations decrease the quantities on the plans.

9.01.2 When the above conditions are encountered, the correction or revisions will be computed and added to or deducted from the contract quantity.

9.01.3 When the plans have been altered or when disagreement exists between the Contractor and the City as to the accuracy of the plan quantities of any balance, or the entire project, either party shall have the right to request a recomputation of contract quantities within any area, by hand calculation of the average-end-area method for cubic yard quantities, and standard measurement methods for other quantities, by written notice to the other party. The written notice shall contain evidence that an error exists in the original elevation or in the original computations which will affect the final payment quantity in excess of 15%. When such final measurement is required, it will be made from the latest available ground surface and the design section.

9.01.4 By Weight. These specifications require that the Contractor must furnish the representative of the City, on the job site, with original weight certificates on a daily basis signed by a bonded weigh master for all materials supplied by the Contractor that are incorporated into this work, which payment therefore is based on weight.

9.02 Application for Payment

9.02.1 The Contractor shall submit requests for payment not more than once monthly, on or before the 5th day of the month, upon substantial completion of various stages of the Work, and upon final completion of the Work.

9.02.2 The request for payment shall be submitted to the City as an itemized Application for Payment pursuant to the City-Contractor Agreement on such forms and supported by such data substantiating the Contractor's right to payment as the City may require.

9.02.3 If payments are to be made on account of materials or equipment to be incorporated into the Work and delivered and suitably stored at the site, such payments shall be conditioned upon submission by the Contractor of bills of sale, waiver of liens, or such other documents satisfactory to the City to establish the City's title to such materials or equipment or to otherwise protect the City's interest.

9.02.4 By submitting an Application for Payment, the Contractor warrants and guarantees that title to all Work, materials and equipment covered by such Application for Payment, whether incorporated into the Work or not, will pass to the City upon the receipt of such payment by the

Contractor, free and clear of all liens, claims, security interests or encumbrances (hereinafter referred to as "liens").

9.03 Payment

9.03.1 If the Contractor has made Application for Payment as above, the City will make payment to the Contractor for such amount as it determines to be properly due pursuant to the Contractor's Application for Payment, or state in writing the City's reasons for withholding all or any portion of such payment within 30 days of the latter of:

9.03.1.1 Delivery of materials or construction services;

9.03.1.2 Date of Request for Payment or date Request for Payment is received;
or

9.03.1.3 In those instances in which the Contractor approves the Owner's estimate for payment, the date upon which such notice of approval is duly delivered.

9.03.2 Five percent (5%) of the amount of each monthly request for payment shall be withheld until after completion by the Contractor and acceptance by the City of all Work. Exception: the Contractor is not required to provide a bond if the project is less than \$50,000 and City determines that a higher rate of retainage is required to ensure performance of the Contract, the retainage may be increased to ten percent (10%).

9.03.3 No progress payment, nor any partial or entire use or occupancy of the Work by the City, shall be evidence of the satisfactory performance of the Work, either wholly or in part, or constitute an acceptance of any Work that is defective or improper or not otherwise completed in accordance with the Contract Documents.

9.04 Completion and Final Payment

9.04.1 Upon the Contractor's determination that the Project is Available for Use, ready for final inspection and acceptance, and upon receipt of a final Application for Payment, the City will promptly make such inspection. Any defects arising out of said inspection will be provided to the Contractor in writing and shall be promptly remedied at no additional cost to the City. When the City finds the Work acceptable under the Contract Documents and the Director has determined the Project is Available for Use, the City will make payment to the Contractor, less the total retainage, any penalties assessed against Contractor and authorized by law to be withheld by the City from its payment to the Contractor, and less any moneys which are due and payable to the City as liquidated damages.

9.04.2 Upon the Director's determination that the Project is Available for Use, the Contractor shall complete Project Closeout within 90 days. Retainage payment shall not become due until the Contractor completes the Project Closeout, including addressing any and all deficiencies as noted in the Final Inspection, and submits the following, at a minimum, to the City:

9.04.2.1 An Affidavit that all payrolls, bills for materials and equipment, and other indebtedness incurred in connection with the execution and completion of the Work for which the City or its property might in any way be responsible, have been paid or otherwise satisfied

9.04.2.2 Consent of the surety, if applicable, to final payment

9.04.2.3 An affidavit stating the Contractor has fully complied with the provisions and requirements of the Prevailing Wage Law, Section 290.210 through 290.340 RSMo., as amended,

9.04.2.4 Other data, as required by the City, establishing payment or satisfaction of all such obligations, such as receipts and releases arising out of the Contract, to the extent and in such form as may be designated by the City

9.04.2.5 Maintenance Bond.

9.04.3 If any Subcontractor refuses to furnish a release or waiver required by the City, the Contractor may furnish a bond or other agreement satisfactory to the Director indemnifying the City against any liability relating to such Subcontractor. If any such claimed liability remains unsatisfied after all payments are made, the Contractor shall refund to the City all moneys that the City incurs or may be compelled to pay in discharging such claimed liability, including all costs and reasonable attorneys' fees.

9.04.4 The acceptance of final payment shall constitute a waiver of all claims by the Contractor, except those previously made in writing and still unsettled.

SECTION 10 PROTECTION OF PERSONS AND PROPERTY

10.01 Safety Precautions and Programs

Public safety is of the utmost importance and is the sole responsibility of the Contractor to provide, erect, and maintain adequate protection throughout the project to protect the public. The Contractor shall initiate, maintain and supervise safety precautions and programs in connection with the performance of the Work.

10.02 Safety of Persons and Property

10.02.1 The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury or loss to:

10.02.1.1 The general public;

10.02.1.2 All employees on the Work and all other persons who may be affected thereby;

10.02.1.3 All the Work, all materials and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of the Contractor or any of his Subcontractors or Sub-subcontractors; and

10.02.1.4 Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, sprinkler systems, structures and utilities not designated for removal, relocation or replacement in the course of construction.

10.02.1.5 All survey monuments and property markers which shall be carefully preserved in place by the Contractor who shall be responsible for the correct replacement of all such monuments and markers disturbed during the work.

10.02.1.6 Any and all channels, swales, pipes, culverts, and all drainage structures in the project area; the Contractor shall provide for normal drainage and shall continuously maintain channels, swales, pipes, culverts, and all drainage structures in the project area. The Contractor is responsible for any damage caused by his failure to provide and maintain normal drainage.

10.02.2 The Contractor shall comply with all applicable laws, ordinances, rules, regulations and lawful orders of any public authority having jurisdiction over the safety of persons or property to protect them from damage, injury or loss. The Contractor shall erect and maintain all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying the City and users of adjacent utilities. The Contractor shall provide signs, barrels, or any other safety devices which the City deems necessary for public safety. No additional payment will be made and this work shall be considered incidental to the Contract. The City will place safety devices as it deems necessary if the Contractor fails to provide the required items within 24 hours of notification. The Contract Sum shall be reduced by the cost of these devices.

10.02.3 When the use or storage of explosives or other hazardous materials or equipment is necessary for the execution of the Work, the Contractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel.

10.02.4 All damage or loss to any property caused in whole or in part by the Contractor, any Subcontractor, any Sub-subcontractor, or anyone directly or indirectly employed by anyone for whose acts they may be liable, shall be remedied by the Contractor. The City shall document any complaint by any person regarding damage or loss to property caused by Contractor by

requesting such complainant to complete a Damage Claim form. A copy of the Damage Claim form shall be submitted by the City to the Contractor and the Contractor shall correct the problem, repair such damage or otherwise compensate the complainant or file a claim for such damage with Contractor's insurance company within ten (10) days of the receipt of the Damage Claim form from the City. If the City shall have a legitimate basis for believing that such claim is valid, the City shall have the option to withhold payment of funds until (i) such damages are repaired; or (ii) the City has been provided with evidence that that Contractor has made restitution to the complainant.

10.02.5 The Contractor shall designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated in writing by the Contractor to the City.

10.02.6 All traffic and safety devices shall conform to the "Manual on Uniform Traffic Control Devices• for Streets and Highways", American National Standard Institute 06.1-1971. At all times until final acceptance of the Work, the Contractor shall provide and maintain at his own expense such signs, lights, watchmen, fences, and barriers as may be necessary to properly protect the work and provide for safe and convenient public travel. The Contractor shall provide the Owner with the name and telephone numbers of an individual who shall be on 24-hour call for erection and maintenance of the protection devices. The cost of any erection or maintenance of the warning or protection devices by City Forces may be filed against the Contractor's monthly or final statement without any notice to the Contractor. The Director shall, in all cases, determine questions which may arise relative to additional safety and control devices. No payment, as such, will be made because of these requirements; but the cost thereof will be considered as fully covered by the prices paid for other items of work. Failure to properly provide safety control devices in accordance with this section, the City will issue one written warning and a 24-hour grace period for the Contractor to obtain barricades. The second infraction, the City will place barricades at a cost of thirty-five dollars (\$35) per day safety device. The cost of the safety devices will be deducted from the Contractor's weekly priority invoices or monthly invoice.

SECTION 11 INSURANCE

11.01 Contractor's Liability Insurance

11.01.1 The Contractor shall purchase and maintain such insurance required in the Contract Documents to protect him from claims which may arise out of or result from the Contractor's operations under the Contract, whether such operations be by himself or by any Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable.

11.01.2 The insurance shall be written for not less than any limits of liability specified in the Contract Documents, or required by law, whichever is greater, and shall include contractual liability insurance as applicable to the Contractor's obligations for indemnification and reimbursement of attorneys' fees and costs under the Contract Documents.

11.01.3 Certificate(s) of Insurance acceptable to the City shall be filed with the City prior to commencement of the Work. Certificate(s) of Insurance must state: "The City of Wentzville, Missouri is additional insured." These Certificates shall contain a provision that coverages afforded under the policies will not be canceled until at least 30 days prior written notice has been given to the City.

11.01.4 Any insurance policy required as specified herein before, if written by an insurance company organized in a state other than Missouri, shall be countersigned by a Missouri resident agent of such company. Any certificate or other evidence of insurance, submitted to the City, shall be in a form acceptable to the City. In the case of policies written by companies organized in a state other than Missouri, the certificate of insurance, or other evidence submitted, shall be countersigned by a Missouri resident agent.

<u>Insurance Type</u>	<u>Amount</u>
Workers Compensation	An amount and type in full compliance with statutory requirements of Federal and State of Missouri law and Employees Liability coverage.
Comprehensive General Liability	\$1,000,000 each occurrence \$2,735,000 aggregate
Comprehensive Auto Liability	\$1,000,000 per occurrence

11.02 Property (Builder's Risk) Insurance

11.02.1 Unless otherwise provided, the Contractor shall purchase and maintain property insurance (Builder's Risk Insurance) upon the entire Work at the site to the full insurable value thereof. This insurance shall include the interests of the City, the Contractor, Subcontractors and Sub-subcontractors in the Work and shall insure against the perils of Fire, Extended Coverage, Vandalism and Malicious Mischief.

11.02.2 The Contractor shall purchase and maintain such steam boiler and machinery insurance as may be required by the Contract Documents or by law. This insurance shall include the interests of the City, the Contractor, Subcontractors and Sub-subcontractors in the Work.

11.02.3 Certificate(s) of Insurance acceptable to the City shall be filed with the City prior to commencement of the Work. Certificate(s) of Insurance must state on the Certificate: "The City of Wentzville, Missouri is an additional insured." These Certificates shall contain a provision that

coverages afforded under the policies will not be canceled until at least 30 days prior written notice has been given to the City.

11.02.4 Any loss insured by property insurance maintained by the City shall be adjusted with the City and made payable to the City as trustee for the insured, as their interests may appear, subject to the requirements of any applicable mortgagee clause.

11.02.5 The City and Contractor waive all rights against each other for damages caused by fire or other perils to the extent covered by insurance provided under this Paragraph 11.02 and the Contract Documents, City-Contractor Agreement, except such rights as they may have to the proceeds of such insurance held by the City as trustee. The Contractor shall require similar waivers by Subcontractors and Sub-subcontractors in accordance with Section 5.02 hereof.

SECTION 12 BOND REQUIREMENTS

12.01 Bid Bond

If the total project bid exceeds \$50,000 a Bid Bond shall be included in the Bid Proposal and shall be to five percent (5%) of the bid value. The Bid Bond will be required for the total project bid.

12.02 Performance Bond:

If the Contract Sum is in excess of \$50,000 the Contractor shall procure and maintain a performance bond (the "Bond") for the benefit of the City of Wentzville ("City") as required by the laws of the State of Missouri and in an amount not less than 100% percent of the aggregate amount of the Contract. The Bond shall serve as security for the faithful performance of this Contract.

12.03 Payment Bond

If the Contract Sum is in excess of \$50,000, the Contractor shall procure and maintain a payment bond (the "Bond") as required by the laws of the State of Missouri and in an amount not less than 100% percent of the aggregate amount of the Contract. The Bond shall serve to ensure the payment of all persons performing labor and furnishing materials in connection with this Contract. The Payment Bond shall meet all requirements of Section 107.170 RSMo.

12.04 Maintenance Bond:

The Contractor shall procure and maintain a Maintenance Bond in the amount of 10% of the final Contract Sum after any and all Change Orders and/or formal contract amendments. The Maintenance Bond shall be in full force for a one (1) year guarantee period from the date of final acceptance. Final payment will not be made until the City receives the Maintenance Bond. The Bond shall serve to ensure required maintenance of the Project will be provided throughout the maintenance period.

12.05 Bond Premiums

The premiums on all the Bonds shall be paid by the Contractor. The Bond shall remain in full force and effect during the life of the Contract (Performance and Payment) and during the term of any warranty (Maintenance) as required by the specifications and shall be held by the City.

12.06 Additional Requirements and Compliance

12.06.1 The Contractor represents, warrants, and guarantees, and Contractor shall also furnish to City a certificate of authority or some other evidence as deemed appropriate by the City establishing that the Bond is from a surety that is: authorized to do business in the State of Missouri, authorized to become surety on the bonds or obligations of persons or corporations, solvent with paid-up capital of not less than the applicable amount provided by the laws of Missouri, and, if organized outside the State of Missouri, in compliance with all the provisions of Missouri law relating to insurance companies other than life insurance companies. If, at any time, City shall become dissatisfied with any surety or sureties, or if for any other reason the Bond shall cease to be adequate security for City, Contractor shall, within ten days after notice from the City, substitute an acceptable bond (the "Additional Bond") in form and sum and signed by other sureties as may be satisfactory to City. The premiums on the Additional Bond shall be paid by contractor. All requirements herein applicable to the bond shall also be applicable to the Additional Bond. No further partial payments to Contractor shall be deemed due, nor shall be made until the sureties on the Additional Bond shall have qualified.

12.06.2 Contractor shall furnish to City such Bond together with insurance or other documents required by the Contract. The current power of attorney for the persons who sign for any surety

company shall be attached to the Bond. The power of attorney shall be sealed and certified with the manual signature of an officer of the surety. A facsimile signature will not be accepted.

12.06.3 The failure of the Contractor to supply the required Bond along with the evidence of the required insurance coverage and other documents required by the Contractor within ten working days after the executed acceptance is received by the Contractor, or within such extended period as may be granted by the City, the City may grant, based upon reasons determined sufficient by the City, shall constitute a default and the City may either award the contract to the next responsive bidder or re-advertise for bids, and may charge against the Contractor the difference between the amount of his/her bid and the amount for which a contract for the work is subsequently executed. If a more-favorable bid is received by re-advertising, the defaulting Contractor shall have no claim against City for a refund. Because of the difficulty of ascertaining the damages caused to City, said sum shall be considered liquidated damages and shall not constitute a penalty.

12.06.4 The Contractor shall supply the following documents to verify the authenticity of the bonds and bonding company:

12.06.4.1 Provide a certificate of authority from the Secretary of State of Missouri concerning the authority of the bonding company.

12.06.4.2 Provide proof that the bonding company has an "A" rating from BEST'S or Standard and Poor's.

12.06.4.3 Provide written verification from the bonding company that the bond exists and that it is an obligation of the contractor.

SECTION 13 CHANGES IN WORK

13.01 Change Orders

13.01.1 The City, without invalidating the Contract, may order Changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, with the Contract Sum and the Construction Schedule being adjusted in accordance with the City-Contractor Agreement. All such changes in the Work shall be authorized by Change Order, and shall be executed under the applicable conditions of the Contract Documents.

13.01.2 The Contract Sum and the Contract Time may be changed only by Change Order. The Contractor shall make all requests for a Change Order on forms provided by the City upon written request to the City.

13.01.3 The cost or credit to the City resulting from a Change in the Work shall be determined in accordance with the City-Contractor Agreement.

13.01.4 Changes in the Work outside of the general scope of the Contract shall require an amendment to the Contract.

13.02 Claims for Additional Cost

If the Contractor wishes to make a claim for an increase in the Contract Sum, he shall give the City written notice thereof within twenty (20) days after the occurrence of the event giving rise to such claim. This notice shall be given by the Contractor and approval granted by the City before proceeding to execute the Work. No such claim shall be valid unless so made. Any change in the Contract Sum resulting from such claim shall be authorized by Change Order.

13.03 Minor Changes in the Work

The City shall have authority to order minor changes in the Work not involving an adjustment in the Contract Sum or the Construction Schedule and not inconsistent with the intent of the Contract Documents. Such changes may be effected by Field Order or by other written order. Such changes shall be binding on the City and the Contractor.

13.04 Changes in Excavation Work

During construction, it may become necessary to increase the amount of excavation or to utilize a soil stabilization process if unsuitable subgrade conditions are found. The Contractor shall immediately contact the City if this condition occurs. The City and the Contractor shall agree upon the existence of unsuitable subgrade, the depth in which to remove the unsuitable soil, and the extent of the problem area prior to any additional work. No payment will be made for any area which undergoes additional excavation which is not indicated in the above scope of work and has not been approved by the City prior to the excavation. If provided in the Contract Documents, all additional excavation which becomes necessary shall be paid at the unit bid price for such work. The City reserves the right to contract with a separate contractor for the use of a soil stabilization process. No direct payment will be made for delays incurred due to this process and the Contractor's only compensation will be the allotment of additional days for the delay. The number of days shall be from the time the Contractor initially notifies the City of an unsuitable subgrade condition and until two days after the completion of the soil stabilization process.

13.05 Overhead and Profit from Changes in the Work

The combined overhead and profit included in the total cost to the Owner for a change in the Work shall be based on the following schedule:

13.05.1 For the Contractor, for Work performed by the Contractor's own forces, ten (10) percent of the cost.

13.05.2 For the Contractor, for Work performed by the Contractor's Subcontractors, five (5) percent of the amount due the Subcontractors.

13.05.3 For the Subcontractor involved, for Work performed by that Subcontractors own forces, ten (10) percent of the cost.

13.05.4 For each Subcontractor involved, for Work performed by the Subcontractor's Sub-subcontractors, five (5) percent of the amount due the Sub-subcontractor.

13.05.5 In order to facilitate checking of quotations for extras or credits, all proposals, except those so minor that their propriety can be seen by inspection, shall be accompanied by an complete itemization of costs including labor, materials and Subcontracts. Where major cost items are Subcontracts, they shall be itemized also.

13.06 Altered Quantities

13.06.1 The City reserves the right to make changes in plan details which may vary the accepted quantities from those shown on the Bid Form.

13.06.2 The Contractor shall accept, as payment in full, payment at the original Contract unit prices bid for the accepted quantities of work done. No allowance will be made for any increase expense or loss of expected profit suffered by the Contractor resulting directly from such altered quantities or indirectly from expense derived by handling small quantities of materials or performing operations within restricted areas. No allowance shall be made for any increased expense or loss of expected profit suffered because of the anticipated use of specific equipment which was not used.

SECTION 14 UNCOVERING AND CORRECTION OF WORK

14.01 Uncovering of Work

14.01.1 If any Work should be covered contrary to the request of the City, it must, if required by the City, be uncovered for his observation and replaced, at the Contractor's expense.

14.01.2 If any Work has been covered which the City has not specifically requested to observe prior to being covered, the City may request to see such Work and it shall be uncovered by the Contractor. If such Work is found to be in accordance with the Contract Documents, the Cost of uncovering and replacement shall, by appropriate Change Order, be charged to the City. If such Work be found not in accordance with the Contract Documents, the Contractor shall pay the costs of uncovering and replacement.

14.02 Correction of Work

14.02.1 The Contractor shall promptly correct all Work rejected by the City as defective or as failing to conform to the Contract Documents, whether observed before or after substantial completion of the Work, and whether or not fabricated, installed or completed. The Contractor shall bear all cost of correcting such rejected Work.

14.02.2 If, within one year after the date of substantial completion or within such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents, any of the Work is found by the City to be defective or not in accordance with the Contract Documents, the Contractor shall correct it within 5 days after receipt of a written notice from the City. If the Contractor does not correct such deficiencies within that time, the City shall be entitled to specific performance from a court of equity or money damages in the amount of the reasonable cost of repairs, if adequate, provide that nothing shall limit the City's ability to draw upon the Performance and Maintenance Bond to correct such deficiencies. In all situations in which the City is forced to enforce the terms or specifications of the contract documents, the City shall be entitled to its reasonable attorneys' fees for enforcement of any provision of the contract documents.

14.02.3 All such defective or non-conforming Work under Subparagraphs 12.2.1 and 12.2.2 shall be removed from the site if necessary, and the Work shall be corrected to comply with the Contract Documents without additional cost to the City.

14.02.4 The Contractor shall bear the cost of making good all work of separate contractors destroyed or damaged by such removal or correction.

14.02.5 In the alternative to Section 13.02.3, if the Contractor fails to correct such defective or non-conforming Work, the City may correct it in accordance with Section 3.03 hereof.

14.03 Acceptance of Defective or Non-Conforming Work

14.03.1 If the City prefers to accept defective or non-conforming Work, it may do so instead of requiring removal and correction, in which case a Change Order will be issued to reflect an appropriate reduction in the Contract sum, or if the amount is determined after final payment, it shall be paid by the Contractor.

SECTION 15 PURCHASE OF MATERIALS AND EQUIPMENT

15.01 Sales Tax Provisions

The City intends to take maximum advantage of the City's sales tax exemption status. The Contractor shall purchase construction materials and supplies in accordance with these Special Sales Tax Provisions. Compliance with these procedures is compulsory and for the benefit of the City. Accordingly, contractors shall not include sales tax in bid proposal amounts.

15.01.1 The City shall furnish the Contractor a "Project Tax Exemption Certificate" which shall include the following:

15.01.1.1 City's name, address, Missouri tax identification number and signature of authorized representative;

15.01.1.2 The project location, description, and unique identification number;

15.01.1.3 The date the City Contractor Agreement is entered into, which is the earliest date materials may be purchased for the project on a tax-exempt basis;

15.01.1.4 The estimated date of completion for the Project;

15.01.1.5 The Tax Exemption Certificate expiration date. Such certificate is renewable for a given project at the option of the City, only for the purpose of revising the certificate expiration date as necessary to complete the Project.

15.01.2 Contractor shall:

15.01.2.1 Furnish the Project Tax Exemption Certificate to all subcontractors. The Contractor and any subcontractor purchasing materials shall present, on behalf of the City, all tangible personal property and materials to be incorporated into or consumed in the construction of the Project and no other on a tax-exempt basis. Suppliers shall execute to the purchasing Contractor or Subcontractor invoices made out to the Contractor. The invoices must also bear the name of the City and the project identification number. Nothing in this section shall be deemed to exempt the purchase of any construction machinery, equipment, or tools used in constructing, repairing or remodeling facilities for the City. All invoices for all personal property and materials purchased for the Project utilizing the Project Tax Exemption Certificate shall be retained by the purchasing Contractor or subcontractor for a period of five (5) years and shall be subject to audit by the Missouri Director of Revenue.

15.01.2.1.1 Any excess re-salable tangible personal property or materials which were purchased for the Project by the Contractor or subcontractor under the Project Tax Exemption Certificate but which were not incorporated into or consumed in the construction of the Project shall either be returned to the supplier for credit or the appropriate sales or use tax on such excess property or materials shall be paid by the Contractor or subcontractor not later than the due date on the Contractor or subcontractor's Missouri sales or use tax return following the month in which it was determined that the materials were not to be used in the Project.

15.01.2.1.2 No Contractor, subcontractor or material supplier shall, upon audit, be required to pay tax on tangible personal property and materials incorporated into or consumed in the construction of the

Project, due to the failure of the City to revise the certificate expiration date as necessary to complete any work required. If it is determined that tax is owed on such property and materials due to the failure of the City to revise such certificate expiration date, the City shall be liable for the tax owed.

15.01.2.2 Order all necessary materials and equipment to complete the Work and the Project in accordance with the Plans and Specifications.

15.01.2.3 Inspect all delivered materials for conformance to specifications, damage, or breakage and subsequently accept materials if found to be satisfactory.

15.01.2.3.1 Purchase of materials on behalf of the City shall not relieve the Contractor of obligations to order, schedule deliveries, inspect, accept, or reject, store, handle or install materials or perform any other duties required by the Contract Documents or customarily performed in conjunction with providing materials to complete the Work.

15.01.2.3.2 Costs of complying with the foregoing Special Sales Tax Provisions shall be included in the Bid Proposal submitted and the Contractor shall not be entitled to receive additional compensation for such compliance.

15.02 Use of American Made Products.

Any manufactured goods or commodities used or supplied in the performance of the Contract Documents or any subcontract thereto shall be manufactured or produced in the United States as required and in accordance with Section 34.353 RSMo.

15.02.1 This section shall not apply when:

15.02.1.1 The purchase, lease, or contract involves an expenditure of less than twenty-five thousand dollars;

15.02.1.2 Only one line of a particular good or product is manufactured or produced in the United States;

15.02.1.3 The specified products are not manufactured or produced in the United States in sufficient quantities to meet the City's requirements or cannot be manufactured or produced in the United States within the necessary time in sufficient quantities to meet the City's requirements;

15.02.1.4 Obtaining the specified products manufactured or produced in the United States would increase the cost of the contract by more than ten percent.

15.02.2 If this section shall not apply because of the circumstance described in Sections 14.06.4.1 to 14.06.4.4, then the Contractor shall provide the City with the information necessary to make the certifications required under Section 34.353 RSMo.

15.03 Missouri Preference

Contractors are encouraged to purchase commodities and tangible property manufactured, produced, or grown within the local area and in the State of Missouri, and from all firms, corporations, or individuals with licensed businesses in the State of Missouri. This guideline pertains to all commodities and tangible property when quality is equal or better and the delivered price is the same or less, or when competing bids, in their entirety, are comparable.

SECTION 16 SPECIAL PROVISIONS

16.01 Scheduling of Work and Interference with Traffic

16.01.1 The Contractor's work must be scheduled and accomplished in stages such that local traffic is maintained during construction. It shall be the Contractor's responsibility to provide a traffic way that is usable in all weather conditions. The Contractor shall construct and maintain in a safe condition temporary pavements and connections for local traffic.

16.01.2 Suitable temporary barriers shall be provided to protect traffic from the Work if necessary. At all times until final acceptance of the Work, the Contractor shall provide and maintain such signs, lights, barriers, cones, watchmen or flaggers as may be necessary to properly protect the Work and provide for safe and convenient public travel. In the case of open excavations or other potentially hazardous conditions existing during non-working periods, the traveling public will be protected and advised by signs and flasher barricades. Parking of equipment or storage of materials on or near the Project site will be permitted only if adequate protective devices are provided and then only for the minimum time required for any specific job.

16.01.3 No additional payment shall be made for temporary guardrail, barriers, signs, lights, or other work as may be necessary to maintain traffic and to protect the Work and the public and all labor, equipment and material necessary to accomplish this task shall be considered incidental.

16.02 Access

16.02.1 Areas of intersections and roadways within the construction limits shall be constructed in phases so that at no time will access be denied.

16.02.2 Access to private driveways may be limited by the nature of the Work. The Contractor shall schedule his work such that at no time during the life of this Contract will any driveway be denied access for any reason other than the curing of concrete. All concrete, including curbs, sidewalks and driveway pavements, shall be formed and poured within a two calendar day period for each and every driveway. Excavation for this work shall be accomplished a maximum of one calendar day prior to forming, however, access shall be provided immediately after excavation. At the end of the curing period, access shall be immediately supplied using asphalt or compacted aggregate.

16.02.3 All temporary materials used for access will be the responsibility of the Contractor and shall be included in his unit bid price for each related item. No separate payment will be made for the placement, maintenance or removal of said access.

16.02.4 If said access is not supplied as set out above, the City will supply said access with its own forces, without notification to the Contractor, and will deduct such costs from the sums due the Contractor, notwithstanding any other provisions given this Contract. Wherever excavation affects pedestrian access to houses or public buildings, plank or other suitable bridges shall be placed at convenient intervals.

16.03 Construction Staking and Layout

The Contractor shall be responsible for providing all labor, equipment and materials necessary for construction staking and layout as required, to the grades, elevations and alignment as determined by the City. No separate payment will be made for construction staking and layout. The Contractor shall make his bid accordingly. No payment shall be made for restaking except as expressly authorized due to changes made by the City during construction.

16.04 Pre-Construction Conference

A preconstruction conference may be held prior to the issuance of a notice to proceed with the Work. This meeting will be attended by the Contractor, the City, and representatives of the various utility companies that have facilities in the project area. The meeting date will be established after the taking of bids and at a time convenient to all parties.

16.05 Sequence of Work

16.05.1 A schedule of the Contractor's work shall be submitted to the City for approval. It shall contain a listing of the order in which the Contract items will be constructed and the approximate dates for starting and finishing each Contract item.

16.05.2 The Contractor shall furnish the City his proposed sequence and schedule for the completion of all work for its review and approval prior to the time of the preconstruction conference. The City shall have the right to specify the order of construction as deemed necessary.

16.05.3 The Contractor shall update and provide the City of the revised schedule as necessary.

16.06 Control of Materials

16.06.1 The Contractor shall collect all materials tickets to verify the quantity of each item. Material tickets shall be collected and provided to the City in their original form. Xerox or fax copies will not be accepted. All tickets shall be submitted on the day of delivery, either to the City personnel or the Public Works Office, or they shall not be accepted for payment.

16.06.2 Contractors and subcontractors will be required to produce letters of certification or certified test reports from materials producers and suppliers in order to determine compliance with specifications for designated materials prior to the incorporation thereof into the work.

16.06.3 The City will determine which materials are to be tested. The form and content of these test reports shall be in accordance with recognized standards and practices for this work or as otherwise determined by the City.

16.07 Termination by the Owner for Cause

16.07.1 In addition to all other remedies available to the Owner, the Owner may terminate the Contract if the Contractor:

16.07.1.1 Repeatedly refuses or fails to supply enough properly skilled workers or proper materials;

16.07.1.2 Fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;

16.07.1.3 Repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or

16.07.1.4 Otherwise is guilty of substantial breach of a provision of the Contract Documents.

16.07.2 When any of the above reasons exists, the Owner may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if

any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior right of the surety:

16.07.2.1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

16.07.2.2 Accept assignment of subcontracts; and

16.07.2.3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

16.07.3 When the Owner terminates the Contract for cause, the Contractor shall not be entitled to receive further payment until the Work is finished.

16.07.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for professional services (including architects and engineers) and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the project architect, upon application, and this obligation for payment shall survive termination of the Contract.

16.08 Termination by the Owner for Convenience

16.08.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

16.08.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall:

16.08.2.1 Cease operations as directed by the Owner in the notice;

16.08.2.2 Take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

16.08.2.3 Except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

16.08.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and actual costs incurred by reason of such termination.



CITY OF WENTZVILLE WWTF

SURGE PROTECTION ANALYSIS

March 7th, 2016

Crawford, Murphy & Tilly

Gateway Tower

One Memorial Drive, Suite 500

St. Louis, Missouri 63102

cmtengr.com



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EXECUTIVE SUMMARY

This study has been requested by the City of Wentzville to determine the most effective way to modify the existing electrical system at the Wentzville Waste Water Treatment Facility to correct instrumentation failures due to surge events.

In the Water Reclamation Center Expansion Project completed in October of 2007 the existing facilities utility service was removed and a Medium Voltage (MV) radial distribution system was installed. Two independent 12.47KV utility sources are utilized. The primary or normal source is Ameren. The secondary or emergency source is Cuivre River Electric. Both sources tie together onsite in MV switchgear with an automatic transfer switch that switches power from primary to secondary sources in case of an outage.

All reported failures due to surge events have occurred at the old plant location with most issues occurring in the Control Building. A combination of field observation and record drawing plan review have been utilized throughout this report. The following areas are broken down for specific review with recommendations for the City of Wentzville. The areas are as follows:

Grounding and bonding: Existing Plant Transformer and Service Equipment

SCADA: Existing Control cabinet and Equipment

Field Instrumentation: Analog shielding and Surge Suppression

Collections Building: Disconnect and Surge Suppression

Power Quality Analyzer and Recorder

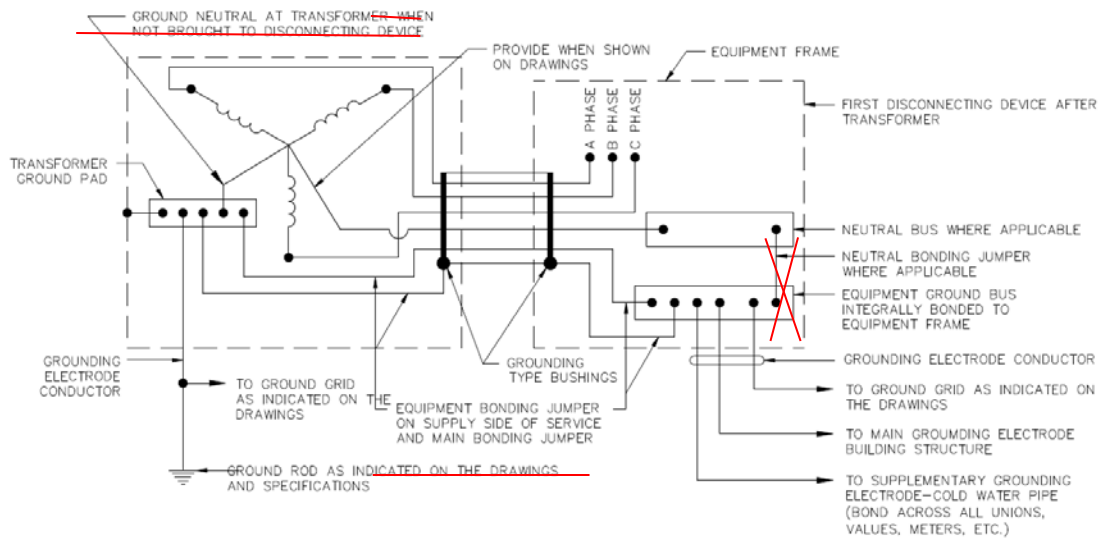
Detailed corrective measures with associated costs for each item are provided in this report.

This report should be used as a guide to properly bond and install surge protection equipment to reduce effects of lightning and surges to the instrumentation components of the plant.

GROUNDING AND BONDING: EXISTING PLANT TRANSFORMER AND SERVICE EQUIPMENT

During the Water Reclamation Center Expansion Project the existing utility service was removed and a new city owned 750KVA transformer (TR-3) was installed with a new MV switchgear lineup. Based on drawing details in the record drawings there may be multiple bonding jumpers creating parallel paths between the equipment grounding conductor and the grounded neutral conductor. These parallel paths can create conditions where unbalanced currents flow on the equipment grounding conductor causing issues for delicate instrumentation.

TR-3 is a solidly grounded 12.47KV primary 480Y/277VAC secondary transformer. It is considered a separately derived system per the National Electric Code (NEC). Sheet 106 of 246 calls for you to see EG018 which is located on sheet 222 of 246. This detail shows the WYE secondary being solidly grounded. The detail also shows that the system can be grounded in the transformer or in the first disconnect means. This is true for many installations but the NEC requires that if the source of a separately derived system is located outdoors then the system bonding jumper must be made at the separately derived system location, which in this case is TR-3.



It is recommended that the City of Wentzville hire an electrician with proper Personal Protective Equipment (PPE) to field verify the grounding and bonding measures currently installed. Since an Arc Flash Study has not been performed on the entire power distribution system, PPE should be used to access live equipment based off of tables from NFPA 70E.

The electrician should first verify the system bonding jumper is properly installed in TR-3, connecting the ground to the neutral. Next they should verify that there is no neutral to ground connection in Switchgear 3 (SWGR-3), Motor Control Center A (MCC-A), Motor Control Center B (MCC-B), Motor Control Center C (MCC-C), and the Panelboard in the Maintenance Building. If additional system bonding jumpers are present they should be removed.

SCADA: EXISTING CONTROL CABINET AND EQUIPMENT

The existing SCADA system is located in the Control Building. The original enclosure has been modified over the years. Some parts are still in use, others have been abandoned in place, and new items have been added where space was available.

This is the area with the most issues based on a verbal account of the history of failures.

The first item noted is that there didn't seem to be a proper equipment ground. The power circuit providing 120VAC power to the controls should have an equipment grounding conductor pulled with the ungrounded conductors back to their source. The ground should be installed within the raceway and sized in accordance with the upstream overcurrent protective device (OCPD) rating.

The second item noted was that most 4-20mA shielded conductors appeared to all be grounded in the panel. For a shield to work appropriately on a shielded twisted pair (TSP) cable it must be grounded on only 1 side. It is standard practice for this to be done at the source or within the SCADA cabinet in this case. It is recommended that an electrician or other qualified individual ground all 4-20 shields in the SCADA panel and ensure that the shields are properly cut and taped at the instruments.

Since most of all of the 4-20 instrumentation is located outside of the control building it is recommended to install 4-20mA surge suppressors on all analog signals. Within the SCADA control cabinet Transtector DRDC 24 model 1101-680 surge protectors, or equal, should be provided. These devices require a 35mm din rail that is connected to a solid earth ground. See appendix for product data sheet.



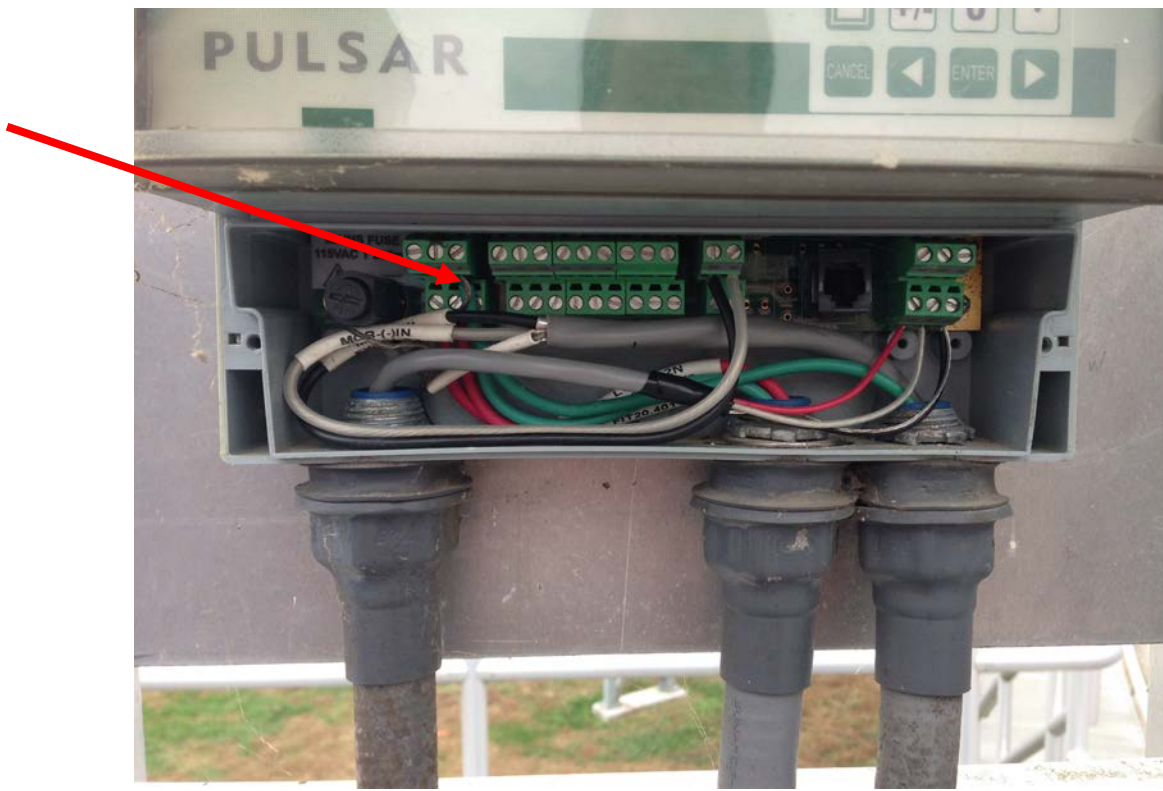
A 120V surge protector for the 120VAC Supply to the SCADA system should also be installed, Transtector ACP 100-BW3R Model 1100-855 or equal.

This opportunity should be used to clean up the old SCADA equipment as much as feasible. Abandoned equipment should be removed, and cables/terminations should be labeled for ease of identification and troubleshooting.

FIELD INSTRUMENTATION: ANALOG SHIELDING AND SURGE SUPPRESSION

Field instrumentation at the old plant was noted with the most significant issues. Namely re-occurring issues with GM Flow Meter and the Flow Meter for treatment unit No. 3.

All field instrumentation should be examined to ensure that proper shield cutting and taping has been installed. If the shield is found to be loose or terminated at the instrument it shall be removed, cut, and taped to prevent accidental connection with energized or grounded surfaces. Pictured below is an install where the shield is grounded in the field at the instrument.



As discussed above all field mounted instruments should have surge protectors at both the instrument and the control panel. Install a field mounted surge protector, Transtector PDS-1 model 1101-586, or equal, at the instrument. See appendix for product data sheet. These devices may require modification to existing conduit and wiring systems and should be installed by a qualified electrician.

For devices that are not loop powered, the 120VAC power circuit may also be protected against surges in the field. Eaton makes a combined device that protects 120VAC and 4-20mA signals model MTL TP-AC. This option will not be considered for the cost estimates but a cut sheet is provided in appendix C.

COLLECTIONS BUILDING: DISCONNECT AND SURGE SUPPRESSION

During the walkthrough at the Water Reclamation Facility, It was discussed to add a Service Entrance rated disconnect to replace the existing building disconnect in the basement of the collections building. Since the collections building is supplied by a feeder and not a service connection from a utility source there is no need to install a service entrance rated disconnect.

No Surge Protection Device was noted to be installed at the collections Building. Looking at the loads identified in the PP-4 Panel Schedule, the building distribution does not serve process critical components. The schedule identified lights, receptacles, and AC equipment serving this building only.

There is network equipment installed in the basement of the collections building. These devices can represent a substantial investment in physical hardware and in lost earnings potential if the equipment was damaged from a surge event. A 120V surge protector for this equipment should be added to protect this investment with a minimum rating of 30,000 amps. This may be one of the many different commercially available surge devices such as a surge protector outlet or a multi outlet surge protector strip. One possible model would be the Tripp Lite TLP74RB 7-outlet surge protector available for under \$15 that has a maximum surge rating of 36,000 amps.



Surge events for this building could come from 2 areas. Disturbances from the utility and from lightning strikes. Since the main feed to the building is protected upstream from utility disturbances by surge protection devices our main concern is with lightning strikes. Lightning strikes may travel through any wiring system that originates or terminates outside and propagate through the distribution system. For added protection a 480VAC device on the incoming feeder or a surge protection device on PP-4 could be added. The necessity to prevent damage to equipment located within this building will drive the decision to add a surge protection device on the buildings distribution system. A cost will be provided for the addition of a 120KA External 480VAC surge Protection Device that will help to evaluate this decision.

RECOMMENDATIONS

Following are the recommendations to modify the existing power distribution system and to provide surge protection for instrumentation at the Wentzville Waste Water Treatment Facility:

1. SCADA panel surge protection is the most prudent upgrade. Installation of surge protection at the panel protects the expensive PLC and also prevents a surge from propagating through the control system.
2. Field mounted surge protection devices are the second most effective upgrade. These devices only protect the instrument that they are installed on but can prevent electronic failures which can cause major disruptions to controls used for automated treatment.
3. The UPS within the basement of the Collections Building should be moved from the top of the Distribution Transformer. The additional heat of the Transformer is undesirable for the UPS and is more than likely shortening the lifespan of the equipment. The UPS should be set on a shelf with adequate space for ventilation.
4. A local surge protector should be installed for the network equipment within the basement of the collections building. This should be done in house purchasing a commercially available device unless it is desirable to match existing models already installed on site in other network areas.
5. Verification of distribution system grounding and bonding is not critical. Most of the issues seem to occur during storm conditions but not all. Stray voltage and current on the equipment grounding system could help explain some site issues that have occurred during dry weather.
6. If utility disturbances have occurred that have caused issues in a frequency exceed 1 event per year it is recommended to purchase a power quality analyzer and recorder to pinpoint the issue. If disturbances are isolated to a certain timeframe (every event occurring in the spring) a more economical solution may be to rent the recorder for a 3 month period over multiple years to pinpoint the issue.
7. A monthly walkthrough should be scheduled to log the amount of hits on each Surge Protection Device in the facility. Most devices in the plant had low counts but one MCC surge protection device had logged 10,363 hits. Logged data should be compared month by month with the weather and other areas of the plant. If one area is experiencing hundreds of hits in month with no storms while the rest of the plant remains unchanged then a wiring issue is most likely present.
8. Addition of 480V Surge Protection Device at Collections Building is not critical but may provide peace of mind ensuring that all equipment within the building has an added layer of protection.

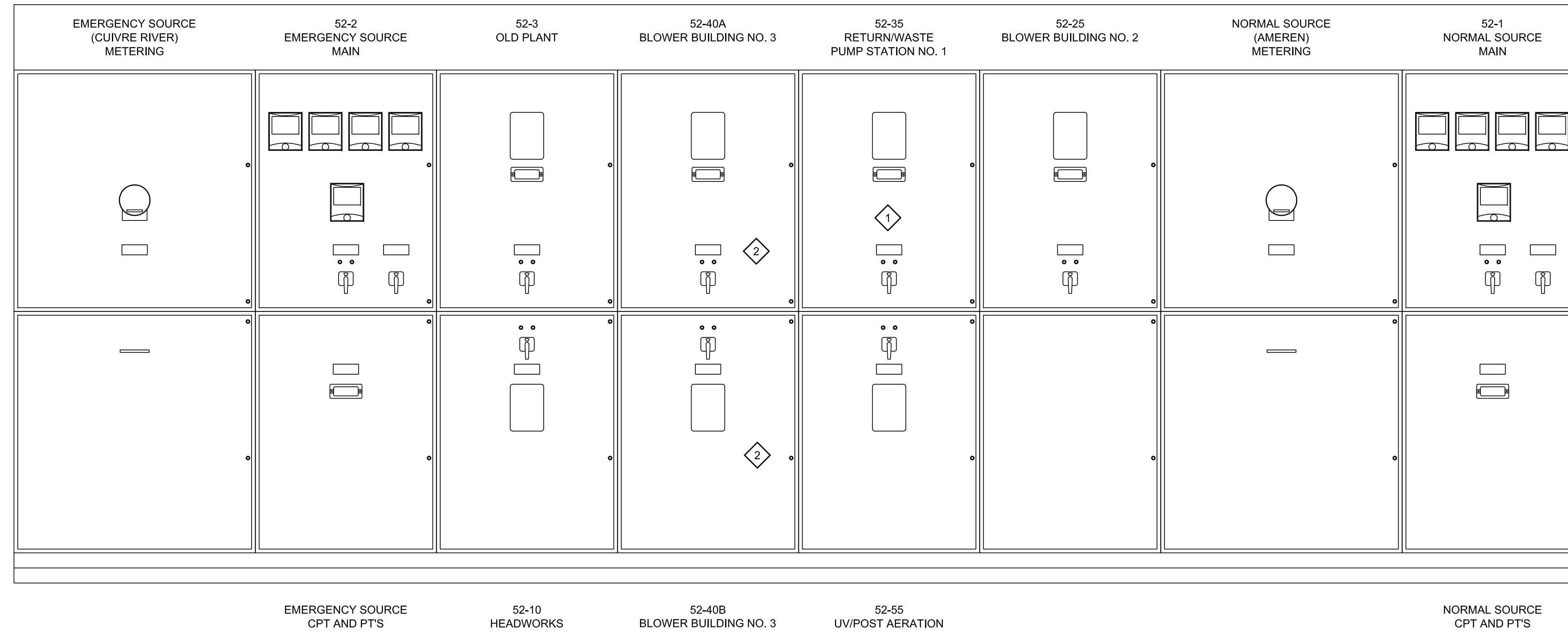
Appendix B

Existing One-Line Diagrams

(For Reference ONLY)

KEY NOTES:

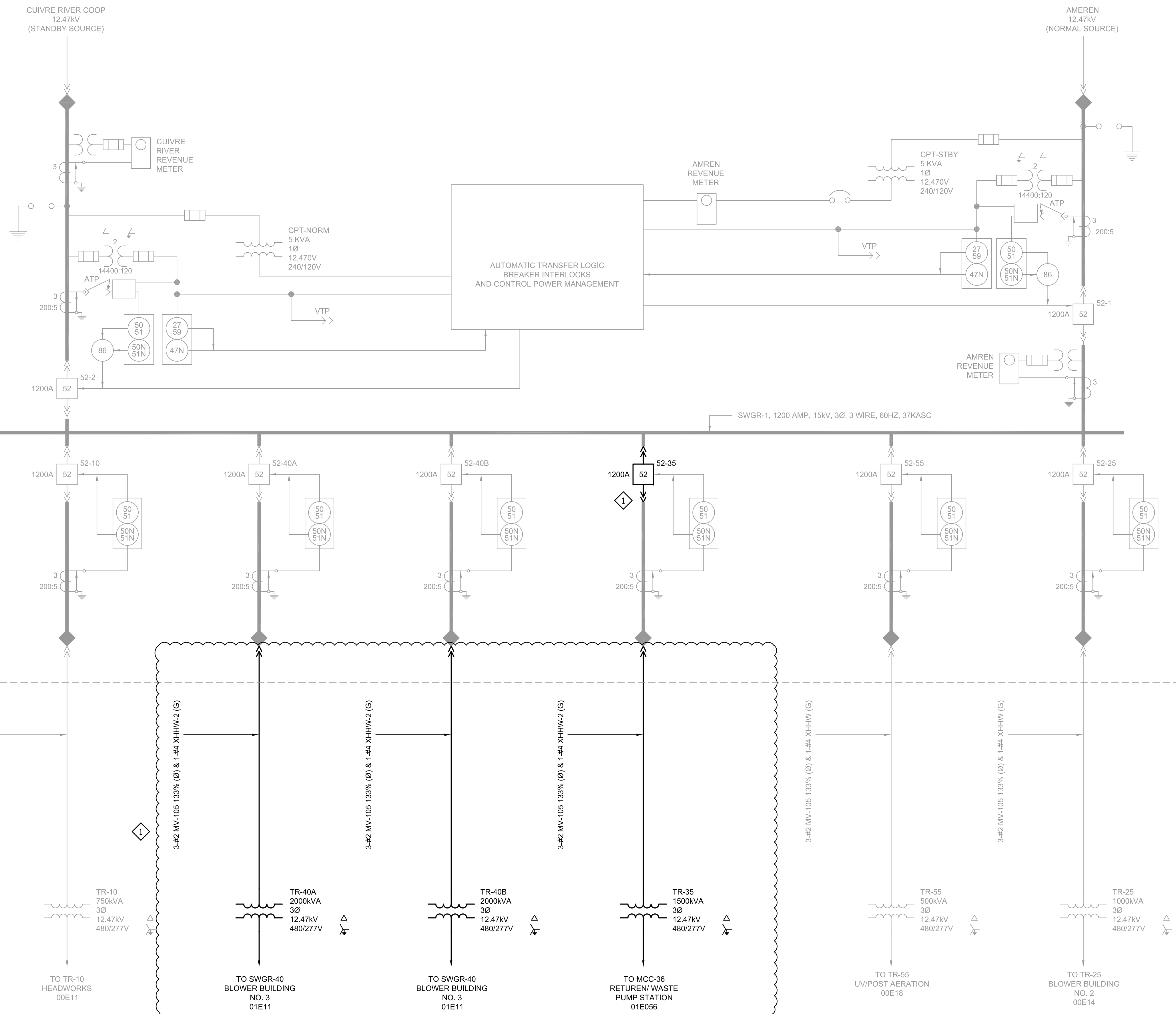
- 1 PROVIDE NEW BREAKER IN EXISTING PREPARED SPACE. VERIFY ANY ADDITIONS/MODIFICATIONS REQUIRED FOR EQUIPMENT INSTALLATION.
- 2 EXISTING SPARE BREAKER USED IN THIS CONSTRUCTION.



A EXISTING SWITCHGEAR SWGR-1 ELEVATION
 SCALE: 3/4"=1'-0"
 FILE: 6796B10-01-089-600

10/10/2007 11:58 AM

DESIGNED JTM		ENGINEER ** ORIGINAL STAMPED BY ROBERT A. MORRONI OCTOBER 17, 2007 **	<p>RECORD DRAWING</p> <p>THESE RECORD DRAWINGS HAVE BEEN PREPARED BASED IN PART ON INFORMATION PROVIDED BY OTHERS</p> <p>THIS DRAWING WAS PREPARED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON AND IS NOT TO BE USED ELSEWHERE</p> <p>Date: DECEMBER 31, 2012</p> <p>By: GARRETT C. SHEEHAN</p>	<p>CAROLLO ENGINEERS, INC. 903 E. 104TH STREET SUITE 320 KANSAS CITY, MISSOURI 64131 (816) 942-5027</p> <p>DISCIPLINE: PROFESSIONAL ENGINEERING CORPORATION CERTIFICATE OF AUTHORITY NO: 2010033629</p>	<p>Wentzville Missouri - USA The Crossroads Of The Nation</p> <p>ST. CHARLES COUNTY, MISSOURI</p>	WATER RECLAMATION CENTER		<p>VERIFY SCALES</p> <p>BAR IS ONE INCH ON ORIGINAL DRAWING</p> <p>0 1"</p> <p>IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY</p>	JOB NO. 6796B.20
DRAWN JEV						DRAWING NO. 01E02			
CHECKED TDH						SHEET NO. 97 OF 208			
DATE DECEMBER 2012									
REV	DATE	BY	DESCRIPTION	6796B10	6796B10-01-E-002.dwg		ELECTRICAL MV FACILITY SWITCHGEAR ELEVATION		



KEY NOTES:
 1 NEW THIS CONSTRUCTION.

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DATE DECEMBER 2012	

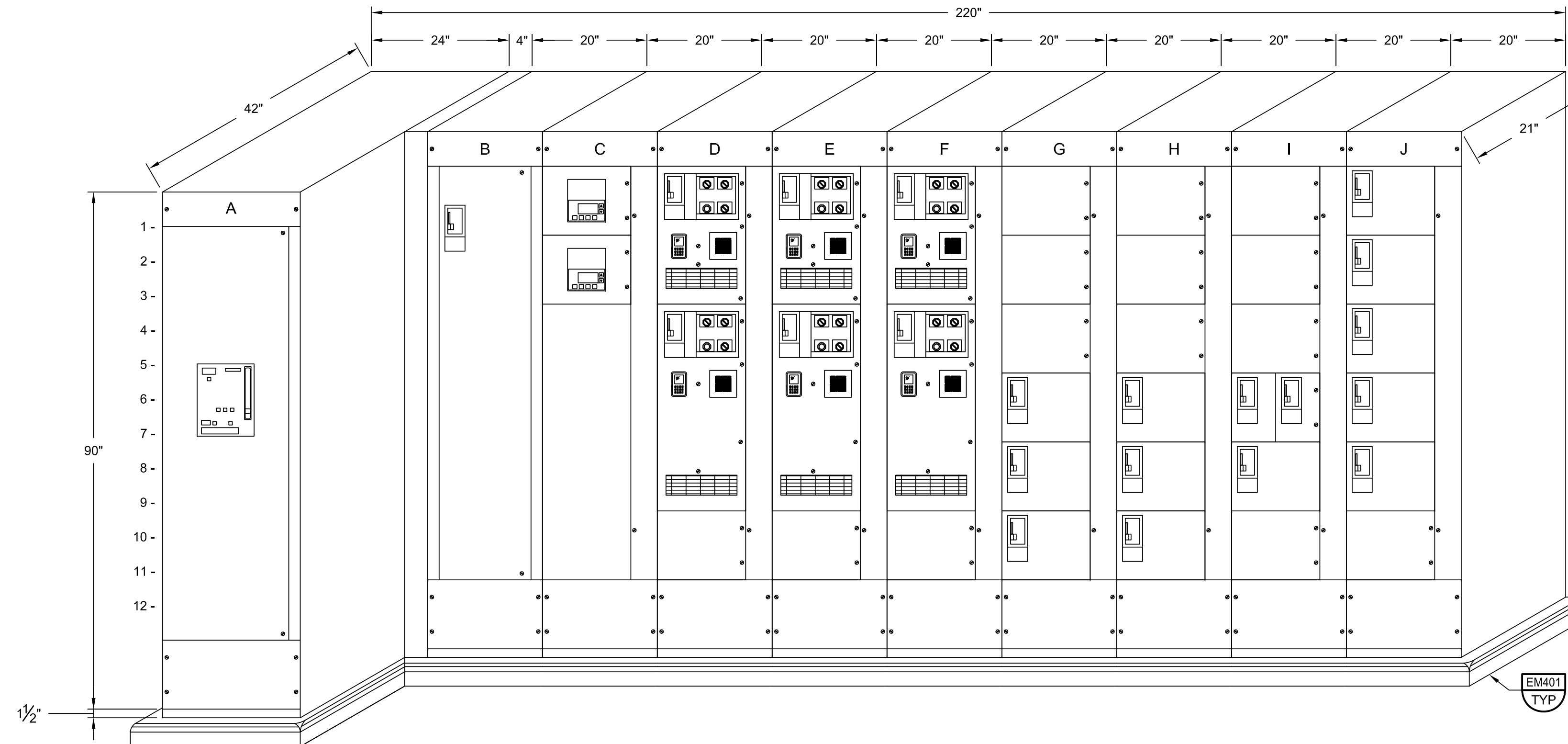
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WATER RECLAMATION CENTER
EXPANSION PROJECT - PHASE 2
 ELECTRICAL
MV FACILITY SWITCHGEAR
SINGLE LINE DIAGRAM

VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING  IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	JOB NO. 6796B.20
	DRAWING NO. 01E03
	SHEET NO. 98 OF 208



A1 - MAIN BREAKER FROM TR-35

B1 - MAIN BREAKER FROM SWGR-40

C1 - TVSS
C3 - METERING
C5 - SPACE

D1 - PMP-35.415 WASTE PUMP NO. 1-A
D5 - PMP-35.315 RETURN PUMP NO. 1-A
D11 - SPACE

E1 - PMP-35.425 WASTE PUMP NO. 1-B
E5 - PMP-35.325 RETURN PUMP NO. 1-B
E11 - SPACE

F1 - PMP-35.435 WASTE PUMP NO. 1-C
F5 - PMP-35.335 RETURN PUMP NO. 1-C
F11 - SPACE

G1 - SPACE

G3 - SPACE

G5 - SPACE

G7 - MIX-30.101 SUBMERSIBLE MIXER NO. 5-A

G9 - MIX-30.102 SUBMERSIBLE MIXER NO. 5-B

G11 - AHU-35.051 SUPPLY AIR HANDLING UNIT

H1 - SPACE

H3 - SPACE

H5 - SPACE

H7 - MIX-30.103 SUBMERSIBLE MIXER NO. 5-C

H9 - MIX-30.104 SUBMERSIBLE MIXER NO. 5-D

H11 - FAN-35.051 EXHAUST FAN NO. 1

I1 - SPACE

I3 - SPACE

I5 - SPACE

I7A - DP-352 RETURN/WASTE PUMP STATION NO. 1 480V PANEL

I7B - TR-351 RETURN/WASTE PUMP STATION NO. 1 120/208V TRANSFORMER

I9 - TR-35 277V LIGHTING TRANSFORMER

I11 - SPACE

J1 - CLR-35.200 FINAL CLARIFIER NO. 5 DRIVE

J3 - PMP-35.201 FINAL CLARIFIER NO. 5 SCUM PUMP

J5 - CLR-35.202 FINAL CLARIFIER NO. 6 DRIVE

J7 - PMP-35.203 FINAL CLARIFIER NO. 6 SCUM PUMP

J9 - PMP-30.120 PROCESS DRAINAGE PUMP NO. 5

J11 - SPACE

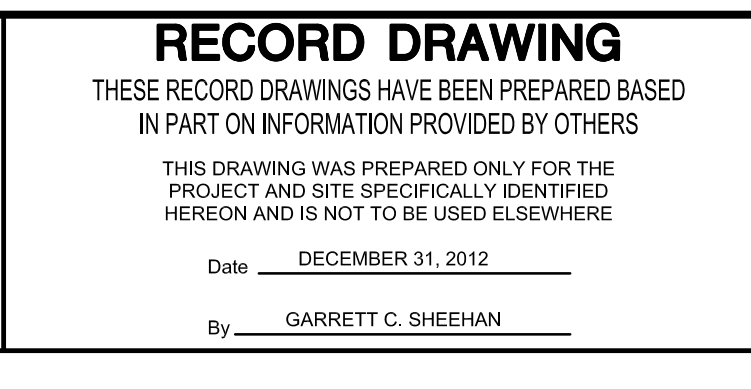
A MCC-35 ELEVATION
SCALE: 3/4"=1'-0"
FILE: 6796B10-01-089-601

LAST SAVED BY: hsmth LAST UPDATED: 10/10/2007 02:12 PM

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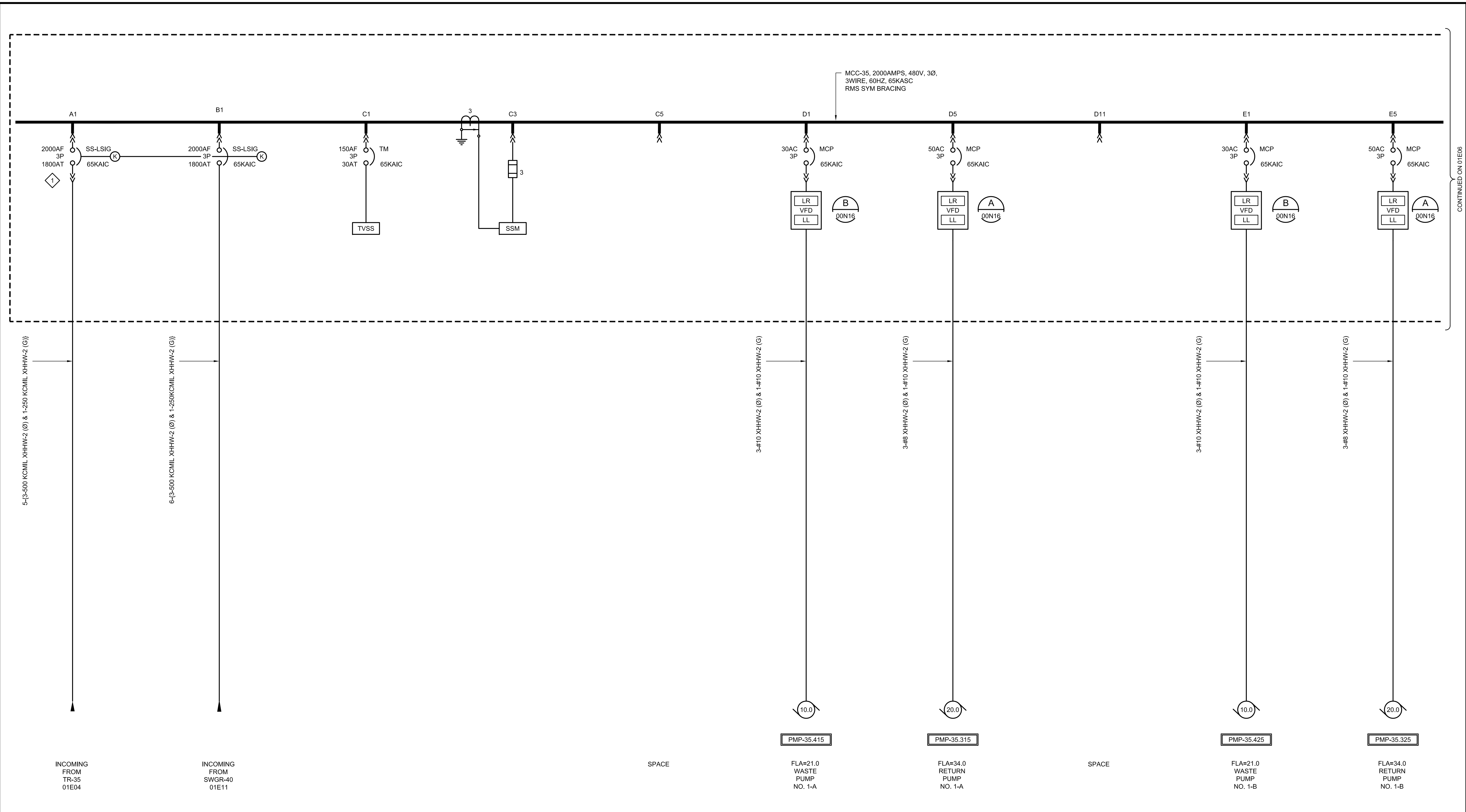
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WATER RECLAMATION CENTER
EXPANSION PROJECT - PHASE 2
ELECTRICAL
MCC-35 RETURN/WASTE PUMP STATION NO. 1
ELEVATION

VERIFY SCALES
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0 1" 1"
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JOB NO. 6796B.20
DRAWING NO. 01E04
SHEET NO. 99 OF 208



CONTINUED ON 01E06

KEY NOTES:
 1 2000 AMP SENSOR, LONG-TIME PICKUP SET TO 0.9x.

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04/22/2011	JGK		REV PER ADDENDUM NO. 3

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DATE DECEMBER 2012

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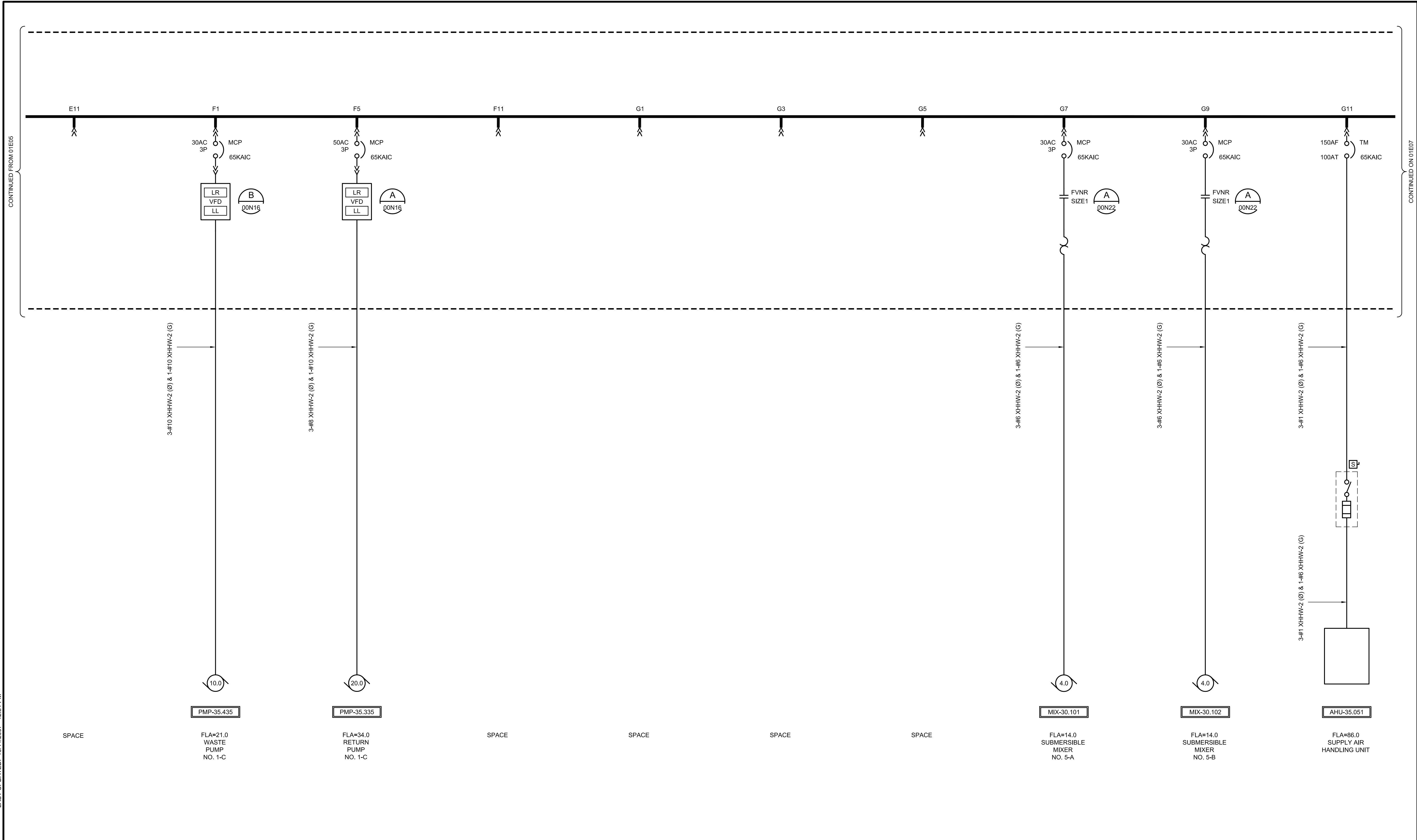
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WATER RECLAMATION CENTER
 EXPANSION PROJECT - PHASE 2
 ELECTRICAL
 MCC-35 RETURN/WASTE PUMP STATION NO. 1
 SINGLE LINE DIAGRAM 1

VERIFY SCALES
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JOB NO.
6796B.20
 DRAWING NO.
01E05
 SHEET NO.
100 OF 208



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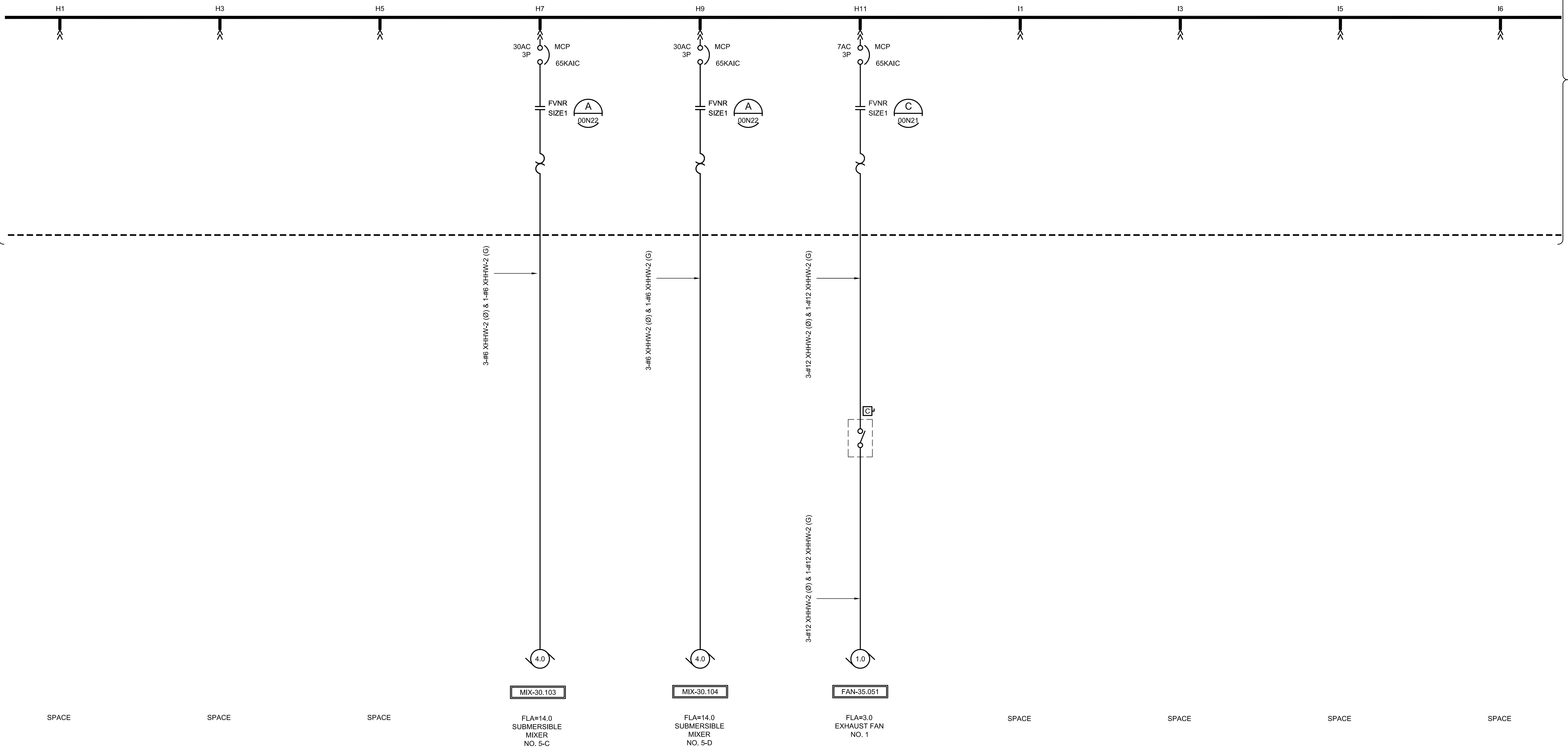
WATER RECLAMATION CENTER
 EXPANSION PROJECT - PHASE 2
 ELECTRICAL
 MCC-35 RETURN/WASTE PUMP STATION NO. 1
 SINGLE LINE DIAGRAM 2

VERIFY SCALES
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JOB NO.
6796B.20
 DRAWING NO.
01E06
 SHEET NO.
101 OF 208

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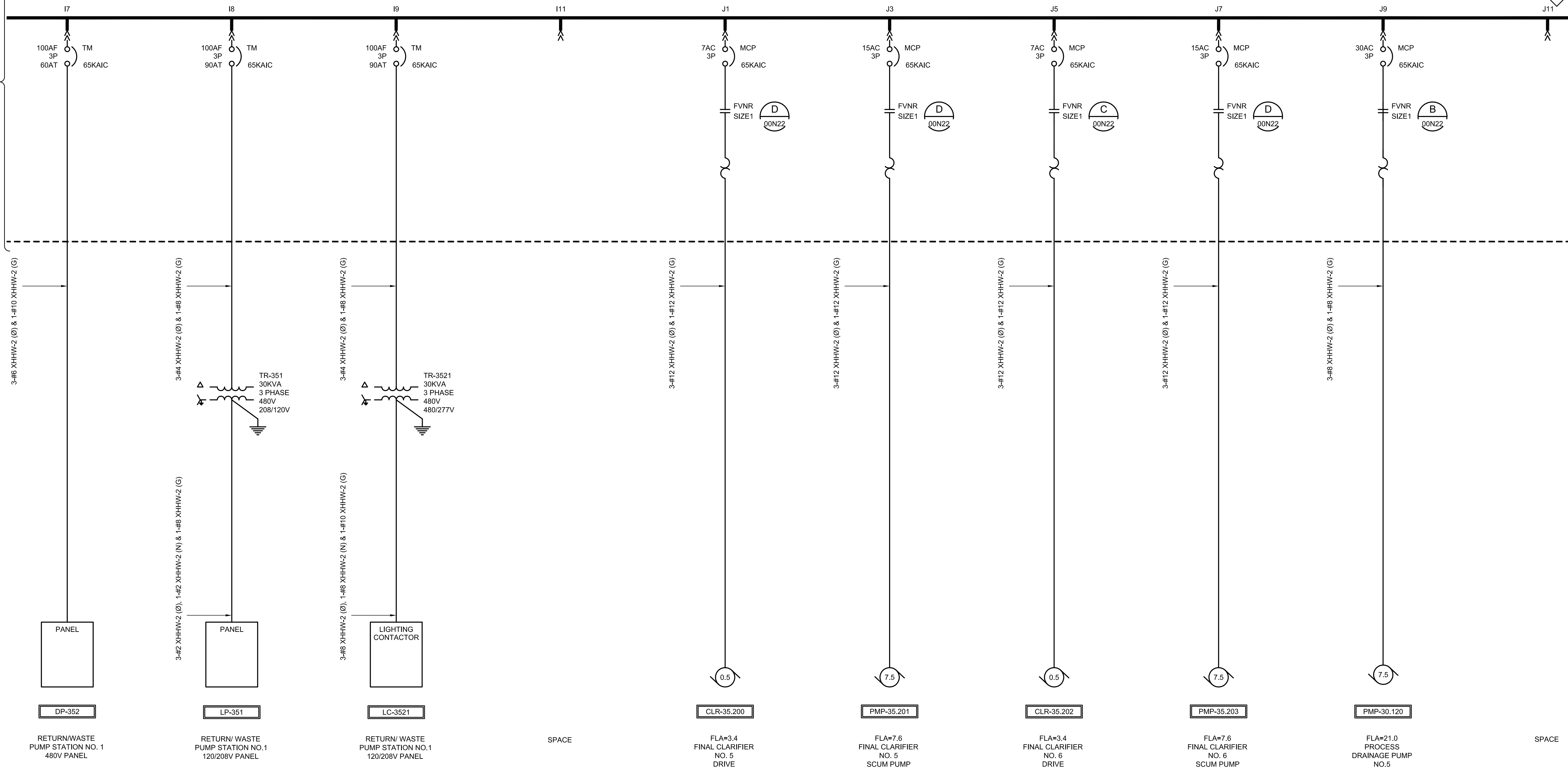
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WATER RECLAMATION CENTER
 EXPANSION PROJECT - PHASE 2
 ELECTRICAL
 MCC-35 RETURN/WASTE PUMP STATION NO. 1
 SINGLE LINE DIAGRAM 3

VERIFY SCALES
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JOB NO.
6796B.20
 DRAWING NO.
01E07
 SHEET NO.
102 OF 208

CONTINUED FROM 01E07



KEY NOTES:
 1 PROVISIONS FOR BUS EXTENSION.

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WATER RECLAMATION CENTER
 EXPANSION PROJECT - PHASE 2
 ELECTRICAL
 MCC-35 RETURN/WASTE PUMP STATION NO. 1
 SINGLE LINE DIAGRAM 4

VERIFY SCALES
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 0 1"
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JOB NO.
6796B.20
 DRAWING NO.
01E08
 SHEET NO.
103 OF 208

PANEL LP-351										10/13/2007	
PANEL INFORMATION					PANEL CALCULATIONS						
LOCATION:	RETURN/WASTE PUMP STATION	NEMA:	12	EQUIP SIZING VA	CONN VA						
VOLTS:	208 / 120	FEED:	BOTTOM	INTERMITTENT	7980	PH A	4634				
PHASE & WIRE:	3PH 4W	MTG:	SURFACE	CONTINUOUS	6010	PH B	3940				
INTERRUPT:	18 KAIC	BUS RATING:	100	TOTAL	13990	PH C	4214				
		MAIN:	CB	TOTAL	12788						
		MAIN RATING:	100 AF 100 AT	PANEL AMPS	40.87						
I/C	DESCRIPTION	LOAD (VA)	BKR	CIR	Ø	CIR	BKR	LOAD (VA)	DESCRIPTION	I/C	
	SPARE		20A-1P	1	A	2	20A-1P	540	INFLUENT FLOW SPLITTER RECEPTACLES	I	
	SPARE		20A-1P	3	B	4	20A-1P	540	CLARIFIER FLOW SPLITTER RECEPTACLES	I	
	SPARE		20A-1P	5	C	6	20A-1P	1080	AERATION BASIN RECEPTACLES	I	
	SPARE		20A-1P	7	A	8	20A-1P	1080	AERATION BASIN RECEPTACLES	I	
	SPARE		20A-1P	9	B	10	20A-1P		SPARE	I	
	SPARE		20A-1P	11	C	12	20A-1P		SPARE	I	
	SPARE		20A-1P	13	A	14	20A-1P	1080	CLARIFIER NO. 5 RECEPTACLES	I	
	SPARE		20A-1P	15	B	16	20A-1P	1080	CLARIFIER NO. 5 RECEPTACLES	I	
C	RETURN/WASTE PUMP STATION LIGHTS	1094	20A-1P	17	C	18	20A-1P	540	RETURN/WASTE PUMP STATION RECEPT	I	
C	RETURN/WASTE PUMP STATION LIGHTS	1094	20A-1P	19	A	20	20A-1P	540	RETURN/WASTE PUMP STATION RECEPT	I	
C	RETURN/WASTE PUMP STN ELECT RM LIGHTS	820	20A-1P	21	B	22	20A-1P	600	RET/WASTE PUMP STN ELECT RM RECEPT	I	
C	LCP-35	900	20A-1P	23	C	24	20A-1P	600	RET/WASTE PUMP STN ELECT RM RECEPT	I	
	SPARE		20A-1P	25	A	26	20A-1P	300	AHU-35.051 INTERIOR LIGHTS	I	
	SPARE		20A-1P	27	B	28	20A-1P	900	35-FACP-1	C	
	SPARE		20A-1P	29	C	30	20A-1P		A.H.U. 35.051 RECEPTACLE		
	SPARE		20A-1P	31	A	32	20A-1P		SPARE		
	SPARE		20A-1P	33	B	34	20A-1P		SPARE		
	SPARE		20A-1P	35	C	36	20A-1P		SPARE		

PANEL DP-352										10/14/2007	
PANEL INFORMATION					PANEL CALCULATIONS						
LOCATION:	RETURN/WASTE PUMP STATION	NEMA:	12	EQUIP SIZING VA	CONN VA						
VOLTS:	480 / 277	FEED:	TOP	INTERMITTENT	12855	PH A	12618				
PHASE & WIRE:	3PH 4W	MTG:	SURFACE	CONTINUOUS	31249	PH B	12618				
INTERRUPT:	18 KAIC	BUS RATING:	100	TOTAL	44104	PH C	12618				
		MAIN:	MLO	TOTAL	37854						
		MAIN RATING:	100 AF 100 AT	PANEL AMPS	53.05						
I/C	DESCRIPTION	LOAD (VA)	BKR	CIR	Ø	CIR	BKR	LOAD (VA)	DESCRIPTION	I/C	
C	ACU-35.061	8333		1	A	2		1885	VCP-35.001	I	
C	AIR CONDITIONING UNIT	8333	30A-3P	3	B	4	25A-3P	1885	RETURN/WASTE PUMP STATION NO. 1	I	
C	ELECTRICAL ROOM	8333		5	C	6		1885	SUMP PUMP CONTROL PANEL	I	
I	EDV-35.312/EDV-35.320/EDV-35.321	900		7	A	8		600	EDV-35.222/EDV-35.332	I	
I	RETURN PUMP MOTORIZED VALVES	900	15A-3P	9	B	10	15A-3P	600	RETURN PUMP MOTORIZED VALVES	I	
I		900		11	C	12		600		I	
I	EMV-30.121.02	300		13	A	14					
I	AERATION BASIN NO. 5	300	15A-3P	15	B	16	15A-3P				
I	AIR CONTROL VALVE	300		17	C	18					
I		300		19	A	20					
I	AERATION BASIN NO. 6	300	15A-3P	21	B	22	15A-3P				
I	AIR CONTROL VALVE (FUTURE)	300		23	C	24					
I		300		25	A	26					
I	AERATION BASIN NO. 7	300	15A-3P	27	B	28	15A-3P				
I	AIR CONTROL VALVE (FUTURE)	300		29	C	30					
				31	A	32					
			15A-3P	33	B	34	15A-3P				
				35	C	36					

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 KANSAS CITY, MISSOURI 64131
 (816) 942-5027
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 CERTIFICATE OF AUTHORITY NO: 2010033629

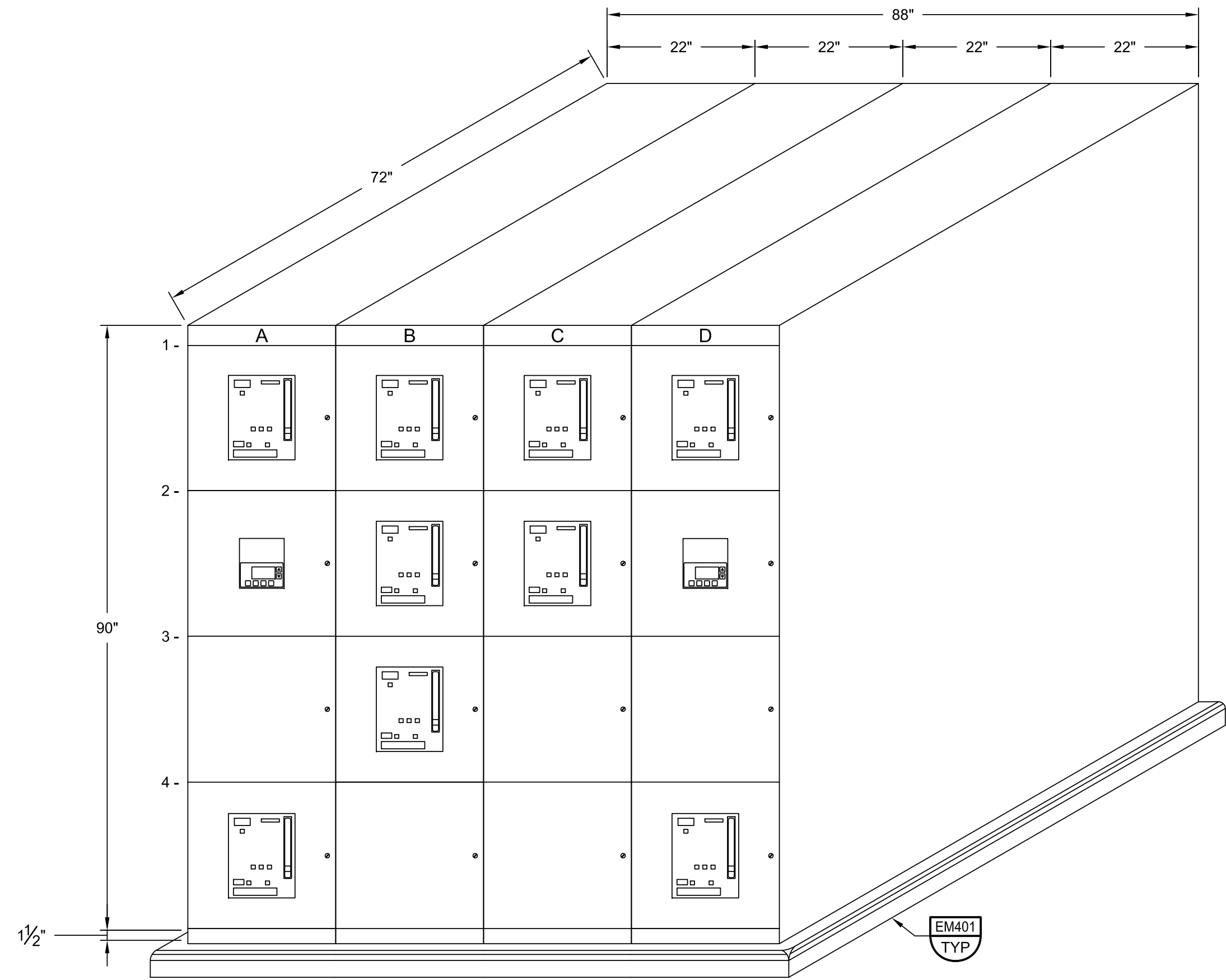


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WATER RECLAMATION CENTER
 EXPANSION PROJECT - PHASE 2
 ELECTRICAL
 MCC-35 RETURN / WASTE PUMP STATION PANEL SCHEDULES

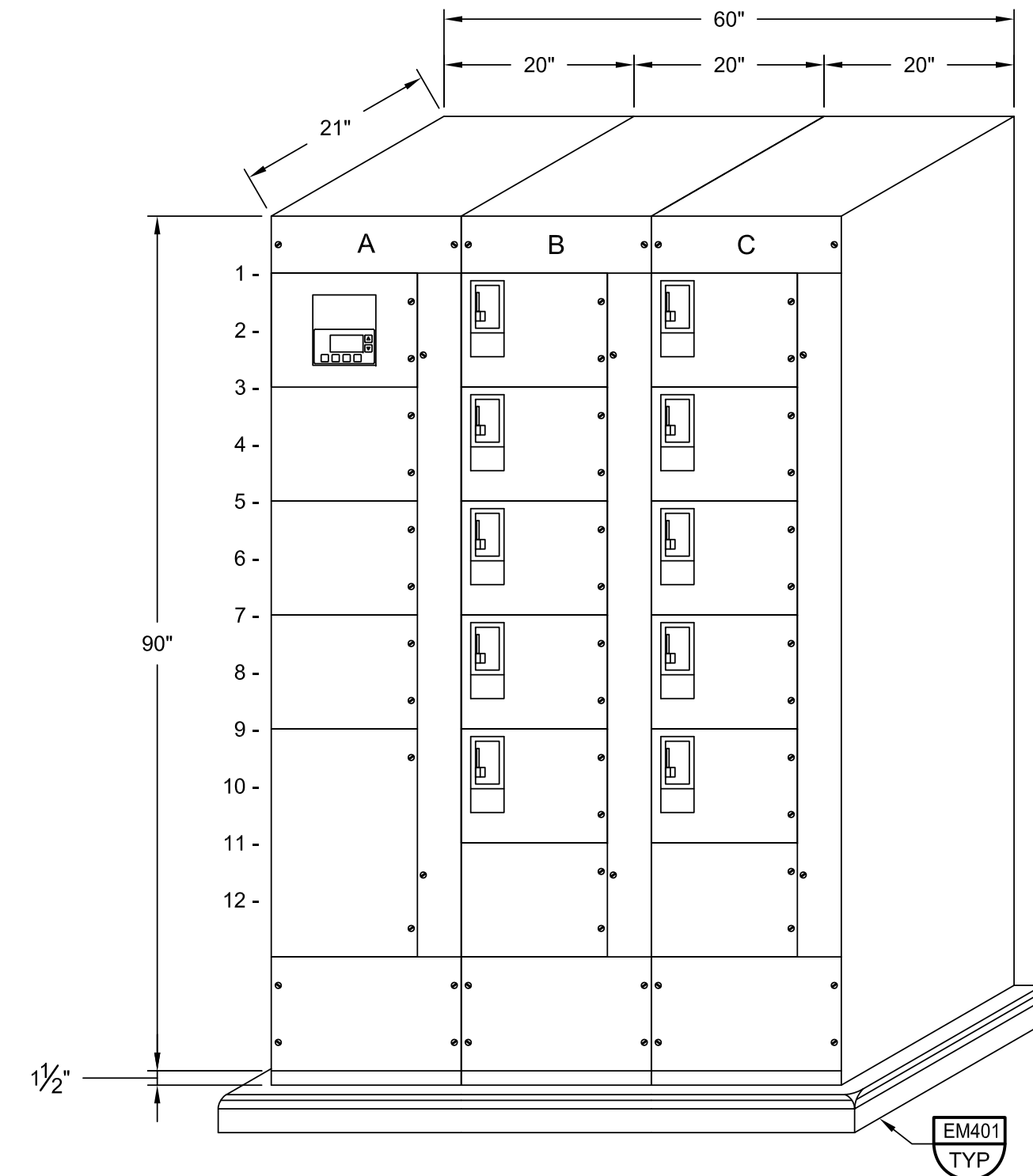
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JOB NO. 6796B.20
 DRAWING NO. 01E09
 SHEET NO. 104 OF 208



A1 - BLO-40.110 AERATION BLOWER NO. 1	B1 - MCC-40	C1 - MCC-35 RETURN/WASTE PUMP STATION NO. 1	D1 - BLO-40.140 AERATION BLOWER NO. 4 (FUTURE)
A2 - METERING	B2 - BL0-40.130 AERATION BLOWER NO. 3 (FUTURE)	C2 - BL0-40.120 AERATION BLOWER NO. 2	D2 - METERING
A3 - TVSS	B3 - TIE BREAKER	C3 - SPACE	D3 - TVSS
A4 - MAIN BREAKER A TR-40A	B4 - SPACE	C4 - SPACE	D4 - MAIN BREAKER B TR-40B

A SWGR-40 ELEVATION
40E02 SCALE: 3/4"=1'-0"
FILE: 6796B10-01-089-603



A1 - METERING	B1 - FAN-40.011 SUPPLY FAN NO. 1	C1 - FAN-40.021 EXHAUST FAN NO. 1
A3 - SPACE	B3 - FAN-40.012 SUPPLY FAN NO. 2	C3 - FAN-40.022 EXHAUST FAN NO. 2
A5 - SPACE	B5 - FAN-40.013 SUPPLY FAN NO. 3	C5 - FAN-40.023 EXHAUST FAN NO. 3
A7 - SPACE	B7 - FAN-40.014 SUPPLY FAN NO. 4	C7 - FAN-40.024 EXHAUST FAN NO. 4
A9 - MAIN LUGS	B9 - DP-402 BLOWER BUILDING 3 480V PANEL	C9 - TR-401 BLOWER BUILDING 3 120/208V TRANSFORMER
	B11 - SPACE	C11 - SPACE

B MCC-40 ELEVATION
40E02 SCALE: 3/4"=1'-0"
FILE: 6796B10-01-089-602

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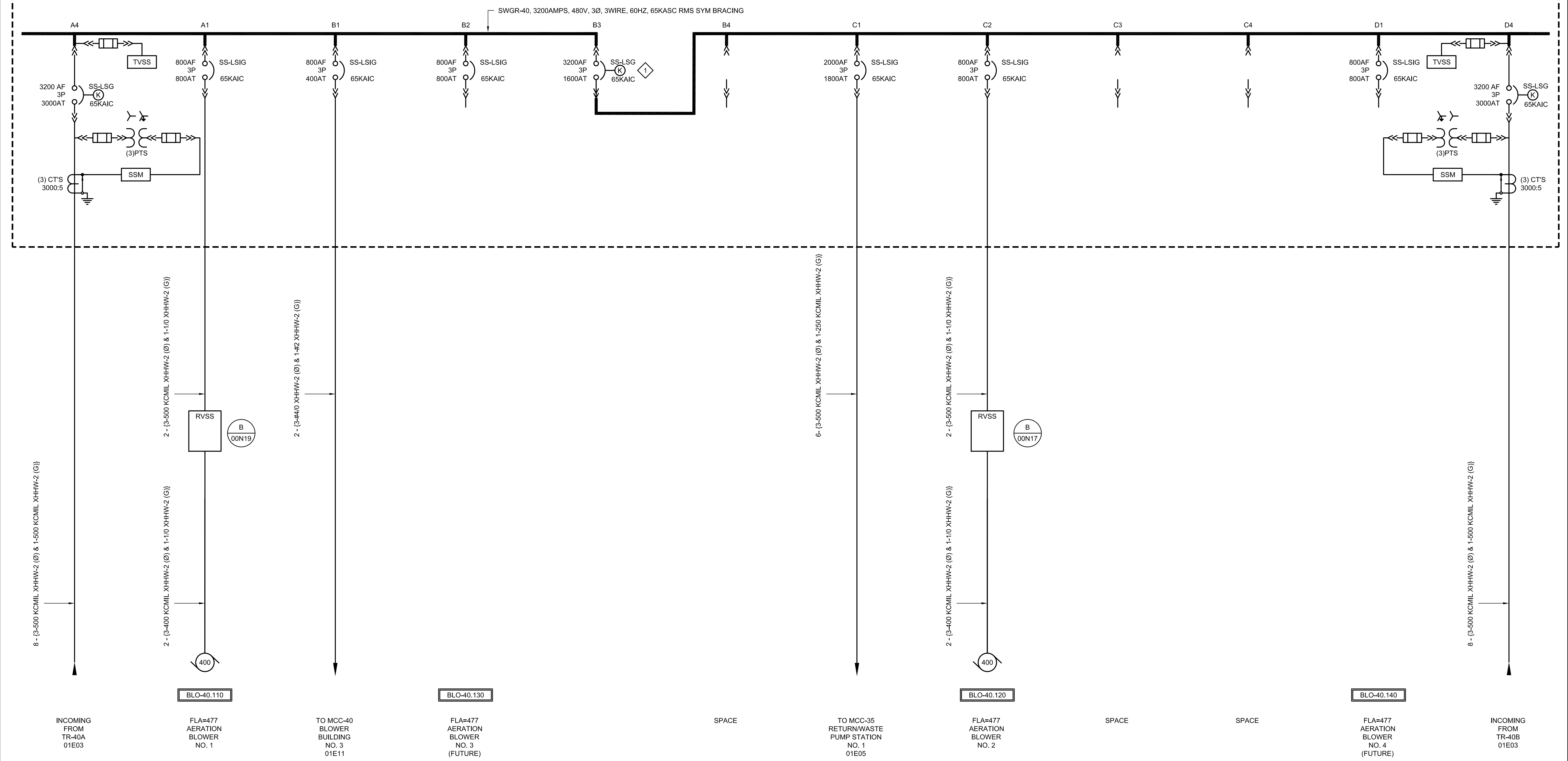
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EXPANSION PROJECT - PHASE 2
ELECTRICAL
SWGR/MCC-40 BLOWER BUILDING NO. 3
ELEVATIONS

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JOB NO.
6796B.20
DRAWING NO.
01E10
SHEET NO.
105 OF 208

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KEY NOTES:
 1 KEY INTERLOCK TO PREVENT TIE BREAKER FROM BEING CLOSED WHEN BOTH MAIN BREAKERS ARE CLOSED.

REV	DATE	BY	DESCRIPTION

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DATE DECEMBER 2012

ENGINEER
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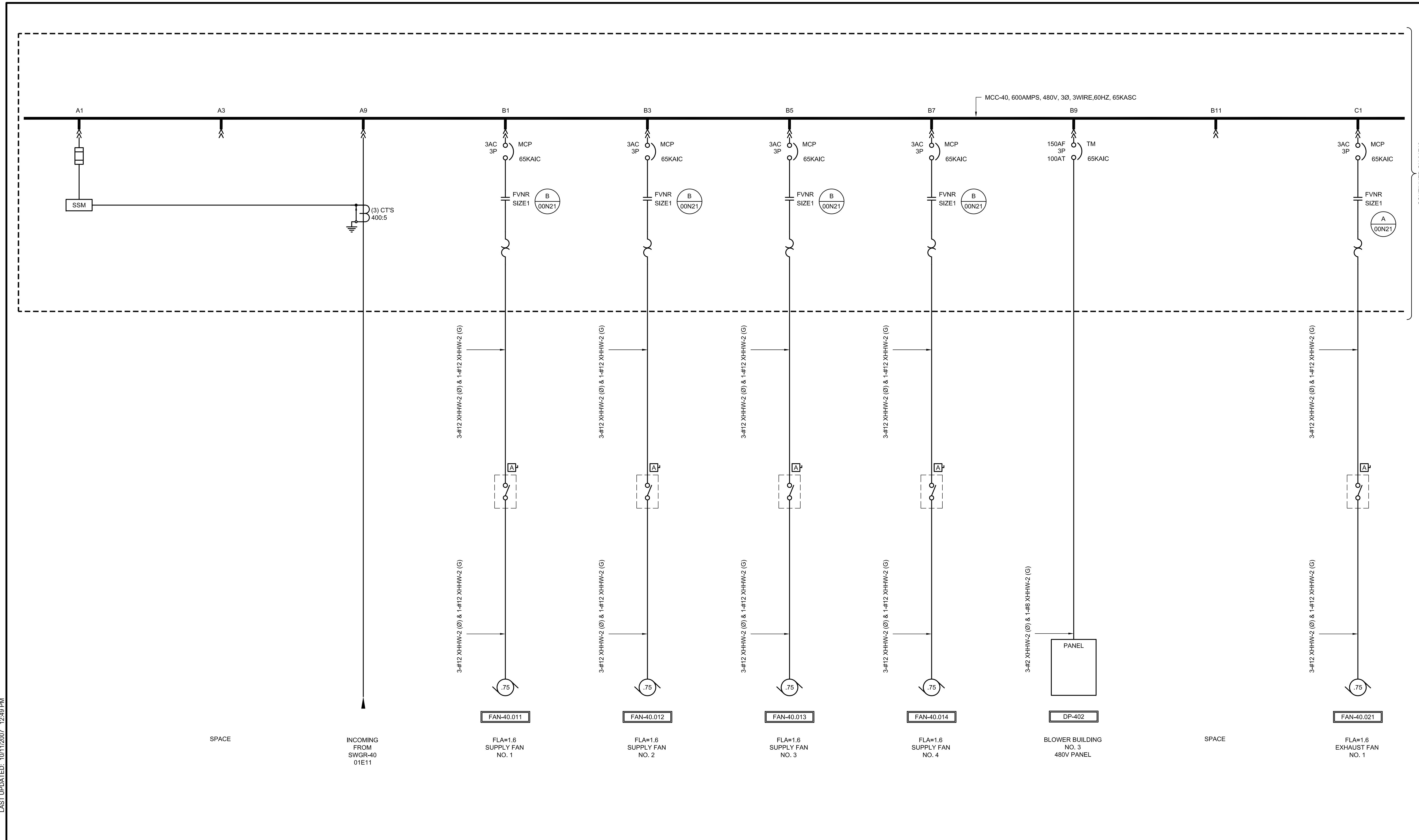
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WATER RECLAMATION CENTER
 EXPANSION PROJECT - PHASE 2
 ELECTRICAL
 SWGR-40 BLOWER BUILDING NO. 3
 SINGLE LINE DIAGRAM

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	DRAWING NO. 01E11
	SHEET NO. 106 OF 208



CONTINUED ON 01E13

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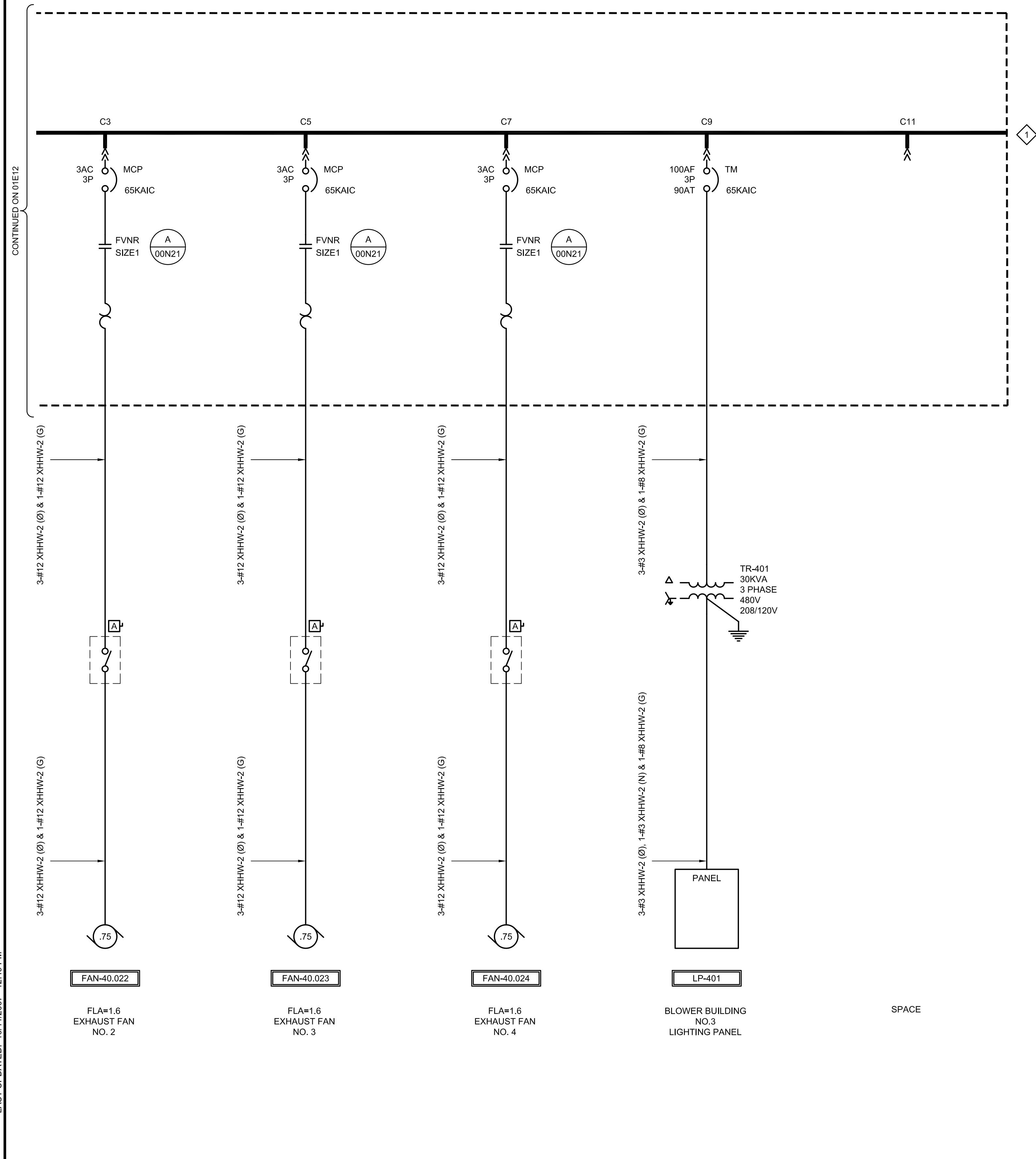
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WATER RECLAMATION CENTER
 EXPANSION PROJECT - PHASE 2
 ELECTRICAL
 MCC-40 BLOWER BUILDING NO. 3
 SINGLE LINE DIAGRAM 1

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01E12
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107 OF 208

KEY NOTES:
 1 PROVISIONS FOR BUS EXTENSION.



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WATER RECLAMATION CENTER
 EXPANSION PROJECT - PHASE 2
 ELECTRICAL
 MCC-40 BLOWER BUILDING NO. 3
 SINGLE LINE DIAGRAM 2

VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1"	JOB NO. 6796B.20
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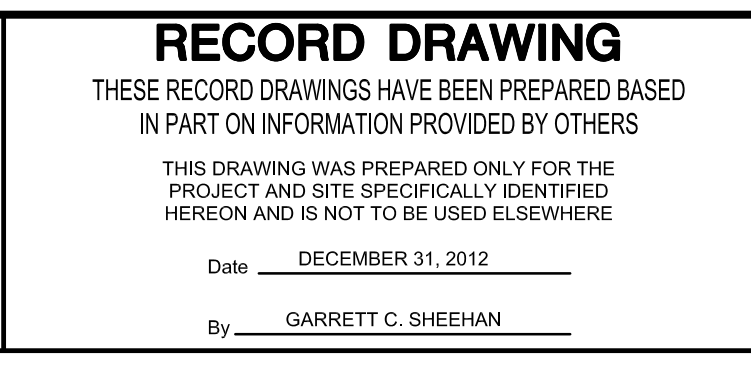
PANEL LP-401										10/14/2007	
PANEL INFORMATION					PANEL CALCULATIONS						
LOCATION:	BLOWER BUILDING 3 ELECTRICAL ROOM	NEMA:	12	EQUIP SIZING VA	CONN VA						
VOLTS:	208 / 120	FEED:	TOP	INTERMITTENT	2480	PH A	4144				
PHASE & WIRE:	3PH 4W	MTG:	SURFACE	CONTINUOUS	12900	PH B	5302				
INTERRUPT:	18 KAIC	BUS RATING:	100	TOTAL	15380	PH C	3354				
		MAIN:	CB	TOTAL	12800						
		MAIN RATING:	100 AF 100 AT	PANEL AMPS	53.4						
I/C	DESCRIPTION	LOAD (VA)	BKR	CIR	Ø	CIR	BKR	LOAD (VA)	DESCRIPTION	I/C	
I	BLOWER BUILDING 3 ROOF RECEPTACLES	540	20A-1P	1	A	2	20A-1P	724	BLOWER BUILDING ELECT RM LIGHTS	C	
C	BLOWER ROOM LIGHTS	1472	20A-1P	3	B	4	20A-1P	1170	BLOWER ROOM LIGHTS	C	
C	BLOWER ROOM LIGHTS	1170	20A-1P	5	C	6	20A-1P		SPARE		
I	BLOWER BUILDING ELECT ROOM RECEPTACLES	540	20A-1P	7	A	8	20A-1P	540	BLOWER ROOM RECEPTACLES	I	
I	BLOWER BUILDING ELECT ROOM RECEPTACLES	360	20A-1P	9	B	10	20A-1P	500	BLOWER ROOM RECEPTACLES	I	
	SPARE		20A-1P	11	C	12	20A-1P	384	BLOWER BUILDING OUTDOOR LIGHTS	C	
	SPARE		20A-1P	13	A	14	20A-1P		SPARE		
	SPARE		20A-1P	15	B	16	20A-1P		SPARE		
	SPARE		20A-1P	17	C	18	20A-1P		SPARE		
C	VCP-40.110	900	20A-1P	19	A	20	20A-1P	900	VCP-40.120	C	
C	VCP-40.130 (FUTURE)	900	20A-1P	21	B	22	20A-1P	900	VCP-40.140 (FUTURE)	C	
C	LCP-40	900	20A-1P	23	C	24	20A-1P	900	40-FACP	C	

PANEL DP-402										10/14/2007	
PANEL INFORMATION					PANEL CALCULATIONS						
LOCATION:	BLOWER BUILDING 3 ELECTRICAL ROOM	NEMA:	12	EQUIP SIZING VA	CONN VA						
VOLTS:	480	FEED:	TOP	INTERMITTENT	4992	PH A	10390				
PHASE & WIRE:	3PH 3W	MTG:	SURFACE	CONTINUOUS	32723	PH B	10390				
INTERRUPT:	35 KAIC	BUS RATING:	100	TOTAL	37715	PH C	10390				
		MAIN:	MLO	TOTAL	31170						
		MAIN RATING:		PANEL AMPS	45.37						
I/C	DESCRIPTION	LOAD (VA)	BKR	CIR	Ø	CIR	BKR	LOAD (VA)	DESCRIPTION	I/C	
	SPARE		15A-3P	1	A	2	30A-3P		SPARE		
				3	B	4					
				5	C	6					
C	ACU-40.061	8726		7	A	8					
C	ELECTRICAL ROOM AIR CONDITIONING UNIT	8726	50A-3P	9	B	10	15A-3P		SPARE		
C		8726		11	C	12					
I	EMV-40.112/EDV-40.115	416		13	A	14		416	EMV-40.122/EDV-40.125	I	
I	AERATION BLOWER NO. 1	416	15A-3P	15	B	16	15A-3P	416	AERATION BLOWER NO. 2	I	
I	INLET VALVE/BLOWOFF VALVE	416		17	C	18		416	INLET VALVE/BLOWOFF VALVE	I	
I		416		19	A	20		416		I	
I	AERATION BLOWER NO. 3	416	15A-3P	21	B	22	15A-3P	416	AERATION BLOWER NO. 4	I	
I	INLET VALVE/BLOWOFF VALVE (FUTURE)	416		23	C	24		416	INLET VALVE/BLOWOFF VALVE (FUTURE)	I	
				25	A	26					
	SPARE		15A-3P	27	B	28	15A-3P		SPARE		
				29	C	30					

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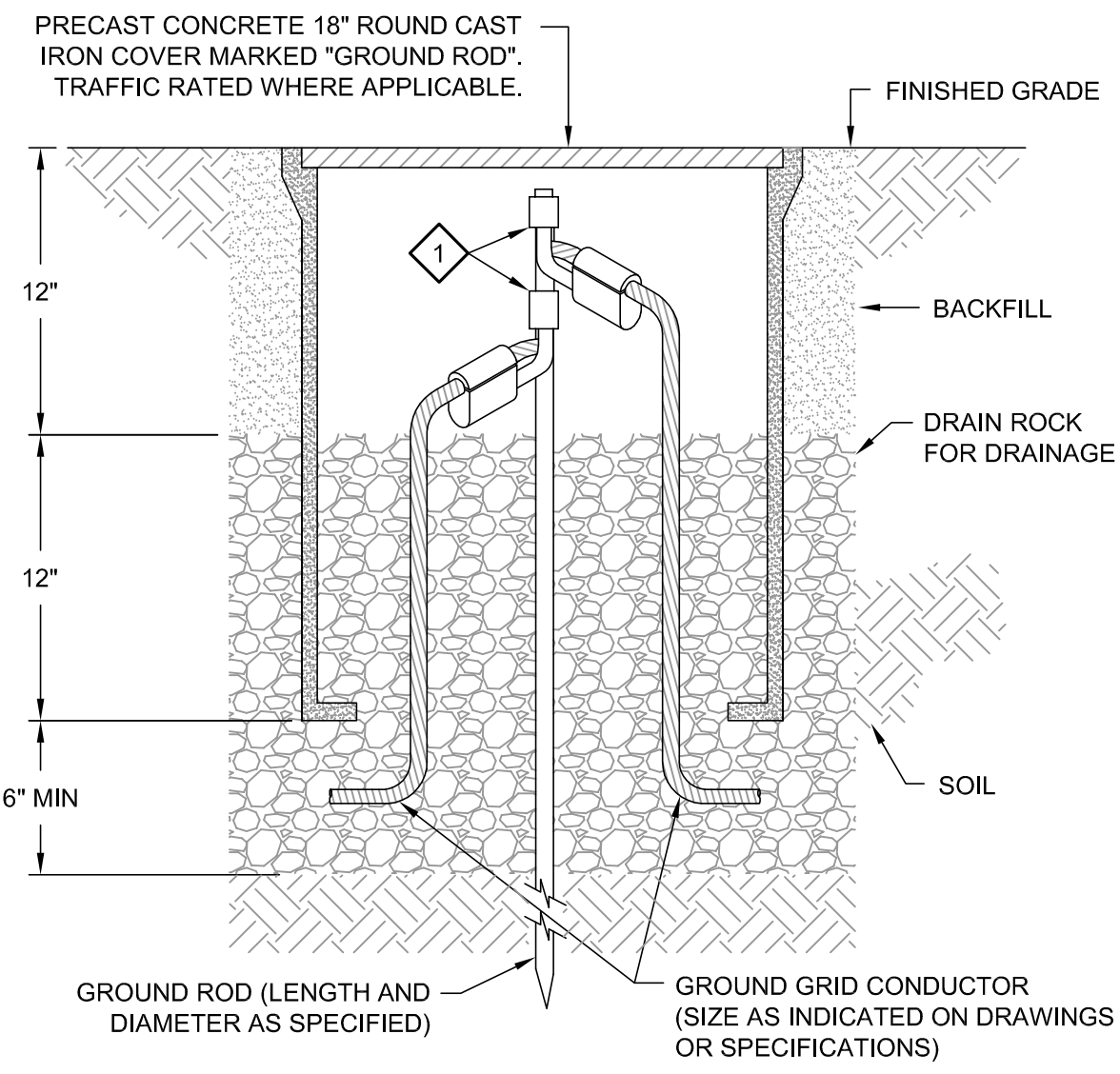
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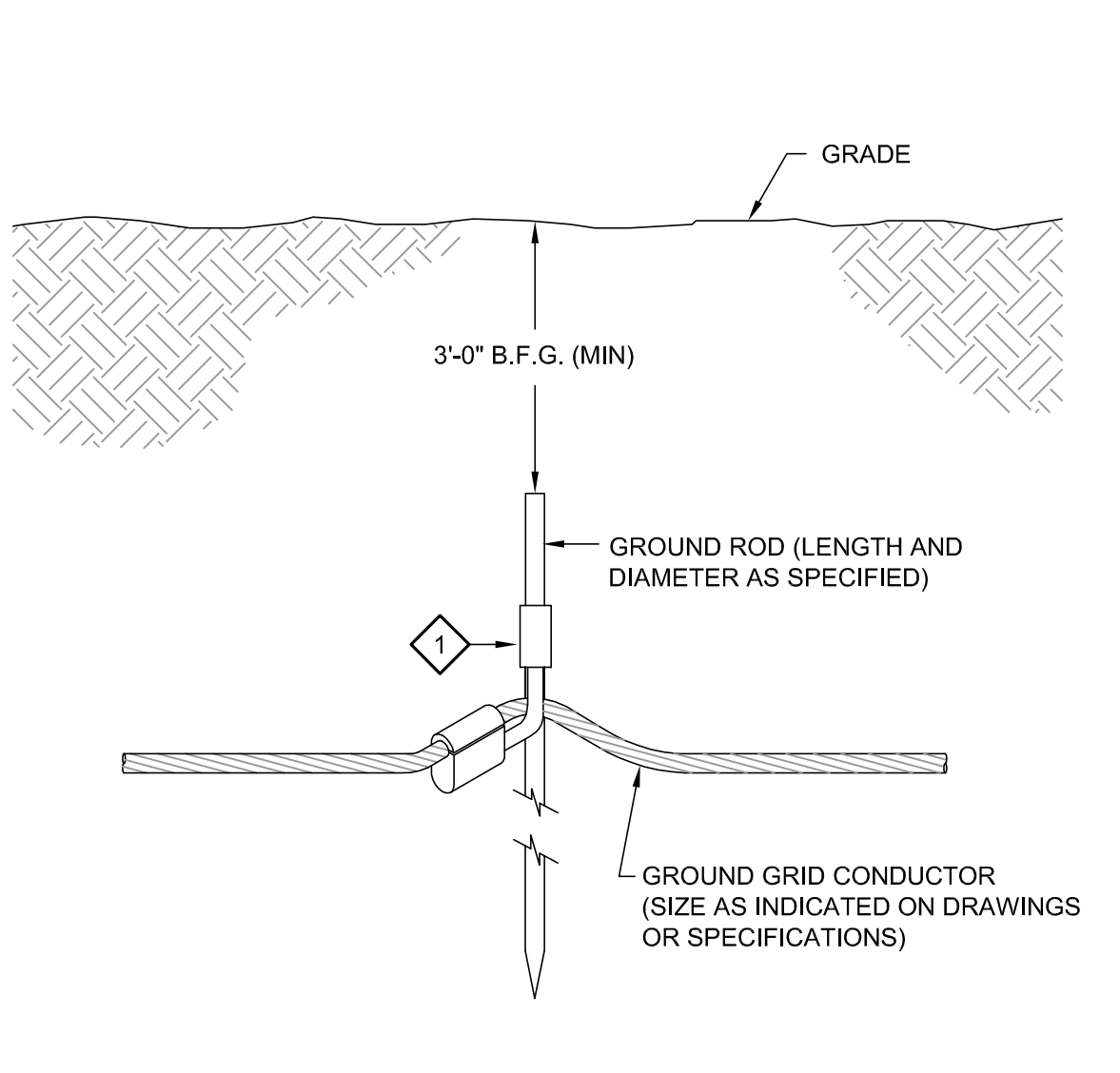
WATER RECLAMATION CENTER
 EXPANSION PROJECT - PHASE 2
 ELECTRICAL
 MCC-40 BLOWER BUILDING NO. 3 PANEL SCHEDULES

VERIFY SCALES	JOB NO. 6796B.20
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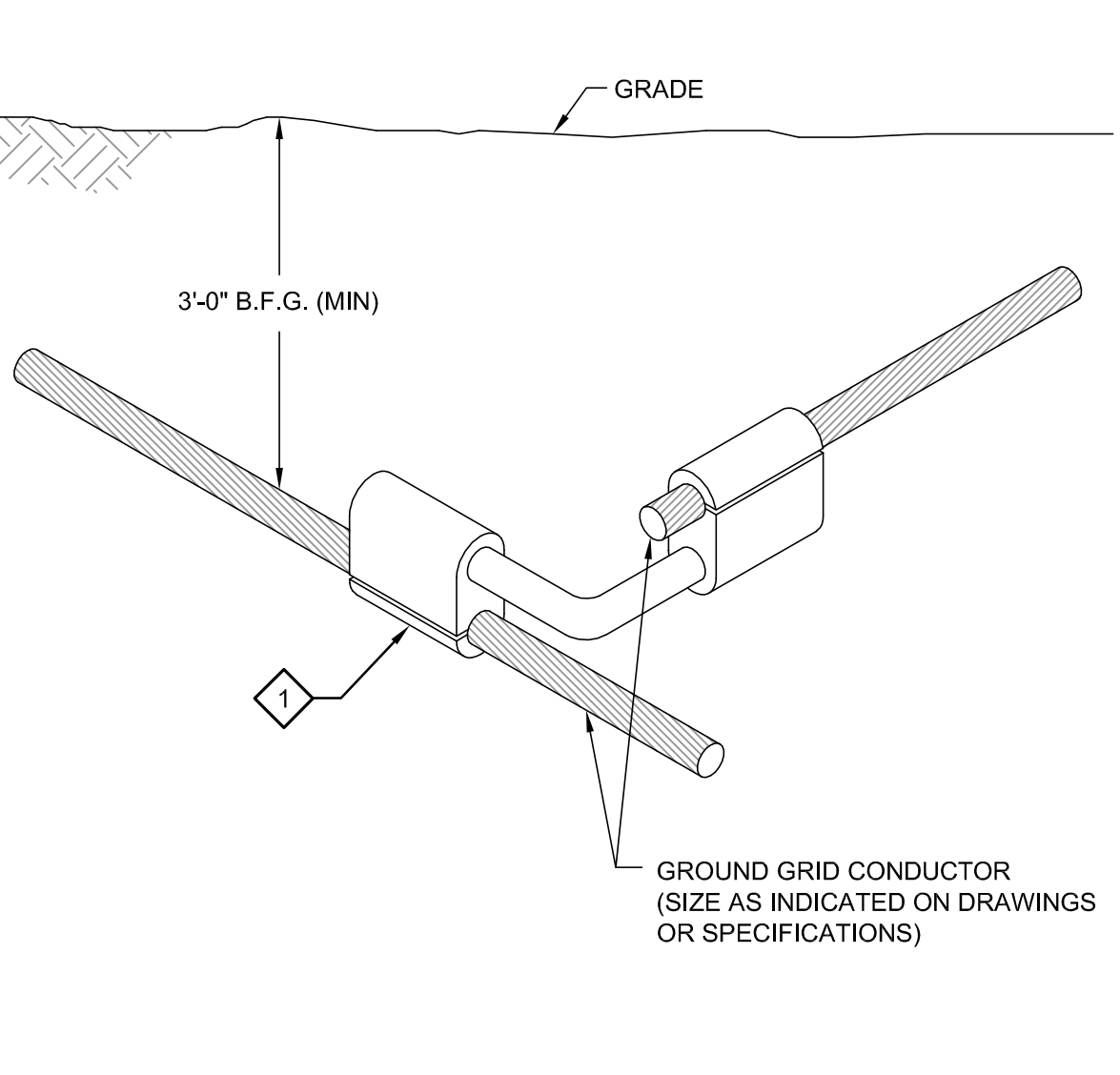
KEY NOTES:
 1 GROUND ROD TO GROUND GRID CROSS CONNECTOR. SIZE FOR ROD AND CABLE PER MANUFACTURERS GUIDELINES.

EG001 GROUND ROD AND GROUNDWELL
 TYP COMPRESSION CONNECTION



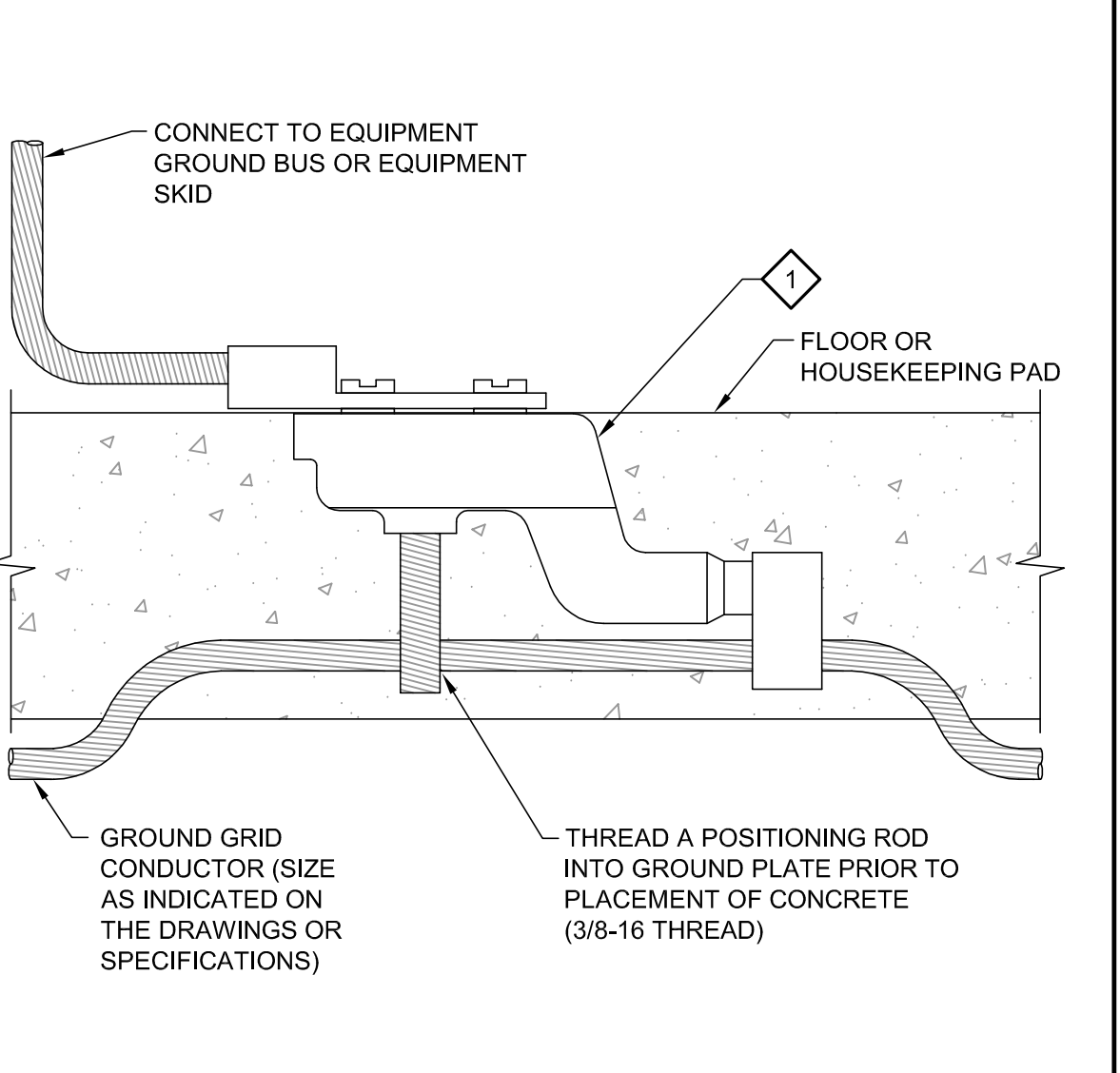
KEY NOTES:
 1 GROUND ROD TO GROUND GRID CROSS CONNECTOR. SIZE FOR ROD AND CABLE PER MANUFACTURERS GUIDELINES.

EG002 GROUND ROD
 TYP COMPRESSION CONNECTION



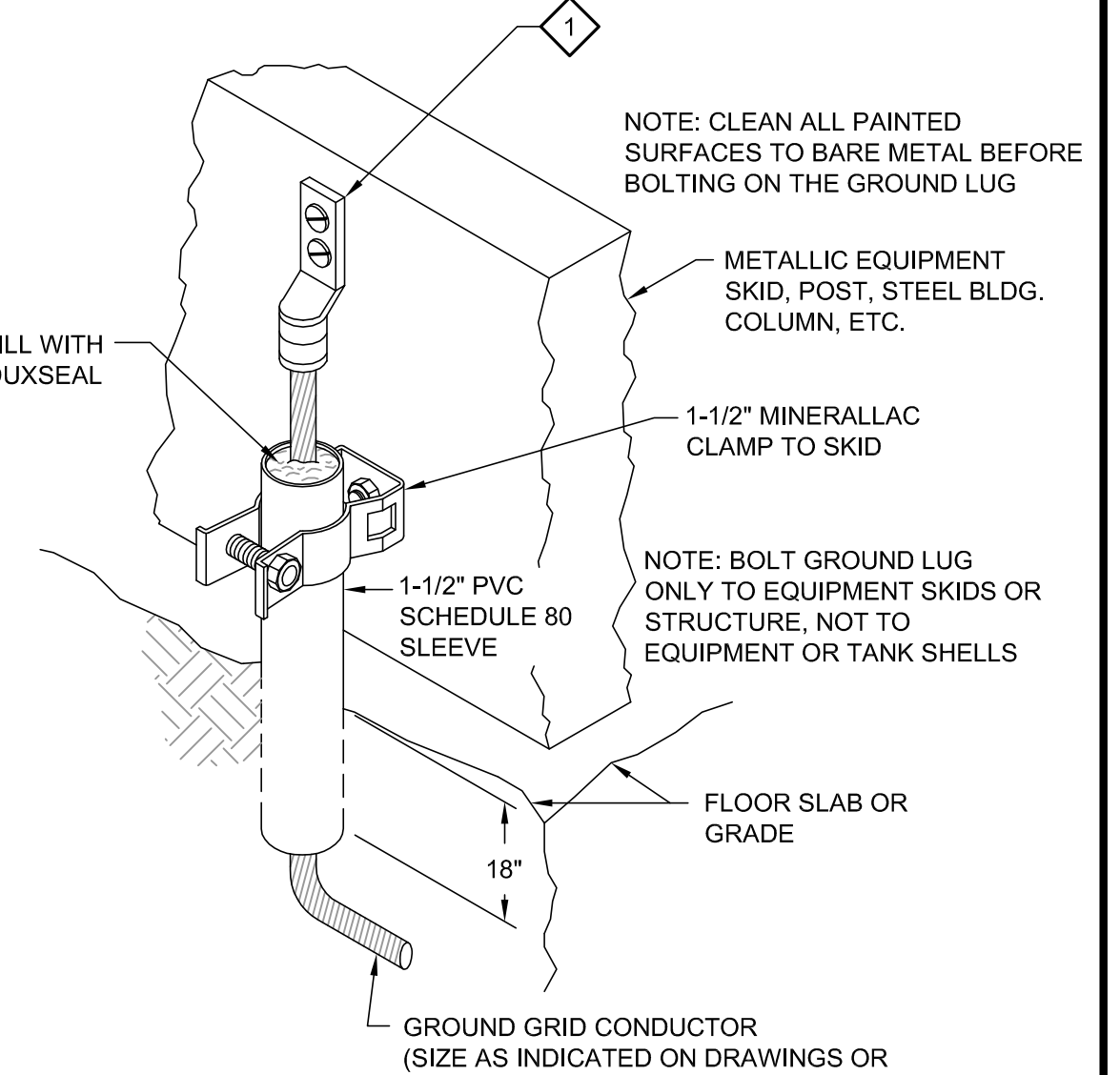
KEY NOTES:
 1 GROUND ROD TO GROUND GRID CROSS CONNECTOR. SIZE FOR ROD AND CABLE PER MANUFACTURERS GUIDELINES.

EG101 COPPER GROUNDING CABLE CONNECTION
 TYP COMPRESSION CONNECTION



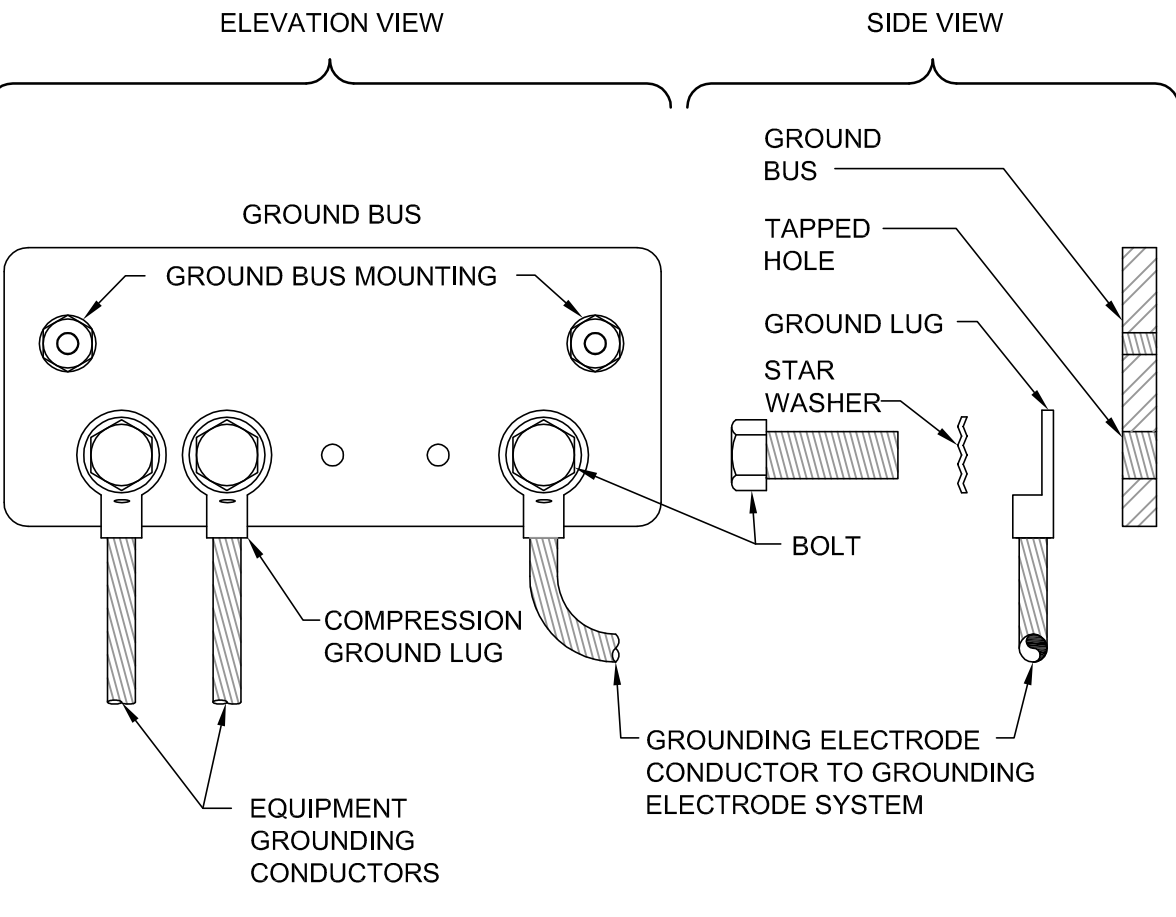
KEY NOTES:
 1 GROUNDING PLATE

EG102 CAST GROUNDING PLATE
 TYP COMPRESSION CONNECTION



KEY NOTES:
 1 HEAVY DUTY COMPRESSION TERMINAL

EG201 EQUIPMENT SKID GROUNDING
 TYP COMPRESSION CONNECTION



EG204 GROUND BUS CONNECTIONS
 TYP

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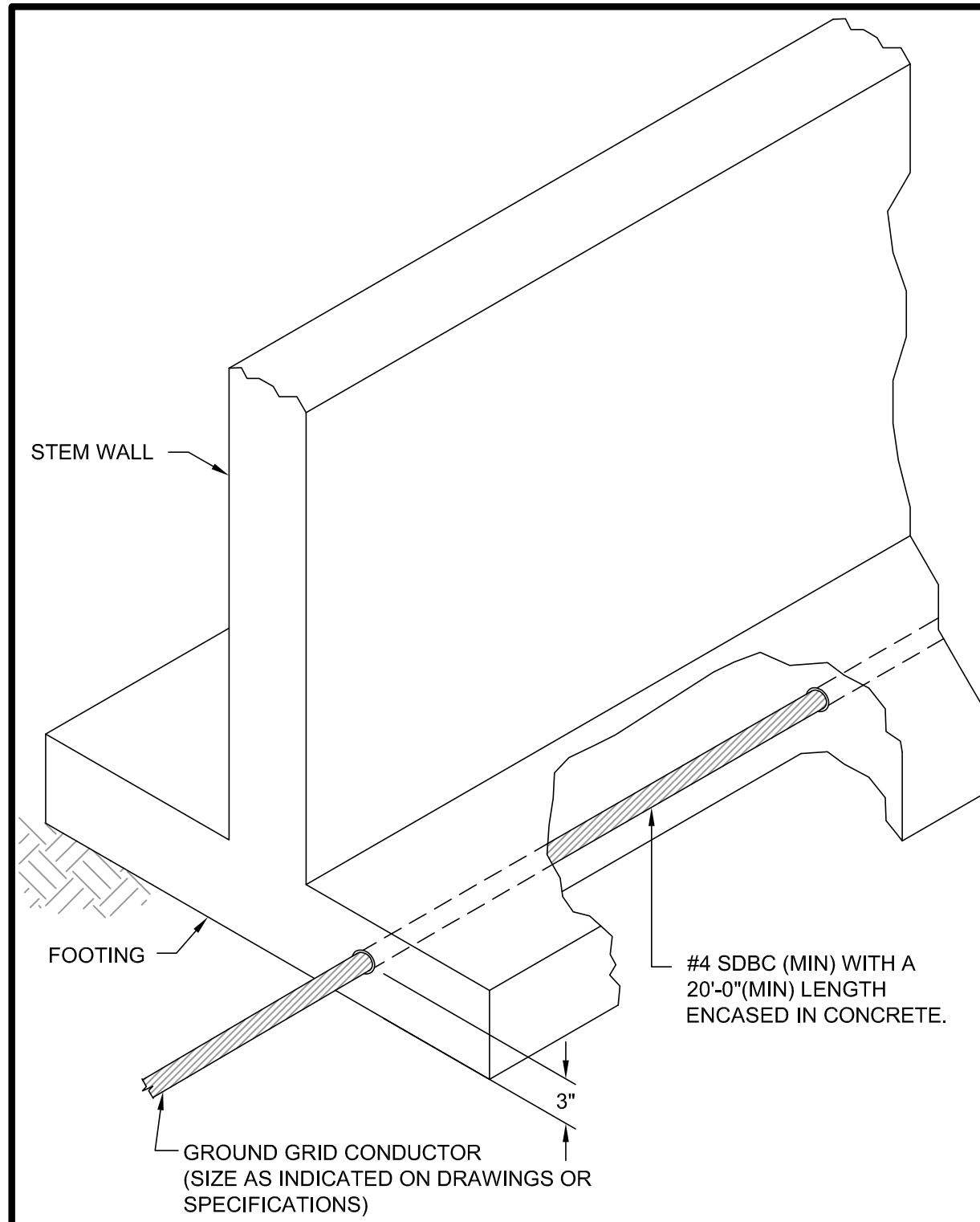
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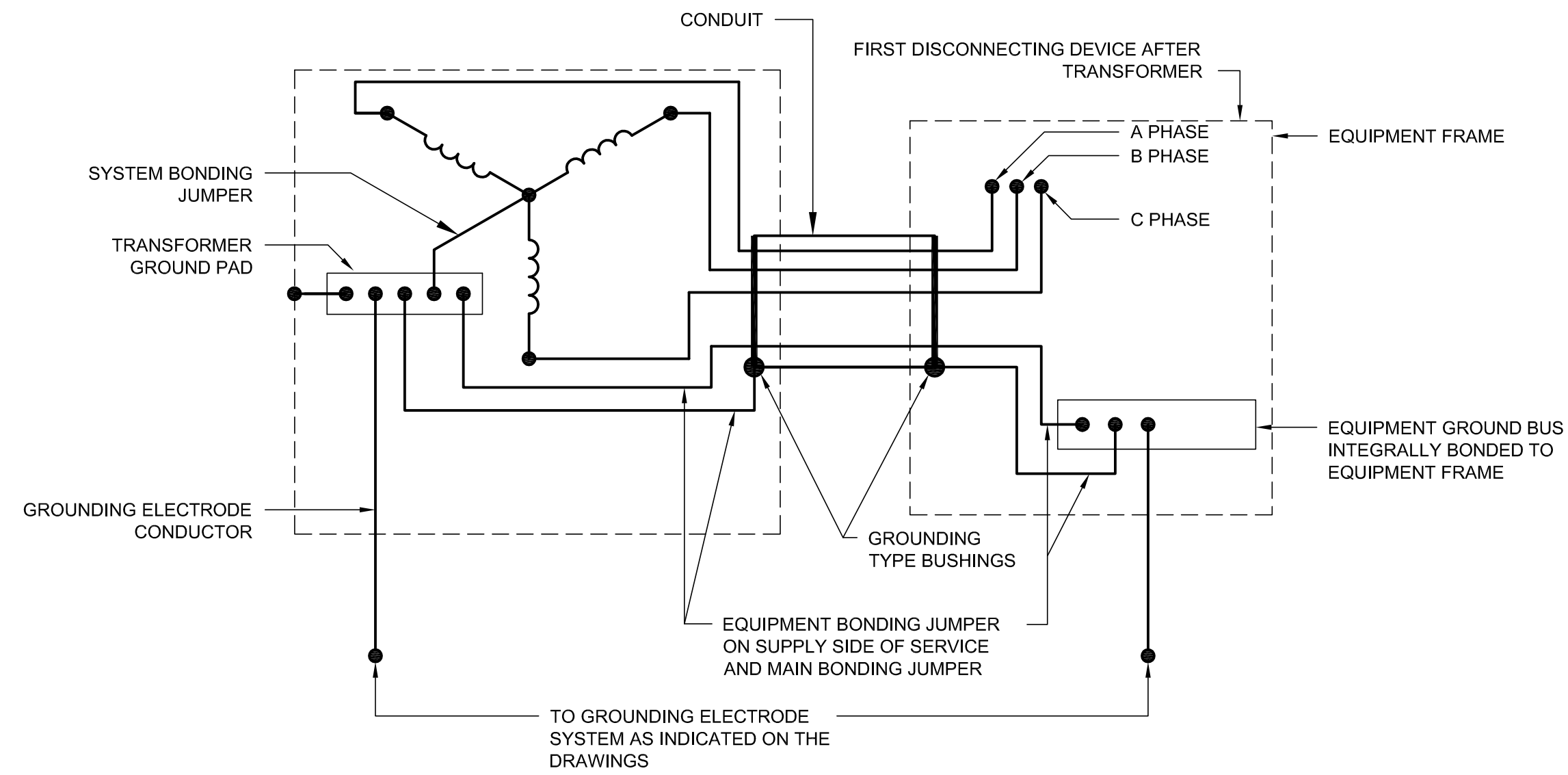
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 EXPANSION PROJECT - PHASE 2
 ELECTRICAL
 TYPICAL DETAILS 1

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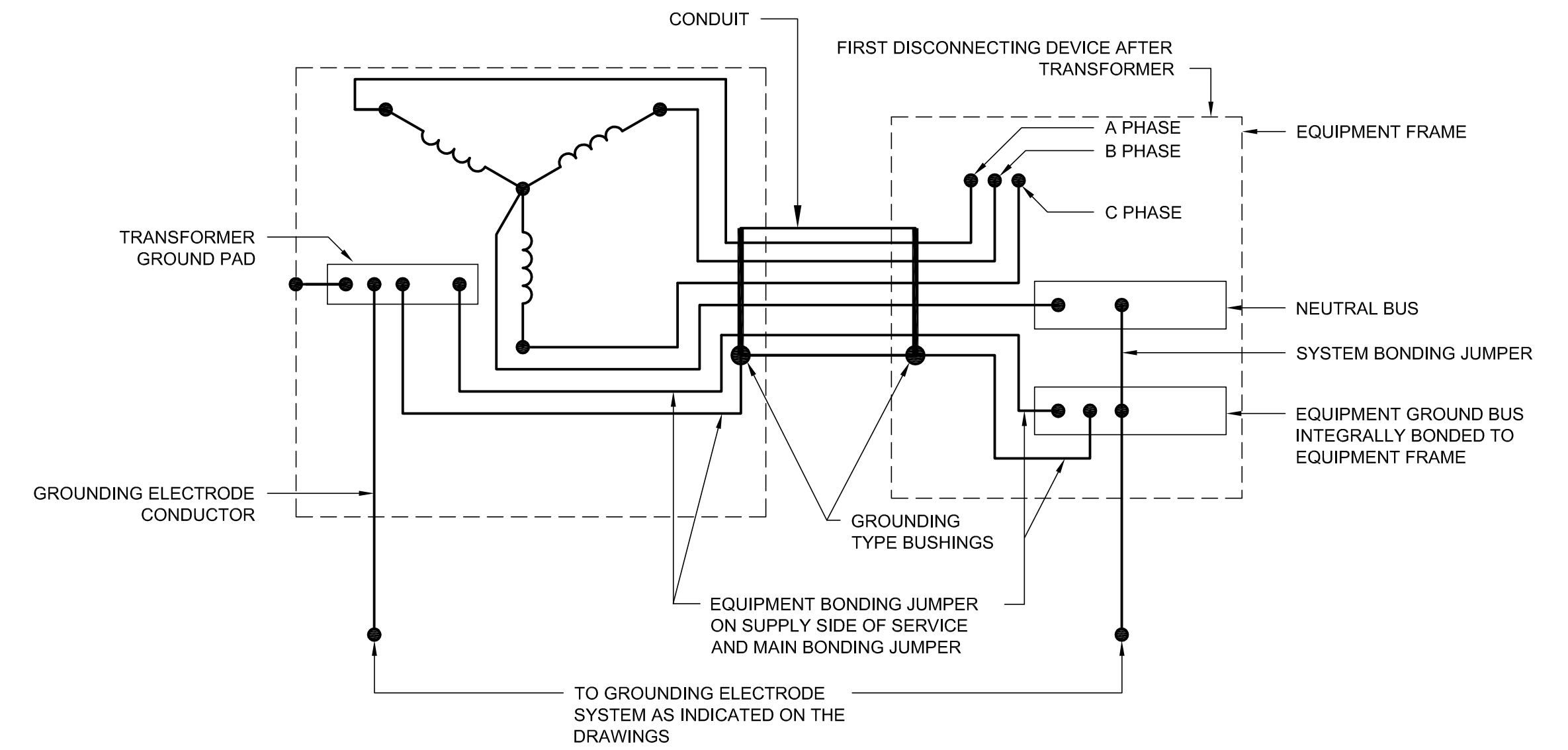
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99TE01
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185 OF 208



EG304
TYP S
GROUNDING CONNECTION TO FOOTING (UFER)



EG510
TYP S
TRANSFORMER (NON-UTILITY) 3-PHASE, 3-WIRE SECONDARY POWER GROUNDING DETAIL



EG511
TYP S
TRANSFORMER (NON-UTILITY) 3-PHASE, 4-WIRE SECONDARY POWER GROUNDING DETAIL

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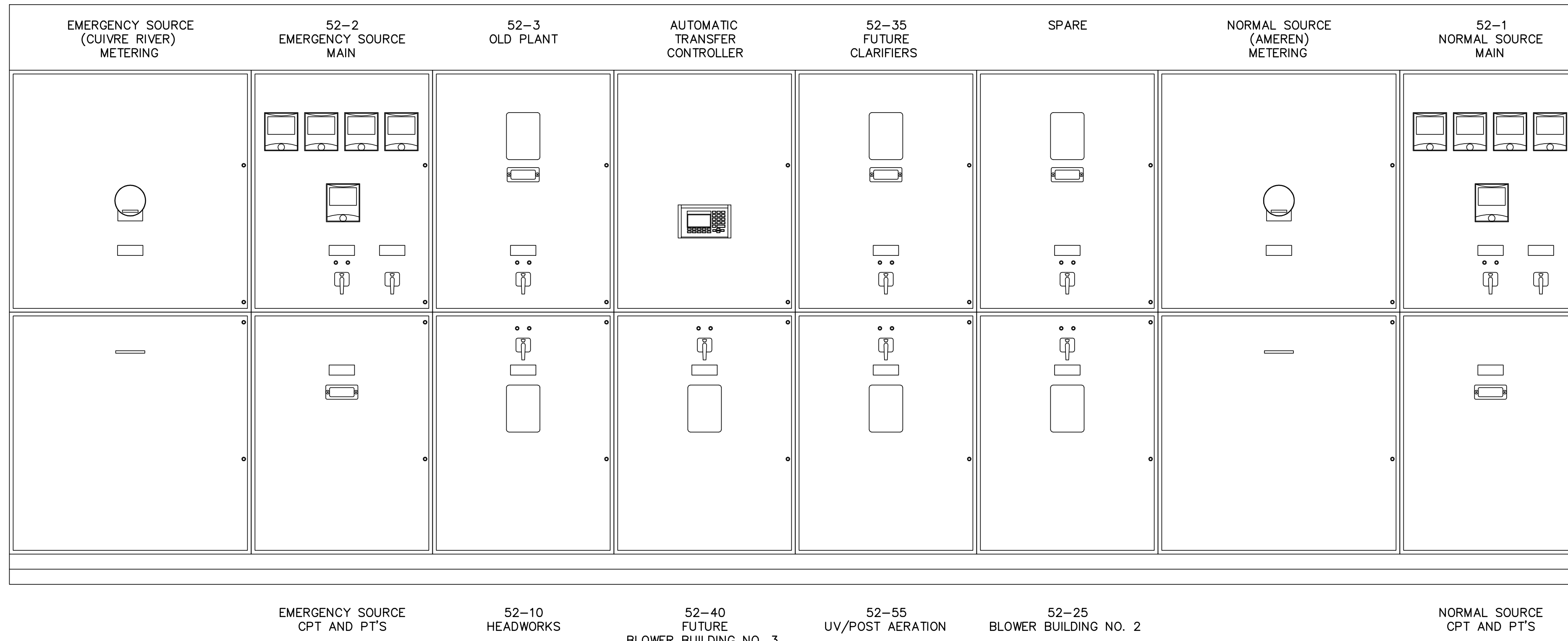
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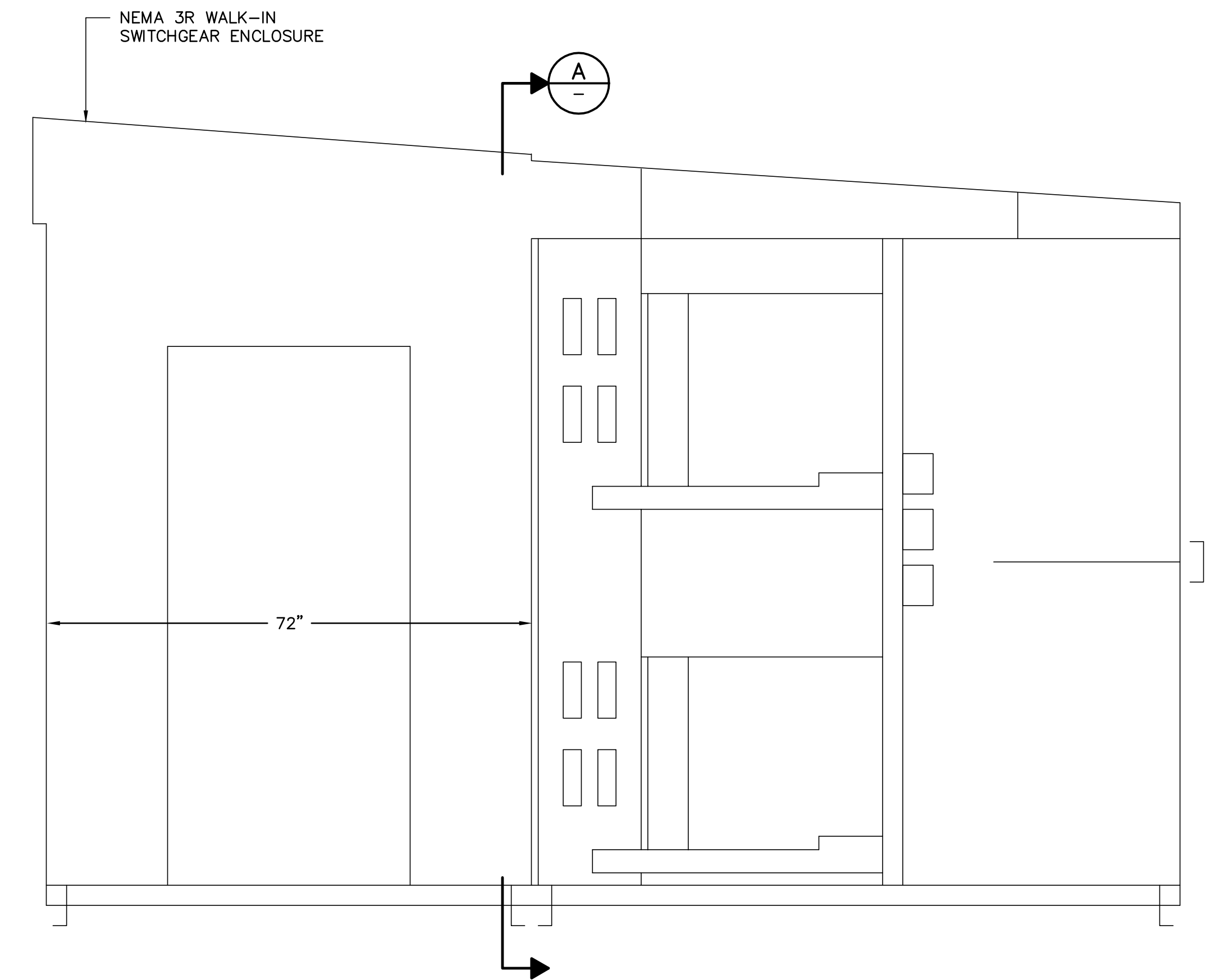
WATER RECLAMATION CENTER
 EXPANSION PROJECT - PHASE 2
 ELECTRICAL
 TYPICAL DETAILS 2

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JOB NO.
6796B.20
 DRAWING NO.
99TE02
 SHEET NO.
186 OF 208



A MV FACILITY SWITCHGEAR SECTION
 SCALE: 3/4"=1'-0"
 FILE: 6796A10-00-080-600



B RIGHT SIDE ELEVATION
 SCALE: 3/4"=1'-0"
 FILE: 6796A10-00-080-600

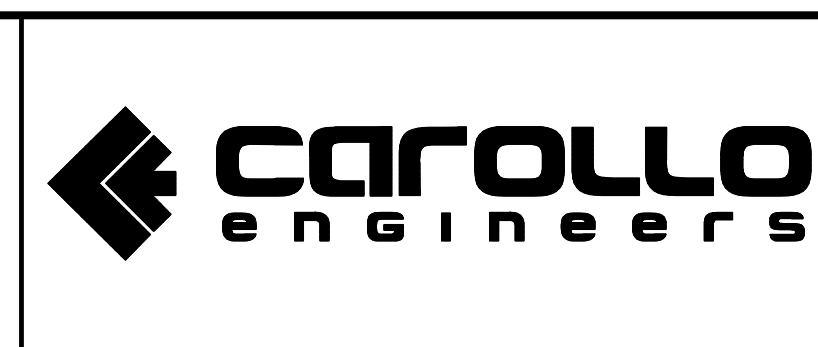
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DATE MARCH 2008

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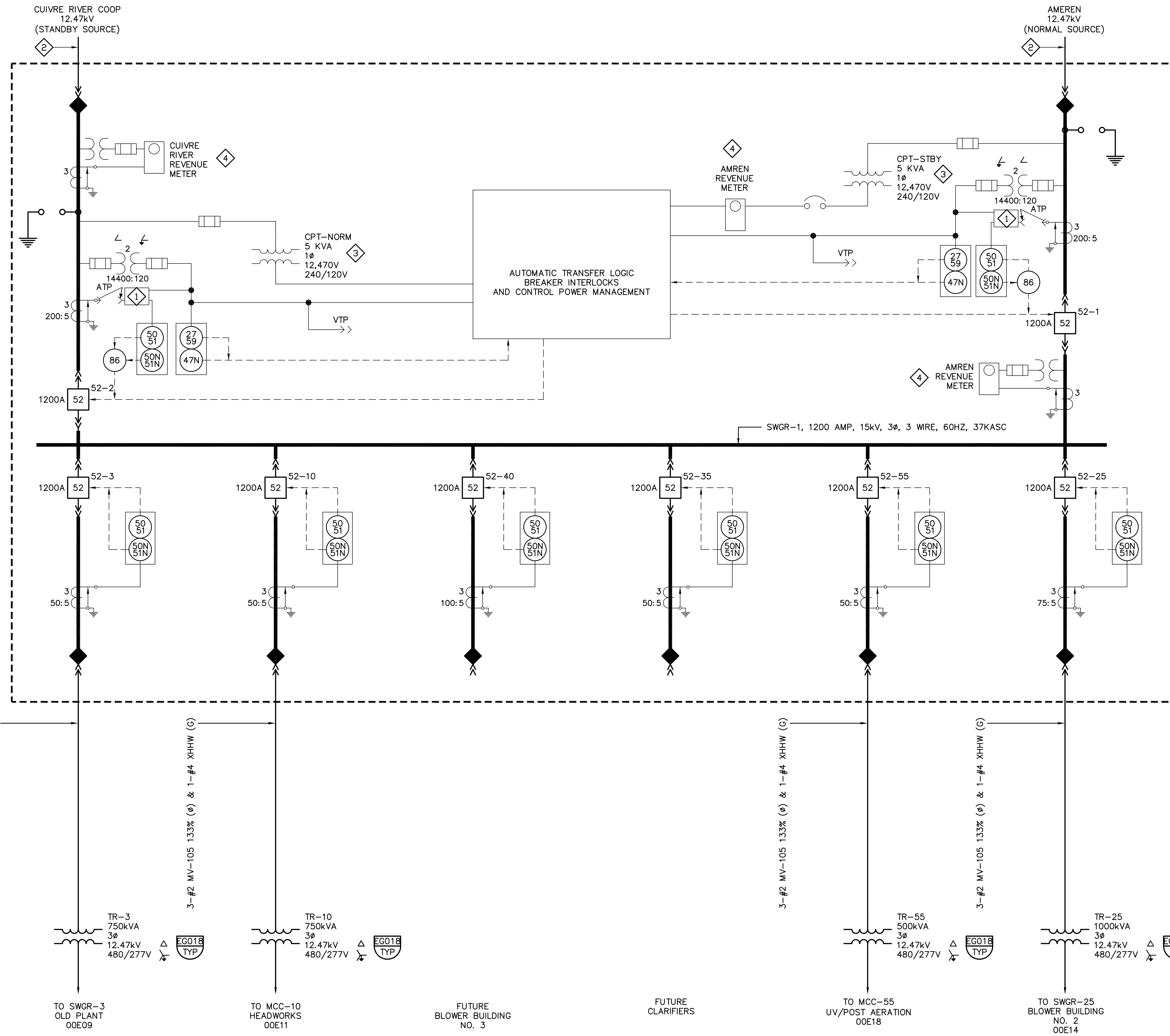
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WATER RECLAMATION CENTER EXPANSION PROJECT
 CITY OF WENTZVILLE, MISSOURI
 ELECTRICAL
 MV FACILITY SWITCHGEAR ELEVATION

VERIFY SCALES
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JOB NO.
6796A.10
 DRAWING NO.
00E05
 SHEET NO.
105 OF 246



- GENERAL NOTE:**
- REVENUE METERING SHOWN BASED ON PRELIMINARY INFORMATION FROM ELECTRIC UTILITY COMPANIES. VERIFY FINAL REQUIREMENTS WITH UTILITIES.
- KEY NOTES:**
- 1 DIGITAL METERING PACKAGE
 - 2 PRIMARY CONDUCTORS FURNISHED AND TERMINATED BY ELECTRIC UTILITY
 - 3 NOT USED
 - 4 LOCATE REVENUE METERS PER UTILITY REQUIREMENTS. PROVIDE CONDUIT AND WIRE AS REQUIRED.

Last Saved By: JEV, 3-04-08, 05:26pm

REV	DATE	BY	DESCRIPTION

DESIGNED TDH
 DRAWN BOG
 CHECKED RAM
 DATE MARCH 2008

ENGINEER
 ORIGINAL STAMPED BY
 ROBERT A. MORRONI
 OCTOBER 11, 2005

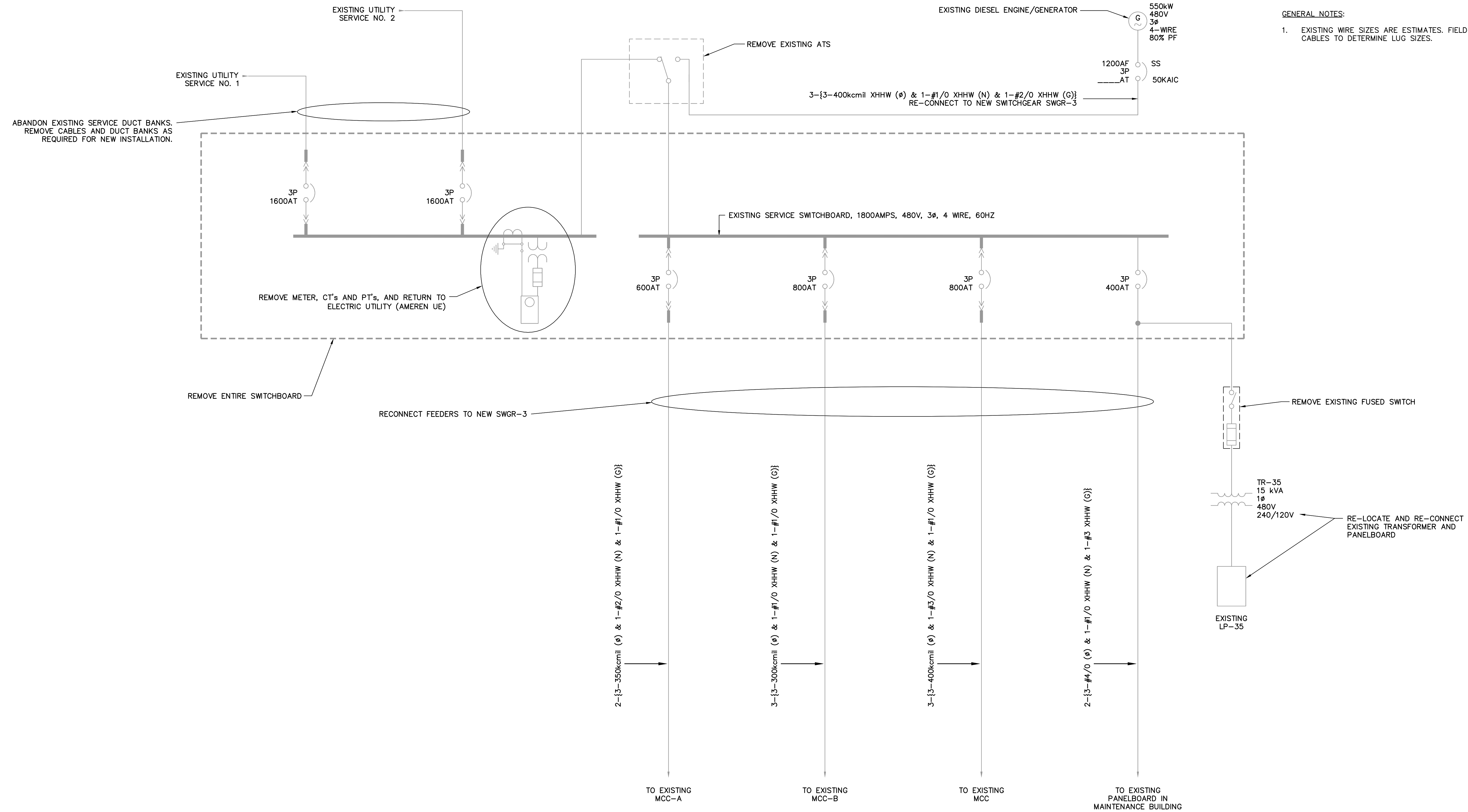
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WATER RECLAMATION CENTER EXPANSION PROJECT
 CITY OF WENTZVILLE, MISSOURI
 ELECTRICAL
 MV FACILITY SWITCHGEAR
 ONE-LINE DIAGRAM

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING
 0 1"
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JOB NO. 6796A.10
 DRAWING NO. 00E06
 SHEET NO. 106 OF 246



GENERAL NOTES:
 1. EXISTING WIRE SIZES ARE ESTIMATES. FIELD-VERIFY CABLES TO DETERMINE LUG SIZES.

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REV	DATE	BY	DESCRIPTION

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 DATE MARCH 2008

ENGINEER
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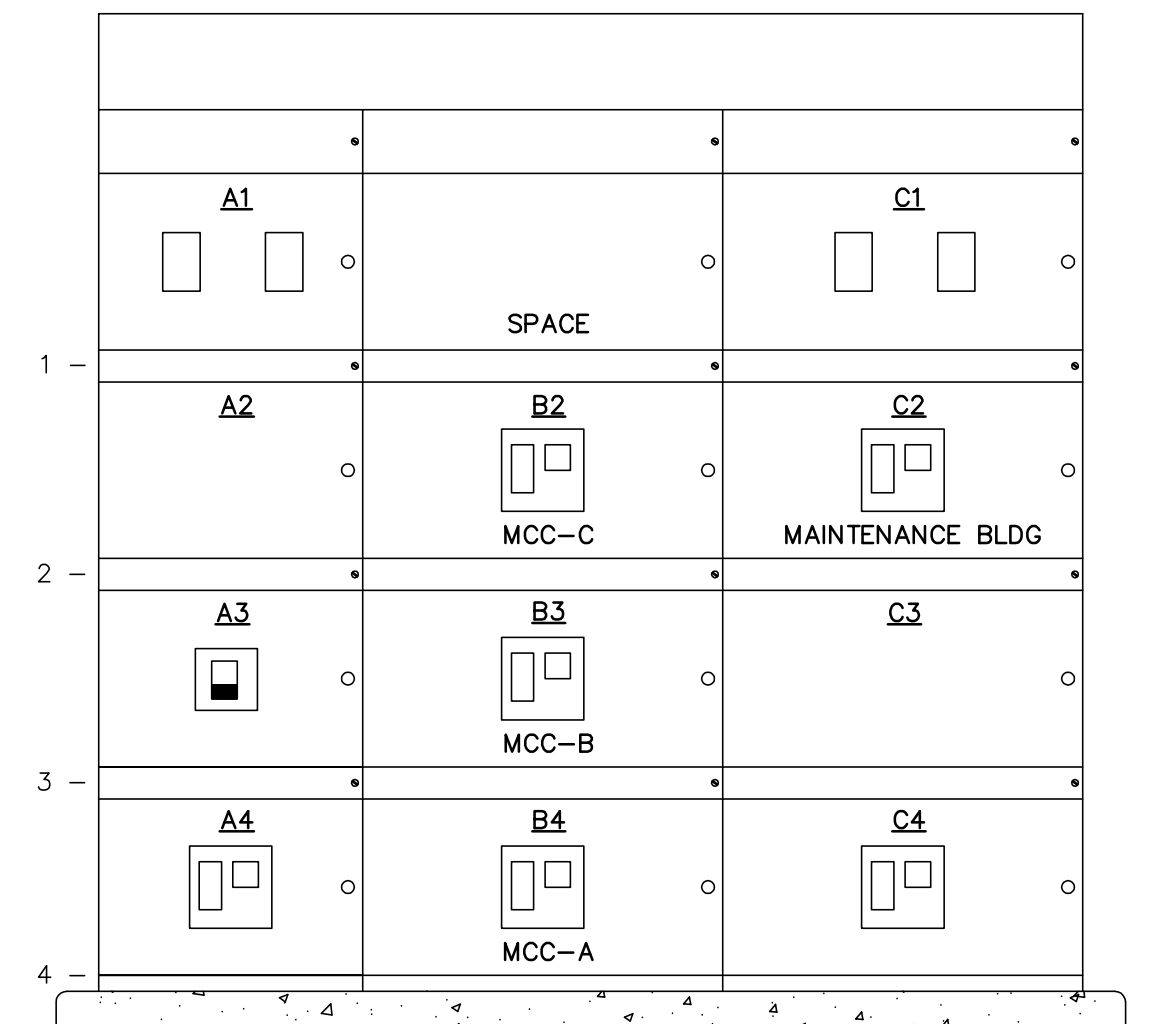
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 By _____



WATER RECLAMATION CENTER EXPANSION PROJECT
 CITY OF WENTZVILLE, MISSOURI
 ELECTRICAL
 EXISTING FACILITY SWITCHBOARD DEMOLITION ONE-LINE DIAGRAM

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING
 0 1"
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 6796A.10
 DRAWING NO. 00E08
 SHEET NO. 108 OF 246



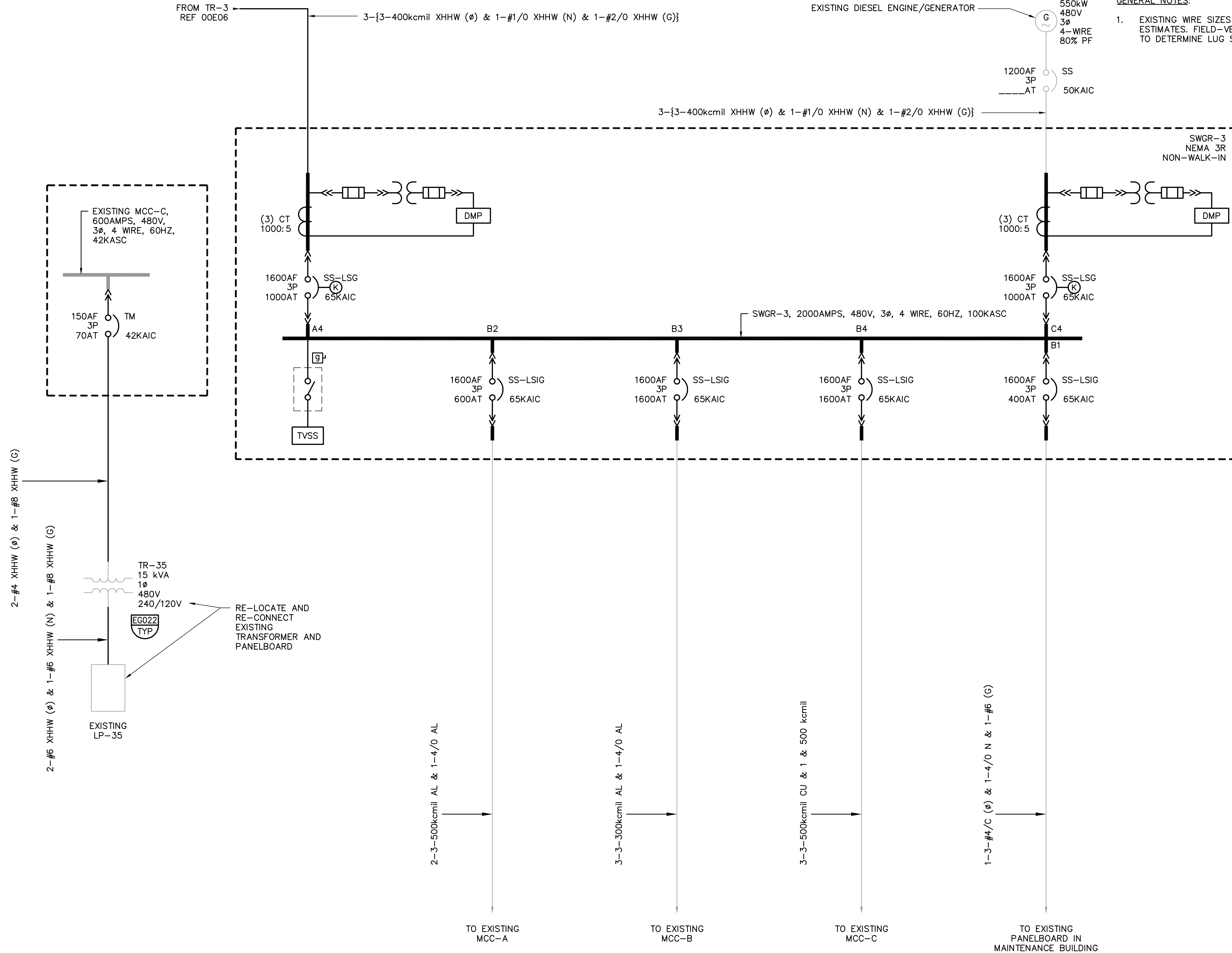
SWITCHGEAR SHOWN WITH OUTER DOORS REMOVED

- | | | |
|-------------------------------|------------|-------------------------------|
| A1 - DIGITAL METERING PACKAGE | B1 - SPACE | C1 - DIGITAL METERING PACKAGE |
| A2 - SPACE | B2 - MCC-C | C2 - MAINTENANCE BLDG |
| A3 - TVSS | B3 - MCC-B | C3 - SPACE |
| A4 - MAIN BREAKER | B4 - MCC-A | C4 - GENERATOR MAIN BREAKER |

A SWGR-3 ELEVATION
SCALE: NTS
FILE: 6796A10-00-80-601

DEVICE IDENTIFICATION	A4	B1	B2	B3	B4	C4
FRAME SIZE	1600	1600	1600	1600	1600	1600
TRIP	1000	400	600	800	800	1000
POLES	3	3	3	3	3	3
100% OR 80% RATED	100	100	100	100	100	100
ADJUSTABLE RATING PLUG	NA	NA	NA	NA	NA	NA
LONG TIME PICKUP (L)	X	X	X	X	X	X
LONG TIME DELAY (L)	X	X	X	X	X	X
SHORT TIME PICKUP (S)	X	X	X	X	X	X
SHORT TIME DELAY (S)	X	X	X	X	X	X
I2T IN OR OUT (S)	X	X	X	X	X	X
INSTANTANEOUS PICKUP (I)	X	X	X	X	X	X
GROUND FAULT PICK UP (G)	X	X	X	X	X	X
GROUND FAULT DELAY (G)	X	X	X	X	X	X
I2T IN OR OUT (G)	X	X	X	X	X	X
TARGETS	X	X	X	X	X	X
OPERATOR ELECTRIC (E) OR MANUAL (M)	M	M	M	M	M	M
ELECTRIC OPERATOR TRIP VOLTAGE	NA	NA	NA	NA	NA	NA
ELECTRIC OPERATOR CLOSE VOLTAGE	NA	NA	NA	NA	NA	NA
SHUNT TRIP AND VOLTAGE	NA	NA	NA	NA	NA	NA
NOTES	INTLK					INTLK
BREAKER TYPE OR CLASS	PCB	PCB	PCB	PCB	PCB	PCB

SETTINGS TO BE DETERMINED AS A RESULT OF FAULT CURRENT AND COORDINATION STUDY.
X - INCLUDE FEATURE
NA - DO NOT INCLUDE FEATURE
IC - INSULATED CASE CIRCUIT BREAKER
MC - MOLDED CASE CIRCUIT BREAKER
PCB - ANSI POWER CIRCUIT BREAKER
INTLK - KEY INTERLOCK SO THAT EITHER BREAKER CAN ONLY BE CLOSED IF THE OTHER IS OPEN



GENERAL NOTES:
1. EXISTING WIRE SIZES ARE ESTIMATES. FIELD-VERIFY CABLES TO DETERMINE LUG SIZES.

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REV	DATE	BY	DESCRIPTION

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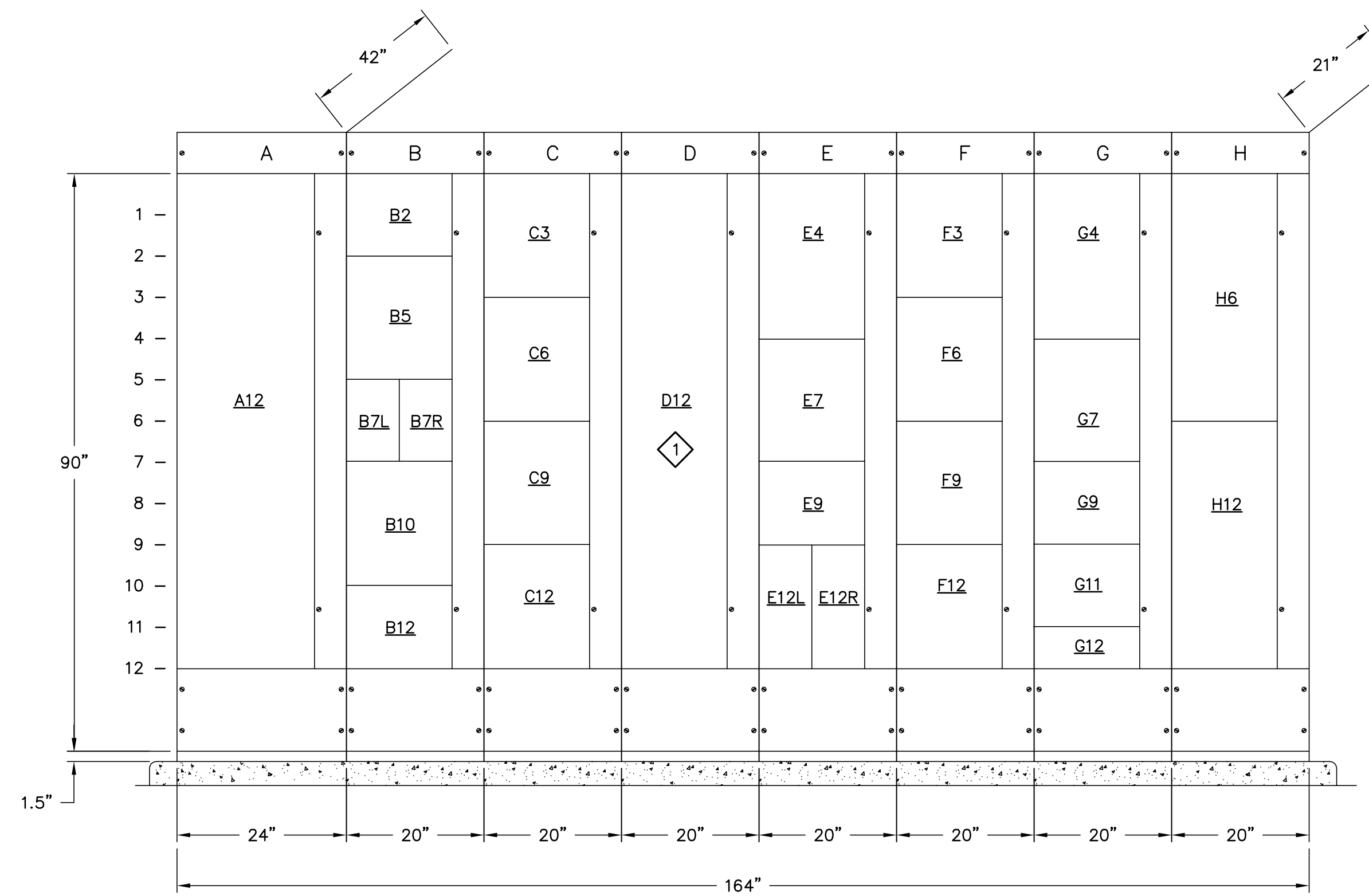
WATER RECLAMATION CENTER EXPANSION PROJECT
CITY OF WENTZVILLE, MISSOURI
ELECTRICAL
SWGR-3 EXISTING FACILITY SWITCHGEAR REPLACEMENT ELEVATION AND ONE-LINE DIAGRAM

VERIFY SCALES
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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO.
6796A.10
DRAWING NO.
00E09
SHEET NO.
109 OF 246

KEY NOTES:

1 PROVIDE VERTICAL BUS RATED FOR 600A.



REFER TO CUTLER HAMMER O&M DRAWINGS

- A12 - MAIN BREAKER AND INCOMING LINE
- B2 - DIGITAL METERING PACKAGE
- B5 - TRANSIENT VOLTAGE SURGE SUPPRESSOR
- B7L - VCP-10.210
- B7R - HEP-10.061
- B10 - SPACE
- B12 - SPACE
- C3 - GRC-10.410
- C6 - PMP-10.510
- C9 - CLA-10.610
- C12 - CON-10.200
- D12 - HEA-10.051
- E4 - EF
- E7 - PMP-10.011
- E9 - SPACE
- E12L -VCP-10.210
- E12R -SPACE
- F3 - GRC-10.420
- F6 - PMP-10.520
- F9 - CLA-10.620
- F12 - SPACE
- G4 - AHU-10.051
- G6 - PMP-10.012
- G8 - PMP-00.805
- G10 - SPACE
- G12 - SPACE
- H6 - LP-101
- H12 - TR-101

A MCC-10 FRONT ELEVATION
SCALE: N.T.S.

PANEL INFORMATION										PANEL CALCULATIONS					LAST UPDATED								
LOCATION HEADWORKS - MCC-10										NEMA RATING 1					12995		TOTAL CONNECTED VA		A PHASE 5475				
VOLTAGE 208 /120										WIRE 4					10637.5					TOTAL CONTINUOUS VA		B PHASE 4420	
PHASE 3										PANEL AMP RATING 100					2665					TOTAL INTERMITTENT VA		C PHASE 3100	
MAIN INTERRUPT CB 100A										FEED BUS					13302.5					TOTAL PANEL VA			
INTERRUPT 10 KAIC										MTG. MCC					36.9					TOTAL PANEL AMPS			
MANUFACTURER																							
I/C	L	R	SW	DESCRIPTION	LOAD (VA)	BKR	CIR	Ø	CIR	BKR	LOAD (VA)	DESCRIPTION	SW	R	L	I/C							
C				COS-10.101 COMPOSITE SAMPLER	1000	1P20A	1	A	2	1P20	100	FIRE ALARM PANEL FACP-10				C							
C				LCP-10	1000	1P20A	3	B	4	2P20	1000	SPARE				C							
				SPARE		1P20A	5	C	6		1000					C							
				SPARE		1P20A	7	A	8	1P20	1045	OUTDOOR LIGHTING	LC		12	I							
				SPARE		1P20A	9	B	10	1P20	360	ELECTRICAL ROOM RECEPTACLES		2		I							
				SPARE		1P20A	11	C	12	1P20	500	ELECTRICAL ROOM LIGHTING	f		7	C							
I		4		HEADWORKS RECEPTACLES - EL 485	720	1P20A	13	A	14	1P20	720	OUTDOOR RECEPTACLES		4		C							
I		3		RECEPTACLE - ROOF	540	1P20A	15	B	16	1P20	540	RECEPTACLES - EL 470		3		C							
C	18		h	LIGHTING - EL 482	1100	1P20A	17	C	18	1P20	500	SWGR-1 LIGHTS				C							
C	15		g	LIGHTING - EL 482	1050	1P20A	19	A	20	1P20	840	LIGHTING EL. 470	c		13								
				MCC HEATERS		1P20A	21	B	22	1P20	980	LIGHTING EL 470	d		19								
				SPARE		1P20A	23	C	24			SPARE											
				SPARE		1P20A	25	A	26	3P20		SWITCH GEAR											
				SPARE		1P20A	27	B	28	3P20		PANEL BOARD FOR HEATERS											
				SPARE		1P20A	29	C	30	3P20		FANS AND RECPTS AND LIGHTS											

B LP-101 PANEL SCHEDULE
SCALE: N.T.S.

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DESIGNED IM			
DRAWN BOG			
CHECKED RAM			
DATE MARCH 2008			
REV	DATE	BY	DESCRIPTION

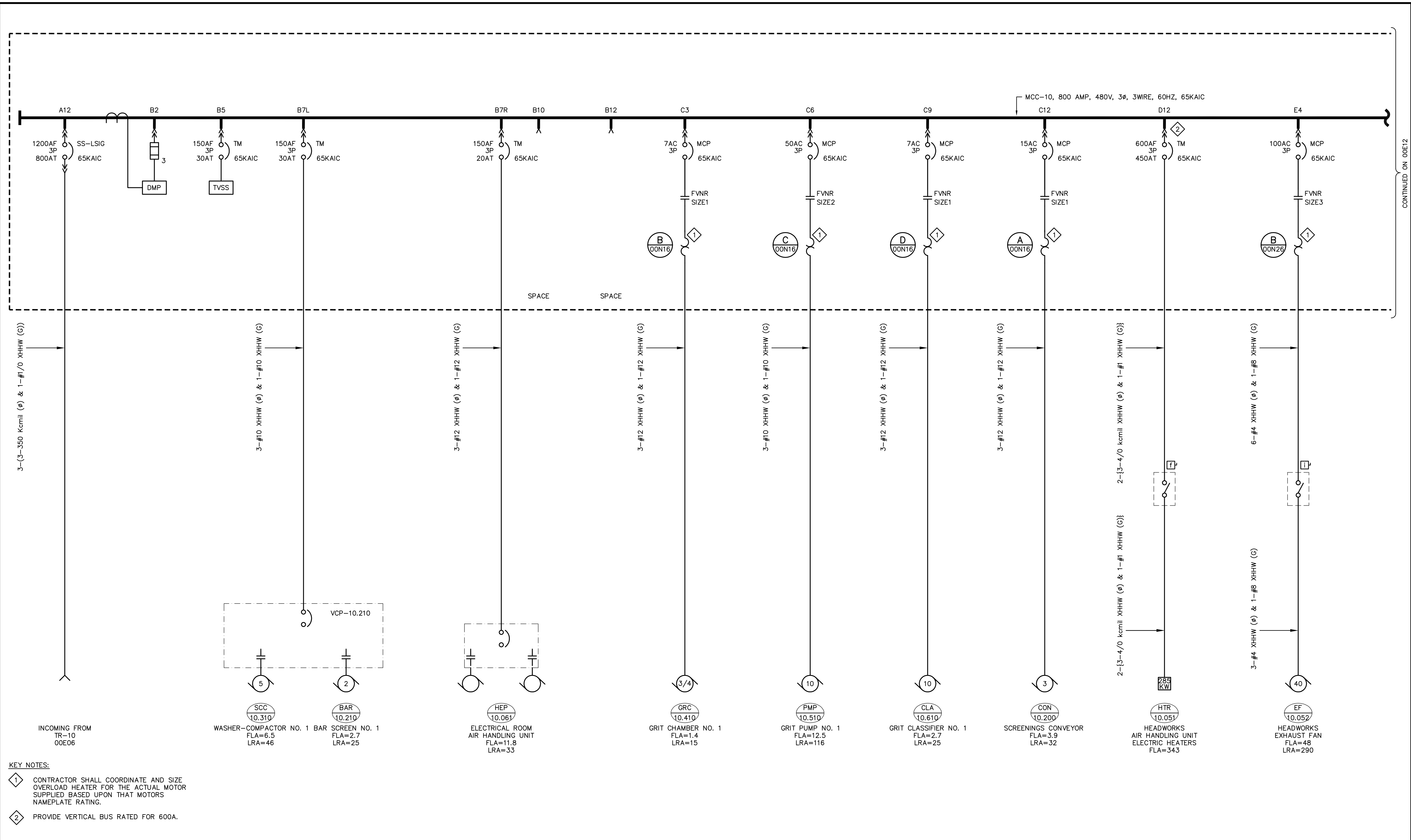
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 By _____



WATER RECLAMATION CENTER EXPANSION PROJECT
 CITY OF WENTZVILLE, MISSOURI
 ELECTRICAL
MCC-10 HEADWORKS ELEVATION AND PANEL SCHEDULE

VERIFY SCALES	JOB NO. 6796A.10
BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO. 00E10
0 1"	SHEET NO. 110 OF 246
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CONTINUED ON 00E12

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By _____



WATER RECLAMATION CENTER EXPANSION PROJECT

CITY OF WENTZVILLE, MISSOURI

ELECTRICAL

MCC-10 HEADWORKS ONE-LINE DIAGRAM 1

VERIFY SCALES

BAR IS ONE INCH ON ORIGINAL DRAWING

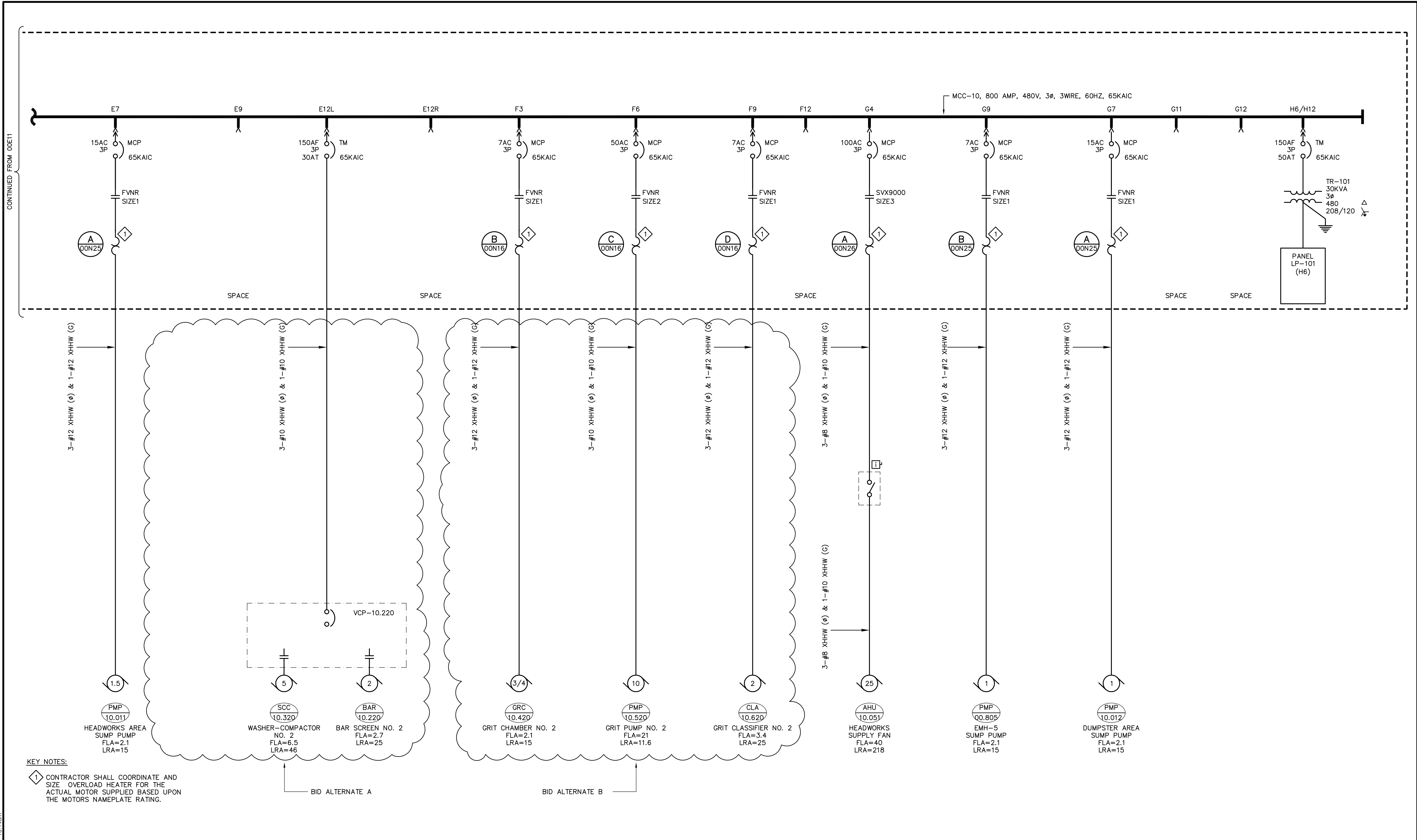
0 1"

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JOB NO. 6796A.10

DRAWING NO. 00E11

SHEET NO. 111 OF 246



CONTINUED FROM 00E11

KEY NOTES:
 1 CONTRACTOR SHALL COORDINATE AND SIZE OVERLOAD HEATER FOR THE ACTUAL MOTOR SUPPLIED BASED UPON THE MOTORS NAMEPLATE RATING.

BID ALTERNATE A

BID ALTERNATE B

REV	DATE	BY	DESCRIPTION

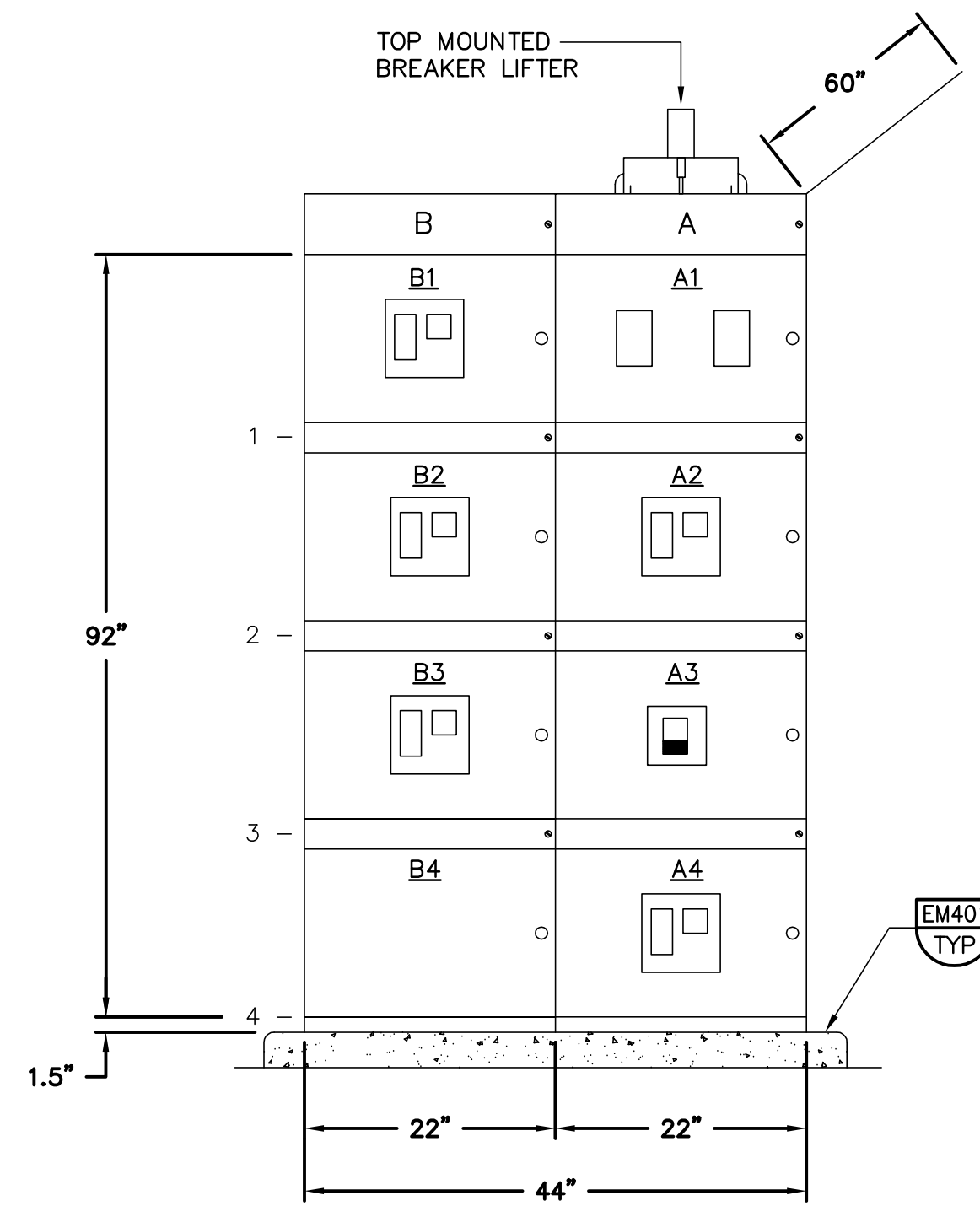
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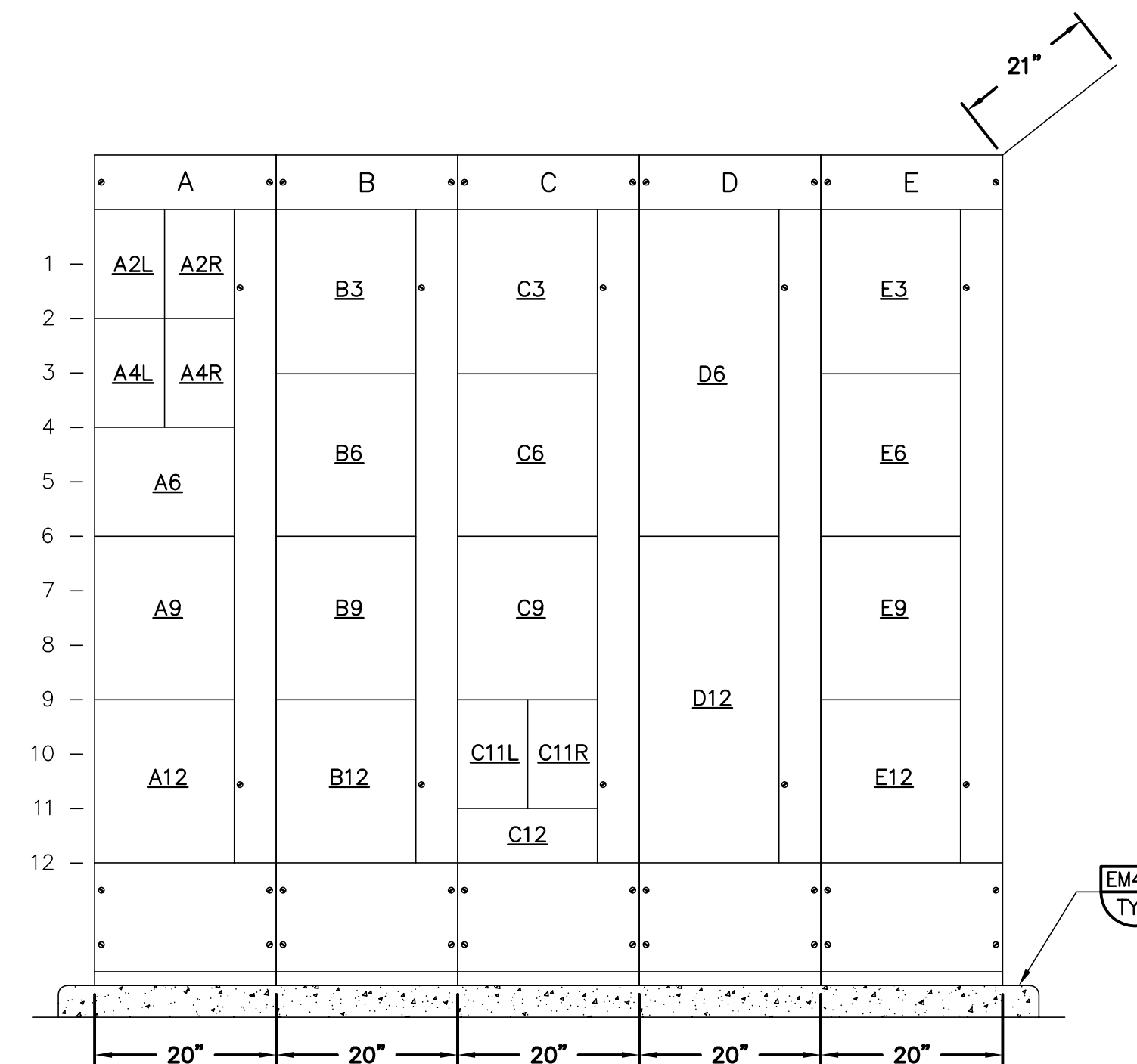
WATER RECLAMATION CENTER EXPANSION PROJECT
 CITY OF WENTZVILLE, MISSOURI
 ELECTRICAL
MCC-10 HEADWORKS ONE-LINE DIAGRAM 2

VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	JOB NO. 6796A.10 DRAWING NO. 00E12 SHEET NO. 112 OF 246
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- A1 - DIGITAL METERING PACKAGE
- A2 - BLO-25.110
- A3 - TRANSIENT VOLTAGE SURGE SUPPRESSOR
- A4 - MAIN BREAKER
- B1 - BLO-25.120
- B2 - BLO-25.130
- B3 - MCC-25
- B4 - SPACE

A SWGR-25 FRONT ELEVATION



- A2L - EMV-25.132/EDV-25.135
- A2R - HEP-25.061
- A4L - EMV-25.112/EDV-25.115
- A4R - EMV-25.122/EDV-25.125
- A6 - DIGITAL METERING PACKAGE
- A9 - CLR-20.430
- A12 - MAIN LUGS AND INCOMING LINE
- B3 - MANHOLE SUMP PUMP PMP-00.804
- B6 - FAN-25.021
- B9 - FAN-25.011
- B12 - FAN-25.022
- C3 - FAN-25.012
- C6 - FAN-25.023
- C9 - FAN-25.013
- C11L - HEA-25.041
- C11R - HEA-25.042
- C12 - SPACE
- D6 - LP-251
- D12 - TR-251
- E3 - SPACE
- E6 - SPACE
- E9 - SPACE
- E12 - SPACE

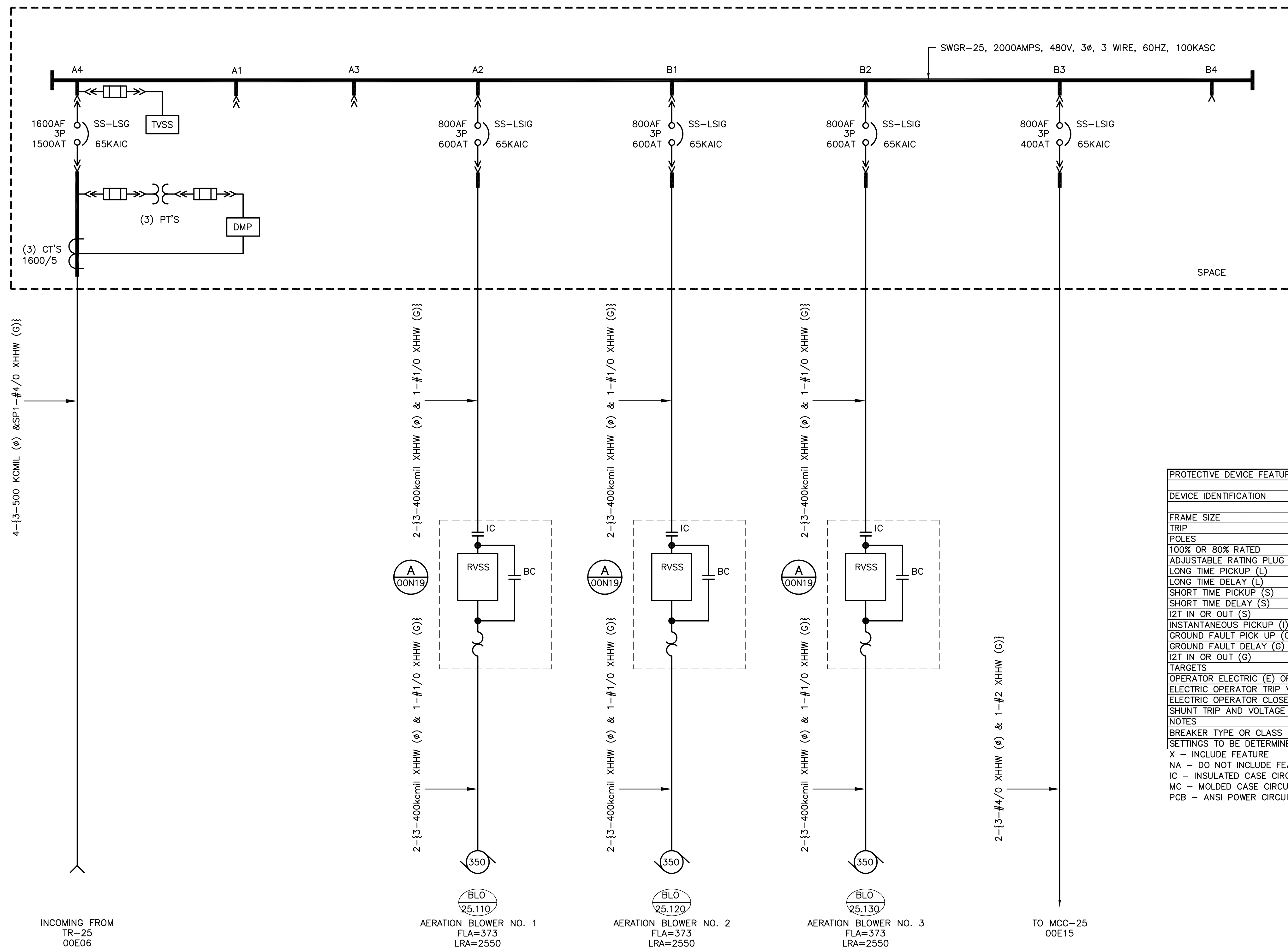
B MCC-25 FRONT ELEVATION
REFER TO CUTLER HAMMER O&M RECORD DRAWINGS

PANEL LP-251												LAST UPDATED 8/17/2005				
PANEL INFORMATION								PANEL CALCULATIONS								
LOCATION	BLOWER BUILDING NO. 2 - MCC-25				NEMA RATING	1	11354	TOTAL CONNECTED VA					A PHASE	4068		
VOLTAGE	208 /120				WIRE	4	10617.5	TOTAL CONTINUOUS VA					B PHASE	4436		
PHASE	3				PANEL AMP RATING	100	2360	TOTAL INTERMITTENT VA					C PHASE	2850		
MAIN INTERRUPT	CB 100A 10 KAIC				FEED	BUS	12977.5	TOTAL PANEL VA								
MANUFACTURER					MTG.	MCC	36.0	TOTAL PANEL AMPS								
I/C	L	R	SW	DESCRIPTION	LOAD (VA)	BKR	CIR	ø	CIR	BKR	LOAD (VA)	DESCRIPTION	SW	R	L	I/C
C	2		LC	LIGHTING - TREATMENT UNIT NO. 4	432	1P20A	1	A	2	1P20		SPARE				
I		1		RECEPTACLES - TREATMENT UNIT NO. 4	180	1P20A	3	B	4	1P20		SPARE				
I		5		RECEPTACLES - BLOWER ROOM	900	1P20A	5	C	6	1P20		SPARE				
C		5		RECEPTACLES - ELECTRICAL ROOM	900	1P20A	7	A	8	1P20	1356	LIGHTING - BLOWER ROOM	a		4	C
C	4		b	LIGHTING - BLOWER ROOM	1356	1P20A	9	B	10	1P20	1000	VCP-25.110				C
C	6		c	LIGHTING - ELECTRICAL ROOM	450	1P20A	11	C	12	1P20	1000	VCP-25.120				C
				SPARE	380	1P20A	13	A	14	1P20	1000	VCP-25.130				C
I		4		RECEPTACLES - BLOWER BUILDING ROOF	900	1P20A	15	B	16	1P20	1000	LCP-25				C
				25-FACP	500	1P20A	17	C	18	1P20		MCC HEATERS				
I	4		LC	OUTDOOR LIGHTING BLOWER BLDG #2		1P20A	19	A	20	1P20		SPARE				
				SPARE		1P20A	21	B	22	1P20		SPARE				
				SPARE		1P20A	23	C	24	1P20		SPARE				
				SPARE		1P20A	25	A	26	1P20		SPARE				
				SPARE		1P20A	27	B	28	1P20		SPARE				
				SPARE		1P20A	29	C	30	1P20		SPARE				

C LP-251 PANEL SCHEDULE

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REV	DATE	BY	DESCRIPTION	MARCH 2008										



PROTECTIVE DEVICE FEATURES - SETTINGS					
DEVICE IDENTIFICATION	A4	A2	B1	B2	B3
FRAME SIZE	1600	800	800	800	800
TRIP	1500	600	600	600	600
POLES	3	3	3	3	3
100% OR 80% RATED	100	100	100	100	100
ADJUSTABLE RATING PLUG	NA	NA	NA	NA	NA
LONG TIME PICKUP (L)	X	X	X	X	X
LONG TIME DELAY (L)	X	X	X	X	X
SHORT TIME PICKUP (S)	X	X	X	X	X
SHORT TIME DELAY (S)	X	X	X	X	X
I2T IN OR OUT (S)	X	X	X	X	X
INSTANTANEOUS PICKUP (I)	X	X	X	X	X
GROUND FAULT PICK UP (G)	X	X	X	X	X
GROUND FAULT DELAY (G)	X	X	X	X	X
I2T IN OR OUT (G)	X	X	X	X	X
TARGETS	X	X	X	X	X
OPERATOR ELECTRIC (E) OR MANUAL (M)	M	M	M	M	M
ELECTRIC OPERATOR TRIP VOLTAGE	NA	NA	NA	NA	NA
ELECTRIC OPERATOR CLOSE VOLTAGE	NA	NA	NA	NA	NA
SHUNT TRIP AND VOLTAGE	NA	NA	NA	NA	NA
NOTES					
BREAKER TYPE OR CLASS	PCB	PCB	PCB	PCB	PCB

SETTINGS TO BE DETERMINED AS A RESULT OF FAULT CURRENT AND COORDINATION STUDY.
 X - INCLUDE FEATURE
 NA - DO NOT INCLUDE FEATURE
 IC - INSULATED CASE CIRCUIT BREAKER
 MC - MOLDED CASE CIRCUIT BREAKER
 PCB - ANSI POWER CIRCUIT BREAKER

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REV	DATE	BY	DESCRIPTION

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 DATE MARCH 2008

ENGINEER
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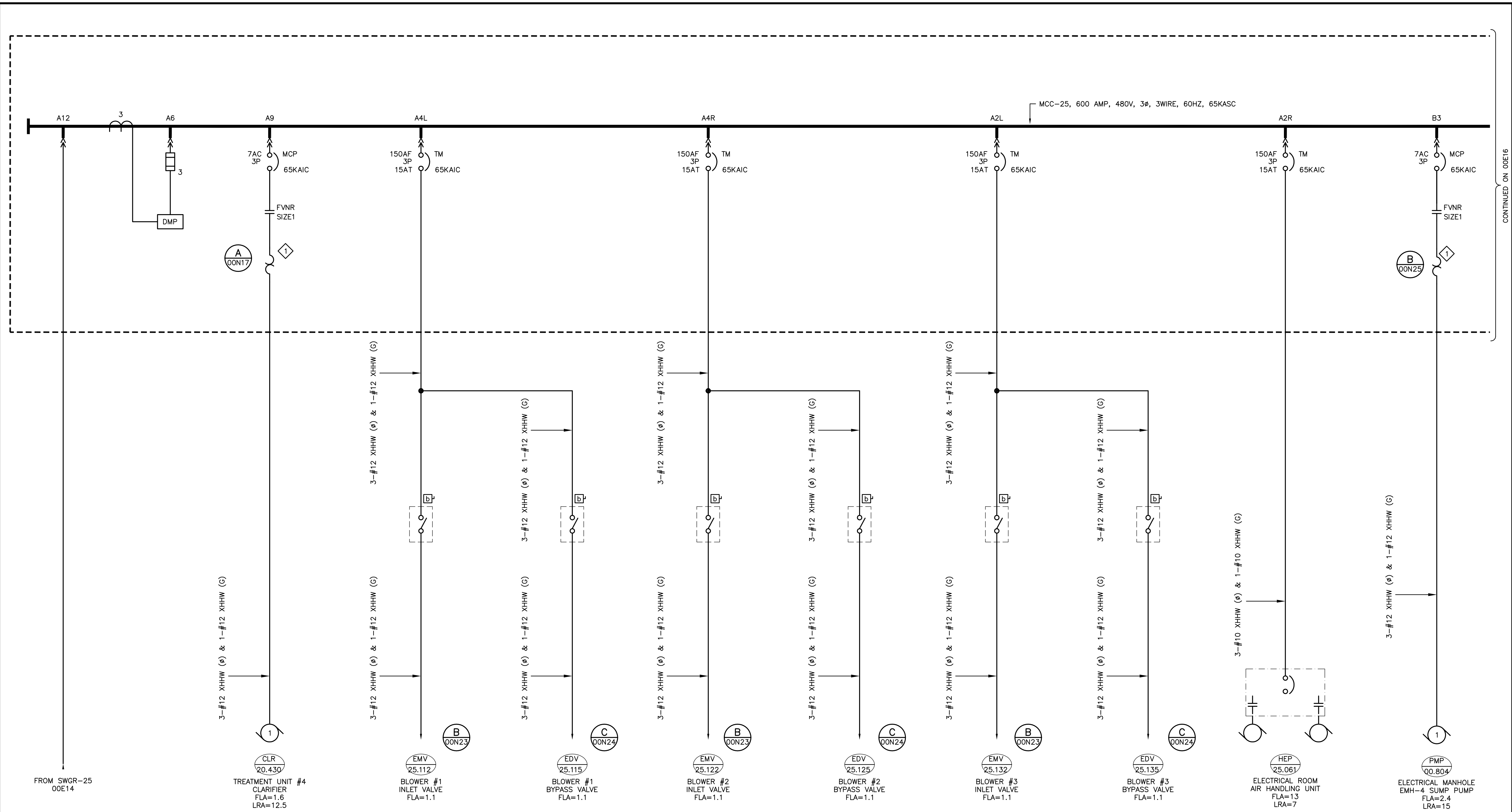
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WATER RECLAMATION CENTER EXPANSION PROJECT
 CITY OF WENTZVILLE, MISSOURI
 ELECTRICAL
 SWGR-25 BLOWER BUILDING NO. 2
 ONE-LINE DIAGRAM

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING
 0 1"
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 6796A.10
 DRAWING NO. 00E14
 SHEET NO. 114 OF 246



CONTINUED ON OOE16

KEY NOTES:
 1 CONTRACTOR SHALL COORDINATE AND SIZE OVERLOAD HEATER FOR THE ACTUAL MOTOR SUPPLIED BASED UPON THAT MOTORS NAMEPLATE RATING.

REV	DATE	BY	DESCRIPTION

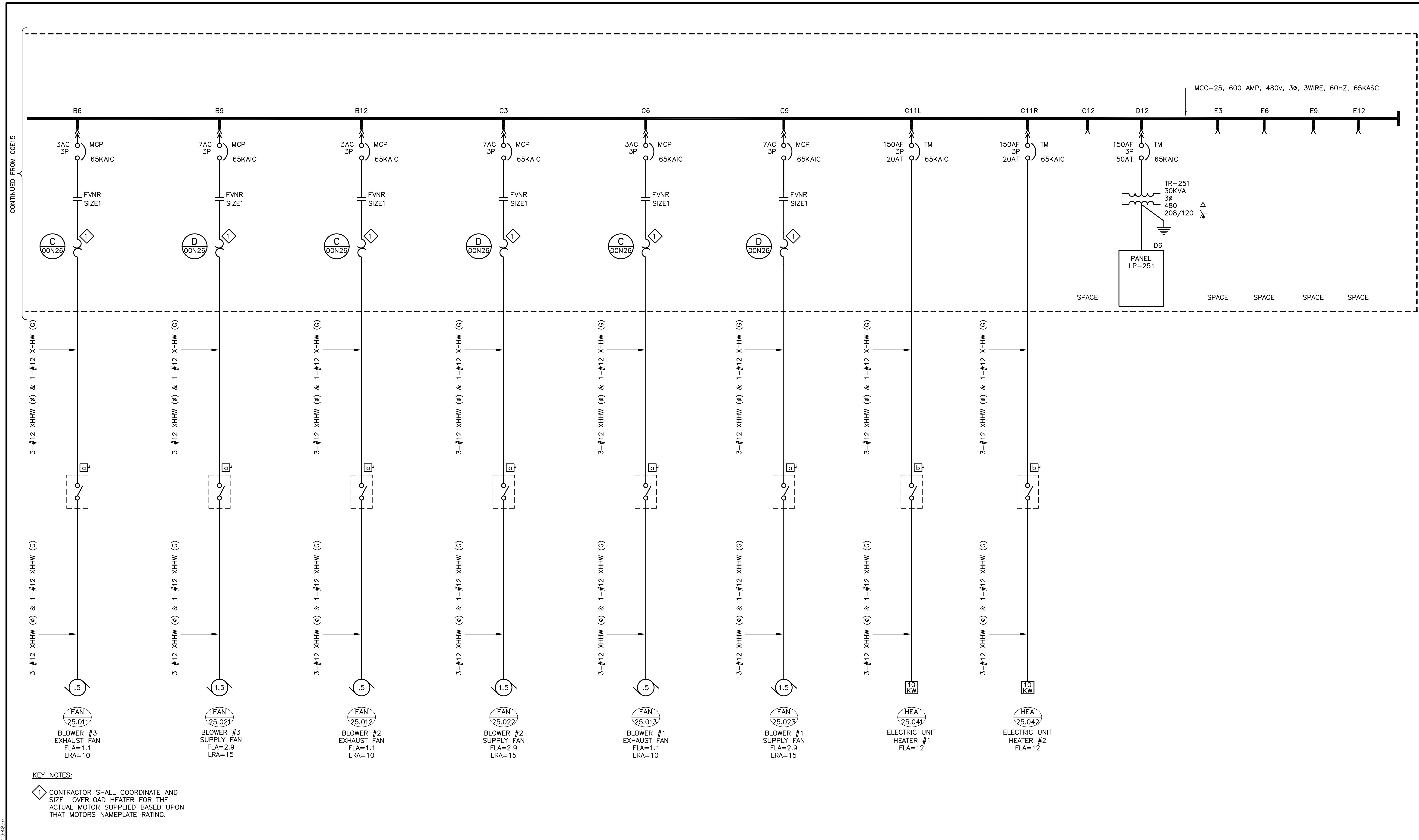
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DRAWN BOG	
CHECKED RAM	
DATE MARCH 2008	

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WATER RECLAMATION CENTER EXPANSION PROJECT		VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	JOB NO. 6796A.10
CITY OF WENTZVILLE, MISSOURI			DRAWING NO. OOE15
ELECTRICAL MCC-25 BLOWER BUILDING NO. 2 ONE-LINE DIAGRAM 1			SHEET NO. 115 OF 246

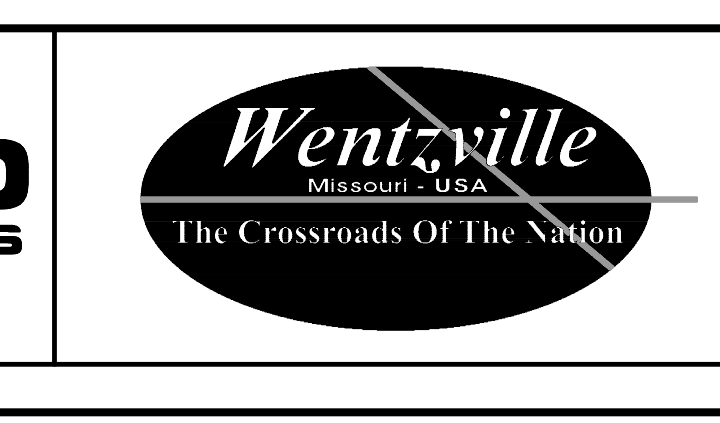
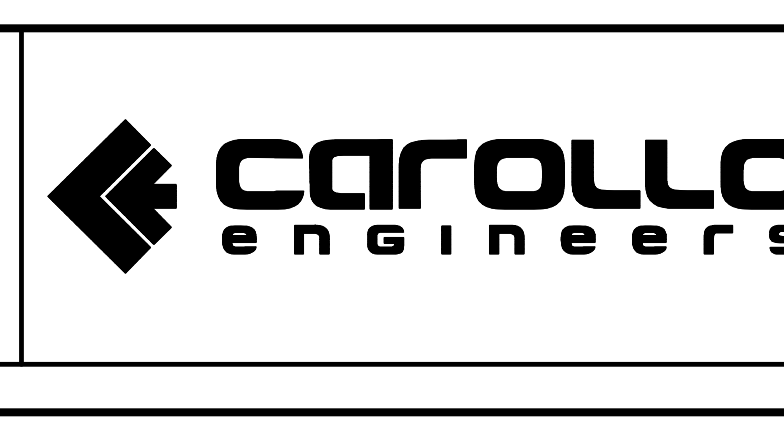
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 CHECKED RAM
 DATE MARCH 2008

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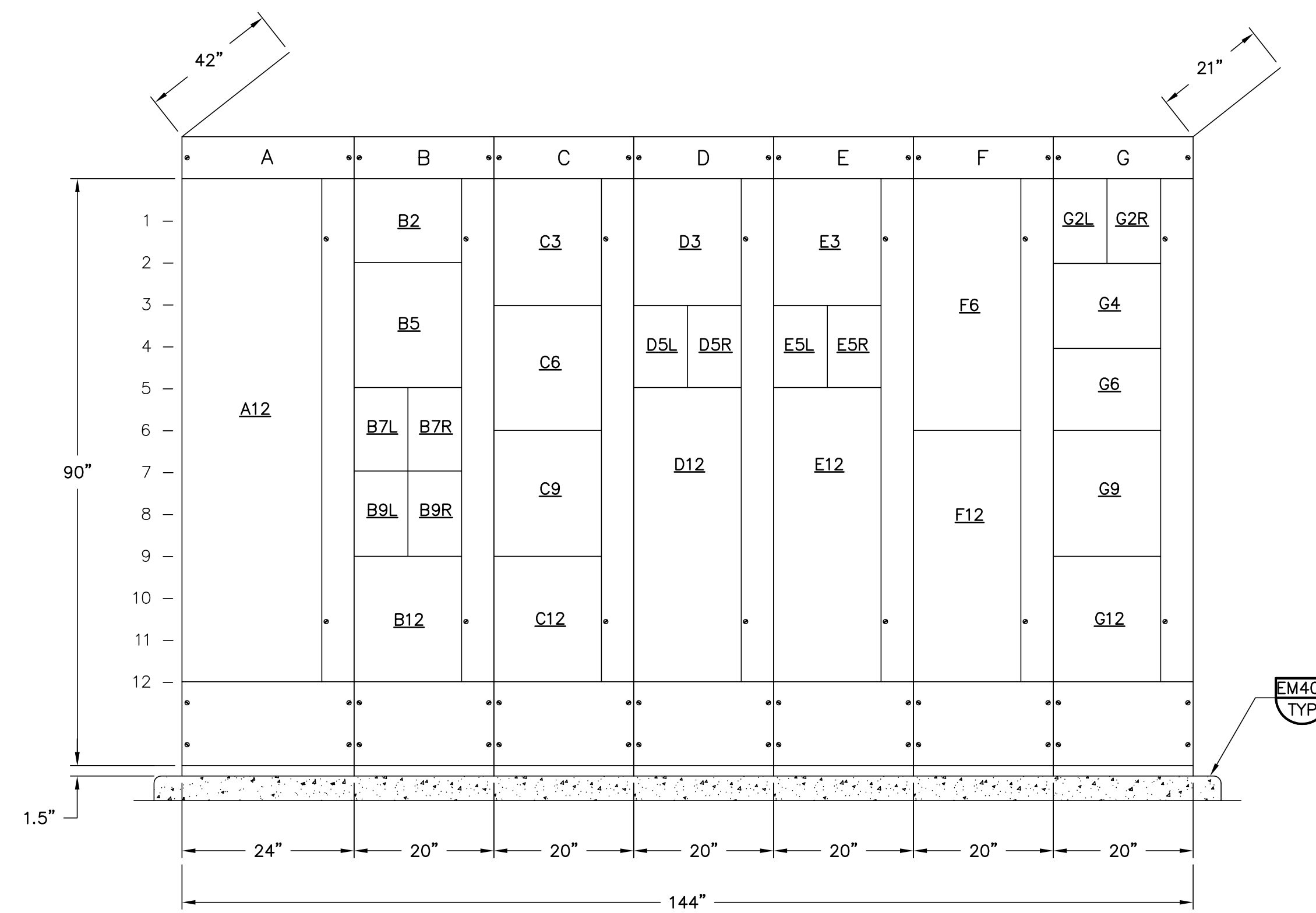


WATER RECLAMATION CENTER EXPANSION PROJECT
 CITY OF WENTZVILLE, MISSOURI
 ELECTRICAL
 MCC-25 BLOWER BUILDING NO. 2
 ONE-LINE DIAGRAM 2

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING
 0 1"
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 6796A.10
 DRAWING NO. 00E16
 SHEET NO. 116 OF 246

FILENAME: C:\pw_working\projectwise\bschroeder\dms45759\6796A10-00-E-016 2-10-09 02:20pm BSchroeder XREFS: 6796A10-00-080-603; 6796A10-titliblk WIPEOUT; WIPEOUT; GSagehornSig;



- A12 - MAIN BREAKER AND INCOMING LINE
- B2 - DIGITAL METERING PACKAGE
- B5 - TRANSIENT VOLTAGE SURGE SUPPRESSOR
- B7L - VCP-50.210
- B7R - VCP-50.220
- B9L - EDG-50.110
- B9R - EDG-50.120
- B12 - ARC-50.260
- C3 - FAN-55.021
- C6 - FAN-55.011
- C9 - FAN-55.022
- C12 - FAN-55.012
- D3 - FAN-55.023
- D5L - HEP-55.061
- D5R - HEP-55.062
- D12 - BLO-55.110
- E3 - FAN-55.013
- E5L - HEA-55.041
- E5R - HEA-55.042
- E12 - BLO-55.120
- F6 - LP-551
- F12 - TR-551
- G2L - HEA-55.043
- G2R - SPACE
- G4 - SPACE
- G6 - SPACE
- G9 - SPACE
- G12 - SPACE

A MCC-55 FRONT ELEVATION
 SCALE: -
 FILE: N.T.S.
 REFER TO CUTLER HAMMER RECORD DRAWING

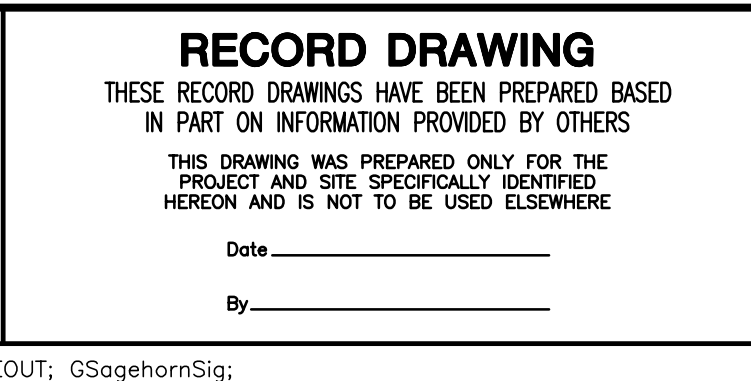
PANEL LP-551										LAST UPDATED 8/18/2005						
PANEL INFORMATION										PANEL CALCULATIONS						
LOCATION	UV BUILDING - MCC-55			NEMA RATING	1	13583	TOTAL CONNECTED VA			A PHASE	4498					
VOLTAGE	208 /120			WIRE	4	9616.25	TOTAL CONTINUOUS VA			B PHASE	4500					
PHASE	3			PANEL AMP RATING	100	5860	TOTAL INTERMITTENT VA			C PHASE	4585					
MAIN INTERRUPT	CB 100A 10 KAIC			FEED BUS		15476.25	TOTAL PANEL VA									
MANUFACTURER				MTG.	MCC	43.0	TOTAL PANEL AMPS									
I/C	L	R	SW	DESCRIPTION	LOAD (VA)	BKR	CIR	ø	CIR	BKR	LOAD (VA)	DESCRIPTION	SW	R	L	I/C
C	3		d	LIGHTING (EFFLUENT METER STRUCTURE)	648	1P20A	1	A	2	1P20	30	SPARE				
I		3		RECEPTACLES (EFFLUENT METER STRUCTURE)	540	1P20A	3	B	4	1P20	540	STORAGE ROOM RECEPTACLES		3		I
C	5			LIGHTING (UV/POST-AERATION BASINS)	1080	1P20A	5	C	6	1P20	540	BLOWER ROOM RECEPTACLES		3		I
I		5		RECEPT. (UV/POST-AERATION BASINS)	900	1P20A	7	A	8	1P20	540	ELECTRICAL ROOM RECEPTACLES		3		I
C				VCP-55.110	1000	1P20A	9	B	10	1P20	720	OUTDOOR RECEPTACLES		3		I
C				VCP-55.120	1000	1P20A	11	C	12	1P20	310	STORAGE ROOM LIGHTING	c		5	C
C				VCP-50.200	1000	1P20A	13	A	14	1P20	380	BLOWER ROOM LIGHTING	b		6	C
C				LCP-55	1000	1P20A	15	B	16	1P20	700	ELECTRICAL ROOM LIGHTING	a		8	C
I		5		RECEPTACLE - ROOF	1080	1P20A	17	C	18	1P20	475	OUTDOOR LIGHTING	LC		4	C
I		1		RECEPTACLE - COS-50.501	1000	1P20A	19	A	20	1P20		SPARE				
				MCC HEATERS		1P20A	21	B	22	1P20		SPARE				
				SPARE		1P20A	23	C	24	1P20		SPARE				
				SPARE		1P20A	25	A	26	1P20		SPARE				
				SPARE		1P20A	27	B	28	1P20		SPARE				
C				55-FACP	100	1P20A	29	C	30	1P20		SPARE				

B LP-551 PANEL SCHEDULE
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Last Saved By: JAS 3-05-08 10:48am

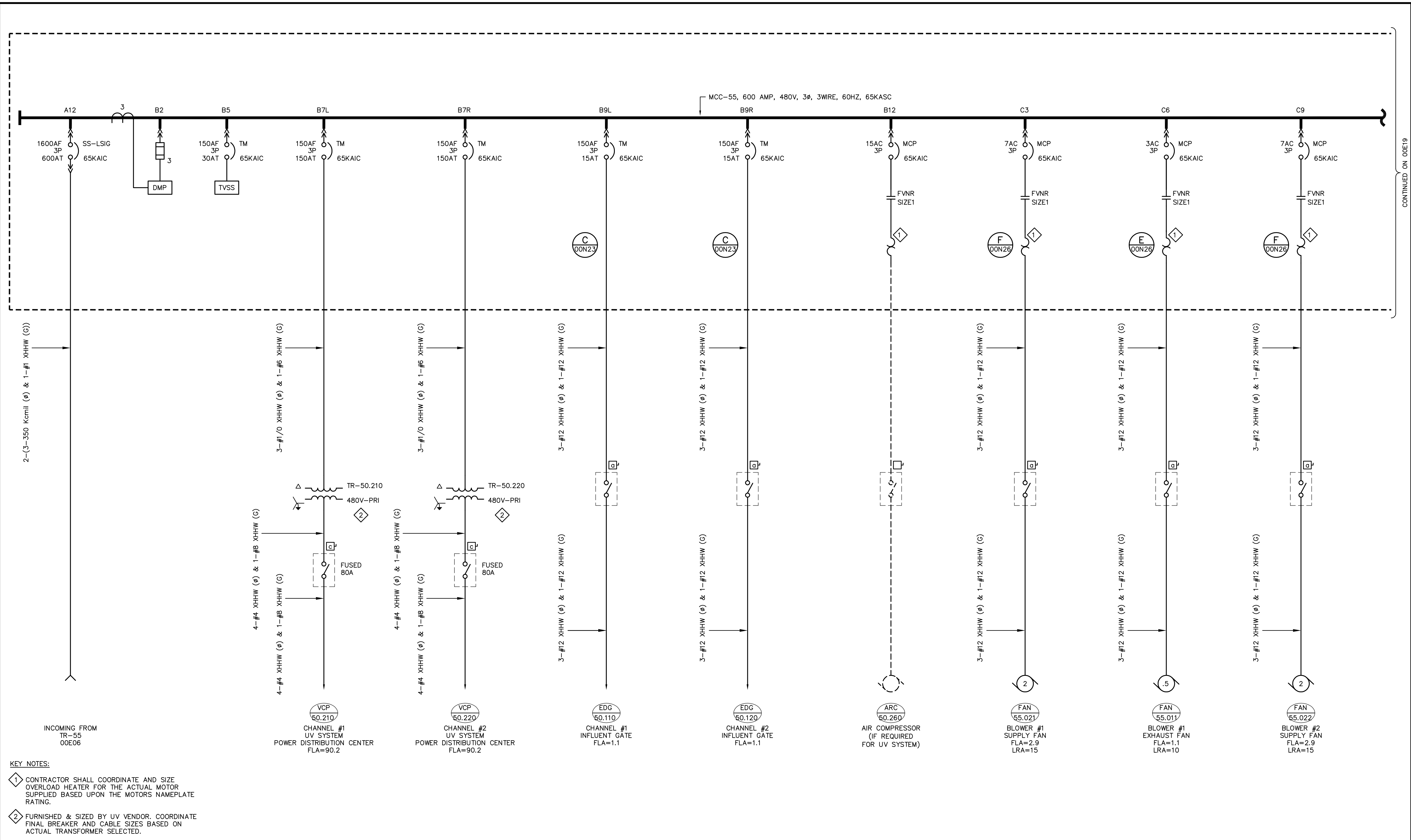
DESIGNED	IM		
DRAWN	BOG		
CHECKED	RAM		
DATE	MARCH 2008		
REV	DATE	BY	DESCRIPTION

RECORD DRAWING
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WATER RECLAMATION CENTER EXPANSION PROJECT
 CITY OF WENTZVILLE, MISSOURI
 ELECTRICAL
MCC-55 UV BUILDING
ELEVATION AND PANEL SCHEDULE

VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	JOB NO. 6796A.10 DRAWING NO. 00E17 SHEET NO. 117 OF 246
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CONTINUED ON 00E19

KEY NOTES:

1 CONTRACTOR SHALL COORDINATE AND SIZE OVERLOAD HEATER FOR THE ACTUAL MOTOR SUPPLIED BASED UPON THE MOTORS NAMEPLATE RATING.

2 FURNISHED & SIZED BY UV VENDOR. COORDINATE FINAL BREAKER AND CABLE SIZES BASED ON ACTUAL TRANSFORMER SELECTED.

REV	DATE	BY	DESCRIPTION

DESIGNED TDH/IM
 DRAWN TDH/BOG
 CHECKED RAM
 DATE MARCH 2008

ENGINEER
 ** ORIGINAL STAMPED BY ROBERT A. MORRONI OCTOBER 11, 2005 **

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WATER RECLAMATION CENTER EXPANSION PROJECT
 CITY OF WENTZVILLE, MISSOURI
 ELECTRICAL
 MCC-55 UV BUILDING
 ONE-LINE DIAGRAM 1

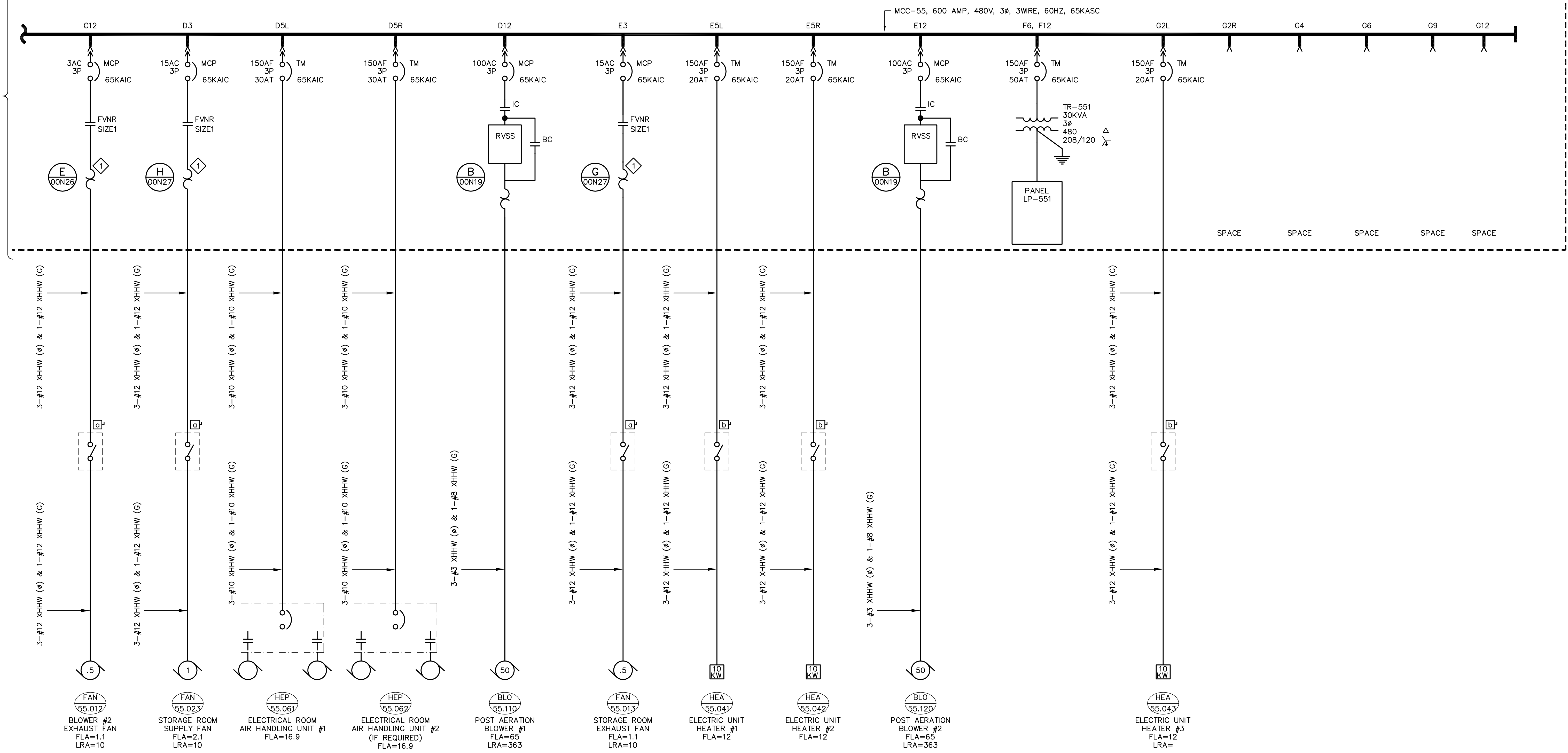
VERIFY SCALES
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JOB NO. 6796A.10
 DRAWING NO. 00E18
 SHEET NO. 118 OF 246

Last Saved By: JEV, 3-05-08 12:30pm

CONTINUED FROM 00E18



KEY NOTES:

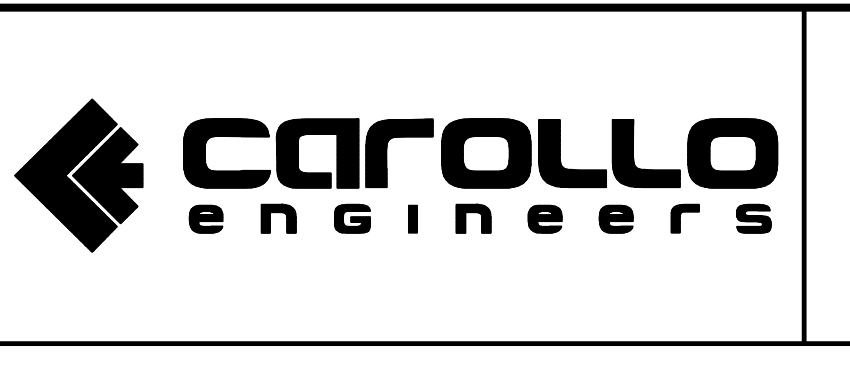
1 CONTRACTOR SHALL COORDINATE AND SIZE OVERLOAD HEATER FOR THE ACTUAL MOTOR SUPPLIED BASED UPON THAT MOTORS NAMEPLATE RATING.

REV	DATE	BY	DESCRIPTION

DESIGNED TDH/IM
 DRAWN TDH/BOG
 CHECKED RAM
 DATE MARCH 2008

ENGINEER
 ** ORIGINAL STAMPED BY ROBERT A. MORRONI OCTOBER 11, 2005 **

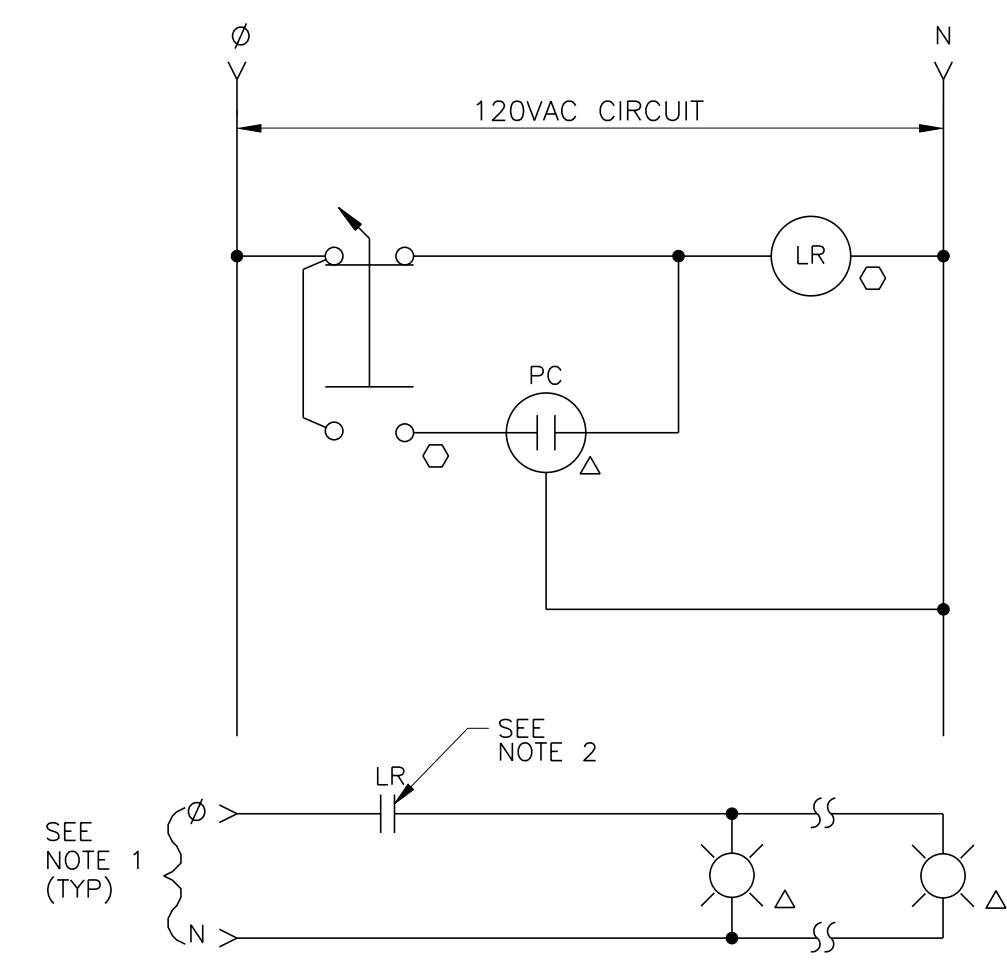
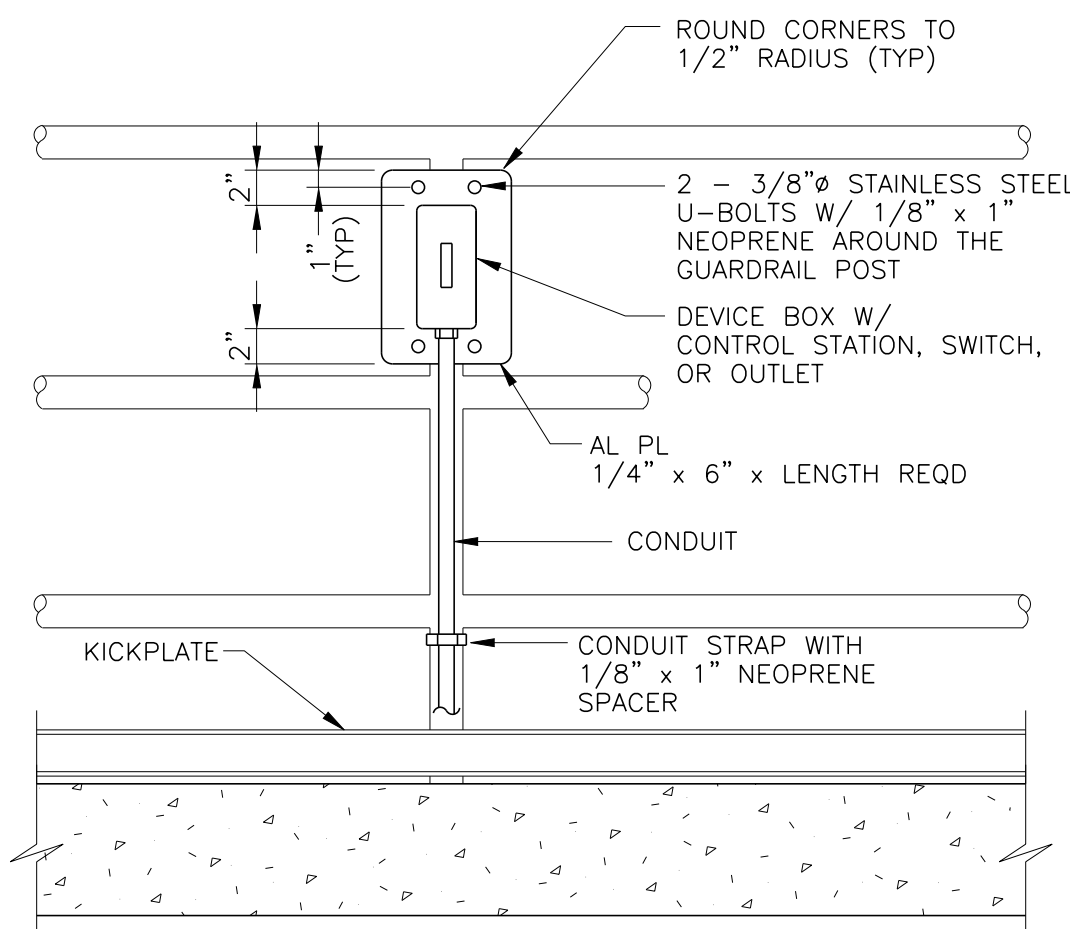
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 By _____



WATER RECLAMATION CENTER EXPANSION PROJECT
 CITY OF WENTZVILLE, MISSOURI
 ELECTRICAL
 MCC-55 UV BUILDING
 ONE-LINE DIAGRAM 2

VERIFY SCALES
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 0 1"
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 6796A.10
 DRAWING NO. 00E19
 SHEET NO. 119 OF 246



LEGEND

LR - LIGHTING CONTACTOR RELAY COIL

PC - PHOTOCELL CONTACTOR

○ - LIGHTING FIXTURE

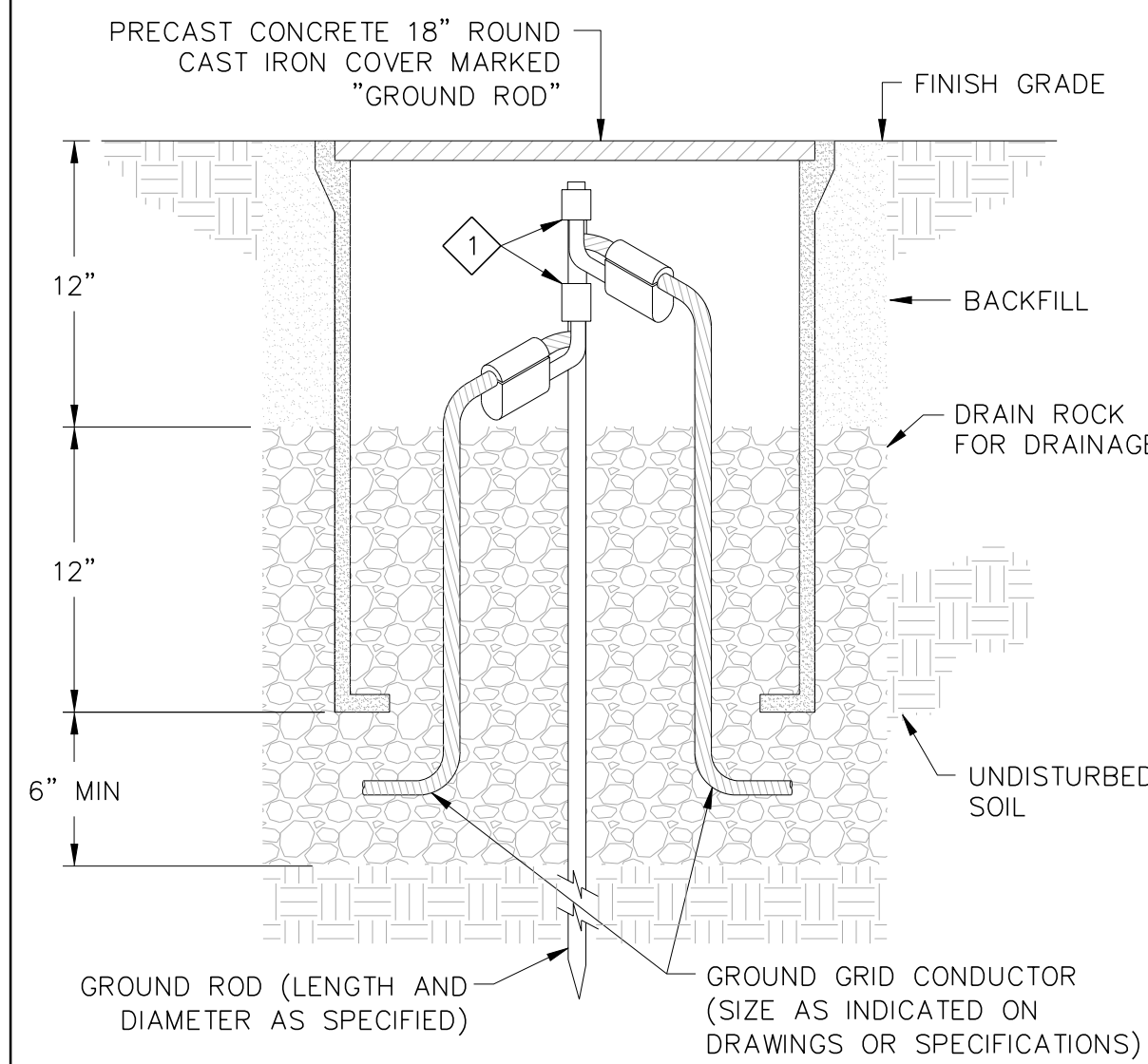
○ - LOCATED IN LIGHTING CONTACTOR CONTROL STATION/ENCLOSURE

△ - LOCATED IN FIELD

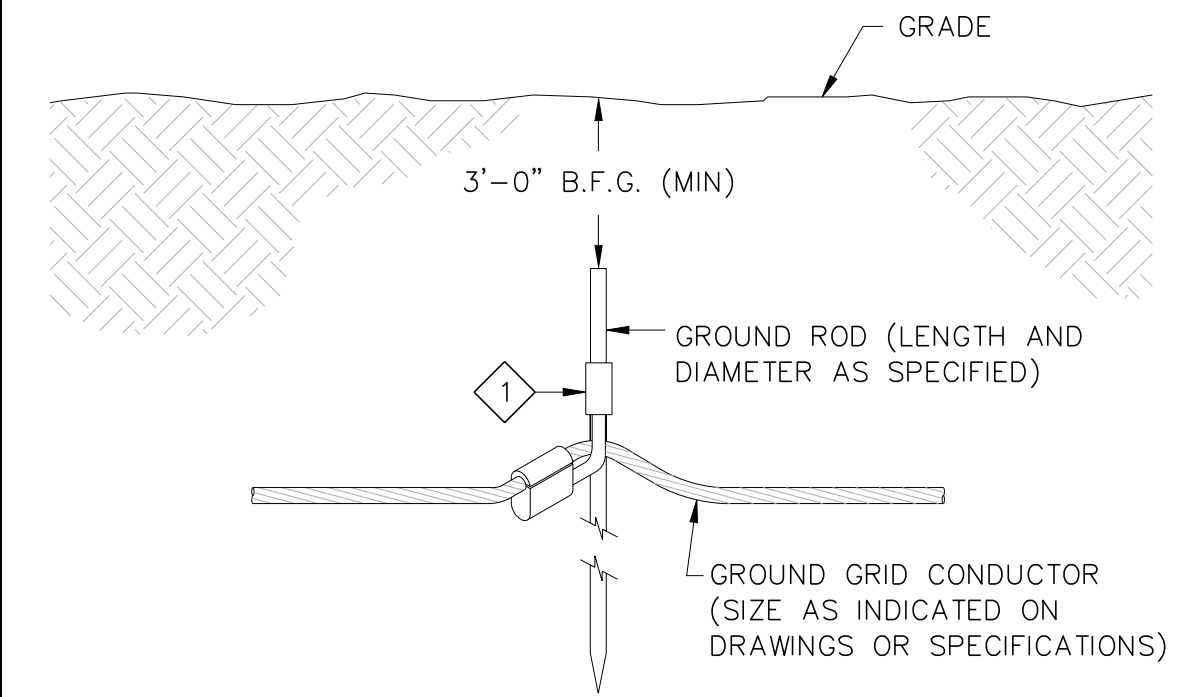
NOTES:

1. SINGLE-PHASE LIGHTING CIRCUITS ARE SHOWN. PROVIDE MULTI-PHASE CIRCUITS AS SPECIFIED AND INDICATED ON THE DRAWINGS.

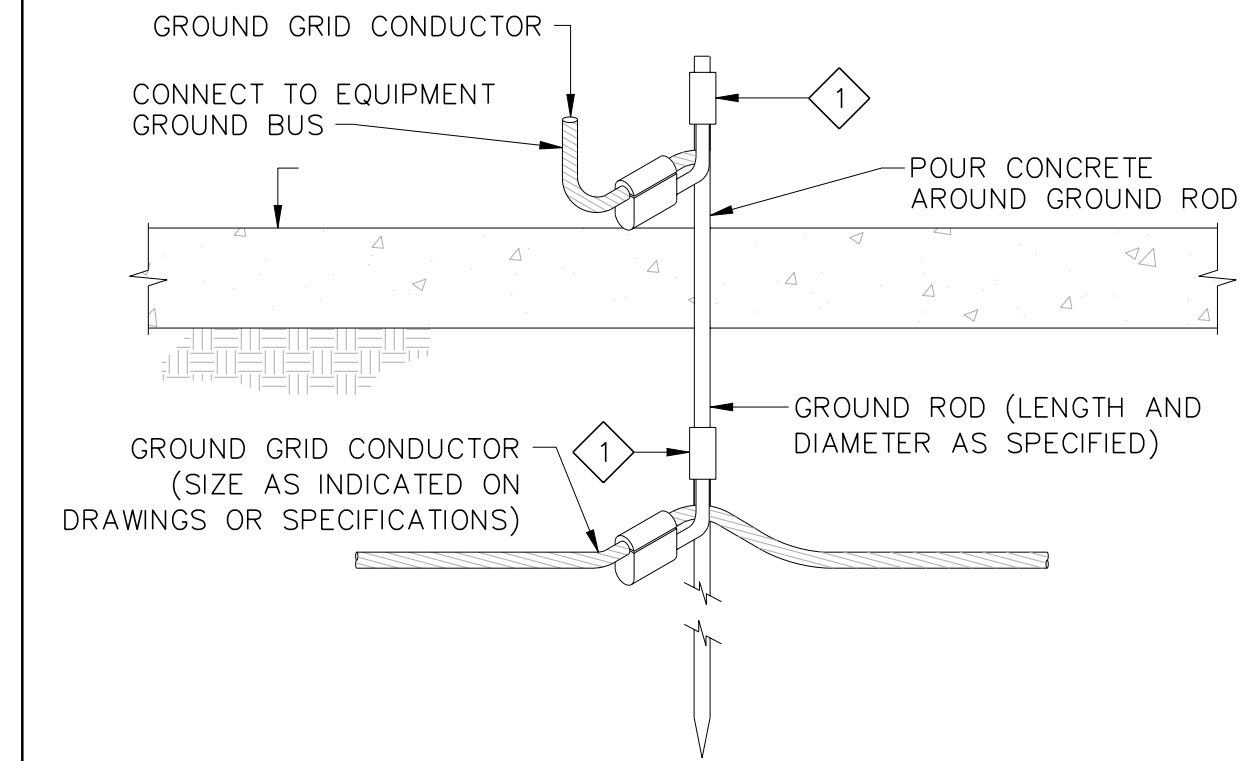
2. PROVIDE ADDITIONAL CONTACTS AS REQUIRED FOR ADDITIONAL LIGHTING CIRCUITS.



BURNDY CATALOG NUMBER	GROUND CONNECTOR TABLE 1	
	ELEMENT "A"	ELEMENT "B"
YGL2C2	--	--
YGL29C2	1/2" - 5/8" ROD	#6 SOL. (.162) - #2 STR. (.292)
YGL29C29		#2 STR. (.292) - 250 kcmil (.575)
YGL34C2		#6 SOL. (.162) - #2 STR. (.292)
YGL34C29	5/8" - 3/4" ROD	#2 STR. (.292) - 250 kcmil (.575)
YGL34C34		250 kcmil (.575) - 500 kcmil (.813)



BURNDY CATALOG NUMBER	GROUND CONNECTOR TABLE 1	
	ELEMENT "A"	ELEMENT "B"
YGL2C2	--	--
YGL29C2	1/2" - 5/8" ROD	#6 SOL. (.162) - #2 STR. (.292)
YGL29C29		#2 STR. (.292) - 250 kcmil (.575)
YGL34C2		#6 SOL. (.162) - #2 STR. (.292)
YGL34C29	5/8" - 3/4" ROD	#2 STR. (.292) - 250 kcmil (.575)
YGL34C34		250 kcmil (.575) - 500 kcmil (.813)



BURNDY CATALOG NUMBER	GROUND CONNECTOR TABLE 1	
	ELEMENT "A"	ELEMENT "B"
YGL2C2	--	--
YGL29C2	1/2" - 5/8" ROD	#6 SOL. (.162) - #2 STR. (.292)
YGL29C29		#2 STR. (.292) - 250 kcmil (.575)
YGL34C2		#6 SOL. (.162) - #2 STR. (.292)
YGL34C29	5/8" - 3/4" ROD	#2 STR. (.292) - 250 kcmil (.575)
YGL34C34		250 kcmil (.575) - 500 kcmil (.813)

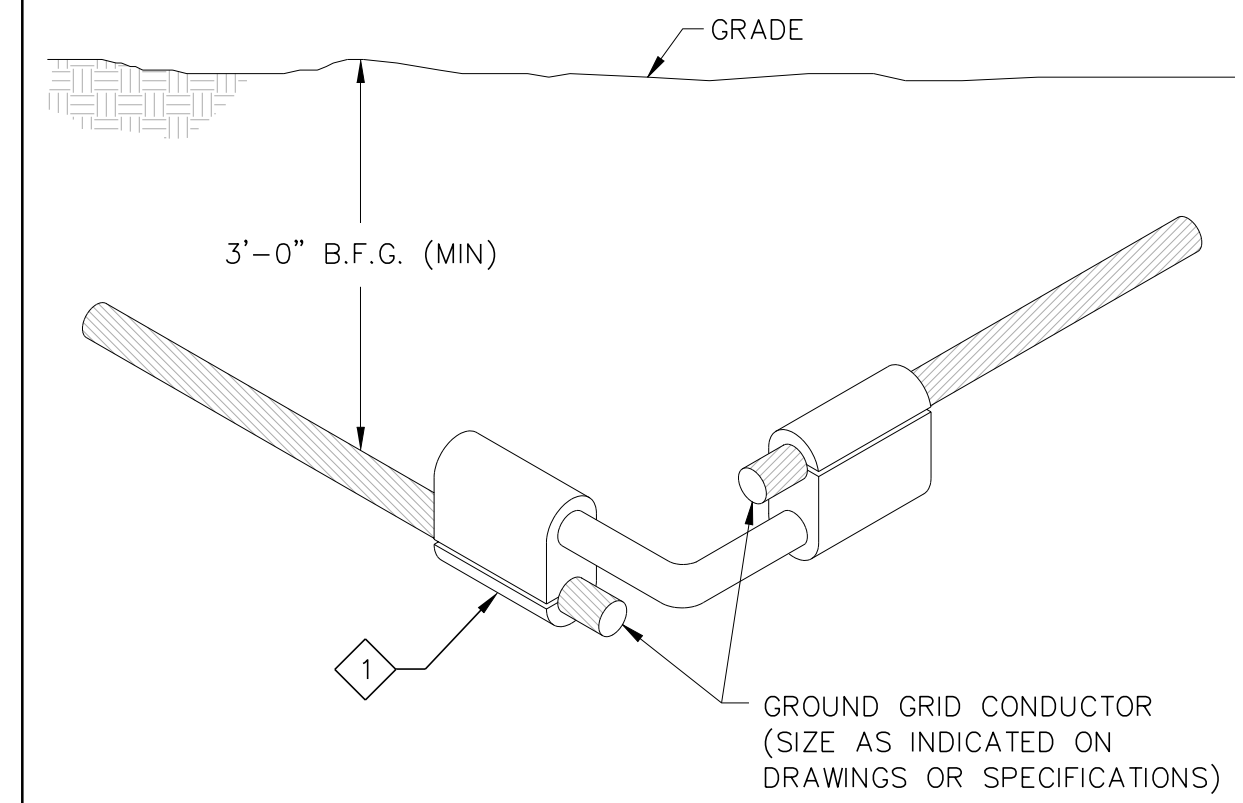
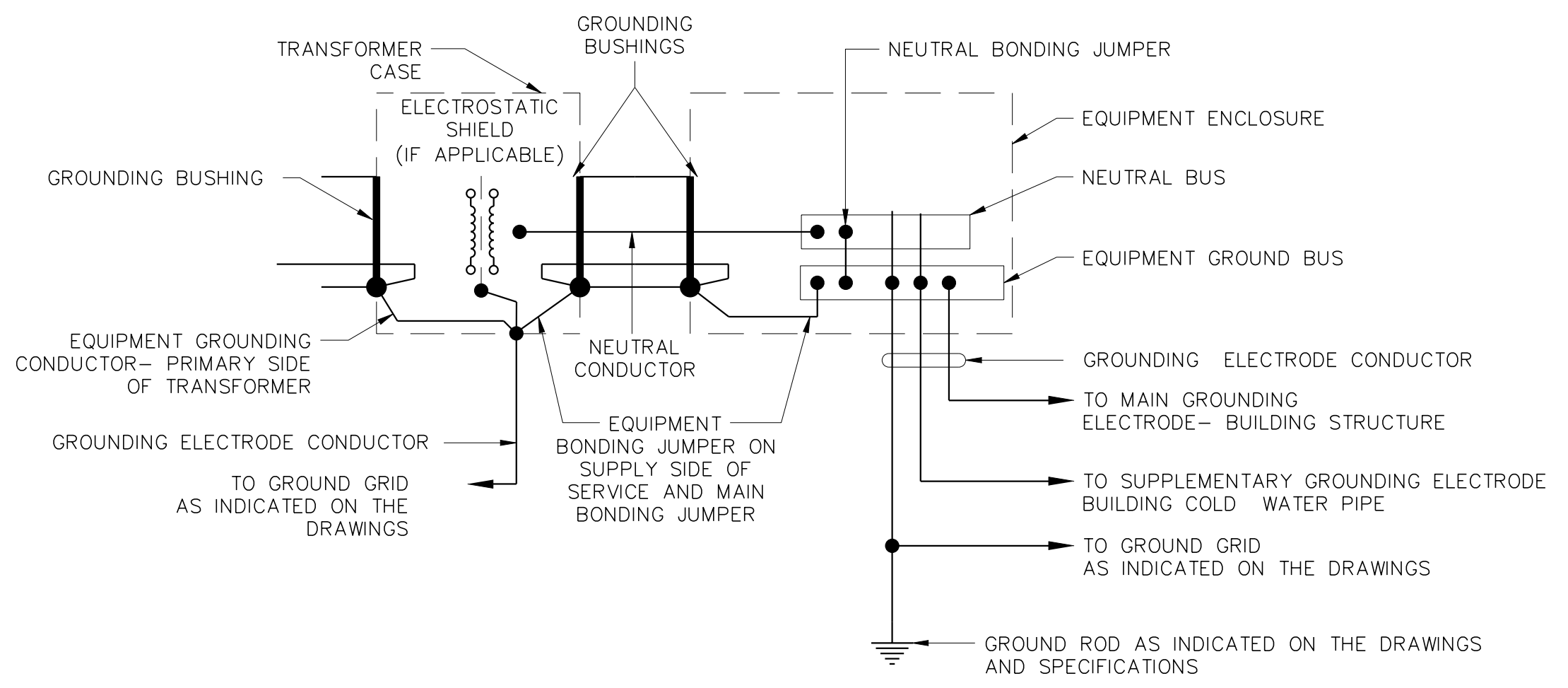
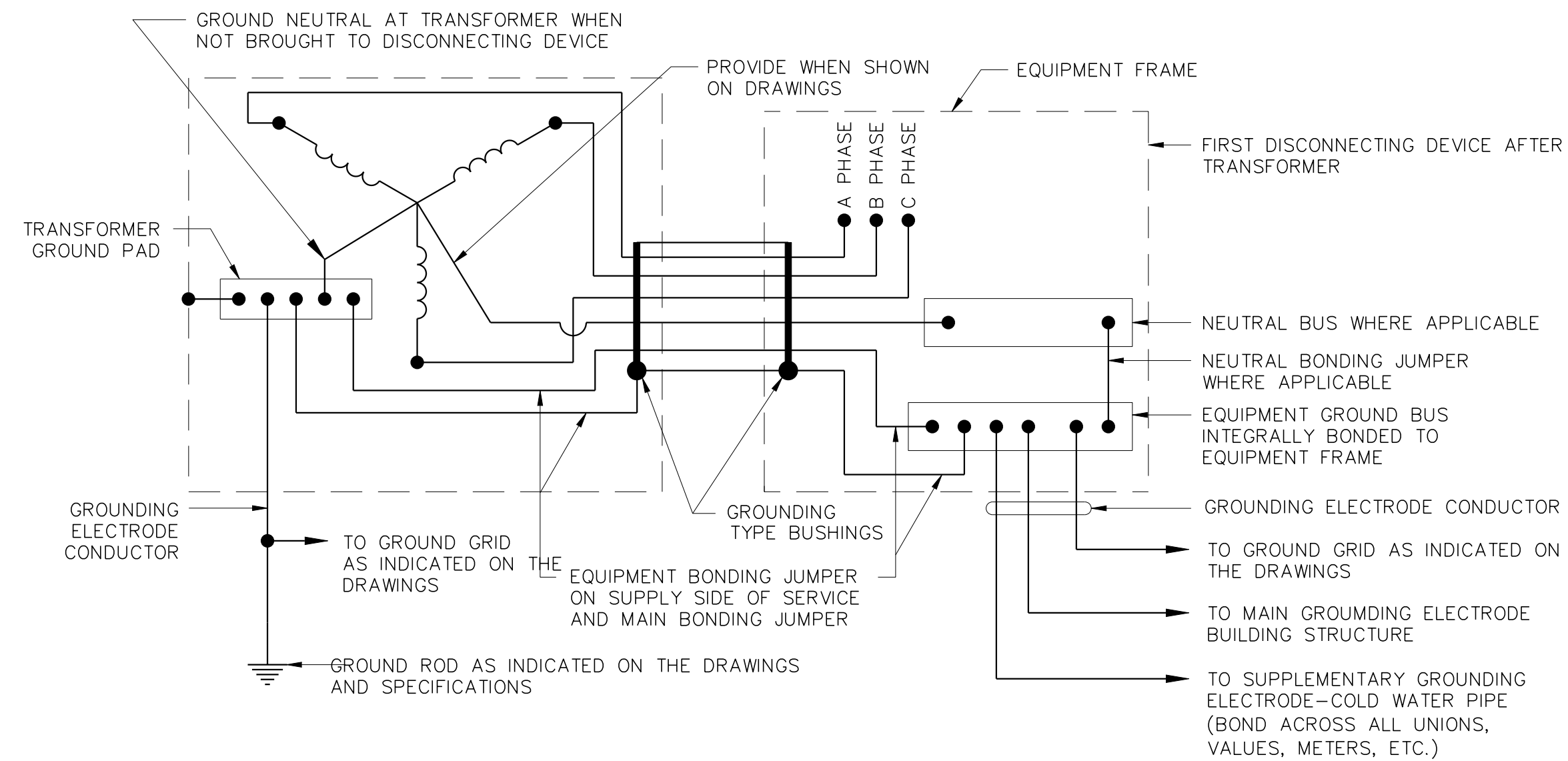
E350 GUARDRAIL MOUNTED CONTROL STATION, SWITCH, OR OUTLET
TYP R 8/05

E640 EXTERIOR LIGHTING CONTROL
TYP R 8/05

EG001 GROUND ROD AND GROUNDWELL COMPRESSION CONNECTION
TYP S

EG002 GROUND ROD COMPRESSION CONNECTION
TYP S

EG004 GROUND ROD IN EQUIPMENT PAD COMPRESSION CONNECTION
TYP S



BURNDY CATALOG NUMBER	GROUND CONNECTOR TABLE 1	
	ELEMENT "A"	ELEMENT "B"
YGL2C2	#6 SOL. (.162) - #2 STR. (.292)	#6 SOL. (.162) - #2 STR. (.292)
YGL29C2	#1 STR. (.332) - 250 KCML (.575)	#6 SOL. (.162) - #2 STR. (.292)
YGL29C29	#2 STR. (.292) - 250 KCML (.575)	#2 STR. (.292) - 250 KCML (.575)
YGL34C2		#6 SOL. (.162) - #2 STR. (.292)
YGL34C29	250 KCML (.575) - 500 KCML (.813)	#2 STR. (.292) - 250 KCML (.575)
YGL34C34		250 KCML (.575) - 500 KCML (.813)

EG018 3 PHASE, 4 WIRE TRANSFORMER SECONDARY, GROUNDING DETAIL
TYP R 8/05

EG022 TRANSFORMER GROUNDING DETAILS
TYP R 8/05

EG101 COPPER GROUNDING CABLE CONNECTION COMPRESSION CONNECTION
TYP S

REV	DATE	BY	DESCRIPTION

DESIGNED TDH
DRAWN SMF
CHECKED RAM
DATE MARCH 2008

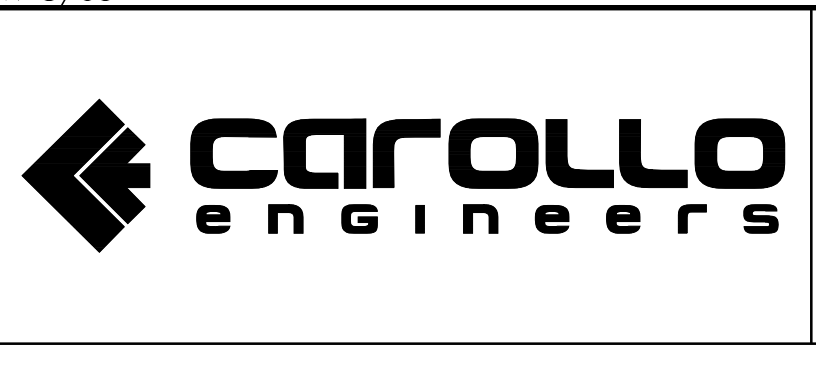
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By _____



WATER RECLAMATION CENTER EXPANSION PROJECT
CITY OF WENTZVILLE, MISSOURI

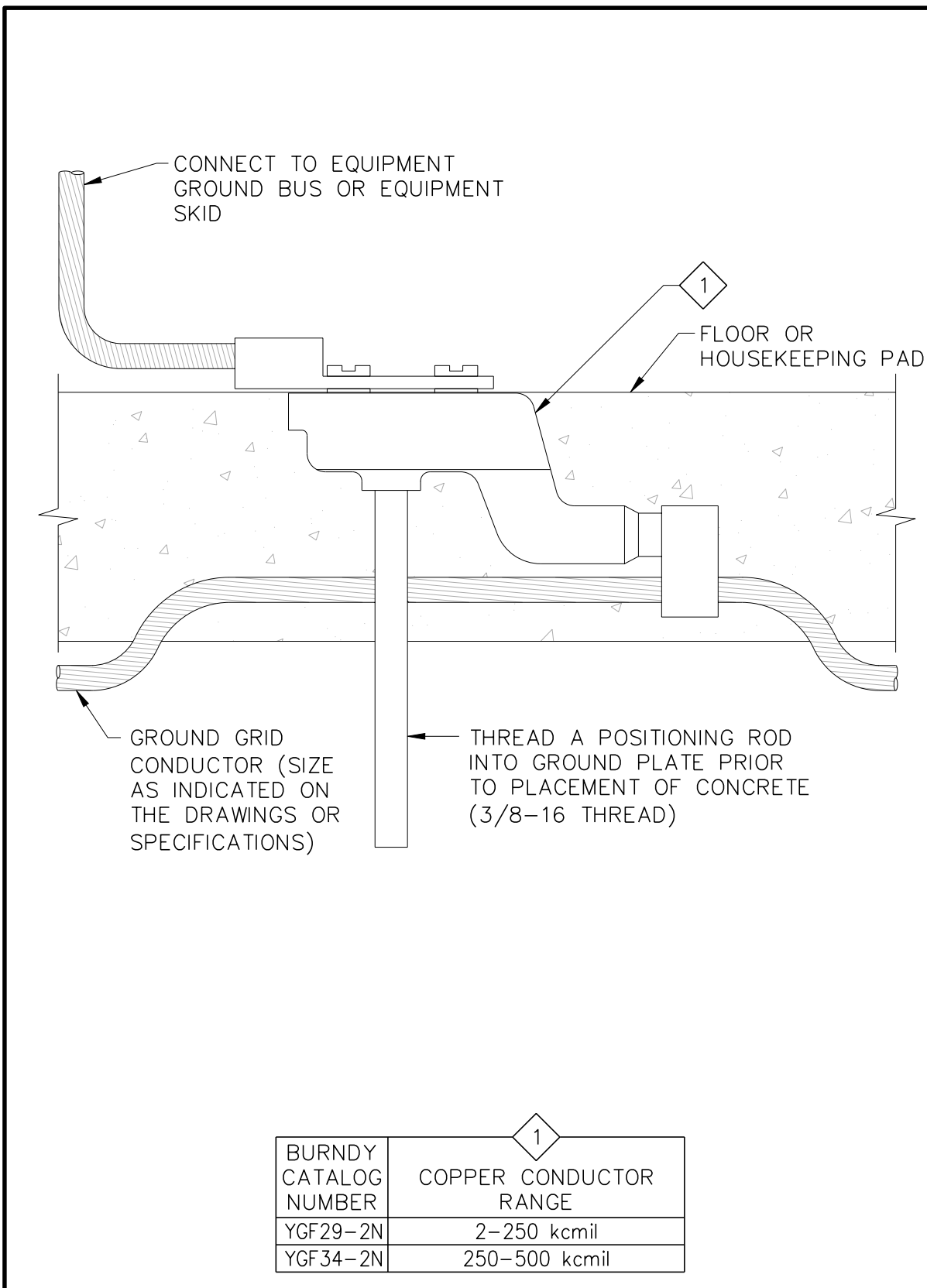
TYPICAL
TYPICAL DETAILS
ELECTRICAL - 1

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING

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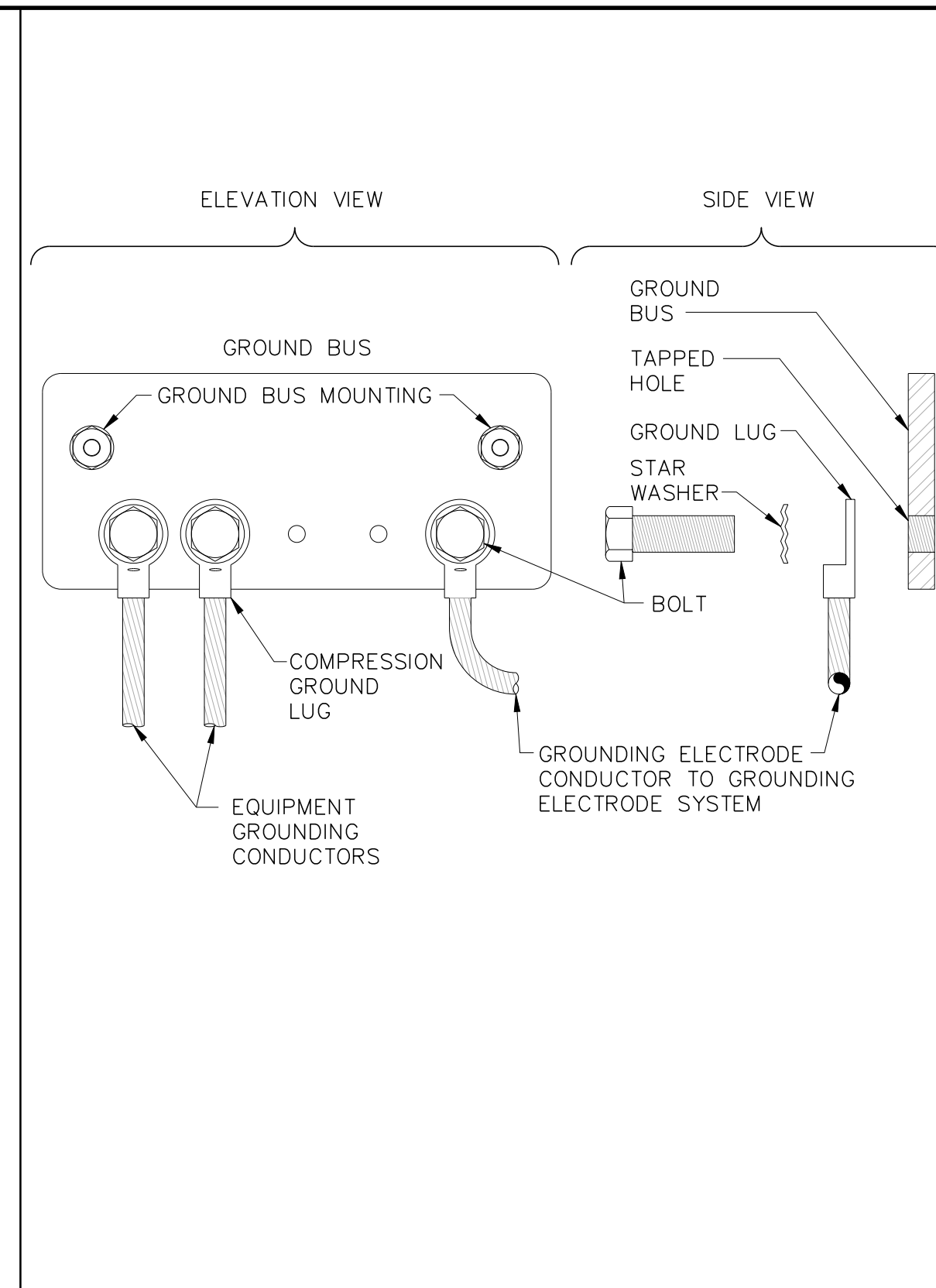
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JOB NO. 6796A.10
DRAWING NO. 99TE01
SHEET NO. 222 OF 246

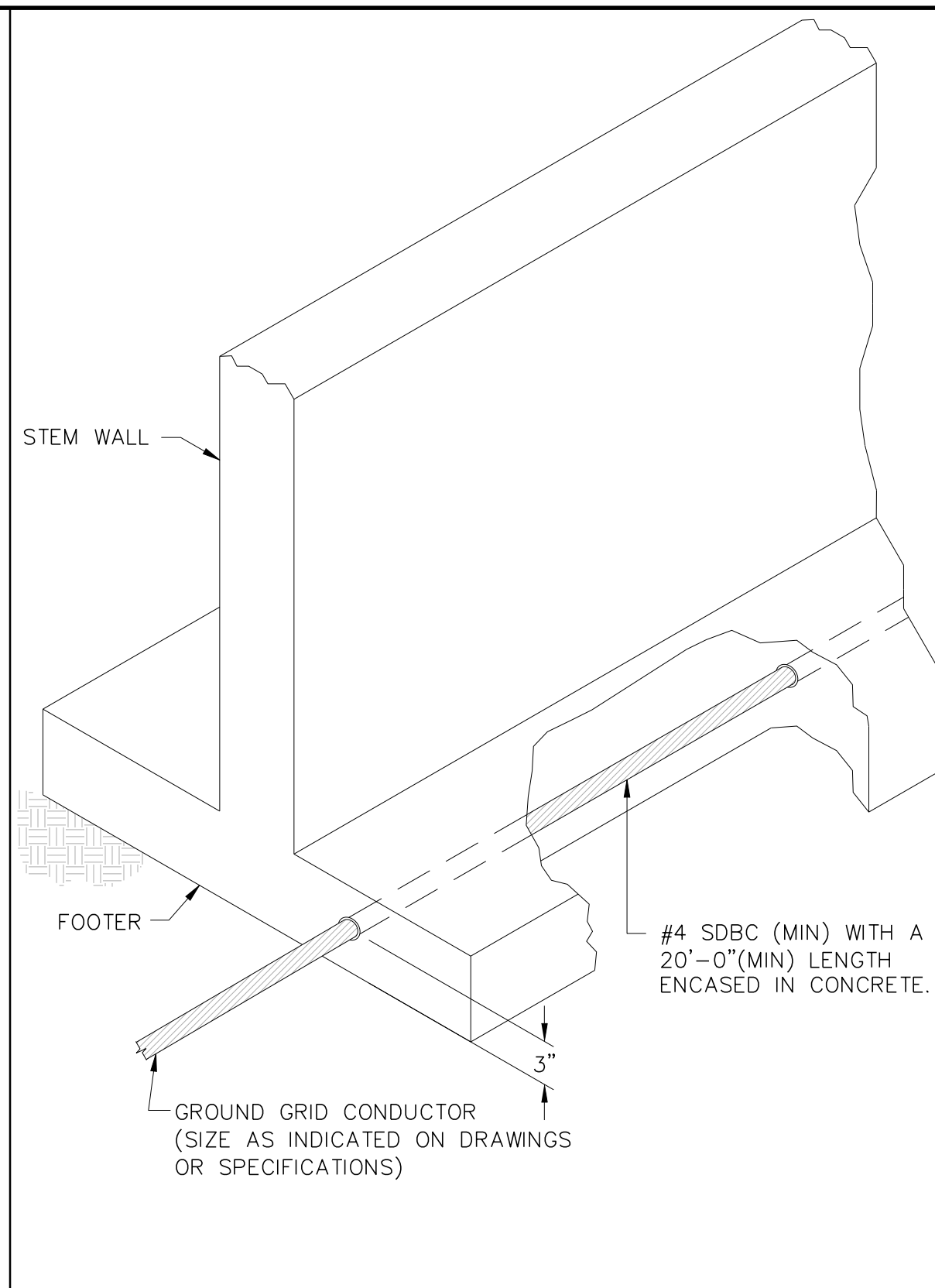


BURNDY CATALOG NUMBER	COPPER CONDUCTOR RANGE
YGF29-2N	2-250 kcmil
YGF34-2N	250-500 kcmil

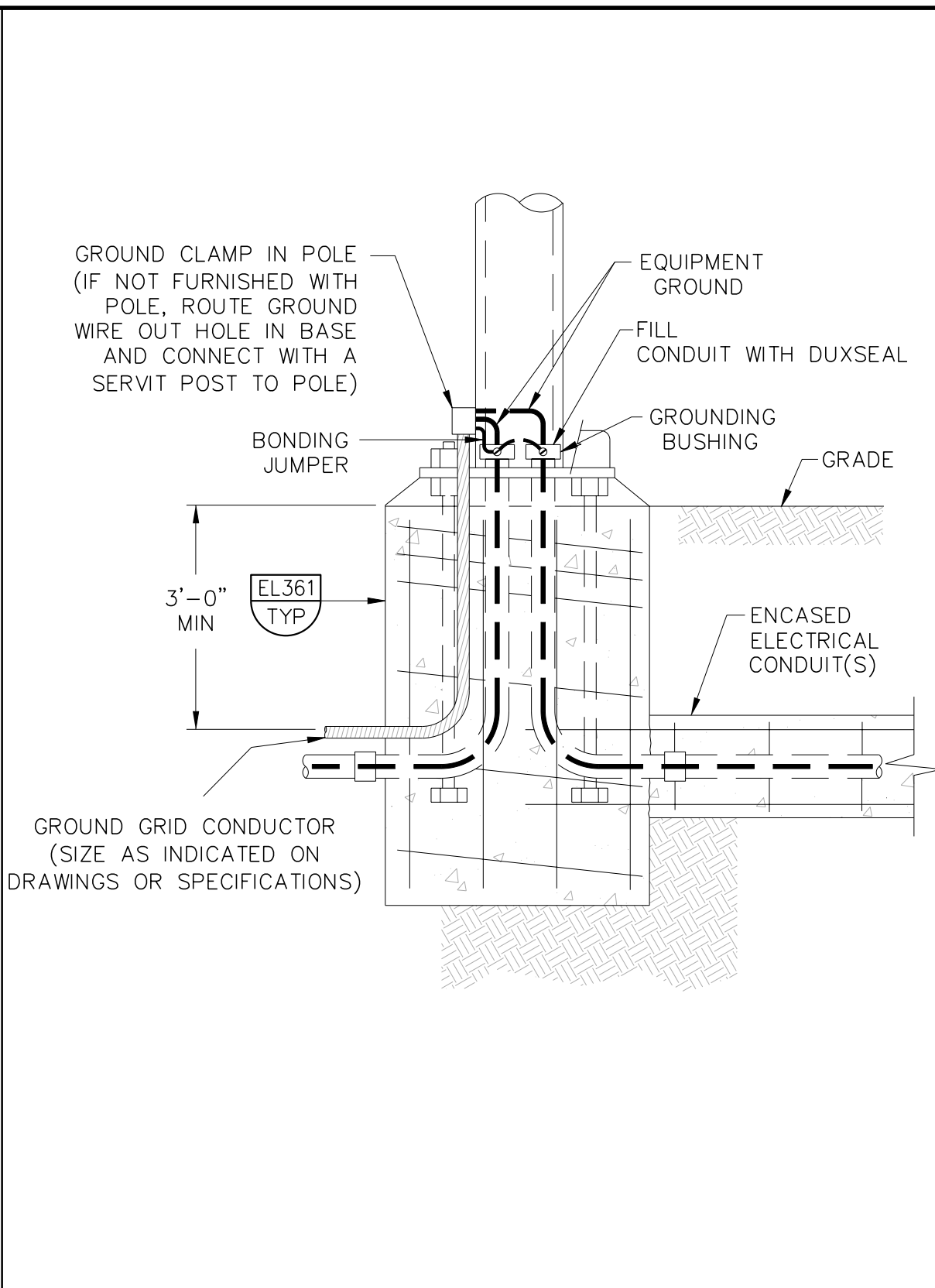
EG102 CAST GROUNDING PLATE COMPRESSION CONNECTION
TYP



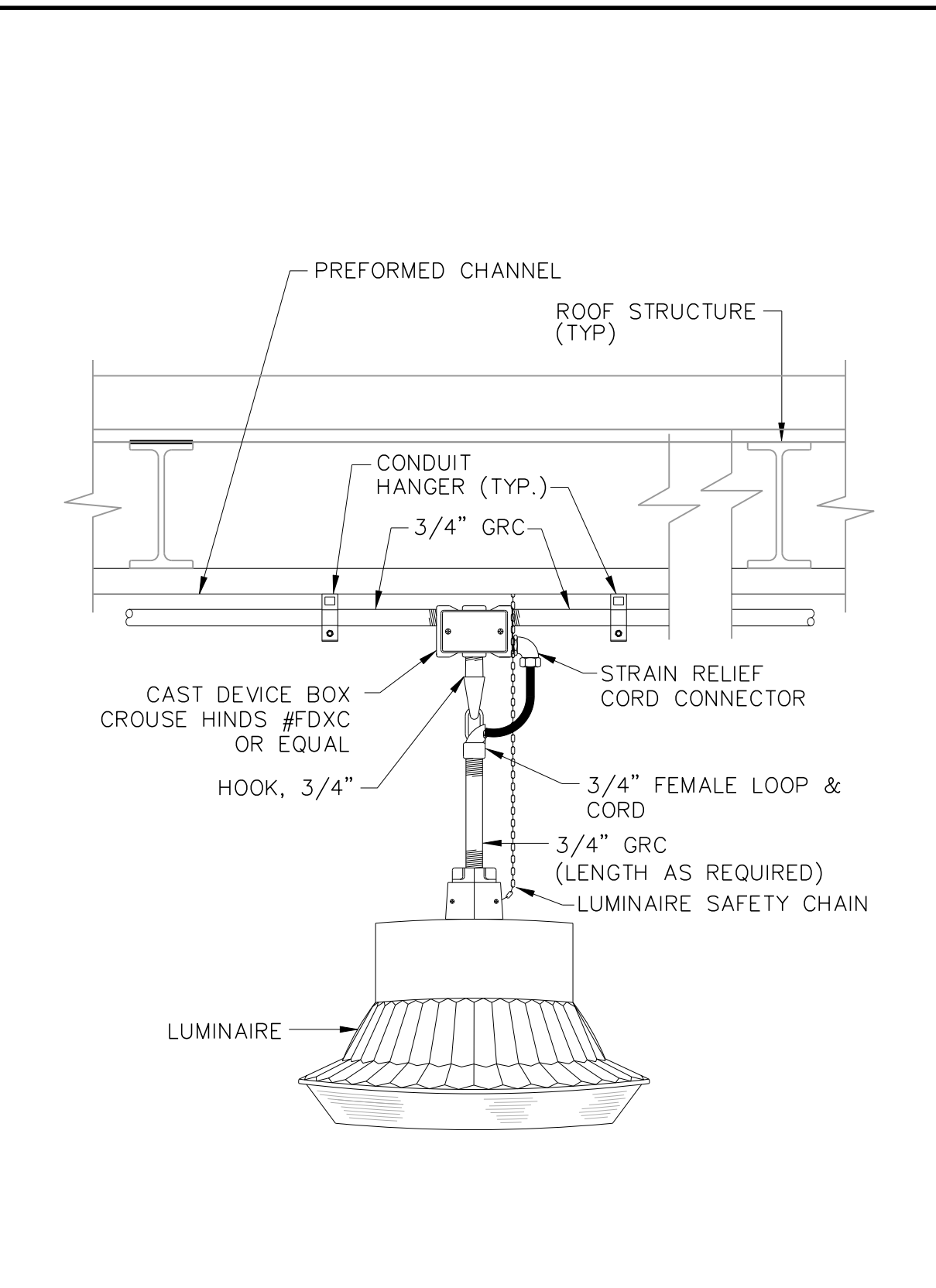
EG204 GROUND BUS CONNECTIONS
TYP



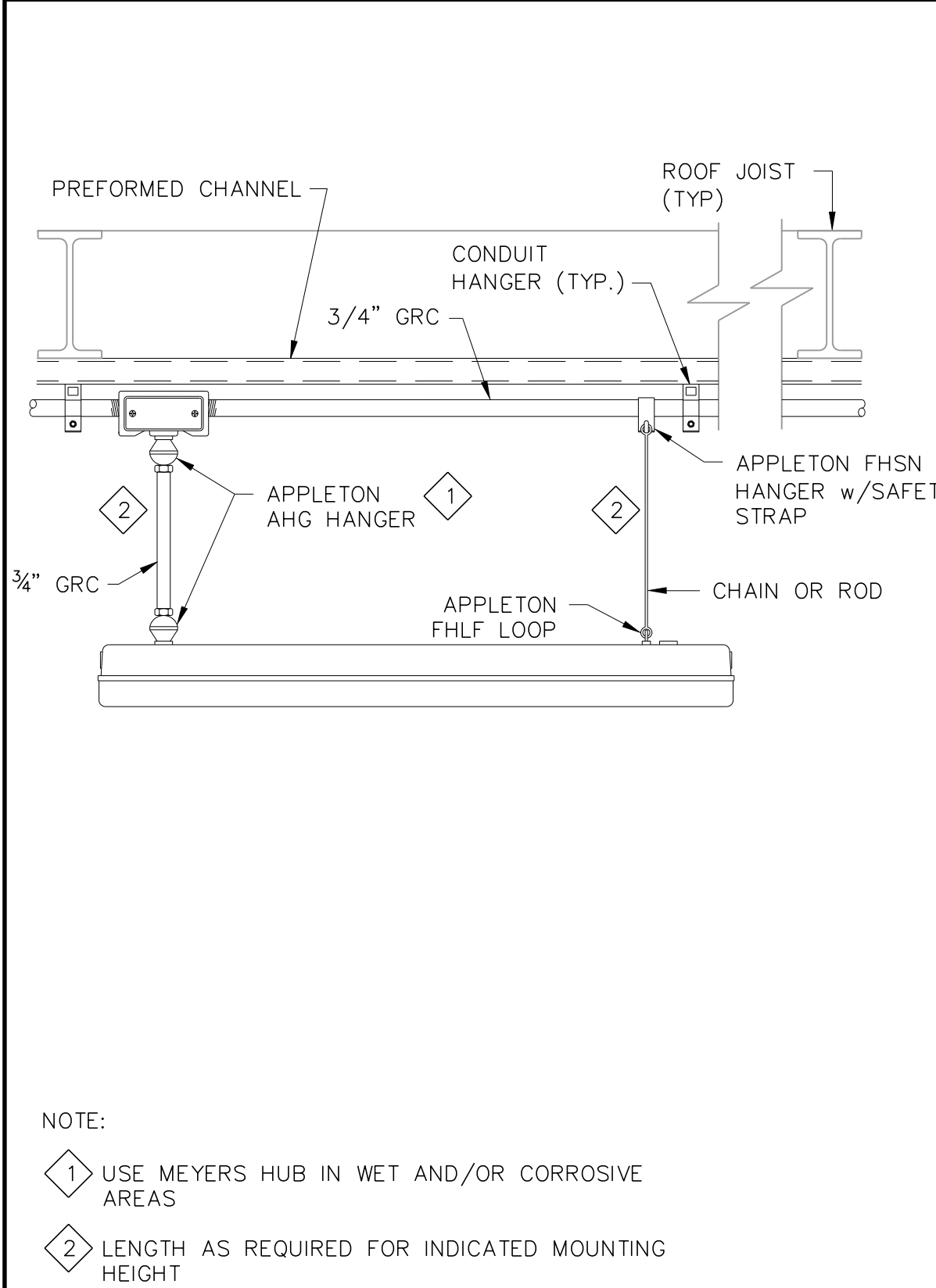
EG304 GROUNDING CONNECTION TO FOOTER (UFER)
TYP



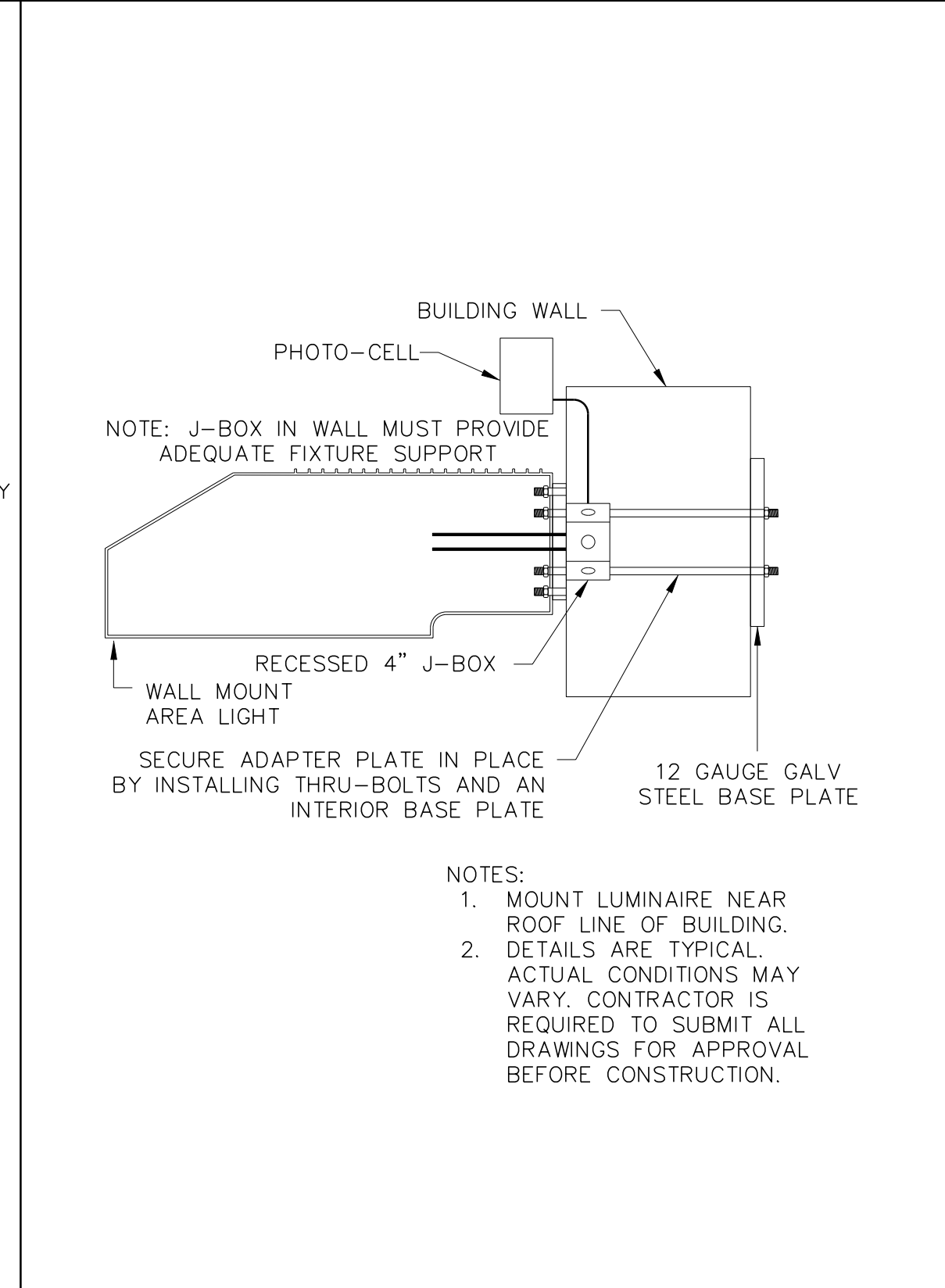
EG402 LIGHT POLE GROUNDING INTERIOR
TYP



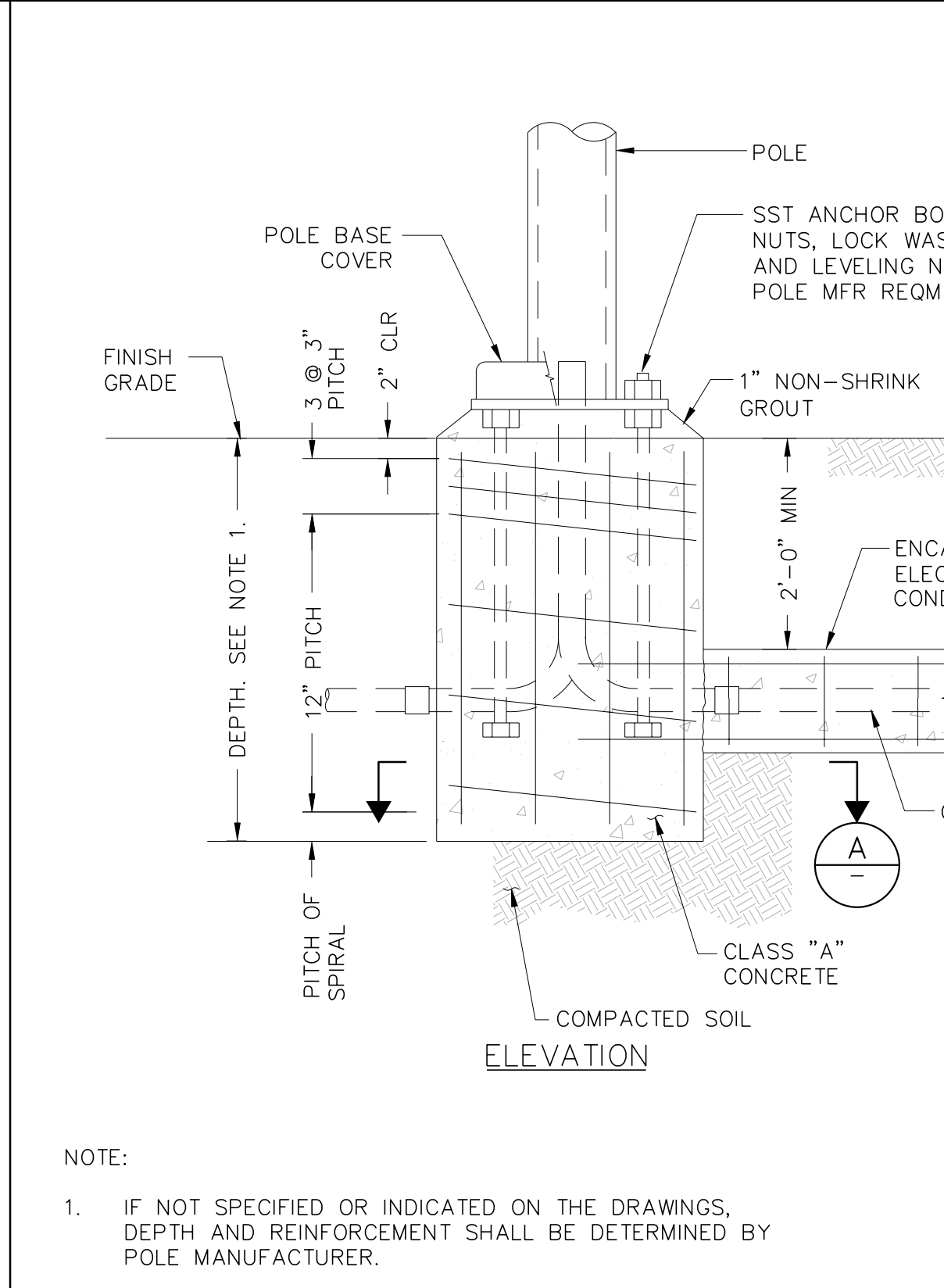
EL101 HID LUMINAIRE MOUNTING BELOW ROOF STRUCTURE
TYP
R 8/05



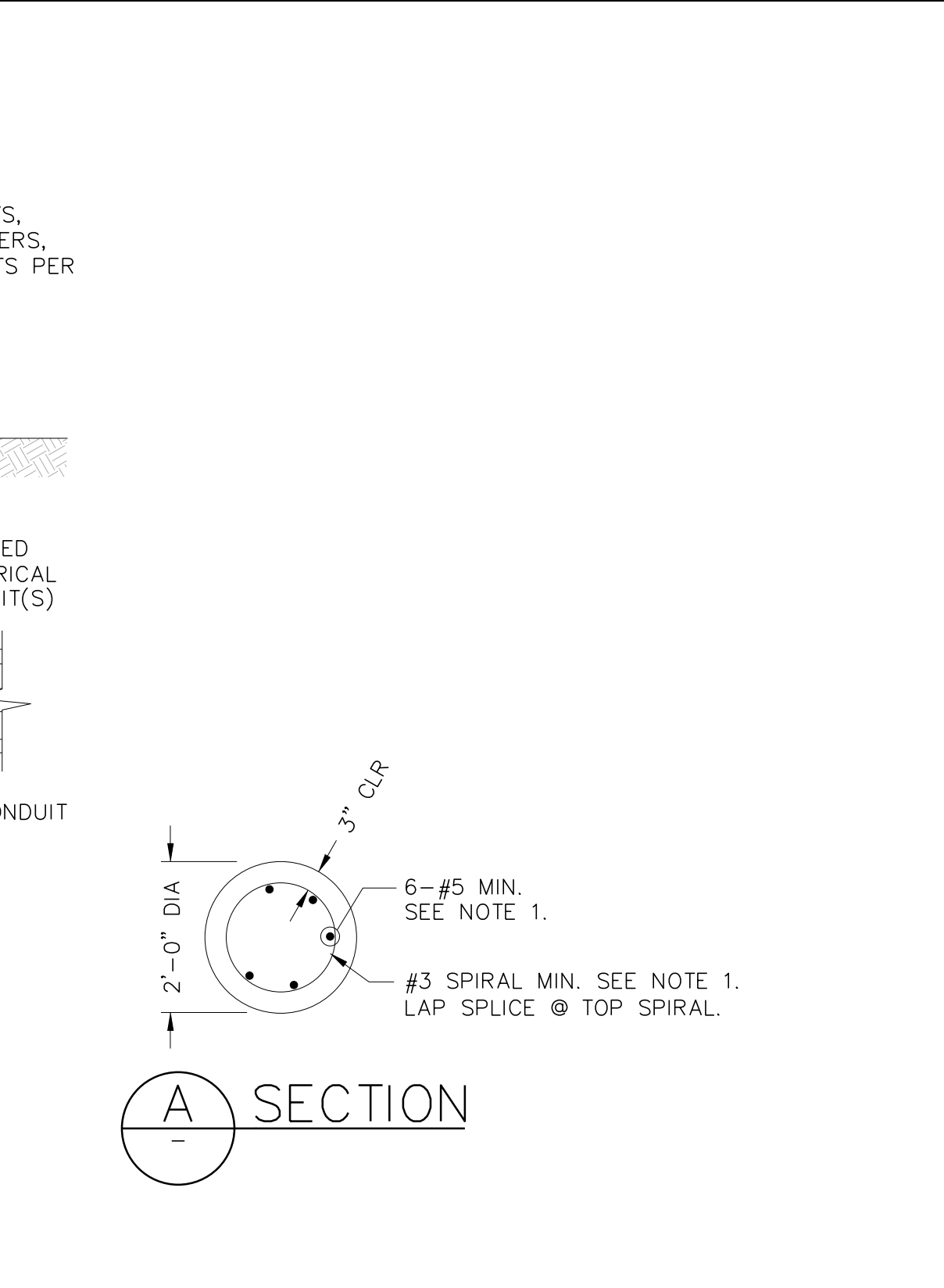
EL200 FLUORESCENT LUMINAIRE MOUNTING BELOW ROOF STRUCTURE
TYP
R 8/05



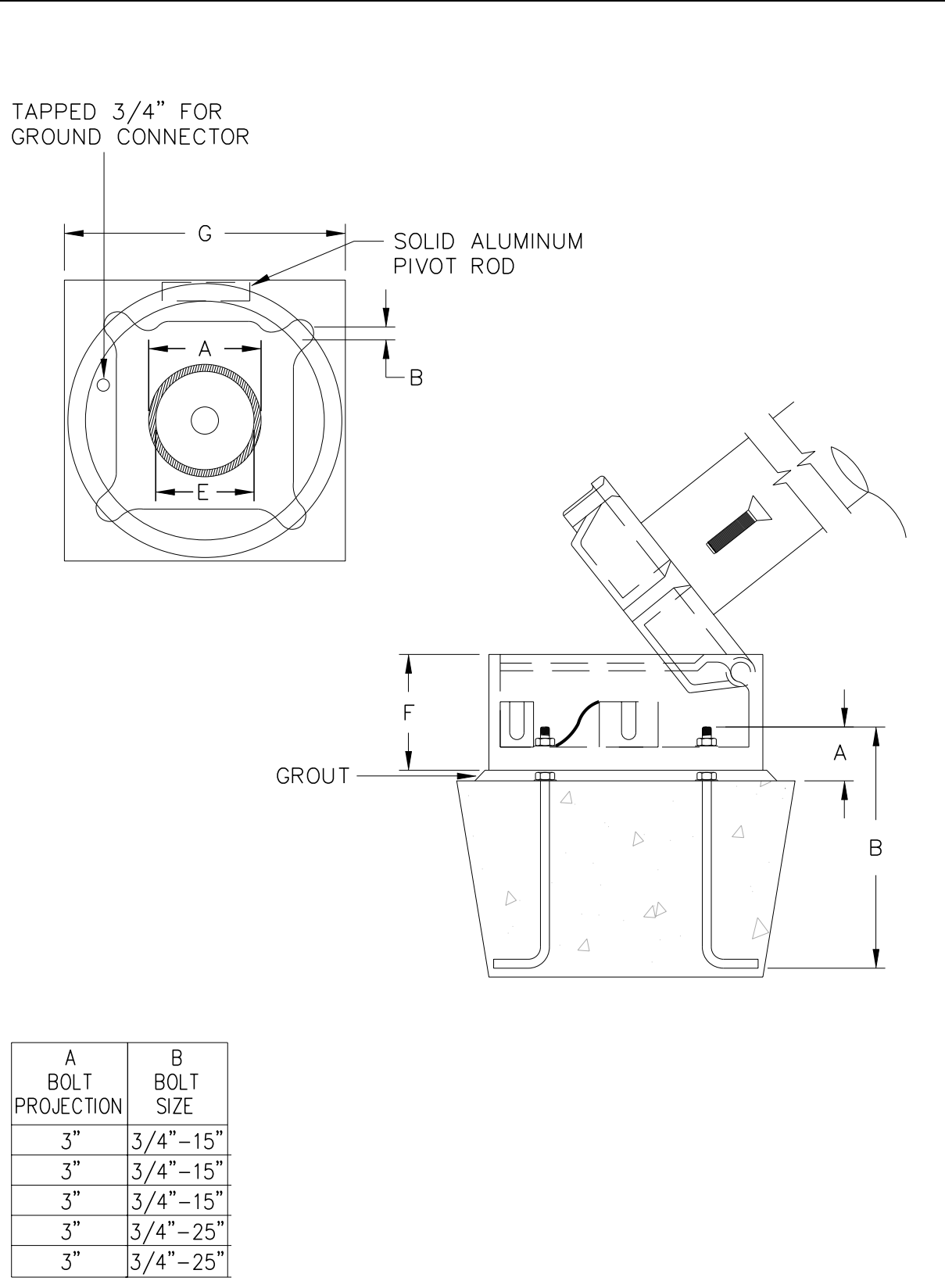
EL308 WALL MOUNT AREA LIGHT DETAIL
TYP



EL500 LUMINAIRE FOUNDATION
TYP



EL501 HINGED ANCHOR BASE AND BOLT DETAIL
TYP

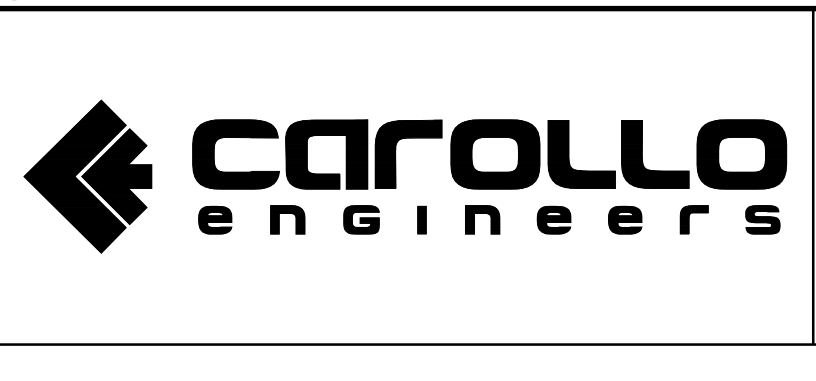


EL501 HINGED ANCHOR BASE AND BOLT DETAIL
TYP

REV	DATE	BY	DESCRIPTION

DESIGNED	TDH
DRAWN	SMF
CHECKED	RAM
DATE	MARCH 2008

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By _____



WATER RECLAMATION CENTER EXPANSION PROJECT
CITY OF WENTZVILLE, MISSOURI
TYPICAL
TYPICAL DETAILS
ELECTRICAL - 2

VERIFY SCALES	JOB NO. 6796A.10
BAR IS ONE INCH ON ORIGINAL DRAWING	DRAWING NO. 99TE02
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY	SHEET NO. 223 OF 246

Appendix C

Cut Sheets

REVISIONS				
REV.	DESCRIPTION	ECN	DATE	APPROVED
B	REFER TO ECN	13066	01/07/15	KAD

MAXIMUM CHARACTERISTICS

Application:

The DRDC Series Din-Rail surge suppressors are modular, high-speed, high-current, solid-state devices designed to protect electronic equipment and systems from transient overvoltages. The suppressor limits the magnitude of transient overvoltages that may occur on low voltage DC power lines, 4-20mA current loops or low frequency data lines. Data lines that benefit from DRDC suppression include: Ethernet, RS-485/232, Profibus, Foundation Fieldbus, DH+ or DeviceNet.

The DRDC Series surge suppressors utilize only silicon avalanche suppression diodes (SASD). The suppressor provides continuous, bipolar protection and automatically resets after a surge event with no degradation to its protection capabilities.

The suppressor includes a removable module with a base that mounts on a standard 35mm DIN (EN5022) rail. The suppressor size and form factor allows for convenient replacement of existing terminal blocks. The suppressor connects in a series (pass-through) configuration, the screw terminals accept two wire pairs (28 - 12AWG), and the device is rated for up to 10A of continuous current. Note: The DRDC surge suppressor REQUIRES that the DIN rail have a low impedance path to Earth ground.

The DRDC Series suppressors are approved for hazardous locations that require a rating of **Class1 Division 2, Groups A, B, C, D.**

Electrical Service:

Input/Output Connection: 28-12AWG Screw Terminal

Configuration: 2 pair / 4 wire

Protection Modes: L-G

Pass-Through Current (Max.): 10A

Maximum Continuous Operating Voltage: 32Vdc

Electrical Performance:

Response Time: 5ns (Max)

Voltage Protection level:

Maximum Vpl Tested to IEEE/ANSI C62.41 10/1000µs Long Wave: 50Vpk @ 134A

Maximum Vpl Tested to IEEE/ANSI C62.41 8/20µs Combination Wave: 60Vpk @ 1200A

Certifications:

UL 497B

Hazardous Locations: FM Approvals Class I Division 2 US, Canada and EU

Mechanical:

Dimensions: 100mm H x 12.5mm W x 100mm L

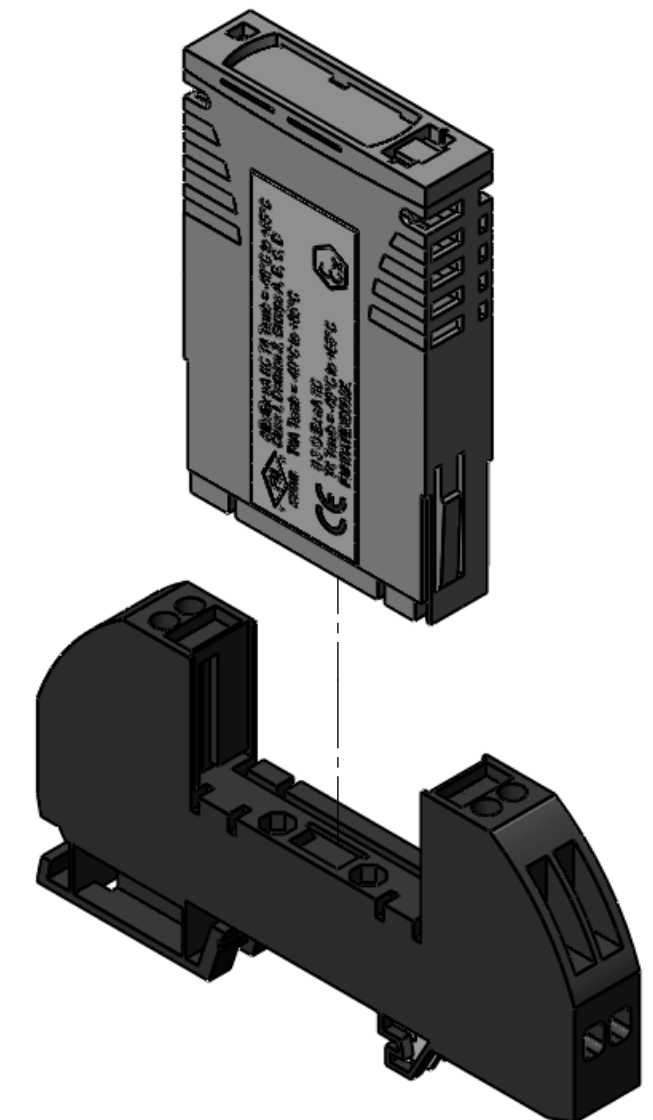
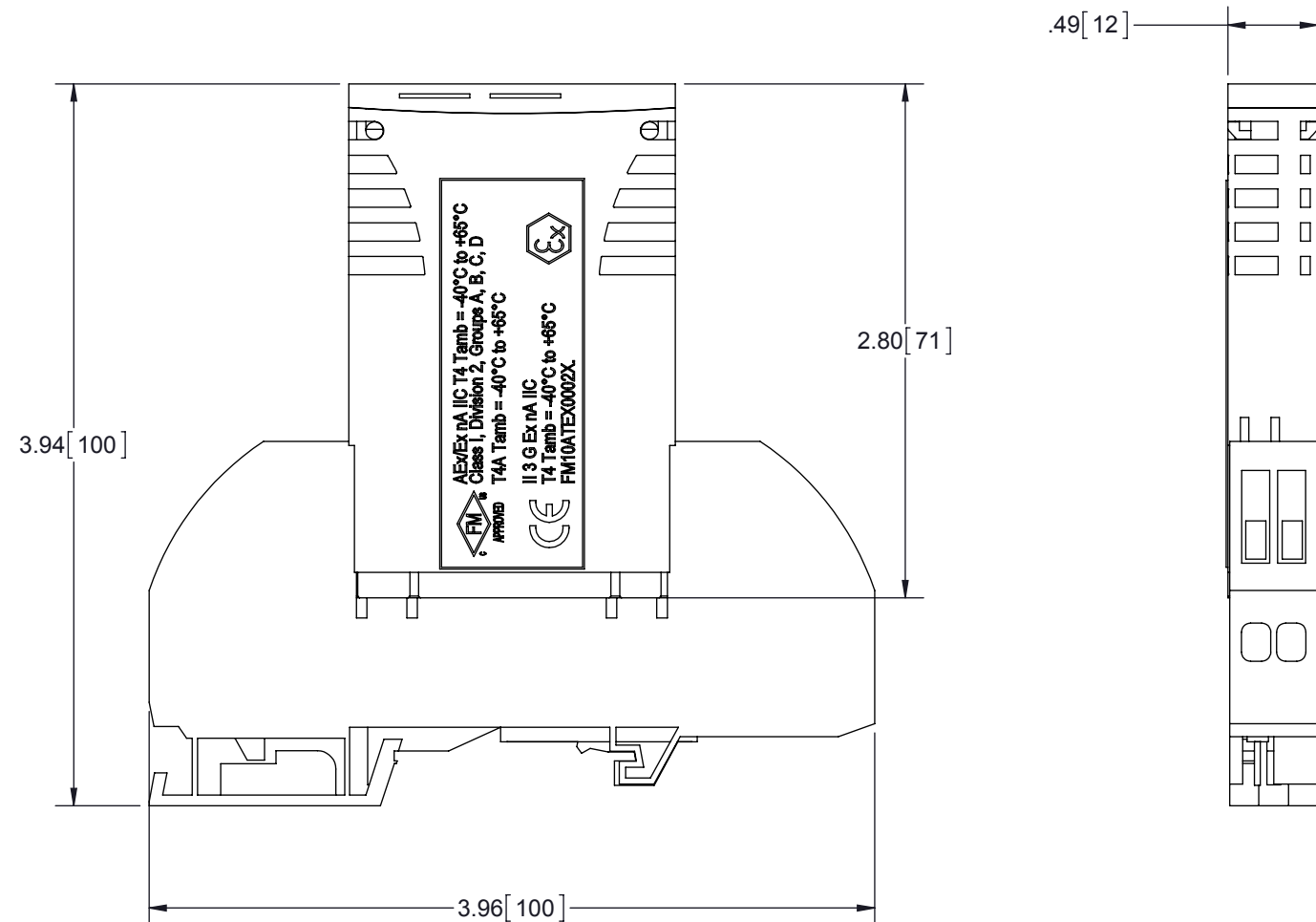
Weight (Max): 2 Oz.

Environmental:

Storage/Operating temperature: -40°C to +65°C


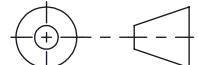
Relative Humidity: 95%

NOTE: Din-Rail must be connected to a solid earth ground for proper suppressor operation.



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UNLESS OTHERWISE SPECIFIED LEADING DIMENSIONS ARE INCHES DIMENSIONS IN [] ARE MILLIMETERS TOLERANCES: FRACTIONS=± 1/32 .XX=± .01 ANGLES=± 1° .XXX=± .005	DRAWN	DPM	DATE	 CUSTOMER PRINT DRDC 24 <small>CUSTOMER SPECIFICATION</small>			
	ENG APPD	DWR	7/16/13				
	PRODUCT MGR	MLH	8/15/13				
	MARKETING APPD	LJ	8/15/13				
MATERIAL NOTED	PROJECT NO.	TITLE					
THIRD-ANGLE PROJECTION	NOTICE: THE INFORMATION AND DESIGN IN THIS DOCUMENT IS THE PROPERTY OF TRANSTECTOR SYSTEMS. ALL RIGHTS RESERVED.		SIZE	CAGE	PART NUMBER	REV	
			B	30992	1101-680	B	
			SCALE	PROD CAT	DOCUMENT NAME	SHEET	
			1:1	DCT	1101-680-C	1 OF 1	

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REVISIONS				
REV	DESCRIPTION	ECN	DATE	APPROVED
A	PRODUCTION RELEASE		3/27/01	B. RYAN
B	UPDATE TO AUTOCAD	4176	8/1/01	JAH

TRANSIENT SUPPRESSOR SPECIFICATION FOR 120VAC, 15A, 50/60 Hz MODEL ACP 100BW3R

DRAWN	K. POPE	DATE	3/27/01	 <small>©2009 Transtector Systems, Inc. All rights reserved.</small>	10701 Airport Drive, Hayden, ID 83835, USA +1.208.772.8515 FAX +1.208.762.6034 800.882.9110 www.transtector.com		
CHECKED	CVM	DATE	7/18/01				
ENG APPD	DWR	DATE	7/18/01	TITLE SPECIFICATION ACP100BW3R			
PROJ APPD	JEB	DATE	7/18/01				
APPROVED	JAH	DATE	8/1/01				
NOTICE: THE INFORMATION AND DESIGN IN THIS DOCUMENT IS THE PROPERTY OF TRANSTECTOR SYSTEMS. ALL RIGHTS RESERVED.				SIZE A	CAGE 30992	DOCUMENT NUMBER 1400-117	REV B
				SCALE = N/A	PRODUCT CATEGORY ACT	PAGE 1 OF 4	

1. **SCOPE**: This specification covers the detail requirements for a high-speed, solid-state transient suppressor designed to protect electronic equipment and systems from transient overvoltages.
2. **PURPOSE**: This device is to eliminate the damaging effects to equipment from transient overvoltages which can appear on 120VAC, 15A, 50/60 Hz power lines.
3. **GENERAL DESCRIPTION**: The ACP100BW3R is a solid-state transient suppressor for wire-in use on 120VAC, 15A, 50/60 Hz power lines. The ACP100BW3R is both bi-polar and bi-directional; i.e., it can suppress transients of either polarity and from either direction. (source or load)

The ACP100BW3R uses high speed silicon avalanche diodes as the suppression devices.

A fuse in series with the suppression circuit will open if the suppressors fail due to excessive energy dissipation, and a normally "on" lamp will turn off, indicating loss of protection.

Remote indication circuitry is provided for connection to user provided bell, lamp or other device to warn of suppressor failure.

4. **OPERATION**: When a transient overvoltage is sensed, the silicon avalanche diode (a passive, high-speed constant voltage device) goes into conduction while maintaining the voltage at a sufficiently low value to protect the attached equipment.
5. **PERFORMANCE REQUIREMENTS**:

5.1. **MECHANICAL**: The construction and physical characteristics of the suppressor are as outlined herein.

5.1.1. **Enclosure Description**: The suppressor is enclosed within a rigid plastic case made from UL recognized plastic. The enclosure has the physical measurements shown on sheet 4.

5.1.2. **Installation Requirements**: The ACP100BW3R is intended to be installed inside of a user provided enclosure. A four position terminal strip is provided for power connections, a three position terminal strip is provided for connection to the remote indication circuitry.

5.1.3. **Material**: The material meets or exceeds UL fire rating 94V0.

5.2. **ELECTRICAL**: The suppressor shall perform electrically within the conditions and specifications defined herein.

5.2.1. **Suppressor Voltage Level (Minimum)**: The ACP100BW3R has the following suppressor voltage level:
Hot to Neutral $\pm 220\text{v} \pm 5\%$

5.2.2. **Suppressor Voltage Level (Maximum)**:
Hot to Neutral 330v (Lowest UL 1449 Rating)

5.2.3. **Peak Power Dissipation**: The peak power dissipation for a 10x1000 microsecond waveform is 12,000 watts.

5.2.4. Response Time: Less than 5 nanoseconds

5.2.5. Standby Power: Less than 0.5 watts

5.2.6. Leakage Current: Hot to Neutral @ 175v – less than 5 microamps

5.2.7. Remote Indication Terminal Strip: 120VAC max., 1 Amp max. current

5.3. ENVIRONMENTAL:

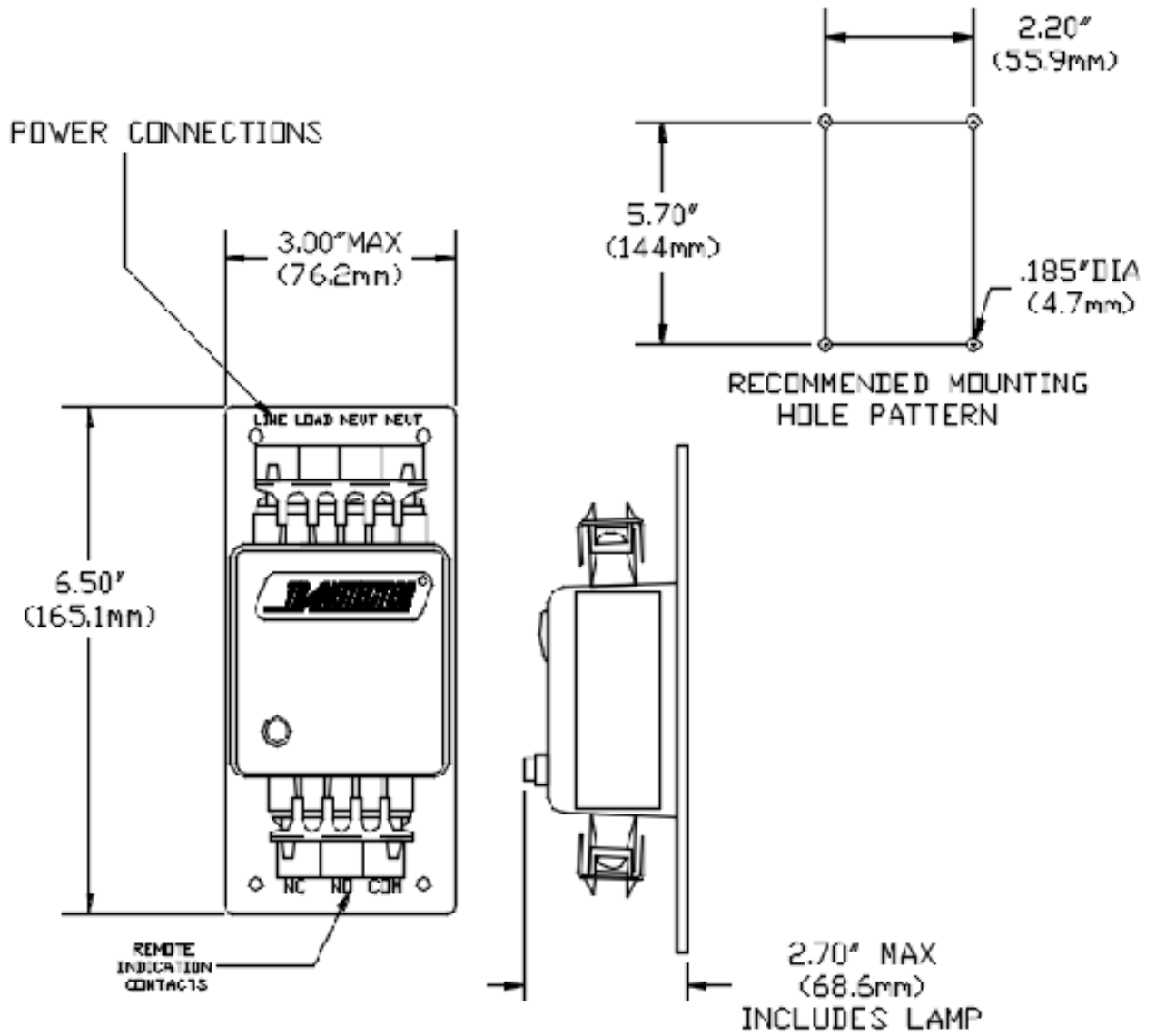
5.3.1. Operating and Storage Temperature: -20 to 65° C

5.3.2. Humidity: Less than 95%

6. PREPARATION FOR DELIVERY: Domestic and short-term storage.

6.1. PRESERVATION: Preservation shall be sufficient to afford protection during shipment and short-term storage

6.2. PACKING: Packing shall be accomplished in the manner which will insure acceptance by common carrier at the lowest rate and will afford protection against physical damage during shipment.



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REVISIONS

LTR	DESCRIPTION	ECO NUM.	DATE	APPROVED
C	WIRE LENGTH 18" TO 16" +	4554	5/24/02	MLH
D	HAZARDOUS LOCATIONS CERTIFICATION – CLASS 1 DIV 2 APPROVAL	8689	3/15/10	MPD
E	ON SHT 3 ADDED 4.2.1	12268	12/19/13	MTH
F	REMOVE OBSOLETE REF	12313	1/20/14	MTH



UNLESS OTHERWISE SPECIFIED DIM. IN INCHES BEFORE PLATING

DRAWN:	MLH	DATE	10/01/01
CHECKED:	MWG		10/18/01
ENGR. APPD:	DE		10/19/01
PROJ. APPD:	MLH		10/19/01
APPROVED:			



TITLE:

Product Specification
PDS Series

MATERIAL:

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SIZE	CAGE	DRAWING NUMBER	REV
A	30992	1400-404	F
SCALE = N/A		PAGE 1 OF 3	

SUPPRESSOR PERFORMANCE SPECIFICATION PDS-1 (1101-586)

1. **GENERAL DESCRIPTION:** The PDS Series Pipe Data surge suppressors are high-speed, high-current, solid-state devices designed to protect electronic equipment and systems from transient overvoltages. The suppressor limits the magnitude of transient overvoltages that may occur on low voltage DC power lines, 4-20mA current loops or low frequency data lines. Systems where the PDS Series have been installed include:

The PDS Series surge suppressors are hybrid technology designed products that utilize silicon avalanche suppression diodes (SASD) for the primary protection and Gas Discharge Tubes (GDT) for secondary or backup protection. The SASD suppressor provides continuous, bipolar protection and automatically resets after a surge event with no degradation to its protection capabilities.

The suppressors are intended to be installed anywhere power or communication lines are run through 1/2" schedule pipe. The PDS-1 suppressor provides the input and output wires on one end, allowing for a T connector system installation. The PDS-2 provides the input and output wires on opposite ends, allowing for a straight in-line system installation. The PDS Series connect via 18AWG wire.

Note: The PDS surge suppressors REQUIRE a low impedance path to Earth ground.

The PDS-1 and PDS-2 surge suppressors are approved for hazardous locations that require a rating of **Class1 Division 2, Groups A, B, C, D.**

2. ELECTRICAL SERVICE:

- 2.1. Input/Output Connection 16"+ length 18AWG Wires
- 2.2. Configuration 2 pair/4 wire
- 2.3. Protection Modes Line-GND
- 2.4. Pass-Through Current (Max.) 10A
- 2.5. Maximum Continuous Operating Voltage 13VDC
- 2.6. Capacitance < 8pF L-L, L-G

3. ELECTRICAL PERFORMANCE:

- 3.1. Response Time (All Models) 5 nanoseconds (Max.)
- 3.2. Gas Discharge Tube ratings
 - 3.2.1. V_{br} ~90Vpk @ 5mADC L-L, L-G
 - 3.2.2. V_{pl} 20kV / 10kA (8x20us) L-L, L-G
- 3.3. SASD suppressor ratings
 - 3.3.1. V_{br} ~35Vpk @ 5mADC L-L, L-G
 - 3.3.2. V_{pl} 125Vp @ 6kV / 3kA (8x20us) L-L, L-G
 - 3.3.3. V_{pl} 250Vp @ 20kV / 10kA (8x20us) L-L, L-G
 - 3.3.4. V_{pl} 250Vp @ 100A (10x1000us) L-L, L-G



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SIZE
A

CAGE
30992

1400-404

F

SCALE = N/A

Page 2 OF 3

4. CERTIFICATIONS:

4.1. Meet requirements of UL 497b and Belcore GR1089

4.2. Hazardous Locations; FM Approvals Class I Division 2 US, Canada and EU

4.2.1. INSTALLATION When installed as category 3 equipment the PDS Series surge suppressor shall be mounted within a tool secure enclosure which meets the requirements of EN 60079-0 and EN 60079-15 and is capable of accepting the applicable wiring methods specified in EN 60079-14 . When installed in outdoor or potentially wet locations, the enclosure shall, at a minimum, meet the requirements of IP54. When installed in locations providing adequate protection against the entry of solid foreign objects or water capable of impairing safety, the enclosure shall, at a minimum, meet the requirements of IP4X. The final enclosure shall not contain more than 7.5% in total magnesium.

4.3. Labeling Requirements

4.3.1. Main Product Label

Transtector
 10701 Airport Drive, Hayden ID 83835
PDS-1 1101-586



AEx/Ex nA IIC T4 Tamb = -40°C to +65°C
 Class 1, Division 2, Groups A, B, C, D;
 T4A Tamb = -40°C to +65°C



II 3 G Ex nA IIC
 T4 Tamb = -40°C to +65°C
 FM10ATEX0002X.

4.3.2. Secondary Label

Serial Number
 Date Code (year of construction)

5. ENVIRONMENTAL:

5.1. Storage/Operating Temperature: -40°C to +65°C
 5.2. Relative Humidity 95%

6. MECHANICAL:

6.1. Dimensions..... 1/2" Diameter x 6" L
 6.2. Material..... Schedule 40 Stainless Steel
 6.3. Threads 1/2" NPT threaded ends
 6.4. Weight (Max.) 2 Oz.

Note: Green Ground wire must be connected to a solid earth ground for proper suppressor operation.

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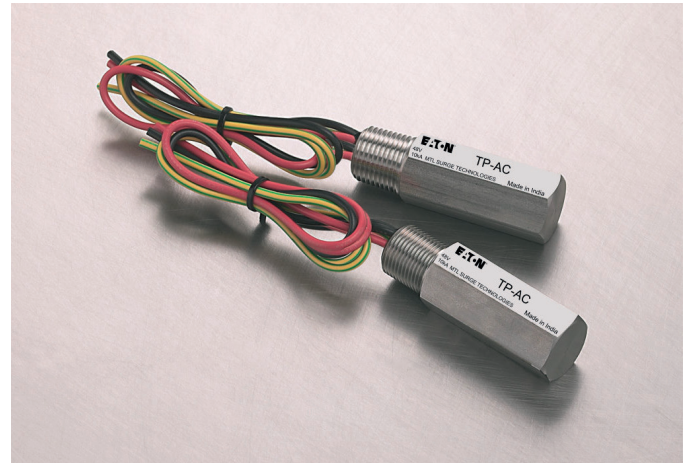
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SIZE A	CAGE 30992	1400-404	F
SCALE = N/A		Page 3 OF 3	

MTL TP-AC range

Safeguards electronic process transmitters against induced surges and transients from field cabling

- **Corrosion resistant**
- **Protects AC power and signal line**
- **120V & 240V**
- **Models for Foundation fieldbus™ 4-20mA and Profibus DP**
- **Parallel connection avoids resistance in loop**
- **Easy and direct mounting – screws into spare conduit entry**
- **10 year product warranty**



The TP-AC range of surge protection devices uniquely provides a level of protection for AC powered, field-mounted transmitters that is far in excess of the optional transient protection facilities available from the transmitter manufacturers- and achieved without any additional wiring modifications or costly additions.

The TP protection network consists of high power, solid state electronics and a gas-filled discharge tube (GDT) capable of diverting 20kA impulses. The whole unit is encased in ANSI 316 stainless steel housing, threaded for attachment in conduit entries used on process transmitters. Versions are available with ½" NPT threaded entries.

Installation can easily be carried out retrospectively to existing installations. The TP-AC is screwed into any unused conduit entry on the transmitter case and flying leads are connected to the terminal block signal, power and earth terminals. The TPs operate – passing AC and DC signals without attenuation – while diverting surge currents safely to earth and clamping output voltages to specific levels.

The all-important earthing connection is made to the local casing of the transmitter with no separate earth connection or ground stake at the transmitter being needed. In operation, the TP makes sure that the transmitter electronics are never exposed to damaging transients between lines or between lines and casing/earth. Any surge current appearing as a series-mode or common-mode transient is converted into a common-mode voltage, whereupon the transmitter electronics are temporarily raised to some higher voltage level before “floating” down automatically (and without damage) to resume normal operation.

For Fieldbus applications, the TP-AC Fieldbus models meet the requirement of IEC61158-2:2004 and ANSI/ ISA-50.02-2 1992 for 31.25kbit systems as used by Foundation Fieldbus™, Profibus PA and WorldFIP.

MTL TP-AC range

October 2015

SPECIFICATION

Maximum surge current

20kA peak current (8/20µs waveform)

Leakage current

Less than 10µA at max. working voltage

Resistance

No resistance introduced into loop

Ambient temperature limits

- 40°C to +85°C
- (-40°F to +185°F) (working)
- 40°C to +85°C
- (-40°F to +185°F) (storage)

Humidity

5% to 95% RH (non-condensing)

Casing

ANSI 316 stainless steel hexagonal bar stock, male thread

Ingress Protection

IP66 (NEMA4X)

Threads

1/2" NPT

EMC compliance

To Generic Immunity Standards EN61326-1, part 2 for industrial environments

Dimensions

See figure 1

Weight

204g (7.2oz)

Model		TP-AC 240VAC 120VAC Pair (All models)	TP-ACFF Foundation Fieldbus Pair	TP-AC420 4-20mA Pair	TP-AC485 Profibus DP RS485 Pair
Nominal Voltage	U_n	240VAC	32VDC	48VDC	7VDC
Rated Voltage (MCOV)	U_c	275VAC	36VDC	58VDC	9VDC
Nominal Current	I_n	N/A	N/A	N/A	N/A
Nominal Discharge Current (8/20µs)	i_{sn}	3kA	3kA	3kA	3kA
Max. Discharge Current (8/20µs)	I_{max}	20kA	20kA	20kA	20kA
Residual Voltage @ i_{sn}	U_p	800V	65V	95V	19V
Voltage Protection Level @ 1kV/µs	U_p	500V	<50V	<76V	<12V
Bandwidth	f_G	400Hz	7.5MHz	1MHz	1MHz
Capacitance	C	N/A	50pF	100pF	100pF
Series Resistance	R	N/A	N/A	N/A	N/A
Operation Temperature Range		-40°C to +85°C	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C

TO ORDER SPECIFY:	TP-ACFF-N	AC power & Foundation Fieldbus 1/2" NPT Thread
	TP-AC420-N	AC power & 4-20mA 1/2" NPT Thread
	TP-AC485-N	AC power & Profibus DP (RS485) 1/2" NPT Thread

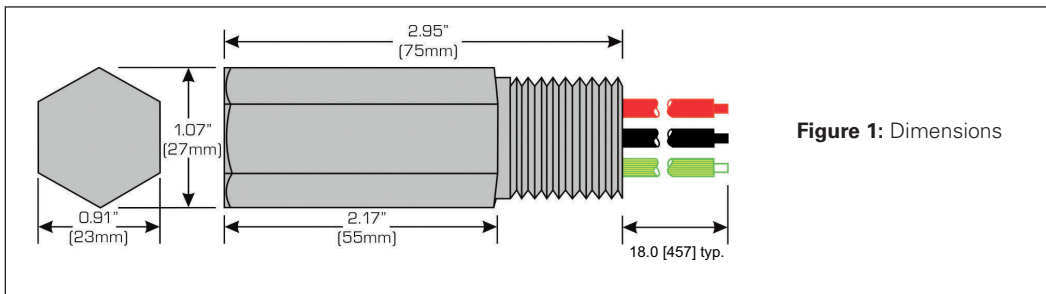


Figure 1: Dimensions



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The given data is only intended as a product description and should not be regarded as a legal warranty of properties or guarantee. In the interest of further technical developments, we reserve the right to make design changes.

Section 6

Surge Protective Devices (SPDs)

Commercial Applications



EMA Series SPDs



Retrofit

EBA Series SPDs



SurgeLogic™ SurgeLoc

Residential & Light Commercial Applications



SDSA 3-Phase



HEPD80



QO/HOM SPDs



Whole House SPDs

Externally Mounted SPDs

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Internally Mounted SPDs

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QO™, NQ, and Homeline™ SPDs	6-10

Externally Mounted Surge Protective Devices

SurgeLogic™ EMA and EBA series SPDs offer a full range of externally mounted surge suppression solutions. These units are designed to provide surge suppression from service entrance panels to point-of-use equipment.

US and Canadian UL® Listed to the UL 1449 standard. Complies with requirements of NEC® Article 285 and CSA 22.2 No. 8-M1986 as appropriate. Complies with UL 96A 12th Edition Master Label requirements for Lightning Protection Systems.



EMA Series SPDs

- 10 year product warranty
- 10 modes of protection
- 200 kA SCCR
- EMI/RFI filtering
- Audible alarm with enable/disable switch, dry contacts and surge counter standard
- Indicator LEDs; normal (green) and fault condition (red) for each phase
- UL 1449 Type 1 to be used in both Type 1 and Type 2 applications
- **Standard.** UL 1449 Type 1 SPDs can be located at any point in the electrical system, on the line or load side of the equipment overcurrent device.
- **Remote Monitor.** This option displays the alarm status of the surge protective device up to 1000 feet from the unit.



EMA Series SPDs

EMA SPD products feature a design based on individual phase modules for a flexible, cost effective way to achieve superior surge suppression at every level of the electrical distribution system. Modularity results in lower life cycle costs and fast, easy service or replacement.

EMA SPD Options:

- **Enhanced Filtering Module.** Sine wave tracking circuitry provides enhanced EMI/RFI filtering of -54 dB at 100 kHz and establishes the power surge clamping window relative to the sine wave voltage to increase performance at distribution and branch panel applications.
- **Disconnect Switch.** The integral switch provides a mechanical means to electrically isolate the entire surge suppressor before opening the enclosure door to facilitate servicing of the unit's components.

NOTE: Table 1.1 continues onto Page 1-3.

Table 6.1: EMA SPDs

Service Voltage	Peak Surge Current Rating per Phase (kA)	NEMA 1 Cat. No.	NEMA 4X Stainless Steel Cat. No.
120/240 V, 1-phase, 3-wire + ground [1]	120	SSP01EMA12()	SSP01EMA12S()
	160	SSP01EMA16()	SSP01EMA16S()
	240	SSP01EMA24()	SSP01EMA24S()
	320	SSP01EMA32()	SSP01EMA32S()
	480	SSP01EMA48()	SSP01EMA48S()
208Y/120 V, 3-phase, 4-wire + ground [2] [3] [1] Wye	120	SSP02EMA12()	SSP02EMA12S()
	160	SSP02EMA16()	SSP02EMA16S()
	240	SSP02EMA24()	SSP02EMA24S()
	320	SSP02EMA32()	SSP02EMA32S()
	480	SSP02EMA48()	SSP02EMA48S()
240/120 V, 3-phase, 4-wire + ground [1] High-leg Delta	120	SSP03EMA12()	SSP03EMA12S()
	160	SSP03EMA16()	SSP03EMA16S()
	240	SSP03EMA24()	SSP03EMA24S()
	320	SSP03EMA32()	—
	480	SSP03EMA48()	—
240 V, 3-phase, 3-wire + ground Delta	100	SSP06EMA10()	SSP06EMA10S()
	120	SSP06EMA12()	SSP06EMA12S()
	160	SSP06EMA16()	SSP06EMA16S()
	200	SSP06EMA20()	SSP06EMA20S()
	240	SSP06EMA24()	SSP06EMA24S()
480Y/277 V, 3-phase, 4-wire + ground [3] [4] [1] Wye	120	SSP04EMA12()	SSP04EMA12S()
	160	SSP04EMA16()	SSP04EMA16S()
	240	SSP04EMA24()	SSP04EMA24S()
	320	SSP04EMA32()	SSP04EMA32S()
	480	SSP04EMA48()	SSP04EMA48S()
480 V, 3-phase, 3-wire + ground [5] Delta	100	SSP05EMA10()	SSP05EMA10S()
	120	SSP05EMA12()	SSP05EMA12S()
	160	SSP05EMA16()	SSP05EMA16S()
	200	SSP05EMA20()	SSP05EMA20S()
	240	SSP05EMA24()	SSP05EMA24S()
320	320	SSP05EMA32()	SSP05EMA32S()
	480	SSP05EMA48()	SSP05EMA48S()

[1] Do not use on ungrounded systems. Systems must be solidly grounded.

[2] 208Y/120 series also applies to the following voltage 220Y/127.

[3] Can be used on 4-wire or 3-wire grounded wye systems with or without neutral.

[4] 480Y/277 series applies to the following voltages 380Y/220, 400Y/230, and 415Y/240.

[5] 480 V Delta series also applies to the following voltage 480Y/277V HRG.

Table 6.1 EMA SPDs (cont'd.)

Service Voltage	Peak Surge Current Rating per Phase (kA)	NEMA 1 Cat. No.	NEMA 4X Stainless Steel Cat. No.
600Y/347 V, 3-phase, 4-wire + ground, [6] [7] WYE	120	SSP08EMA12()	SSP08EMA12S()
	160	SSP08EMA16()	SSP08EMA16S()
	240	SSP08EMA24()	SSP08EMA24S()
	320	SSP08EMA32()	SSP08EMA32S()
	480	SSP08EMA48()	SSP08EMA48S()
600 V, 3-phase, 3-wire + ground [8] Delta	100	SSP09EMA10()	SSP09EMA10S()
	120	SSP09EMA12()	SSP09EMA12S()
	160	SSP09EMA16()	SSP09EMA16S()
	180	SSP09EMA18()	SSP09EMA18S()
	240	SSP09EMA24()	SSP09EMA24S()
	320	SSP09EMA32()	SSP09EMA32S()

External Modular Options ()

(D) [9]	Disconnect Switch
(F)	Enhanced Filtering Module (not applicable for Delta, HRG or HLD)
(DF) [9]	Disconnect Switch and Enhanced Filtering Module (not applicable for Delta, HRG or HLD)

Accessory Description	Cat. No.
Remote Monitor	TVS12RMU

Replacement Modules

All module assemblies are US and Canadian UL® Recognized to UL 1449 standards. Complies with requirements of NEC® Article 285 and CSA C22.2 No. 8-M1986 as appropriate.



Wye Replacement Module



Delta/HRG Replacement Module

Table 6.2: EMA Replacement Modules

System Voltage	Peak Surge Current Rating (kA)	Catalog Numbers [10]		
		Phase A	Phase B	Phase C
120/240 V, 1-phase, 3-wire + ground	120	MA11MA12	—	MA11MA12
	160	MA11MA16	—	MA11MA16
	240	MA11MA24	—	MA11MA24
208Y/120 V, 3-phase, 4-wire + ground [11] Wye	120	MA11MA12	MA11MA12	MA11MA12
	160	MA11MA16	MA11MA16	MA11MA16
	240	MA11MA24	MA11MA24	MA11MA24
240/120 V, 3-phase, 4-wire + ground [12] High-Leg Delta	120	MA11MA12	MA31MA12	MA11MA12
	160	MA11MA16	MA31MA16	MA11MA16
	240	MA11MA24	MA31MA24	MA11MA24
240 V, 3-phase, 3-wire + ground Delta	100	MA61MA10	MA61MA10	MA61MA10
	120	MA61MA12	MA61MA12	MA61MA12
	160	MA61MA16	MA61MA16	MA61MA16
	200	MA61MA20	MA61MA20	MA61MA20
	240	MA61MA24	MA61MA24	MA61MA24
480Y/277 V, 3-phase, 4-wire + ground [13] Wye	120	MA41MA12	MA41MA12	MA41MA12
	160	MA41MA16	MA41MA16	MA41MA16
	240	MA41MA24	MA41MA24	MA41MA24
480 V, 3-phase, 3-wire + ground [14] Delta	100	MA51MA10	MA51MA10	MA51MA10
	120	MA51MA12	MA51MA12	MA51MA12
	160	MA51MA16	MA51MA16	MA51MA16
	200	MA51MA20	MA51MA20	MA51MA20
	240	MA51MA24	MA51MA24	MA51MA24
600Y/347 V, 3-phase, 4-wire + ground Wye	120	MA81MA12	MA81MA12	MA81MA12
	160	MA81MA16	MA81MA16	MA81MA16
	240	MA81MA24	MA81MA24	MA81MA24
	100	MA91MA10	MA91MA10	MA91MA10
600 V, 3-phase, 3-wire + ground [8] Delta	120	MA91MA12	MA91MA12	MA91MA12
	160	MA91MA16	MA91MA16	MA91MA16
	180	MA91MA18	MA91MA18	MA91MA18

[6] Do not use on ungrounded systems. Systems must be solidly grounded.
 [7] Can be used on 4-wire or 3-wire grounded wye systems with or without neutral.
 [8] 600 V Delta series also applies to the following voltage 600Y/347V HRG.
 [9] Not available in stainless steel for 320 and 480 kA.
 [10] For UL 1449 Type 1 Modules, add suffix (1). Example: MA11MA121
 [11] 208Y/120 series also applies to the following voltage 220Y/127.
 [12] High-leg delta (Phase B modules are different than Phase A and Phase C modules).
 [13] 480Y/277 series applies to the following voltages 380Y/220, 400Y/230, and 415Y/240.
 [14] 480 V Delta series also applies to the following voltage 480Y/277V HRG.

New!

EBA Series SPDs

EBA SPD products consist of a consolidation of phase modules into one solid brick casting and offered at a competitive price for those who want superior surge suppression on a limited budget. EBA series are nipple-mounted SPDs that allow installation flexibility and retain superior performance.

- 10 year product warranty
- 10 modes of protection
- 200 kA SCCR
- -45 dB EMI/RFI Filtering
- Audible alarm with enable/disable switch, dry contacts and surge counter standard
- Indicator LEDs; normal (green) and fault condition (red) for each phase
- NEMA 1 rated enclosure



EBA Series SPD



Remote Monitor

Table 6.3: EBA SPDs

Service Voltage	Peak Surge Current Rating per Phase (kA)	NEMA 1 Cat. No.
120/240 V, 1-phase, 3-wire + ground ^[15]	80	SSP01EBA08
	100	SSP01EBA10
	120	SSP01EBA12
	160	SSP01EBA16
	200	SSP01EBA20
	240	SSP01EBA24
208Y/120 V, 3-phase, 4-wire + ground ^[16] ^[17] Wye	80	SSP02EBA08
	100	SSP02EBA10
	120	SSP02EBA12
	160	SSP02EBA16
	200	SSP02EBA20
	240	SSP02EBA24

Accessory Description	Cat. No.
Remote Monitor	TVS12RMU

Internally Mounted Surge Protective Devices

Internally mounted surge protective devices are installed integrally to systems for service entrance and branch panel surge suppression. Internally mounted SPDs installed next to the supply bus provides maximum performance inside Square D™ systems. Built-in performance is the best way to ensure cost effective power quality (especially important for critical power facilities).

US and Canadian UL® Recognized as a Type 2 (or 1 with optional suffix in catalog number) SPD Component Assembly to UL 1449 and UL 1283 standards. Complies with requirements of NEC® Article 285 and CSA C22.2 No. 8-M1986 as appropriate. Complies with UL 96A 12th Edition Master Label requirements for Lightning Protection Systems.

Internally Mounted—New Construction / Factory Assembled

Factory installed integral/internal Surgeloc™ SPD products make adding surge suppression to new construction projects easy. Refer to the sections listed below to identify the correct product for your application or contact Surgeloc™ TAG at 1-800-577-7353 for assistance.

Panelboards
Refer to Section 9



NF

NQ

Switchboards and Switchgear
Refer to Section 11



PZ4

QED

Motor Control Centers
Refer to Section 17



MCC

Integrated Power and Control Centers
Refer to Section 10



IPAC2

[15] Do not use on ungrounded systems. Systems must be solidly grounded.

[16] 208Y/120 series also applies to the following voltage 220Y/127.

[17] Can be used on 3-wire or 4-wire grounded wye systems with or without neutral.

Internally Mounted—Retrofit/Ready to Install

To ensure high-performance surge suppression at critical power locations, a variety of SurgeLogic™ products have been designed specifically for retrofitting into commonly used Square D™ systems. The QMB fusible switch, 6 in. MCC bucket, I-Line & Busway plug-on units and the new SurgeLoc for the NQ panelboards come read to install. Retrofitting SPD units into I-Line, QMB, MCC, Busway and NQ Panelboard applications is simple.

- Audible alarm with enable/disable switch, dry contacts and surge counter standard
- 200 kA SCCR
- Indicator LEDs
- EMI/RFI filtering

Table 6.4: Internally Mounted—Retrofit / Ready To Install

Voltage	Surge Current Rating	I-Line Branch Units [1]		QMB Branch Units [2]	Busway Units	Model 6 MCC Units [3]
		Cat. No.	Cat. No.	Cat. No.	Cat. No. [4]	Cat. No. [4]
120/240 V, 1-phase, 3-wire + ground	120 kA	HL1IMA12C()	HR1IMA12C	QMB1IMA12	—	—
	160 kA	HL1IMA16C()	HR1IMA16C	QMB1IMA16	—	—
	240 kA	HL1IMA24C()	HR1IMA24C	QMB1IMA24	—	—
208Y/120 V, 3-phase, 4-wire + ground [5] Wye [6]	120 kA	HL2IMA12C()	HR2IMA12C	QMB2IMA12	—	MCC2IMA12
	160 kA	HL2IMA16C()	HR2IMA16C	QMB2IMA16	PIU2IMA16	MCC2IMA16
	240 kA	HL2IMA24C()	HR2IMA24C	QMB2IMA24	PIU2IMA24	MCC2IMA24
240/120 V, 3-phase, 4-wire + ground High-leg Delta	120 kA	HL3IMA12C()	HR3IMA12C	QMB3IMA12	—	MCC3IMA12
	160 kA	HL3IMA16C()	HR3IMA16C	QMB3IMA16	PIU3IMA16	MCC3IMA16
	240 kA	HL3IMA24C()	HR3IMA24C	QMB3IMA24	PIU3IMA24	MCC3IMA24
240 V, 3-phase, 3-wire + ground, Delta	120 kA	HL6IMA12C()	HR6IMA12C	—	—	—
	160 kA	HL6IMA16C()	HR6IMA16C	—	—	—
	240 kA	HL6IMA24C()	HR6IMA24C	—	—	—
480Y/277 V, 3-phase, 4-wire + ground [5] Wye [7]	120 kA	HL4IMA12C()	HR4IMA12C	QMB4IMA12	—	MCC4IMA12
	160 kA	HL4IMA16C()	HR4IMA16C	QMB4IMA16	PIU4IMA16	MCC4IMA16
	240 kA	HL4IMA24C()	HR4IMA24C	QMB4IMA24	PIU4IMA24	MCC4IMA24
480 V, 3-phase, 3-wire + ground, Delta [8]	120 kA	HL5IMA12C()	HR5IMA12C	—	—	—
	160 kA	HL5IMA16C()	HR5IMA16C	—	—	—
	240 kA	HL5IMA24C()	HR5IMA24C	—	—	—
600Y/347 V, 3-phase, 4-wire + ground [5] Wye	120 kA	—	HR8IMA12C	QMB8IMA12	—	MCC8IMA12
	160 kA	—	HR8IMA16C	QMB8IMA16	PIU8IMA16	MCC8IMA16
	240 kA	—	HR8IMA24C	QMB8IMA24	PIU8IMA24	MCC8IMA24
600V, 3-phase, 3-wire + ground, [9] Delta	120 kA	—	HR9IMA12C	—	—	—
	160 kA	—	HR9IMA16C	—	—	—
	180 kA	—	HR9IMA18C	—	—	—

() For a Type 1 SPD, add a "1" suffix to the catalog number.



I-Line™ SurgeLogic™ SPD Unit



QMB SurgeLogic™ SPD Unit



Busway SurgeLogic™ SPD Unit



MCC SurgeLogic™ SPD Unit



SurgeLogic™ SurgeLoc

New! SurgeLogic™ SurgeLoc for NQ Panelboards

SurgeLogic™ SurgeLoc is the industries first Field Installable Internally Mounted SPD in NQ panelboards - fully installed in aprox. 2 minutes. SurgeLogic (TM) SurgeLoc can be ordered as factory assembled in NQ Panelboards or can be ordered from your local Schneider Electric distributor for retrofit opportunities for NQ panelboards.

US and Canadian UL® Recognized to UL 1449 and UL 1283 standards. Complies with requirements of NEC® Article 285 and CSA 22.2 No. 8-M1986 as appropriate. Complies with UL 96A 12th Edition Master Label requirements for Lightning Protection Systems.

- Retrofit into existing NQ Panelboards
- 10 year product warranty
- 10 modes of protection
- 200 kA SCCR
- Audible alarm with enable/disable switch, dry contacts and surge counter standard
- Indicator LEDs; normal (green) and fault condition (red) for each phase

**** FOR SURGELOC PART NUMBERS, PLEASE REFERENCE Table 6.5 Internally Mounted—Retrofit / Ready to Install, page 6-6.**

[1] Requires 13.5-inch mounting height.
 [2] Requires 9-inch mounting height.
 [3] Requires 6-inch mounting height.
 [4] PE7 Discount Schedule.
 [5] Can be used on 4-wire or 3-wire grounded wye systems with or without neutral.
 [6] 208Y/120 series also applies to the following voltage 220Y/127.
 [7] 480Y/277 series applies to the following voltages 380Y/220, 400Y/230, and 415Y/240.
 [8] 480 V Delta series also applies to the following voltage: 480Y/277V HRG.
 [9] 600 V Delta series also applies to the following voltage: 600Y/347V HRG.

Table 6.5: Internally Mounted—Retrofit / Ready to Install

Voltage	Surge Current Rating	NQ Panelboard Units—SurgLoc [10]
		Cat. No.
120/240 V, 1-phase, 3-wire + ground	80 kA	SSP01BIA08PBQ1
	100 kA	SSP01BIA10PBQ1
	120 kA	SSP01BIA12PBQ1
	160 kA	SSP01BIA16PBQ1
	200 kA	SSP01BIA20PBQ1
	240 kA	SSP01BIA24PBQ1
208Y/120 V, 3-phase, 4-wire + ground [11] [12] Wye	80 kA	SSP02BIA08PBQ1
	100 kA	SSP02BIA10PBQ1
	120 kA	SSP02BIA12PBQ1
	160 kA	SSP02BIA16PBQ1
	200 kA	SSP02BIA20PBQ1
	240 kA	SSP02BIA24PBQ1
240Y/120 V, 3-phase, 4-wire + ground High-leg Delta	80 kA	SSP03BIA08PBQ1
	100 kA	SSP03BIA10PBQ1
	120 kA	SSP03BIA12PBQ1
	160 kA	SSP03BIA16PBQ1
	200 kA	SSP03BIA20PBQ1
	240 kA	SSP03BIA24PBQ1

OEM/Assembler Kits

SurgeLogic™ OEM/assembler kits allow manufacturers to add industry-leading surge suppression directly to customized equipment. Manufacturers benefit from shorter wire lengths that optimize the clamping voltage of the SPD. Products come with a backplane-mounted SPD, mounting hardware and diagnostic display with 36-inch cables. Audible alarm, silence switch, remote monitoring contacts, and surge counter are standard. Available as UL 1449 Type 2 (or 1 with optional suffix in catalog number).

US and Canadian UL® Recognized to UL 1449 and UL 1283 standards. Complies with requirements of NEC® Article 285 and CSA 22.2 No. 8-M1986 as appropriate. Complies with UL 96A 12th Edition Master Label requirements for Lightning Protection Systems.

Table 6.6: OEM/Assembler Kits

Service Voltage	Peak Surge Current Rating per Phase (kA)	Cat. No. [13]
120/240 V, 1-phase, 3-wire + ground	120	TVS1IMA120()
	160	TVS1IMA160()
	240	TVS1IMA240()
208Y/120 V, 3-phase, 4-wire + ground [14] [15] Wye	120	TVS2IMA120()
	160	TVS2IMA160()
	240	TVS2IMA240()
240/120 V, 3-phase, 4-wire + ground High-leg Delta	120	TVS3IMA120()
	160	TVS3IMA160()
	240	TVS3IMA240()
240 V, 3-phase, 3-wire + ground [14] [16] Delta	120	TVS6IMA120()
	160	TVS6IMA160()
	240	TVS6IMA240()
480Y/277 V, 3-phase, 4-wire + ground [14] [16] Wye	120	TVS4IMA120()
	160	TVS4IMA160()
	240	TVS4IMA240()
480 V, 3-phase, 3-wire + ground [17] Delta	120	TVS5IMA120()
	160	TVS5IMA160()
	240	TVS5IMA240()
600Y/347 V, 3-phase, 4-wire + ground [14] Wye	120	TVS8IMA120()
	160	TVS8IMA160()
	240	TVS8IMA240()
600 V, 3-phase, 3-wire + ground [18] Delta	120	TVS9IMA120()
	160	TVS9IMA160()
	180	TVS9IMA180()

() For a Type 1 SPD, add a "1" suffix to the catalog number.



OEM Kit

[10] Requires 12 circuit positions (6 adjacent mounting spaces per side).

[11] Can be used on 4-wire or 3-wire grounded neutral system.

[12] 208/120 series also applies to the following voltage 220Y/127.

[13] Note the last character of the catalog number is the letter "O", not a zero.

[14] Can be used on 4-wire or 3-wire grounded wye systems with or without neutral.

[15] 208Y/120 series also applies to the following voltage 220Y/127.

[16] 480Y/277 series applies to the following voltages 380Y/220, 400Y/230, and 415Y/240.

[17] 480 V Delta series also applies to the following voltage: 480Y/277V HRG.

[18] 600 V Delta series also applies to the following voltage: 600Y/347V HRG.



HWA Series

HWA Surge Protective Devices

SurgeLogic™ HWA surge protective devices are compact, nipple-mounted parallel-connected surge suppressors that come in a variety of voltage configurations, including Delta. A surge suppression path is provided for each mode, and the product is rated NEMA Type 4X. Internal diagnostics continuously monitor the device status.

US and Canadian UL® Listed as a Type 2 SPD to UL 1449 and UL 1283 standards. Complies with requirements of NEC® Article 285 and CSA C22.2 No. 8-M1986 as appropriate. Complies with UL 96A 12th Edition Master Label requirements for Lightning Protection Systems.

- LEDs indicate operational status
- Short circuit current rating 200 kA
- Suitable for indoor and outdoor applications (NEMA Type 4X rated)
- Convenient side-nipple mounting
- Compact design provides easy mounting inside or outside the equipment cabinets
- -54 dB EMI/RFI filtering
- Sine wave tracking
- Audible alarm indicates loss of suppression (does not contain alarm enable/disable switch)
- Dry contacts
- Optional flush-mount kit TVSHWAFMK

Table 6.7: HWA Surge Protective Devices

Service Voltage	Peak Surge Current Rating per Phase (kA)	NEMA 4X Cat. No.
120/240 V, 1-phase, 3-wire + ground [1]	50	TVS1HWA50X
	80	TVS1HWA80X
	100	TVS1HWA10X
208Y/120 V, 3-phase, 4-wire + ground [2] [3] [1]	50	TVS2HWA50X
	80	TVS2HWA80X
	100	TVS2HWA10X
240/120 V, 3-phase, 4-wire + ground [1] High-leg Delta	50	TVS3HWA50X
	80	TVS3HWA80X
	100	TVS3HWA10X
240 V, 3-phase, 3-wire + ground Delta	50	TVS6HWA50X
	80	TVS6HWA80X
	100	TVS6HWA10X
480Y/277 V, 3-phase, 4-wire + ground [2] [4] [1]	50	TVS4HWA50X
	80	TVS4HWA80X
	100	TVS4HWA10X
480 V, 3-phase, 3-wire + ground Delta	50	TVS5HWA50X
	80	TVS5HWA80X
	100	TVS5HWA10X
600Y/347 V, 3-phase, 4-wire + ground [1]	50	TVS8HWA50X
	80	TVS8HWA80X
	100	TVS8HWA10X
600 V, 3-phase, 3-wire + ground Delta	50	TVS9HWA50X
	80	TVS9HWA80X
	100	TVS9HWA10X

XR Surge Protective Devices

The XR SPD provides high-quality surge suppression in a compact and versatile package. This product is ideal for panel builders as well as manufacturers and integrators of instrumentation cabinets for industrial, commercial, and residential applications for single-phase power systems.

US and Canadian UL® Listed as Type 1 SPD to the UL 1449 standard. Complies with requirements of NEC® Article 285, CSA 233.1-87, and CSA C22.2 No. 8-M1986 as appropriate.



XR Series

- LEDs indicate operational status
- Short circuit current rating 25 kA
- Convenient side nipple mounting
- Suitable for indoor and outdoor applications (NEMA Type 4X rated)
- Optional flush mount kit TVSXRFMK

Table 6.8: XR Nipple-Mounted Surge Protective Devices

System Voltage	Peak Surge Current Rating per Phase (kA)	Cat. No.
120/240 V, 1-phase, 3-wire + ground	50	TVS120XR50S
	80	TVS120XR80S

[1] Do not use on ungrounded systems. Systems must be solidly grounded.
 [2] Can be used on 4-wire or 3-wire grounded wye systems with or without neutral.
 [3] 208Y/120 series also applies to the following voltage 220Y/127.
 [4] 480Y/277 series applies to the following voltages 380Y/220, 400Y/230, and 415Y/240.

Mounting Brackets and Flush Mount Kits

The nipple products shown in this catalog provide a convenient means of incorporating surge suppression within a new or existing cabinet. The mounting bracket and flush-mount kits are designed for easy mounting of nipple products.



QOSAMK

Table 6.9: Mounting Bracket for Enclosures

Description	Cat. No.
Mounting bracket for SDSA1175 or SDSA1175T	QOSAMK
Flush-mount kit for HWA SPDs	TVSHWAFMK



SDSA1175 and SDSA 3-Phase Surge Protective Devices

SDSA1175 are designed and listed for indoor or outdoor installation and surge suppression for single-phase three-wire 120/240 Vac or two-wire 120 Vac 60 Hz electrical services. This product is ideal for panel builders as well as manufacturers and integrators of instrumentation cabinets for industrial, commercial, and residential applications for single-phase power systems. Two SDSA1175 surge protection devices can be installed to provide suppression for 208Y/120 Vac three-phase four-wire services.

SDSA 3-Phase SPDs are designed and listed for indoor or outdoor installation and surge suppression for three-phase electrical services up to 600 Vac. The SDSA 3-Phase series is used extensively in service entrance panels to provide an efficient and economical means of surge suppression and also ideal for point of use applications for that added level of protection.

US and Canadian UL® Listed as Type 1 SPD to the UL 1449 standard. Complies with requirements of NEC® Article 285, CSA 233.1-87, and CSA C22.2 No. 8-M1986 as appropriate.

- LED indicates operational status
- Short circuit current rating 25 kA (SDSA1175), 200 kA (SDSA 3-Phase)
- Suitable for indoor and outdoor applications (NEMA Type 4X rated)
- Convenient back-nipple mounting

Table 6.10: SDSA1175 and SDSA 3-Phase Surge Protective Devices

System Voltage	Peak Surge Current Rating per Phase (kA)	Cat. No.	
SDSA1175			
120/240 V, 1-phase, 3-wire	36	SDSA1175	
120 V, 1-phase, 2-wire	36	SDSA1175T	
SDSA 3-Phase			
208Y/120 V, 3-phase, 4-wire [5] [6]	40	New!	SDSA2040
240 V Delta, 3-phase, 3-wire [7]	40	New!	SDSA2040D
480Y/277 V, 3-phase, 4-wire [8] [5]	40	New!	SDSA4040
480 V Delta, 3-phase, 3-wire	40	New!	SDSA4040D
600Y/347 V, 3-phase, 4-wire [5]	40	SDSA3650	
600 V Delta, 3-phase, 3-wire	40	SDSA3650D	



SDSA1175



SDSA 3-Phase

[5] Do not use on ungrounded systems. Systems must be solidly grounded.

[6] Applicable voltages: 220Y/127V, 208Y/120V.

[7] Applicable voltages: 240V Delta, 240/120V High-Leg Delta.

[8] Applicable voltages: 480Y/277V, 415Y/240V, 400Y/230V, 380Y/220V.



SDSB80111

Surgebreaker Plus Whole House Surge Protective Device

The Surgebreaker Plus Whole House device is designed to deliver surge suppression that addresses the entire home. AC modules are connected to the circuit breaker load center and provide suppression for all equipment connected to the power system. This Whole House system incorporates AC modules as well as modules for other metallic lines coming into the home including telephone/DSL and coaxial video/data.

US and Canadian UL® Listed as Type 2 SPD to the UL 1449 standard. Complies with requirements of NEC® Article 285, CSA 233.1-87, and CSA C22.2 No. 8-M1986 as appropriate. Telephone and coaxial video modules US and Canadian UL® Recognized to UL 497A 4th Edition and UL 497B 4th Edition.

- 120/240 Vac, 80 kA/phase AC surge suppression
- LED status indicators for AC surge suppression
- Telephone surge suppression module supports one RJ45 cable up to four lines.
- Coaxial surge suppression module supports one line of video/data
- Network suppression module supports one RJ45 modem/fax/DSL

Table 6.11: Whole House Surge Protective Devices

Description	Included Modules	Cat. No.
Whole House NEMA 1	AC, Telephone, Coax, Network	SDSB80111

Table 6.12: SDSB80111 Replacement Modules

Description	Cat. No.
Telephone Suppression Module	PTEL2R
Video Suppression Module	PVR
Network Suppression Module	PNETR6
Home Electronics Protective Device	HEPD80

** To purchase Telephone, Video or Network Replacement Modules - go online to:
<http://www.apc.com/products/family/index.cfm?id=219>

Surgebreaker Plus Whole House Accessories

Add additional surge suppression or replace existing modules in Whole House products.

Coaxial, telephone and network modules: US and Canadian UL® Recognized to UL 497A 4th Edition and UL 497B 4th Edition.



HEPD80



HEPD80MKF

HEPD80 Whole House Surge Protective Device

HEPD80 Whole House devices are designed to deliver superior AC surge protection for the entire AC power system in a home. HEPDs are compact in size and are designed to protect AC wires in the home from surges that could affect home electronics and appliances not connected to surge strips.

cULus Listed to the latest UL 1449 standard, UL Type 1 SPD, CSA C22.2 No. *-M1986, C233.1-87.

- 120/240 Vac, 80 kA/phase AC surge suppression
- NEMA 4X rate for indoor or outdoor applications
- LED status indicators
- Compatible with all brands of load centers
- Flush Mount Kit - HEPD80MKF sold separately

Table 6.13: HEPD80 Whole House Surge Protective Devices

Description	Cat. No.
Home Electronics Protective Device	HEPD80
Flush Mount Kit for HEPD80	HEPD80MKF

QO™, NQ, and Homeline™ Load Center Surge Protective Devices

Square D™ load center surge protective devices are easy to install plug-in units that install as quickly as a standard circuit breaker. The surge suppressors use two pole spaces in a QO™ or Homeline™ load center, or NQ panelboard.

US and Canadian UL® Listed as Type 2 SPD to the UL 1449 standard. Complies with requirements of NEC® Article 285, CSA 233.1-87, and CSA C22.2 No. 8-M1986 as appropriate.

- QO2175SB for QO™ load centers, combination devices, and NQ panelboards
- HOM2175SB for Homeline™ load centers and combination devices
- Plug-on design requires two pole spaces
- LED indicates operational status
- 22.5 kA per phase



QO2175B



HOM2175B

Table 6.14: QO™, NQ, and Homeline™ Load Center Surge Protective Devices

Description	Cat. No.
QO™ Surgebreaker for QO and NQ	QO2175SB
Homeline™ Surgebreaker	HOM2175SB

Missouri Division of Labor Standards

WAGE AND HOUR SECTION



JEREMIAH W. (JAY) NIXON, Governor

Annual Wage Order No. 23

Section 092

ST. CHARLES COUNTY

In accordance with Section 290.262 RSMo 2000, within thirty (30) days after a certified copy of this Annual Wage Order has been filed with the Secretary of State as indicated below, any person who may be affected by this Annual Wage Order may object by filing an objection in triplicate with the Labor and Industrial Relations Commission, P.O. Box 599, Jefferson City, MO 65102-0599. Such objections must set forth in writing the specific grounds of objection. Each objection shall certify that a copy has been furnished to the Division of Labor Standards, P.O. Box 449, Jefferson City, MO 65102-0449 pursuant to 8 CSR 20-5.010(1). A certified copy of the Annual Wage Order has been filed with the Secretary of State of Missouri.

Original Signed by

John E. Lindsey, Director
Division of Labor Standards

This Is A True And Accurate Copy Which Was Filed With The Secretary of State: **March 10, 2016**

Last Date Objections May Be Filed: **April 11, 2016**

Prepared by Missouri Department of Labor and Industrial Relations

OCCUPATIONAL TITLE	** Date of Increase	*	Basic Hourly Rates	Over-Time Schedule	Holiday Schedule	Total Fringe Benefits
Asbestos Worker (H & F) Insulator			\$38.36	55	60	\$21.41
Boilermaker			\$32.76	126	7	\$30.10
Bricklayer and Stone Mason			\$32.50	72	5	\$20.69
Carpenter			\$36.34	77	41	\$15.75
Cement Mason			\$30.56	80	6	\$17.30
Communication Technician			\$31.35	44	47	\$9.53 + 31.75%
Electrician (Inside Wireman)			\$34.20	82	71	\$10.78 + 39.5%
Electrician (Outside-Line Construction/Lineman)			\$42.27	43	45	\$5.25 + 36%
Lineman Operator			\$36.45	43	45	\$5.25 + 36%
Groundman			\$28.13	43	45	\$5.25 + 36%
Elevator Constructor		a	\$46.04	26	54	\$31.645
Glazier			\$33.40	87	31	\$23.55
Ironworker			\$32.88	11	8	\$23.825
Laborer (Building):						
General			\$31.18	118	57	\$13.32
First Semi-Skilled			\$32.11	114	27	\$13.17
Second Semi-Skilled			\$31.17	5	3	\$13.17
Lather			USE CARPENTER RATE			
Linoleum Layer and Cutter			\$31.08	92	26	\$15.45
Marble Mason			\$31.43	76	51	\$14.17
Marble Finisher			\$26.18	76	51	\$13.47
Millwright			USE CARPENTER RATE			
Operating Engineer						
Group I			\$32.16	3	66	\$24.16
Group II			\$32.16	3	66	\$24.16
Group III			\$30.26	3	66	\$24.16
Group III-A			\$32.16	3	66	\$24.16
Group IV			\$26.80	3	66	\$24.16
Group V			\$26.80	3	66	\$24.16
Painter			\$31.65	104	12	\$13.76
Pile Driver			USE CARPENTER RATE			
Pipe Fitter			\$37.00	91	69	\$26.68
Plasterer			\$31.06	67	3	\$17.53
Plumber			\$37.00	91	69	\$26.68
Roofer \ Waterproofer			\$31.35	15	73	\$17.12
Sheet Metal Worker			\$39.63	32	25	\$21.72
Sprinkler Fitter - Fire Protection			\$41.56	66	18	\$22.02
Terrazzo Worker			\$32.11	116	5	\$13.37
Terrazzo Finisher			\$30.35	116	5	\$11.84
Tile Setter			\$31.43	76	51	\$14.17
Tile Finisher			\$26.18	76	51	\$13.47
Traffic Control Service Driver			\$28.775	22	55	\$9.045
Truck Driver-Teamster			\$30.41	35	36	\$10.82

Fringe Benefit Percentage is of the Basic Hourly Rate

**Annual Incremental Increase

OCCUPATIONAL TITLE	** Date of Increase	Basic Hourly Rates	Over-Time Schedule	Holiday Schedule	Total Fringe Benefits

* Welders receive rate prescribed for the occupational title performing operation to which welding is incidental.

Use Building Construction Rates on Building construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(2).

Use Heavy Construction Rates on Highway and Heavy construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(3).

a - Vacation: Employees over 5 years - 8%, under 5 years - 6%

ST. CHARLES COUNTY
BUILDING CONSTRUCTION - OVERTIME SCHEDULE

FED: Minimum requirement per Fair Labor Standards Act means time and one-half (1 ½) shall be paid for all work in excess of forty (40) hours per work week.

NO. 3: Means the regular workday shall consist of eight (8) consecutive hours, exclusive of a thirty (30) minute lunch period, with pay at the straight time rate. The regular workday shall begin between the hours of 6:00 a.m. and 9:00 a.m. The Employer may have the option to schedule the work week from Monday through Thursday at ten (10) hours per day at the straight time rate of pay with all hours in excess of ten (10) hours in any one day to be paid at the applicable overtime rate. If the Employer elects to work from Monday through Thursday and is stopped due to inclement weather, holiday or other conditions beyond the control of the Employer, they shall have the option to work Friday at the straight time rate of pay to complete the forty (40) hours for the workweek. All overtime work performed on Monday through Saturday shall be paid at time and one-half (1½) the hourly rate plus an amount equal to one-half (½) of the hourly Total Indicated Fringe Benefits. All work performed on Sundays and recognized holidays shall be paid at double (2) the hourly rate plus an amount equal to the hourly Total Indicated Fringe Benefits. Shifts may be established when considered necessary by the Employer. Shift hours and rates will be as follows. If shifts are established, work on the First Shift will begin between 6:00 a.m. and 9:00 a.m. and consist of eight (8) hours of work plus one-half hour unpaid lunch. Hours worked during the first shift will be paid at the straight time rate of pay. The second shift shall start eight hours after the start of the first shift and consist of eight (8) hours of work plus one-half hour unpaid lunch. Work on the second shift will begin between 2:00 p.m. and 5:00 p.m. and be paid the straight time rate plus \$2.50 per hour. The third shift shall start eight hours after the start of the second shift and consist of eight (8) hours plus one-half hour unpaid lunch. Work on the third shift will begin between 10:00 p.m. and 1:00 a.m. and be paid the straight time rate plus \$3.50 per hour. The additional amounts that are to be paid are only applicable when working shifts. Shifts that begin on Saturday morning through those shifts which end on Sunday morning will be paid at time and one-half these rates. Shifts that begin on Sunday morning through those shifts which end on Monday morning will be paid at double time these rates.

NO. 5: Means eight (8) hours shall constitute the regular workday between the hours of 6:00 a.m. and 5:30 p.m., except when the Employer elects to work four 10-hour days as described below. The starting time of the workday can be adjusted from 6:00 a.m. to 9:00 a.m. The Employer may have the option to schedule his workweek from Monday through Thursday at ten (10) hours per day at the straight time rate of pay with all hours in excess of ten (10) hours in any one day to be at the applicable overtime rate. If the Employer elects to work from Monday through Thursday and is stopped due to inclement weather (rain, snow, sleet falling), he shall have the option to work Friday at the straight time rate of pay to complete his forty (40) hours. However, should a holiday occur, Monday through Thursday, the Employer shall have the option to work Friday at the straight time rate of pay to complete his forty (40) hours. Time and one-half (1½) shall be paid for work performed in excess of eight (8) hours on any regular workday or outside the hours limiting a regular workday, Monday through Friday. Time and one-half (1½) shall be paid for work performed on Saturdays. Double (2) time shall be paid for work performed on Sundays and recognized holidays. Overtime shall be computed at one-half (½) hour intervals. **Projects that cannot be performed during regular workday:** Where specifications issued by governmental agencies require work to be performed outside the regular workday, the starting time will begin when the employee starts to work. The employee shall be paid applicable straight time hourly wage plus a premium of (\$2.50) per hour for the first eight (8) hours worked. Any hours worked in excess of eight (8) hours shall be paid at the applicable overtime rate. **Shift work:** Shifts may be established when necessary by the Employer. Shifts shall be established for a minimum of three (3) consecutive workdays. The first shift will be paid at eight (8) hours straight time pay for eight (8) hours worked. The second shift will be paid at eight (8) hours straight time pay plus a two dollar and fifty cent (\$2.50) per hour premium for eight (8) hours work. The third shift will be paid at eight (8) hours straight time pay plus a three dollar and fifty cent (\$3.50) per hour premium for eight (8) hours work. Payment for shift work shall be determined when an Employer first begins his shift operation, i.e., the shifts which begin on Friday morning and end on Saturday morning will be paid straight time; the shifts which start on Saturday morning and end on Sunday morning will be paid at time and one-half (1½); the shift that start on Sunday morning and end on Monday morning will be paid at two (2) times the regular rate of pay. Employees working during the normal workday shall receive first shift pay; employees working predominantly during the evening hours shall receive second shift pay; employees working predominately during the early morning hours will receive third shift pay. Nothing above prohibits the working of two (2) shifts greater than eight (8) hours with excess hours to be paid at overtime rate.

NO. 11: Means eight (8) hours shall constitute a day's work, with the starting time to be established between 6:00 a.m. and 8:00 a.m. from Monday to Friday. Time and one-half (1½) shall be paid for first two (2) hours of overtime Monday through Friday and the first eight (8) hours on Saturday. All other overtime hours Monday through Saturday shall be paid at double (2) time rate. Double (2) time shall be paid for all time on Sunday and recognized holidays or the days observed in lieu of these holidays.

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NO. 15: Means the regular working day shall be scheduled to consist of at least eight (8) hours, but no more than ten (10) consecutive hours, exclusive of the lunch period. The regular working day may be scheduled to commence at any time between the hours of 5:00 a.m. and 10:00 a.m. All work performed in excess of forty (40) hours in one work week, or in excess of ten (10) hours in one work day shall be paid at the rate of one and one-half (1½) times the regular hourly wage scale. Any work performed on a Saturday shall be paid for at the rate of one and one-half (1½) times the regular hourly wage scale unless such Saturday work falls under the category of Saturday Make-Up Day. Any work performed by Employees anywhere on Sunday or recognized holidays, shall be paid for at the rate of double (2) time the regular wage scale. If, during the course of a work week, an Employee is unable to work for any reason, and, as a result, that Employee has not accumulated forty (40) hours of compensable time at the straight time rate, the Employer, at his option may offer the Employee the opportunity to work on Saturday at straight time; provided, however, if during the period worked by said Employee on Saturday, the Employee's compensable time at the straight time rate exceeds forty (40) hours, all time worked in excess of the forty (40) hours will be paid at the rate of one and one-half (1½) times the regular hourly wage scale.

NO. 22: Means a regular work week of forty (40) hours will start on Monday and end on Friday. The regular work day shall be either eight (8) or ten (10) hours. If a crew is prevented from working forty (40) hours Monday through Friday, or any part thereof by reason of inclement weather, Saturday or any part thereof may be worked as a make-up day at the straight time rate. Employees who are part of a regular crew on a make-up day, notwithstanding the fact that they may not have been employed the entire week, shall work Saturday at the straight time rate. A workday is to begin between 6:00 a.m. and 9:00 a.m. However, the project starting time may be advanced or delayed if mutually agreed to by the interest parties. For all time worked on recognized holidays, or days observed as such, double (2) time shall be paid.

NO. 26: Means that the regular working day shall consist of eight (8) hours worked between 6:00 a.m., and 5:00 p.m., five (5) days per week, Monday to Friday, inclusive. Hours of work at each jobsite shall be those established by the general contractor and worked by the majority of trades. (The above working hours may be changed by mutual agreement). Work performed on Construction Work on Saturdays, Sundays and before and after the regular working day on Monday to Friday, inclusive, shall be classified as overtime, and paid for at double (2) the rate of single time. The employer may establish hours worked on a jobsite for a four (4) ten (10) hour day work week at straight time pay for construction work; the regular working day shall consist of ten (10) hours worked consecutively, between 6:00 a.m. and 6:00 p.m., four (4) days per week, Monday to Thursday, inclusive. Any work performed on Friday, Saturday, Sunday and holidays, and before and after the regular working day on Monday to Thursday where a four (4) ten (10) hour day workweek has been established, will be paid at two times (2) the single time rate of pay. The rate of pay for all work performed on holidays shall be at two times (2) the single time rate of pay.

NO. 32: The regular working day shall consist of eight (8) hours of labor on the job between six (6) a.m. and four (4) p.m. and the regular working week shall consist of five (5) consecutive eight (8) hour day's of labor on the job beginning with Monday and ending with Friday of each week. The normal work week is 40 hours. All full-time or part-time labor performed during such hours shall be recognized as regular working hours and paid for at the regular hourly rate. **All work performed during regular work hours on Saturdays will be paid at time and one-half (1 ½).** All work performed outside of regular working hours and performed during the regular work week, shall be at double (2) times the regular rate, except that the first two (2) hours following the regular work day shall be paid at one and one-half (1½) times the regular rate. An early starting time of 6:00 a.m. may be used mutually agreed upon by the interested parties. **SHIFT RATE:** Shift work would start after 4:00 p.m. to 6:00 a.m. The first 8 hours would be at 115% of the basic wage rate. Overtime Monday through Friday would be at 1 ½ of base shift rate. Saturday regular work day hours – 1½ of base shift rate. Saturday – work after 8 hours – 2 times the basic wage rate. Sunday and Holidays – 2 times the basic wage rate. All work performed on recognized holidays and Sundays shall be paid double (2) time. Appropriate overtime rates to be based on fifteen minute increments.

NO. 35: Means a regular work week of forty (40) hours, will start on Monday and end on Friday. The regular work day shall be either eight (8) or ten (10) hours. If a crew is prevented from working forty (40) hours Monday through Friday, or any part thereof by reason of inclement weather, Saturday or any part thereof maybe worked as a make-up day at the straight time rate. Employees who are part of a regular crew on a make-up day, notwithstanding the fact that they may not have been employed the entire week, shall work Saturday at the straight time rate. A work day is to begin between 6:00 a.m. and 9:00 a.m. However, the project starting time maybe advanced or delayed if mutually agreed to by the interested parties. For all time worked on recognized holidays, or days observed as such, double (2) time shall be paid.

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NO. 43: Eight (8) hours shall constitute a work day between the hours of 7:00 a.m. and 4:30 p.m. Forty (40) hours within five (5) days, Monday through Friday inclusive, shall constitute the work week. Work performed in the 9th and 10th hour, Monday through Friday, shall be paid at time and one-half (1½) the regular straight time rate of pay. Contractor has the option to pay two (2) hours per day at the time and one-half (1½) the regular straight time rate of pay between the hours of 6:00 a.m. and 5:30 p.m., Monday through Friday. Work performed outside the regularly scheduled working hours and on Saturdays, Sundays and recognized legal holidays, or days celebrated as such, shall be paid for at the rate of double (2) time.

NO. 44: Means forty (40) hours shall constitute a work week, Monday through Friday. Eight (8) hours shall constitute a work day. Hours of work shall be between the hours of 7:00 a.m. and 4:30 p.m. All work performed before 7:00 a.m. and after 4:30 p.m. and all work performed in excess of eight (8) hours in any one work day, over forty (40) hours in any work week and the first eight (8) hours of work on Saturday, shall be paid at the rate of one and one-half (1½) times the regular rate of pay. All hours worked in excess of eight (8) hours on Saturday, all hours worked on Sunday and on holidays, or days that may be celebrated as such, and as designated by the federal government, shall be paid at two (2) times the regular rate of pay. All shifts for work performed between the hours of 4:30 p.m. and 1:00 a.m. shall receive eight (8) hours pay at the regular hourly rate of pay plus two dollars (\$2.00) per clock hour. All work performed between the hours of 12:30 a.m. and 9:00 a.m. on a third shift shall receive eight (8) hours pay at the regular hourly rate plus four dollars (\$4.00) per clock hour. All overtime work required after the completion of a regular shift shall be paid at one and one-half times (1½ x) the "shift" hourly rate.

NO. 55: Means the regular work day shall be eight (8) hours between 6:00 a.m. and 4:30 p.m. The first two (2) hours of work performed in excess of the eight (8) hour work day, Monday through Friday, and the first ten (10) hours of work on Saturday, shall be paid at one & one-half (1½) times the straight time rate. All work performed on Sunday, observed holidays and in excess of ten (10) hours a day, Monday through Saturday, shall be paid at double (2) the straight time rate.

NO. 66: Means eight (8) hours shall constitute a day's work beginning at 7:00 a.m. (or 8:00) A.M. and ending at 3:30 (or 4:30) P.M. The work week shall be forty (40) hours beginning Monday at 7:00 a.m. (or 8:00) A.M. and ending Friday at 3:30 (or 4:30) P.M. The Employer at his option may use a flexible starting time between the hours of 6:00 a.m. and 8:00 a.m. All overtime, that is worked outside of the above established working hours of Monday through Friday, shall be paid at double (2) time, including Saturdays, Sundays and Holidays.

NO. 67: Means eight (8) hours shall constitute a day's work, with a flexible starting time to begin between 6:00 a.m. to 8:00 a.m., five (5) days a week, Monday through Friday. Any work over eight (8) hours in any one day shall be at the overtime rate, which is time & one-half (1½). Any work on Saturday shall be at time & one-half (1½), unless a Make-Up Day due to inclement weather is in effect. Any work on Sundays or holidays shall be at double (2) time. Four (4) days, ten (10) hours each day to be worked during Monday through Friday, shall be paid at straight time. A Make-Up Day Due To Inclement Weather Only - Employee(s) will be permitted to work an eight (8) hour make-up day on Saturday only, and the employee will receive the regular straight time wage rate.

NO. 72: Means that except as is otherwise provided herein, the work week shall be determined to begin at 8:00 a.m. Wednesday and end at 4:30 p.m. on the following Tuesday. Except as herein provided, working hours are from 8:00 a.m. to 11:55 a.m. and 12:30 p.m. to 4:25 p.m. and no more than the regular hours shall be worked during the forenoon or afternoon at the regular rate. In the case of days of inclement weather starting time and quitting time may be adjusted so long as the hours worked on such days do not exceed eight (8) and do not extend beyond 4:30 p.m. In circumstances where the Employee or Employees have regularly been working overtime on a particular day or days, no adjustment in the starting time shall operate to deprive Employees of overtime pay, which they would have otherwise received but for the change in the starting time. The parties understand that the application of the provisions of the preceding sentence will result in Employees receiving overtime pay even where they have not worked more than with (8) hours on a particular day. Regardless of the starting time, the forenoon working hours shall end at 11:55 a.m. and the afternoon working hours shall begin at 12:30 p.m. and end 8 hours and 25 minutes after the starting time fixed by the Employer for forenoon hours. Work performed by an employee on a non-holiday Saturday, except as hereinafter provided, or at night or before or after regular working hours on a non-holiday weekday, shall be considered overtime work, for which Employees working during such time shall be paid at the rate of one and one-half (1½) times their regular hourly wage rate for each hour or fraction thereof, worked during such time. Work performed on a Sunday or the recognized holidays shall be considered overtime work for which the Employee shall be paid twice the amount of his or her regular hourly wage rate for each hour or fraction thereof worked on any such day.

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NO. 76: Means the standard workday shall consist of eight (8) hours of work between the hours of 8:00 a.m. and 4:30 p.m. with a thirty (30) minute unpaid lunch hour occurring in the middle of the shift. The standard workweek shall consist of five standard workdays commencing on Monday and ending on Friday. The normal starting and quitting times may be changed by mutual consent of interested parties. All time worked before and after the established eight (8) hour workday, Monday through Friday, and all time worked on Saturday, shall be paid for at the rate of time & one-half (1½) the hourly base wage rate in effect. All time worked on Sunday and holidays shall be paid at the rate of double (2) the hourly wage in effect. All work done on Saturday will be done at time & one-half (1½), unless Saturday shall be used as a make-up day. If an employee should lose one or more days in a work week and use Saturday as a make-up day the pay shall be at the regular hourly base wage rate and benefits.

NO. 77: Means the regular workday shall consist of eight (8) consecutive hours, exclusive of a thirty (30) minute lunch period, with pay at the regular straight time hourly rate. The regular workday shall begin on the job site between the hours of 6:00 a.m. and 8:00 a.m. with the starting time to be determined by the Employer, unless project owner requires different starting time. This adjustable starting time can, at the Employer's option, be staggered to permit starting portions of the work force at various times within the prescribed hours. The Employer may establish a four (4) ten (10) hour shift exclusive of the thirty (30) minute lunch period at the straight time wage rate. Forty (40) hours per week shall constitute a week's work Monday through Thursday. In the event a job is down due to weather conditions, safety or other conditions beyond the control of the Employer, then Friday may, at the option of the employer, be worked as a make-up day at the straight time wage rate. Straight time is not to exceed ten (10) hours a day or forty (40) hours per week. Time and one-half (1 ½) shall be paid for all overtime hours worked during the week, Monday through Friday and for all work performed on Saturday. Double (2) time shall be paid for all time worked on Sunday and recognized holidays.

NO. 80: Means eight (8) hours shall constitute the regular work day and forty (40) hours a work week, Monday through Friday. The Employer shall establish the starting time between 6:30 a.m. through 9:00 a.m. An Employer may further adjust the starting time up to 9:30 a.m. throughout the year. Time and one-half (1½) shall be paid after eight (8) consecutive hours worked after the established starting time and for hours worked before the established starting time. Time and one-half (1½) shall be paid for work performed on Saturdays. Work performed on Sundays and Holidays shall be paid at the double (2) time rate of pay. The Employer when working on Highway and Road Work may have the option to schedule the work week for his paving crew only from Monday through Thursday at ten (10) hours per day at the straight time rate of pay with all hours in excess of ten (10) hours in any one day to be at the applicable overtime rate of time and one-half (1½). If the Employer elects to work from Monday through Thursday and is stopped due to inclement weather (rain, snow, sleet falling), the Employer shall have the option to work Friday at the straight time rate of pay to complete the forty (40) hours.

NO. 82: Means the work day shall consist of eight (8) hours worked between 7:00 a.m. and 4:30 p.m. Forty (40) hours will constitute the work week from Monday through Friday, inclusive. Up to four (4) hours of overtime work per day performed before or after the assigned normal work day, (twelve (12) continuous hours, starting no earlier than 6:00 a.m., Monday through Friday), shall be paid at a rate of one and one-half times (1.5x) that employee's hourly rate. Any additional overtime, Monday through Friday, shall be paid at two times (2x) the regular rate of pay. The first eight hours of overtime work on Saturday shall be paid at the rate of one and one-half times (1.5x) the regular rate of pay. Hours worked in excess of eight (8) hours on Saturday shall be paid at two times (2x) the regular rate of pay. Double time shall be paid for work performed on Sundays, recognized legal holidays or days that may be celebrated as such as designated by the federal government. All shifts for work performed between the hours of 4:30 p.m. and 1:00 a.m. shall be paid at the regular hourly rate plus two dollars (\$2.00) per clock hour. All shifts for work performed between the hours of 12:30 a.m. and 9:00 a.m. shall be paid at the regular hour rate plus four dollars (\$4.00) per clock hour. All overtime work required after the completion of a regular shift shall be paid at one and one-half times (1.5x) the "shift" hourly rate.

NO. 87: Means eight (8) hours starting between 6:00 a.m. and 8:00 a.m. and ending between 2:30 p.m. and 4:30 p.m. at the Employers discretion shall constitute a day's work. Any work prior to 6:00 a.m. or after eight (8) hours shall be paid at the overtime rate. Five (5) days from Monday through Friday inclusive shall constitute a regular work week. All hours before and after these regular hours shall be considered overtime and shall be paid for at the rate of double (2) time. All work on Saturday and Sunday shall be paid at double (2) the prevailing scale of wages.

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NO. 91: Means eight (8) hours shall constitute a day's work commencing at 7:00 a.m. and ending at 3:30 p.m., allowing one-half (½) hour for lunch. The option exists for the Employer to use a flexible starting time between the hours of 6:00 a.m. and 9:00 a.m. The regular workweek shall consist of forty (40) hours of five (5) workdays, Monday through Friday. The workweek may consist of four (4) ten (10) hour days from Monday through Thursday, with Friday as a make-up day. If the make-up day is a holiday, the employee shall be paid at the double (2) time rate. The employees shall be paid time and one-half (1½) for work performed on Saturdays, before the regular starting time or after the regular quitting time or over eight (8) hours per work day (unless working a 10-hour work day, then time and one-half (1½) is paid for work performed over ten (10) hours a day) or over forty (40) hours per work week. Work performed on Sundays and recognized holidays shall be paid at the double (2) time rate of pay. **SHIFT WORK:** When it is necessary for the project to operate in shifts, there will be three (3) eight (8) hour shifts commencing at 8:00 a.m. Shift work must continue for a period of not less than three (3) consecutive work days, two (2) days which must be regular work days (Monday through Friday). In the event the second or third shift of any regular work day shall fall into a Saturday or a holiday, such extension into a Saturday or holiday shall be considered as part of the previous workday and employees shall be paid at the regular shift rate. The first day shift shall work a regular eight (8) hour day at regular rates. The second shift shall be eight (8) hours regular time pay plus \$2.50 per hour premium for eight (8) hours work. Third shift will be for eight (8) hours regular time pay plus \$3.00 per hour premium for eight (8) hours work.

NO. 92: Means all work performed from 8:00 a.m. to 4:30 p.m., Monday through Friday, will be at straight time pay up to forty (40) hours per week. All work performed Monday through Friday before 8:00 a.m. and after 4:30 p.m. will be done at time and one-half (1½). All work done on Saturday will be done at time and one-half (1½), unless the employer and employee agree that Saturday shall be used as a make-up day. The Employer may use a flexible starting time of 7:00 a.m. to 8:00 a.m., and quitting time of 3:30 p.m. to 4:30 p.m., and any such different work starting time shall determine whether wages are payable at the straight rate or the premium rate. All work performed on Saturday shall be paid for at time and one-half (1½), unless the Saturday has been used as a make-up day. All work performed on Sunday and holidays shall be paid for at the rate of double (2) time.

NO. 104: Means eight (8) hours per day shall constitute a standard work day between the hours of 6:00 a.m. and 8:00 p.m. The standard work week shall be forty (40) hours between 6:00 a.m. on Monday and ending 8:00 p.m. on Friday. An overtime rate of time and one-half (1½) the base hourly rate shall be paid on all hours in excess of eight (8) hours in a day Monday through Friday. Saturdays shall be considered overtime and work done on Saturday shall be paid at time and one-half (1½) the prevailing scale. Sundays and holidays shall be considered overtime and work done on these days shall be paid at double (2) the prevailing scale.

NO. 114: Means eight (8) hours shall constitute a regular work day between the hours of 7:00 a.m. and 5:30 p.m. with a thirty (30) minute lunch period to start between the hours of 11:00 a.m. and 1:00 p.m. Five (5) days shall constitute a regular work week commencing on Monday and ending on Friday. One and one-half (1½) times the regular hourly rate of pay shall be paid for all overtime work, with the exception of holidays or Sundays. Overtime work shall be deemed to include any work performed in excess of eight (8) hours on any day in the regular work week, or any work performed before 7:00 a.m. or after 5:30 p.m. on any day in the regular work week. If a crew is prevented from working forty (40) hours Monday through Friday by reason of inclement weather, then Saturday may be worked by that crew as a make-up day at the straight time rate. Double (2) time shall be paid for work performed on Sundays and holidays, or days observed as such. **Shift Work:** In the case of three (3) shifts, workmen shall be paid eight (8) hours for seven and one-half (7½) hours worked.

NO. 116: Means the standard work day shall consist of eight (8) hours of work between the hours of 8:00 a.m. and 4:30 p.m. The standard work week shall consist of five standard work days commencing on Monday and ending on Friday inclusive. All time worked before and after the established eight (8) hour work day, Monday through Friday, and all time worked on Saturdays, shall be paid for at the rate of time & one-half (1½) the hourly base wage rate in effect. All time worked on Sundays and recognized holidays shall be paid for at the rate of double (2) the hourly base wage rate in effect.

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NO. 118: Means eight (8) hours shall constitute the regular work day, between the hours of 6:00 a.m. and 5:30 p.m. except when the Employer elects to work four (4) ten (10) hour days as described below. The starting time of the workday can be adjusted from 6:30 a.m. to 9:00 a.m. The Employer may have the option to schedule his work week from Monday through Thursday at ten (10) hours per day at the straight time rate of pay with all hours in excess of ten (10) hours in any one day to be at the applicable overtime rate. If the Employer elects to work from Monday through Thursday and is stopped due to inclement weather (rain, snow, sleet falling), or other conditions beyond the control of the Employer, the Employer shall have the option to work Friday at the straight time rate of pay to complete his forty (40) hours. However, should a holiday occur, Monday through Thursday, the Employer shall have the option to work Friday at the straight time rate of pay to complete his forty (40) hours. Time and one-half (1½) shall be paid for work performed in excess of eight (8) hours on any regular work day or outside the hours limiting a regular work day. Straight time is not to exceed ten (10) hours a day or forty (40) hours per week. When an Employer works a project on a four (4) ten (10) hour day work schedule, the Employer will not bring in any other crew for a fifth workday on the project while not calling in the normal crew that had been scheduled for that project. Time and one-half (1½) shall be paid for work performed on Saturdays. Double (2) time shall be paid for work performed on Sundays and recognized holidays. Overtime shall be computed at one-half (1/2) intervals. Projects that cannot be performed during regular workday: If required by owner, the contractor may perform work outside the normal work hours and employees shall be paid applicable straight time hourly wage rate plus a premium of one dollar and fifty cents (\$1.50) per hour for the first eight (8) hours worked. Any hours worked in excess of eight (8) hours shall be paid at the applicable overtime rate plus the one dollar and fifty cent (\$1.50) per hour premium. The overtime rate shall be computed after the \$1.50 premium has been added to the hourly wage rate. However, if a contractor employs any other craft on a project being worked outside the normal workday, and is paying the other craft a higher premium, then the Laborers employed by such contractor on such project outside the normal work hours shall be paid the higher premium. Shift work: Shifts may be established when necessary by the Employer. Shifts shall be established for a minimum of three (3) consecutive workdays. The first shift will be paid at eight (8) hours straight time pay for eight (8) hours work. The second shift will be paid at eight (8) hours straight time pay plus a thirty-five cent (\$.35) per hour premium for seven and one-half (7½) hours work. The third shift will be paid at eight (8) hours straight time pay plus a forty-cent (\$.40) per hour premium for seven (7) hours work. Overtime is computed after the premium has been added to the hourly wage rate. Nothing above prohibits the working of two (2) shifts greater than eight (8) hours with excess hours to be paid at overtime rate.

NO. 126: Means eight (8) hours per day shall constitute a day's work and forty (40) hours per week, Monday through Friday, shall constitute a week's work. The regular starting time shall be 8:00 a.m. If a second or third shift is used, the regular starting time of the second shift shall be 4:30 p.m. and the regular starting period for the third shift shall be 12:30 a.m. These times may be adjusted by the employer. The day shift shall work a regular eight (8) hours shift as outlined above. Employees working a second shift shall receive an additional \$0.25 above the regular hourly rate and perform seven and one-half (7½) hours work for eight (8) hours pay. Third shift employees shall be paid an additional \$0.50 above the regular hourly rate and work seven (7) hours for eight (8) hours pay. When circumstances warrant, the Employer may change the regular workweek to four (4) ten-hour days at the regular time rate of pay. All time worked before and after the established workday of eight (8) hours, Monday through Friday, and all time worked on Saturday shall be paid at the rate of time and one-half (1½) except in cases where work is part of an employee's regular Friday shift. All time worked on Sunday and recognized holidays shall be paid at the double (2) time rate of pay except in cases where work is part of an employee's previous day's shift. For all overtime hours worked \$27.96 of the fringe benefits portion of the prevailing wage shall be paid at the same overtime rate at which the cash portion of the prevailing wage is to be paid. The remaining \$1.24 of the fringe benefit portion of the prevailing wage may be paid at straight time.

**ST. CHARLES COUNTY
HOLIDAY SCHEDULE – BUILDING CONSTRUCTION**

NO. 3: All work done on New Year's Day, Decoration Day, July 4th, Labor Day, Veteran's Day, Thanksgiving and Christmas shall be compensated at the double (2) time rate of pay. When any of these holidays fall on a Sunday, the following Monday shall be observed.

NO. 5: All work that shall be done on New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, and Christmas Day shall be paid twice the amount of his or her regular hourly wage rate for each hour of fraction thereof worked on any such day .

NO. 6: The following days are recognized as holidays: New Year's Day, Memorial Day, Fourth of July, Labor Day, Veterans Day, Thanksgiving Day, Christmas Day and any additional holidays which may be mutually agreed upon. Whenever any such holiday falls on a Sunday, the following Monday shall be recognized and observed as the holiday. Work performed on Sundays and holidays shall be paid at the double time rate of pay. No work shall be performed on Labor Day.

NO. 7: The following days are assigned days and are recognized as holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, and Christmas Day. If a holiday falls on a Sunday, it shall be observed on the following Monday. If a holiday falls on a Saturday, it shall be observed on the preceding Friday. No work shall be performed on Labor Day except in case of jeopardy to work under construction. This is applied to protect Labor Day. When a holiday falls during the normal workweek, Monday through Friday, it shall be counted as eight (8) hours toward the forty (40) hour week. However, no reimbursement for these eight (8) hours is to be paid to the workman unless worked. If workman are required to work the above enumerated holidays or days observed as such, or on Sunday, they shall receive double (2) the regular rate of pay for such work.

NO. 8: All work performed on New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, and Christmas Day, or the days observed in lieu of these holidays, shall be paid at the double time rate of pay.

NO. 12: All work done on New Year's Day, Decoration Day, Independence Day, Veteran's Day, Thanksgiving Day and Christmas Day shall be paid at the double time rate of pay. Should any of these days fall on Sunday, then the following day shall be observed as the holiday. Under no circumstances shall employees be permitted to work on Labor Day.

NO. 18: All work done on New Year's Day, Memorial Day, July 4th, Labor Day, Veteran's Day, Thanksgiving Day, the Friday following Thanksgiving and Christmas Day shall be paid at the double time rate of pay. When one of the above holidays falls on Sunday, the following Monday shall be considered the holiday, and when one of the above holidays falls on Saturday, the preceding Friday shall be considered the holiday, and all work performed on said day(s) shall be paid at the double time rate.

NO. 25: All work done on New Year's Day, Martin Luther King Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, the day after Thanksgiving, Christmas Day, Presidential Election Day, or days locally observed as such, and Saturday and Sunday shall be recognized as holidays and shall be paid at the double (2) time rate of pay. If a named holiday falls on a Saturday, the holiday will be observed on the preceding Friday. When a named holiday falls on Sunday, the Monday after will be observed as the holiday. Appropriate overtime rates to be based on fifteen minute increments.

NO. 26: All work done on New Year's Day, Memorial Day, Fourth of July, Labor Day, Veteran's Day, Thanksgiving Day and Christmas Day shall be paid at the double time rate of pay. When a Holiday occurs on Saturday it shall not be observed on either the previous Friday or the following Monday. Such days shall be regular work days. If such a holiday occurs on Sunday it shall be observed on the following Monday.

NO. 27: All work done on the following holidays or days observed as such shall be paid at the double time rate of pay: New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day and Christmas Day.

ST. CHARLES COUNTY HOLIDAY SCHEDULE – BUILDING CONSTRUCTION

NO. 31: All work done on New Year's Day, Presidents Day, Good Friday, Memorial Day, Fourth of July, Labor Day, Veteran's Day, Thanksgiving Day, Friday after Thanksgiving Day, Christmas Day, and Employee's Birthday shall be paid at the double time rate of pay. If a holiday falls on Sunday, the following Monday will be observed as the recognized holiday. If a holiday falls on Saturday, the preceding Friday will be observed as the recognized holiday.

NO. 36: The following days are recognized as holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. If a holiday falls on a Sunday, it shall be observed on the following Monday. No work shall be performed on Labor Day except in case of jeopardy to work under construction. This rule is applied to protect Labor Day. When a holiday falls during the normal work week, Monday through Friday, it shall be counted as eight (8) hours toward the forty (40) hour week; however, no reimbursement for this eight (8) hours is to be paid the workman unless worked. An Employer working a four (4) day, ten (10) hour schedule may use Friday as a make-up day when an observed holiday occurs during the work week. Employees have the option to work that make-up day. If workmen are required to work the above enumerated holidays, or days observed as such, they shall receive double (2) the regular rate of pay for such work.

NO. 41: The following days shall be observed as legal holidays: New Year's Day, Memorial Day, Fourth of July, Labor Day, Veteran's Day, Thanksgiving Day and Christmas Day. No work shall be performed on the Fourth of July, Labor Day or Christmas Day. Any work performed on the above holidays shall be paid for at two (2) times the regular straight time rate of pay. When any of the above holidays fall on Sunday, the following Monday shall be observed as such holiday. If a holiday falls on Saturday, it shall not be considered to be observed on the previous Friday or following Monday. Such days shall be regular workdays.

NO. 45: All work performed on New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, the day after Thanksgiving, the day before Christmas, and Christmas Day, shall be paid at the double time rate of pay.

NO. 47: The following holidays are recognized: New Year's Day, Memorial Day, Fourth of July, Labor Day, Veteran's Day, Thanksgiving Day, the day after Thanksgiving and Christmas Day. When a holiday listed above falls on Saturday, it shall be celebrated on the Friday preceding the holiday. When a holiday falls on Sunday, the following Monday shall be observed. Holidays referred to above shall be paid for at the double (2) time rate of pay when worked.

NO. 51: All time worked on Sundays and recognized holidays shall be paid for at the rate of double (2) the hourly base wage rate in effect. The Employer agrees to recognize the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day and Christmas Day. If the holiday falls on Sunday, it shall be recognized on the following Monday. If the holiday falls on a Saturday, it shall be recognized as a Saturday only holiday.

NO. 54: All work performed on New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, the Friday after Thanksgiving Day, and Christmas Day shall be paid at the double (2) time rate of pay. When a holiday falls on Saturday, it shall be observed on Friday. When a holiday falls on Sunday, it shall be observed on Monday.

NO. 55: The following days are recognized as holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. If a holiday falls on a Sunday, it shall be observed on the following Monday. No work shall be performed on Labor Day except in case of jeopardy to work under construction. This rule is applied to protect Labor Day. When a holiday falls during the normal work week, Monday through Friday, it shall be counted as eight (8) hours toward the forty (40) hour week; however, no reimbursement for this eight (8) hours is to be paid the workmen unless worked. An Employer working a four (4) day, ten (10) hour schedule may use Friday as a make up day when an observed holiday occurs during the work week. Employees have the option to work that make up day. If workmen are required to work the above enumerated holidays, or days observed as such, they shall receive double (2) the regular rate of pay for such work.

**ST. CHARLES COUNTY
HOLIDAY SCHEDULE – BUILDING CONSTRUCTION**

NO. 57: All work done on New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day (November 11), Thanksgiving Day, and Christmas Day shall be compensated at the double (2) time rate of pay. When any of these holidays fall on a Sunday, the following Monday shall be observed. No work shall be performed on the days set forth except in cases of emergencies to protect life or property.

NO. 60: All work performed on New Year's Day, Armistice Day (Veteran's Day), Decoration Day (Memorial Day), Independence Day (Fourth of July), Thanksgiving Day and Christmas Day shall be paid at the double time rate of pay. No work shall be performed on Labor Day except when triple (3) time is paid. When a holiday falls on Saturday, Friday will be observed as the holiday. When a holiday falls on Sunday, the following Monday shall be observed as the holiday.

NO. 66: All work performed on Sundays and the following recognized holidays, or the days observed as such, of New Year's Day, Decoration Day, Fourth of July, Labor Day, Veteran's Day, Thanksgiving Day and Christmas Day, shall be paid at double (2) the hourly rate plus an amount equal to the hourly Total Indicated Fringe Benefits. Whenever any such holidays fall on a Sunday, the following Monday shall be observed as a holiday.

NO. 69: All work performed on New Year's Day, Memorial Day, July Fourth, Labor Day, Veteran's Day, Thanksgiving Day or Christmas Day shall be compensated at double (2) their straight-time hourly rate of pay. Friday after Thanksgiving and the day before Christmas are also holidays, however, if the employer chooses to work the normal work hours on these days, the employee will be paid at straight-time rate of pay. If a holiday falls on a Saturday, the holiday will be observed on Saturday; if a holiday falls on a Sunday, the holiday will be observed on the following Monday.

NO. 71: All work performed on the following recognized holidays, or days that may be celebrated as such, shall be paid at the double (2) time rate of pay: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, Day after Thanksgiving and Christmas Day. If a holiday falls on Sunday, it shall be celebrated on Monday. If a holiday falls on Saturday, it shall be celebrated on the Friday proceeding such Saturday.

NO. 73: The following days are recognized as holidays: New Year's Day, Memorial Day, Fourth of July, Labor Day, Veteran's Day (or mutually agreed date of the Friday after Thanksgiving Day may be substituted for Veteran's Day), Thanksgiving Day and Christmas Day, or in the event that any of said Holidays falls on Sunday, then the day or days generally recognized as such. Any work performed anywhere on any of the aforesaid Holidays, or on the day or days recognized and observed as such, shall be paid for at double (2) time the regular hourly rate.

OCCUPATIONAL TITLE	* Date of Increase	Basic Hourly Rates	Over-Time Schedule	Holiday Schedule	Total Fringe Benefits
Carpenter		\$35.68	23	16	\$15.55
Cement Mason		\$30.56	17	11	\$17.30
Electrician (Outside-Line Construction\Lineman)		\$42.27	9	12	\$5.25 + 36%
Lineman Operator		\$36.45	9	12	\$5.25 + 36%
Lineman - Tree Trimmer		\$25.24	32	31	\$10.20 + 3%
Groundman		\$28.13	9	12	\$5.25 + 36%
Groundman - Tree Trimmer		\$20.00	32	31	\$7.89 + 3%
Laborer					
General Laborer		\$31.18	8	1	\$13.32
Millwright		\$35.68	23	16	\$15.55
Operating Engineer					
Group I		\$32.16	10	9	\$24.16
Group II		\$32.16	10	9	\$24.16
Group III		\$30.86	10	9	\$24.16
Group IV		\$27.40	10	9	\$24.16
Oiler-Driver		\$27.86	10	9	\$24.16
Pile Driver		\$35.68	23	16	\$15.55
Traffic Control Service Driver		\$28.775	26	25	\$9.045
Truck Driver-Teamster		\$30.41	25	21	\$10.82

Use Heavy Construction Rates on Highway and Heavy construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(3).

Use Building Construction Rates on Building construction in accordance with the classifications of construction work established in 8 CSR 30-3.040(2).

If a worker is performing work on a heavy construction project within an occupational title that is not listed on the Heavy Construction Rate Sheet, use the rate for that occupational title as shown on the Building Construction Rate sheet.

**ST. CHARLES COUNTY
OVERTIME SCHEDULE - HEAVY CONSTRUCTION**

FED: Minimum requirement per Fair Labor Standards Act means time and one-half (1 ½) shall be paid for all work in excess of forty (40) hours per work week.

NO. 8: Means eight (8) hours shall constitute the regular workday, between the hours of 6:30 a.m. and 5:30 p.m. except when the Employer elects to work four (4) ten (10) hour days as described below. The starting time of the workday can be adjusted from 6:30 a.m. to 9:00 a.m. The Employer may have the option to schedule his work week from Monday through Thursday at Ten (10) hours per day at the straight time rate of pay with all hours in excess of ten (10) hours in any one day to be at the applicable overtime rate. If the Employer elects to work from Monday through Thursday and is stopped due to inclement weather (rain, snow, sleet falling), or other conditions beyond the control of the Employer, the Employer shall have the option to work Friday at the straight time rate of pay to complete his forty (40) hours. However, should a holiday occur, Monday through Thursday, the Employer shall have the option to work Friday at the straight time rate of pay to complete his forty (40) hours. Time and one-half (1½) shall be paid for work performed in excess of eight (8) hours on any regular workday or outside the hours limiting a regular workday. Straight time is not to exceed ten (10) hours a day or forty (40) hours per week. When an Employer works a project on a four (4) ten (10) hour day work schedule, the Employer will not bring in any other crew for a fifth workday on the project while not calling in the normal crew that had been scheduled for that project. Time and one-half (1½) shall be paid for work performed on Saturdays. Double (2) time shall be paid for work performed on Sundays and recognized holidays. Overtime shall be computed at one-half (1/2) intervals. Projects that cannot be performed during regular workday: On Highway/Heavy work, or if required by owner, the contractor may perform work outside the normal work hours and employees shall be paid applicable straight time hourly wage rate plus a premium of one dollar and fifty cents (\$1.50) per hour for the first eight (8) hours worked. Any hours worked in excess of eight (8) hours shall be paid at the applicable overtime rate plus the one dollar and fifty cent (\$1.50) per hour premium. The overtime rate shall be computed after the \$1.50 premium has been added to the hourly wage rate. However, if a contractor employs any other craft on a project being worked outside the normal workday, and is paying the other craft a higher premium, then the Laborers employed by such contractor on such project outside the normal work hours shall be paid the higher premium. Shift work: Shifts may be established when necessary by the Employer. Shifts shall be established for a minimum of three (3) consecutive workdays. The first shift will be paid at eight (8) hours straight time pay for eight (8) hours work. The second shift will be paid at eight (8) hours straight time pay plus a thirty-five cent (\$.35) per hour premium for seven and one-half (7½) hours work. The third shift will be paid at eight (8) hours straight time pay plus a forty-cent (\$.40) per hour premium for seven (7) hours work. Overtime is computed after the premium has been added to the hourly wage rate. Nothing above prohibits the working of two (2) shifts greater than eight (8) hours with excess hours to be paid at overtime rate.

NO. 9: Eight (8) hours shall constitute a work day between the hours of 7:00 a.m. and 4:30 p.m. Forty (40) hours within five (5) days, Monday through Friday inclusive, shall constitute the work week. Work performed in the 9th and 10th hour, Monday through Friday, shall be paid at time and one-half (1½) the regular straight time rate of pay. Contractor has the option to pay two (2) hours per day at the time and one-half (1½) the regular straight time rate of pay between the hours of 6:00 a.m. and 5:30 p.m., Monday through Friday. Work performed in the first eight (8) hours on Saturday shall be paid at the rate of one and eight tenths (1.8) the regular straight time rate. Work performed outside these hours and on Sundays and recognized legal holidays, or days celebrated as such, shall be paid for at the rate of double (2) time.

ST. CHARLES COUNTY OVERTIME SCHEDULE - HEAVY CONSTRUCTION

NO. 10: Means the regular workday for which employees shall be compensated at straight time hourly rate of pay shall, unless otherwise provided for, begin at 8:00 a.m. and end at 4:30 p.m. The regular workweek shall consist of five (5) days, Monday through Friday, beginning at 8:00 a.m. and ending at 4:30 p.m. except as may be modified. The starting time may be either advanced or delayed one hour or two hours at the discretion of the Employer. The Employer may have the option to schedule his work week from Monday through Thursday at ten (10) hours per day at the straight time rate of pay with all hours in excess of ten (10) hours in any one day to be at the applicable overtime rate. If the Employer elects to work Monday through Thursday and is stopped due to inclement weather, holidays or other conditions beyond the control of the Employer, he shall have the option to work Friday at the straight time rate of pay to complete the forty (40) hour workweek. All necessary overtime and work performed on Saturday, shall be paid at time and one-half (1½) the hourly rate, plus an amount equal to one-half (½) of the hourly Total Indicated Fringe Benefits. All work performed on Sundays and recognized holidays shall be paid at double (2) the hourly rate, plus an amount equal to the hourly Total Indicated Fringe Benefits. Shifts may be established when considered necessary by the Employer. Shift hours and rates will be as follows. If shifts are established, work on the First Shift will begin between 6:00 a.m. and 9:00 a.m. and consist of eight (8) hours of work plus one-half hour unpaid lunch. Hours worked during the first shift will be paid at the straight time rate of pay. The second shift shall start eight hours after the start of the first shift and consist of eight (8) hours of work plus one-half hour unpaid lunch. Work on the second shift will begin between 2:00 p.m. and 5:00 p.m. and be paid the straight time rate plus \$2.50 per hour. The third shift shall start eight hours after the start of the second shift and consist of eight (8) hours plus one-half hour unpaid lunch. Work on the third shift will begin between 10:00 p.m. and 1:00 a.m. and be paid the straight time rate plus \$3.50 per hour. The additional amounts that are to be paid are only applicable when working shifts. Shifts that begin on Saturday morning through those shifts which end on Sunday morning will be paid at time and one-half these rates. Shifts that begin on Sunday morning through those shifts which end on Monday morning will be paid at double time these rates.

NO. 17: Means eight (8) hours shall constitute the regular work day and forty (40) hours a work week, Monday through Friday. The Employer shall establish the starting time between 6:30 a.m. through 9:00 a.m. An Employer may further adjust the starting time up to 9:30 A.M. throughout the year. Time and one-half (1½) shall be paid after eight (8) consecutive hours worked after the established starting time and for hours worked before the established starting time. Time and one-half (1½) shall be paid for work performed on Saturdays. Work performed on Sundays and Holidays shall be paid at the double (2) time rate of pay. The Employer when working on Highway and Road Work may have the option to schedule the work week for his paving crew only from Monday through Thursday at ten (10) hours per day at the straight time rate of pay with all hours in excess of ten (10) hours in any one day to be at the applicable overtime rate of time and one-half (1½). If the Employer elects to work from Monday through Thursday and is stopped due to inclement weather (rain, snow, sleet falling), the Employer shall have the option to work Friday at the straight time rate of pay to complete the forty (40) hours.

NO. 23: Means the regular workweek shall start on Monday and end on Friday, except where the Employer elects to work Monday through Thursday, (10) hours per day. All work over ten (10) hours in a day or forty (40) hours in a week shall be at the overtime rate of one and one-half (1½) times the regular hourly rate. The regular workday shall be either eight (8) or ten (10) hours. If a job can't work forty (40) hours Monday through Friday because of inclement weather or other conditions beyond the control of the Employer, Friday or Saturday may be worked as a make-up day at straight time (if working 4-10's). Saturday may be worked as a make-up day at straight time (if working 5-8's). An Employer, who is working a four (4) ten (10) hour day work schedule may use Friday as a make-up day when a workday is lost due to a holiday. A workday is to begin at the option of the Employer but not later than 11:00 a.m. except when inclement weather, requirements of the owner or other conditions beyond the reasonable control of the Employer prevent work. Except as worked as a make-up day, time on Saturday shall be worked at one and one-half (1½) times the regular rate. Work performed on Sunday shall be paid at two (2) times the regular rate. Work performed on recognized holidays or days observed as such, shall also be paid at the double (2) time rate of pay. For all overtime hours worked during the week or on Saturday \$14.55 of the fringe benefits portion of the prevailing wage shall be paid at time and one-half (1½). For all overtime hours worked on Sundays or recognized holidays \$14.55 of the fringe benefits portion of the prevailing wage shall be paid double time. The remaining \$.50 of the fringe benefit portion of the prevailing wage shall be paid at straight time.

**ST. CHARLES COUNTY
OVERTIME SCHEDULE - HEAVY CONSTRUCTION**

NO. 25: Means a regular work week of forty (40) hours, starting on Monday and ending on Friday. The regular work day shall be either eight (8) or ten (10) hours. If a crew is prevented from working forty (40) hours Monday through Friday, or any part thereof by reason of inclement weather, Saturday or any part thereof maybe worked as a make-up day at the straight time rate. Employees who are part of a regular crew on a make-up day, notwithstanding the fact that they may not have been employed the entire week, shall work Saturday at the straight time rate. A work day is to begin between 6:00 a.m. and 9:00 a.m. However, the project starting time maybe advanced or delayed if mutually agreed to by the interest parties. All hours worked on recognized holidays, or days observed as such, double (2) time shall be paid.

NO. 26: Means a regular work week of forty (40) hours will start on Monday and end on Friday. The regular work day shall be either eight (8) or ten (10) hours. If a crew is prevented from working forty (40) hours Monday through Friday, or any part thereof by reason of inclement weather, Saturday or any part thereof may be worked as a make-up day at the straight time rate. Employees who are part of a regular crew on a make-up day, notwithstanding the fact that they may not have been employed the entire week, shall work Saturday at the straight time rate. A workday is to begin between 6:00 a.m. and 9:00 a.m. However, the project starting time may be advanced or delayed if mutually agreed to by the interest parties. For all time worked on recognized holidays, or days observed as such, double (2) time shall be paid.

NO. 32: Means the overtime rate shall be time and one-half the regular rate for work over forty (40) hours per week. Sundays and Holidays shall be paid at double the straight time rate.

**ST. CHARLES COUNTY
HOLIDAY SCHEDULE – HEAVY CONSTRUCTION**

NO. 1: All work done on New Year's Day, Independence Day, Memorial Day, Labor Day, Veteran's Day (November 11), Thanksgiving Day, and Christmas Day shall be compensated at the double (2) time rate of pay. When any of these holidays fall on Sunday, the following Monday shall be observed. No work shall be performed on the days set forth except in cases of emergencies to protect life or property.

NO. 9: All work performed on Sundays and the following recognized holidays, or the days observed as such, of New Year's Day, Decoration Day, Fourth of July, Labor Day, Veteran's Day, Thanksgiving Day and Christmas Day, shall be paid at double (2) the hourly rate plus an amount equal to the hourly Total Indicated Fringe Benefits. Whenever any such holidays fall on a Sunday, the following Monday shall be observed as a holiday.

NO. 11: Means all work performed on New Year's Day, Memorial Day, Fourth of July, Labor Day, Veteran's Day, Thanksgiving Day, Christmas Day, and any additional holidays which may be mutually agreed upon shall be paid at the double (2) time rate of pay. Whenever any such holiday falls on a Sunday, the following Monday shall be recognized and observed as the holiday. No work shall be performed on Labor Day.

NO. 12: All work performed on New Year's Day, Memorial Day, Fourth of July, Labor Day, Veteran's Day, Thanksgiving Day, Christmas Day, or days celebrated as such, shall be paid at the double time rate of pay. When one of the foregoing holidays falls on Sunday, it shall be celebrated on the following Monday. When one of the foregoing holidays falls on Saturday, it shall be celebrated on the Friday before the holiday.

NO. 16: The following days are recognized as holidays: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day. If a holiday falls on Sunday, it shall be observed on the following Monday. If a holiday falls on Saturday, it shall be observed on the preceding Friday. No work shall be performed on Labor Day except in case of jeopardy to work under construction. This rule is applied to protect Labor Day. When a holiday falls during the normal work week, Monday through Friday, it shall be counted as eight (8) hours toward the forty (40) hour week; however, no reimbursement for this eight (8) hours is to be paid to the worker unless worked. If workers are required to work the above recognized holidays or days observed as such, they shall receive double (2) the regular rate of pay for such work.

NO. 21: The following days are recognized as holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. If a holiday falls on a Sunday, it shall be observed on the following Monday. No work shall be performed on Labor Day except in case of jeopardy to work under construction. This rule is applied to protect Labor Day. When a holiday falls during the normal work week, Monday through Friday, it shall be counted as eight (8) hours toward the forty (40) hour week; however, no reimbursement for this eight (8) hours is to be paid the workman unless worked. An Employer working a four (4) day, ten (10) hour schedule may use Friday as a make-up day when an observed holiday occurs during the work week. Employees have the option to work that make-up day. If workmen are required to work the above enumerated holidays, or days observed as such, they shall receive double (2) the regular rate of pay for such work.

NO. 25: The following days are recognized as holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. If a holiday falls on a Sunday, it shall be observed on the following Monday. No work shall be performed on Labor Day except in case of jeopardy to work under construction. This rule is applied to protect Labor Day. When a holiday falls during the normal work week, Monday through Friday, it shall be counted as eight (8) hours toward the forty (40) hour week; however, no reimbursement for this eight (8) hours is to be paid the workmen unless worked. An Employer working a four (4) day, ten (10) hour schedule may use Friday as a make up day when an observed holiday occurs during the work week. Employees have the option to work that make up day. If workmen are required to work the above enumerated holidays, or days observed as such, they shall receive double (2) the regular rate of pay for such work.

NO. 31: All work performed on New Year's Day, Presidents' Day, Veterans' Day, Good Friday, Decoration Day, Fourth of July, Labor Day, Christmas Eve Day, Christmas Day, Thanksgiving Day and Day after Thanksgiving or days celebrated for the same.