CONTRACTOR'S AGREEMENT

Clerk's Contract Tracking No. Resolution 2023-15071

ITB 23-014 Wastewater Treatment Plant (WWTP)
Generator Installations and Electrical Improvements

THIS INDEPENDENT CONTRACTOR'S AGREEMENT (hereinafter this "Agreement") is made and entered into this **19th day of April 2023** by and between the **City of Naples** (the "CITY"), and **Eau Gallie Electric, Inc.,** a Florida Corporation authorized to do business in the State of Florida (hereinafter "CONTRACTOR").

WITNESSETH

WHEREAS, the CITY is a Florida municipal corporation in the State of Florida, having a responsibility to provide certain services to benefit the citizens of the City of Naples; and

WHEREAS, the CITY has the full power and authority to enter into the transactions contemplated by this Agreement; and

WHEREAS, CONTRACTOR is in the business of providing said services in the City of Naples and elsewhere in the State of Florida; and

WHEREAS, CONTRACTOR is competent and has sufficient manpower, training, and technical expertise to perform the services contemplated by this Agreement in a timely and professional manner consistent with the standards of the industry in which CONTRACTOR operates; and

WHEREAS, Section 448.095, Fla. Stat., imposes certain obligations on public agencies with regard to the use of the E-Verify system by their CONTRACTORs and SUBCONTRACTORs; and

WHEREAS, CONTRACTOR was the successful bidder for an advertised Invitation to Bid identified as ITB 23-014 titled Wastewater Treatment Plant (WWTP) Generator Installations and Electrical Improvements, which satisfies the CITY's Procurement Policy Sec. 2-663; and

WHEREAS, CONTRACTOR agrees to provide such goods and services as more particularly described in this Agreement, as well as in any bid documents **(ITB 23-014)** issued in connection with this project.

NOW THEREFORE in consideration of the premises, and in consideration of the mutual conditions, covenants, and obligations hereafter expressed, the parties agree as follows:

1. **Recitals.** The foregoing recitals are true and correct, constitute a material inducement to the parties to enter into this Agreement, and are hereby ratified and made a part of this Agreement.

2. **Description of Work.**

a. The CITY hereby retains CONTRACTOR to furnish goods and services as described in the **Scope of Services, which is attached hereto as Exhibit "A"** and incorporated herein by reference. Any conflict between the terms and conditions in the body of this Agreement and the terms and conditions set forth in **Exhibit "A"** will be resolved in favor of the body of this Agreement.

b. CONTRACTOR must provide all permits, labor, materials, equipment, and supervision necessary for the completion of the Scope of Services, unless specifically excluded.

c. CONTRACTOR must also comply with, and abide by, all requirements as contained in Invitation to bid (ITB), bid specifications, engineering plans, shop drawings, material lists, or other similar documents issued for this project by the CITY, together with any addenda, all hereinafter the "**Bid Documents**, as applicable." The **Bid Documents**, if applicable, are hereby incorporated into this Agreement by reference and are declared to be material part of this Agreement.

3. **Commencement and completion/Term.**

a. CONTRACTOR will commence work under this Agreement upon receipt of a Notice to Proceed (hereinafter "NTP").

b. Liquidated damages will be assessed against CONTRACTOR in an amount consistent with the current Section 8-10.2 Florida Department of Transportation Standard Specifications for each day after that the work contemplated by this Agreement is incomplete based on a NTP and its stated time frame of completion.

c. This Agreement will commence on award and be in effect until completion of the project. Services to be rendered by the CONTRACTOR shall be commenced subsequent to the execution of this Agreement upon written Notice to Proceed (NTP) from the CITY for all or any designated portion of the Project Substantial completion must be reached for all aspects of the project no later than 120 calendar days from the issued Notice to Proceed and fully completed in 150 calendar days with a Project Close-out time frame of 30 days.

4. **Payment.**

a. The CITY agrees to compensate CONTRACTOR, for work actually performed under this Agreement, at the rate or basis described in **Exhibit "B",** which is attached hereto and incorporated herein by reference. The amount of the **Agreement is $1,591,000.00.** that includes a **$75,000.00** City Control Contingency. CONTRACTOR must perform all work required by the Scope of Services stated, but in no event will CONTRACTOR be paid more than the negotiated amount set forth in an agreed upon Change Order in writing signed by both Parties.

b. Progress payments, if any, will be made as set forth in an NTP.

c. The CITY reserves the right to withhold amounts in the event of the nonperformance of all or part of CONTRACTOR's obligations. CONTRACTOR must, without additional compensation, correct and revise any errors, omissions, or other deficiencies in its work product, services, or materials arising from the error or omission or negligent act of CONTRACTOR.

5. **Acceptance of work product, payment, and warranty**. Each final invoice will be processed, upon completion of the CITY's final inspection and the CONTRACTOR'S submission of a completed CITY OF NAPLES RELEASE AND AFFIDAVIT FORM as identified in **ITB 23-014.**

a. Quality Guarantee/Warrantee

a.1 CONTRACTOR will guarantee its work without disclaimers, unless otherwise specifically approved by the CITY, for a minimum of twelve (12) months from the final completion date.

a.2 Unless otherwise specifically provided in the specifications, all equipment and materials and articles incorporated in the work covered by this contract shall be new, unused and the most suitable grade for the purpose intended. Refurbished parts or equipment are not acceptable unless otherwise specified in the specifications. All warranties will begin from the date of the final completion.

a.3 Unless otherwise specifically provided in the specifications, the equipment must be warranted for twelve (12) months, including shipping, parts and labor. Should the equipment be taken out of service for more than forty-eight (48) hours to have warranty work performed, a loaner machine of equal capability or better shall be provided for use until the repaired equipment is returned to service at no additional charge to the CITY.

a.4 If any product does not meet performance representation or other quality assurance representations as published by manufacturers, producers or distributors of such products or the specifications listed, the CONTRACTOR shall pick up the product from the CITY at no expense to the CITY. The CITY reserves the right to reject any or all materials, if in its judgment the items reflect unsatisfactory workmanship or manufacturing or shipping damage. The CONTRACTOR shall refund, to the CITY, any money which has been paid for same.

b. **Acceptance of work product, payment, and warranty**. When the CITY receives an invoice sufficiently itemized to permit audit, the CITY will diligently review the invoice. When the CITY finds the invoice acceptable and finds the products and services acceptable, the installment payment will be paid to CONTRACTOR within thirty (30) days after the date of receipt of the invoice, unless another payment schedule is provided in **Exhibit "B."** CONTRACTOR guarantees the successful performance of the work for the products and services intended. If the CITY deems it inexpedient to require CONTRACTOR to correct deficient or defective work, the CITY may make an equitable deduction from the contract price, or, in the alternative, the CITY may seek damages. CONTRACTOR warrants that the data utilized by CONTRACTOR (other than as provided by the CITY) is from a source, and collected using methodologies, which are generally recognized in CONTRACTOR's industry or profession to be a reliable basis and foundation for CONTRACTOR's work product. CONTRACTOR must notify the CITY in writing if it appears, in CONTRACTOR's professional judgment that the data or information provided by the CITY for use in CONTRACTOR's work product is incomplete, defective, or unreliable. CONTRACTOR guarantees to amend, revise, or correct to the satisfaction of the CITY any error appearing in the work as a result of CONTRACTOR's failure to comply with the warranties and representations contained herein. Neither inspection nor payment, including final payment, by the CITY will relieve CONTRACTOR from its obligations to do and complete the work product in accordance with this Agreement.

6. **Termination.**

a. Termination at Will: This Agreement may be terminated by the CITY in whole or in part at any time without cause by the CITY giving written notice to CONTRACTOR not less than 30 days prior to the date of termination; provided, however, that in such event, neither party will be relieved from its rights or obligations of this Agreement through the date of the actual termination. Notice must be delivered by certified mail, return receipt requested, or in person with proof of delivery.

b. Termination for Cause: This Agreement may be terminated by either party for cause by the CITY or CONTRACTOR giving written notice to the other party not less than 10 days prior to the date of termination; provided, however, that in such event, neither party will be relieved from its rights or obligations of this Agreement through the date of the actual termination. Notice must be delivered by certified mail, return receipt requested, or in person with proof of delivery.

7. **Project management.**

a. The Project Managers for this project are as follows: Any subsequent changes to the Project Manager for either party must be provided by notice as described in paragraph eight (8) below and does not require an amendment to this Agreement.

b. CITY's Project Manager assigned is the Utilities Department and/or his/her authorized representative will serve as the City's Contract Administrator, or Owner's Representative.

c. CONTRACTOR's Project Manager assigned is Christopher Hughes, President.

8. **Notices.** All notices required or made pursuant to this Agreement to be given by the CONTRACTOR or the CITY shall be in writing and shall be delivered by hand or by United States Postal Service Department, first class mail service, postage prepaid, return receipt requested, addressed to the following addresses of record:

a. **To CITY:** City of Naples, Attention: City Manager's Purchasing Division, 735 8th Street South; Naples, Florida 34102.

b. **To CONTRACTOR:** Eau Gallie Electric, Attention: Christopher Hughes, President; 2012 Aurora Road; Melbourne, Florida 32935.

9. **Insurance.**

a. CONTRACTOR must maintain such insurance as will fully protect both CONTRACTOR and the CITY from any and all claims under any Workers Compensation Act or Employers Liability Laws, and from any and all other claims of whatsoever kind or nature to the damage or property, or for personal injury, including death, made by anyone whomsoever, that may arise from operations carried on under this Agreement, either by CONTRACTOR, any subcontractor, or by anyone directly or indirectly engaged or employed by either of them.

b. The CITY's General Insurance Requirements (attached as **Exhibit "C"**) apply. The insurance coverages procured by CONTRACTOR as required herein will be considered

as primary insurance over and above any other insurance, or self–insurance, available to CONTRACTOR, and any other insurance, or self-insurance available to CONTRACTOR will be considered secondary to, or in excess of, the insurance coverage(s) procured by CONTRACTOR as required herein.

10. **General Provisions.** CONTRACTOR must comply with the following general provisions:

a. Bond. A Payment & Performance Bond shall be obtained by the CONTRACTOR and shall be issued by a surety insurer authorized to do business in the State of Florida as a surety. CONTRACTOR prior to commencement of work, will record the Payment & Performance Bond in the public records of Collier County and furnish a copy of the original recorded bonds to the CITY Purchasing Department. If a surety bond has been required for the CONTRACTOR's faithful performance and payment, and if at any time the surety is no longer acceptable to the CITY, CONTRACTOR must, at its expense, within five (5) days after the receipt of notice from the CITY to do so, furnish an additional bond or bonds in such form and with such Surety or Sureties as are satisfactory to the CITY. The CITY will not make any further payment to CONTRACTOR, nor will any further payment be deemed to be due to CONTRACTOR, until such new or additional security for the faithful performance of the work is furnished in a manner and form satisfactory to the CITY.

b. This Agreement is a non-exclusive contract; the CITY is not prohibited, or deemed to be prohibited, from bidding similar services either as an independent job or a component of a larger project.

c. **Retainage.** As a method to assure completion of all project/work orders over the total amount of $100,000.00, retainage in the amount of five percent (5%) of all work completed may be withheld from the payment. The retainage will be released upon completion of the CITY's final inspection and submission of a completed CITY OF NAPLES RELEASE AND AFFIDAVIT FORM as identified in ITB 23-014.

d. **Compliance with Laws.** In providing the Scope of Services, CONTRACTOR must comply with all federal, state, and local laws, statutes, ordinances, rules, and regulations pertaining to or regulating the provision of such services, including those now in effect and hereafter adopted.

e. **Personal nature of Agreement; Assignment.**

i. The parties acknowledge that the CITY places great reliance and emphasis upon the knowledge, expertise, training, and personal abilities of CONTRACTOR. Accordingly, this Agreement is personal and CONTRACTOR is prohibited from assigning or delegating any rights or duties hereunder without the specific written consent of the CITY.

ii. If CONTRACTOR requires the services of any subcontractor or professional associate in connection with the work to be performed under this Agreement, CONTRACTOR must obtain the written approval of the CITY Project Manager prior to engaging such subcontractor or professional associate. CONTRACTOR will remain fully responsible for the services of any subcontractors or professional associates.

f. **Discrimination.**

i. CONTRACTOR shall not discriminate against any employee employed in the performance of this Agreement, or against any applicant for employment because of age, ethnicity, race, religious belief, disability, national origin, or sex. CONTRACTOR shall not exclude any person, on the grounds of age, ethnicity, race, religious belief, disability, national origin, or sex, from participation in, denied the benefits of, or be otherwise subjected to discrimination in any activity under, this Agreement.

ii. CONTRACTOR shall provide a harassment-free workplace, with any allegation of harassment given priority attention and action by management.

g. **Independent contractor.**

i. CONTRACTOR is, and will be deemed to be, an independent contractor and not a servant, employee, joint adventurer, or partner of the CITY. None of CONTRACTOR's agents, employees, or servants are, or will be deemed to be, the agent, employee, or servant of the CITY. None of the benefits, if any, provided by the CITY to its employees, including but not limited to, compensation insurance and unemployment insurance, are available from the CITY to the employees, agents, or servants of CONTRACTOR. CONTRACTOR will be solely and entirely responsible for its acts and for the acts of its agents, employees, servants, and subcontractors during the performance of this Agreement. Although CONTRACTOR is an independent contractor, the work contemplated herein must meet the approval of the CITY and is subject to the CITY's general right of inspection to secure the satisfactory completion thereof. CONTRACTOR must comply with all Federal, State and municipal laws, rules and regulations that are now or may in the future become applicable to CONTRACTOR, or to CONTRACTOR's business, equipment, or personnel engaged in operations covered by this Agreement or accruing out of the performance of such operations. The CITY will not be held responsible for the collection of or the payment of taxes or contributions of any nature on behalf of CONTRACTOR.

ii. CONTRACTOR will bear all losses resulting to it on account of the amount or character of the work, or because of bad weather, or because of errors or omissions in its contract price.

iii. CONTRACTOR must utilize, and must expressly require all subcontractors to utilize, the U.S. Department of Homeland Security's E-Verify system to verify the employment eligibility of all new employees hired by CONTRACTOR and any subcontractors during the Term of this Agreement.

h. **Indemnification.**

i. CONTRACTOR must indemnify and hold the CITY harmless against and from any and all claims, losses, penalties, interest, demands, judgments, costs, damages, or expenses, including attorney's fees and court costs, incurred by the CITY, or its agents, officers, or employees, arising directly or indirectly from CONTRACTOR's performance under this Agreement or by any person on CONTRACTOR's behalf, including but not limited to those claims, losses, penalties, interest, demands, judgments, costs, damages, or expenses arising out of any accident, casualty, or other occurrence causing injury to any person or property. This includes persons employed or utilized by CONTRACTOR (including CONTRACTOR's agents, employees, and subcontractors). CONTRACTOR must further indemnify the CITY against any claim that any

product purchased or licensed by the CITY from CONTRACTOR under this Agreement infringes a United States patent, trademark, or copyright. CONTRACTOR acknowledges that CONTRACTOR has received consideration for this indemnification, and any other indemnification of the CITY by CONTRACTOR provided for within the Bid Documents, the sufficiency of such consideration being acknowledged by CONTRACTOR, by CONTRACTOR's execution of this Agreement. CONTRACTOR's obligation will not be limited by, or in any way to, any insurance coverage or by any provision in or exclusion or omission from any policy of insurance, whether such insurance is in connection with this Agreement or otherwise. Such indemnification is in addition to any and all other legal remedies available to the CITY and not considered to be the CITY's exclusive remedy.

ii. In the event that any claim in writing is asserted by a third party which may entitle the CITY to indemnification, the CITY must give notice thereof to CONTRACTOR, which notice must be accompanied by a copy of statement of the claim. Following the notice, CONTRACTOR has the right, but not the obligation, to participate at its sole expense, in the defense, compromise or settlement of such claim with counsel of its choice. If CONTRACTOR does not timely defend, contest, or otherwise protect against any suit, action or other proceeding arising from such claim, or in the event the CITY decides to participate in the proceeding or defense, the CITY will have the right to defend, contest, or otherwise protect itself against same and be reimbursed for expenses and reasonable attorney's fees and, upon not less than ten (10) days notice to CONTRACTOR, to make any reasonable compromise or settlement thereof. In connection with any claim as aforesaid, the parties hereto must cooperate fully with each other and make available all pertinent information necessary or advisable for the defense, compromise or settlement of such claim.

iii. The indemnification provisions of this paragraph will survive the termination of this Agreement.

i. **Compliance/Consistency with Section 768.28, Fla. Stat.** Any indemnification or agreement to defend or hold harmless by CITY specified in the Agreement shall not be construed as a waiver of CITY's sovereign immunity and shall be limited to such indemnification and liability limits consistent with the requirements of Section 768.28, Fla. Stat. and subject to the procedural requirements set forth therein. Any other purported indemnification by CITY in the Agreement in derogation hereof shall be void and of no force or effect.

j. **Sovereign Immunity**. Nothing in this Agreement extends, or will be construed waive or to extend, the CITY's liability beyond that provided in section 768.28, Florida Statutes. Nothing in this Agreement is a consent, or will be construed as waiver or consent, by the CITY to be sued by third parties in any matter arising out of this Agreement.

k. **Public records.**

i. CONTRACTOR is a "Contractor" as defined by Section 119.0701(1)(a), Florida Statutes, and must comply with the public records provisions of Chapter 119, Florida Statutes, including the following:

1. Keep and maintain public records required by the CITY to perform the service.

2. Upon request from the CITY's custodian of public records, provide the CITY with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119 or as otherwise provided by law.
3. Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of this Agreement term and following completion of the Agreement if CONTRACTOR does not transfer the records to the CITY.
4. Upon completion of this Agreement, transfer, at no cost, to the CITY all public records in possession of CONTRACTOR or keep and maintain public records required by the CITY to perform the service. If CONTRACTOR transfers all public records to the CITY upon completion of this Agreement, CONTRACTOR must destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If CONTRACTOR keeps and maintains public records upon completion of this Agreement, CONTRACTOR must meet all applicable requirements for retaining public records. All records stored electronically must be provided to the CITY, upon request from the CITY's custodian of public records, in a format that is compatible with the information technology systems of the CITY.

ii. "Public records" is defined in Section 119.011(12), Florida Statutes, as may, from time to time, be amended.

iii. If CONTRACTOR asserts any exemptions to the requirements of Chapter 119 and related law, CONTRACTOR will have the burden of establishing such exemption, by way of injunctive or other relief as provided by law.

iv. CONTRACTOR consents to the CITY's enforcement of CONTRACTOR's Chapter 119 requirements, by all legal means, including, but not limited to, a mandatory injunction, whereupon CONTRACTOR must pay all court costs and reasonable attorney's fees incurred by CITY.

v. CONTRACTOR's failure to provide public records within a reasonable time may be subject to penalties under Section 119.10, Florida Statutes. Further, such failure by CONTRACTOR will be grounds for immediate unilateral cancellation of this Agreement by the CITY.

vi. **Public Records Compliance Indemnification.** CONTRACTOR agrees to indemnify and hold the CITY harmless against any and all claims, damage awards, and causes of action arising from the CONTRACTOR'S failure to comply with the public records disclosure requirements of Section 119.07(1), Florida Statutes, or by CONTRACTOR'S failure to maintain public records that are exempt or confidential and exempt from the public records disclosure requirements, including, but not limited to, any third party claims or awards for attorneys' fees and costs arising therefrom. CONTRACTOR authorizes the public agency to seek declaratory, injunctive, or other appropriate relief against CONTRACTOR in Collier County Circuit Court on an expedited basis to enforce the requirements of this section.

vii. IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119 FLORIDA STATUTES TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE

CITY CLERK AS CITY OF NAPLES CUSTODIAN OF PUBLIC RECORDS, AT TELEPHONE: 239-213-1015, OR EMAIL AT: PUBLICRECORDSREQUEST@NAPLESGOV.COM; PHYSICAL ADDRESS: 735 8TH STREET SOUTH; NAPLES, FLORIDA 34102. MAILING ADDRESS: 735 8TH STREET SOUTH; NAPLES, FLORIDA 34102.

l. **Ethics.** Compliance with Ethics Code. CONTRACTOR agrees to comply with the City of Naples Code of Ethics, as applicable, and as it may be amended from time to time. Any conflict between the City's Ethics Code and the contractual terms which follow shall be resolved in favor of the City's Ethics Code, as it may be amended from time to time. As provided in Section 2-976 of the City Code of Ordinances:

1. The CONTRACTOR agrees and covenants to not employ or offer to employ any elected officer or city managerial employee who in any way deals with, coordinates on, or assists with the construction or professional services provided, for a period of two years after termination of all provisions of the construction or professional services contract.

2. The CONTRACTOR agrees and covenants to not provide services for compensation to another party other than the city on the same subject matter, same project, or scope of services without city council approval.

3. The CONTRACTOR agrees and covenants to not disclose or use information not available to members of the general public and gained by reason of such person or business entity's contractual relationship with the CITY for the special gain or benefit of the contracting person or entity, or for the special gain or benefit of any other person or business entity, except as specifically contemplated or authorized by the contract.

4. In the event of any violations of subsections 1-3 above, the CONTRACTOR agrees to pay damages in an amount equal to any and all compensation which is received by the former elected officer or city managerial employee from the contracting person or entity, or an amount equal to the former employee's last two years of gross compensation from the city, whichever is greater.

5. In addition, the CITY retains the right to impose a penalty as provided in Section 1-15 of its Code of Ordinances for violation of subsection 1-3 above.

m. **Federal or State Funding** - If any portion of the funding for this Agreement is derived from the State of Florida, or any department of the State of Florida, or from federal funding through the State of Florida, the provisions of this sub-paragraph shall apply, provisions elsewhere in this Agreement to the contrary notwithstanding. CONTRACTOR shall make inquiry from the CITY's Project Manager to determine whether Federal or State funding is applicable to this Agreement.

i. E-Verify. CONTRACTOR must utilize, and must expressly require all subcontractors to utilize, the U.S. Department of Homeland Security's E-Verify system to verify the employment eligibility of all new employees hired by CONTRACTOR during the Term of this Agreement.

ii. Agency. CONTRACTOR agrees and acknowledges that it, its employees, and its subcontractors are not agents or employees of the Federal Government, of

the State of Florida, or of any department of the Federal Government or the State of Florida.

iii. Indemnification. To the fullest extent permitted by law, CONTRACTOR shall indemnify and hold harmless the CITY, the Federal Government, the State of Florida, any department of the Federal Government or the State of Florida, and all officers and employees, from liabilities, damages, losses and costs, including, but not limited to, reasonable attorney's fees, to the extent caused by the negligence, recklessness or intentional wrongful misconduct of CONTRACTOR and persons employed or utilized by CONTRACTOR in the performance of this Agreement. This indemnification shall survive the termination of this Agreement. Nothing contained in this paragraph is intended to nor shall it constitute a waiver of the State of Florida and the CITY's sovereign immunity.

iv. Workers' Compensation Insurance. CONTRACTOR must provide Workers' Compensation Insurance in accordance with Florida's Workers' Compensation law for all employees. If subletting any of the work, CONTRACTOR must ensure that the subcontractor(s) have Workers' Compensation Insurance for their employees in accordance with Florida's Workers' Compensation law. If using "leased employees" or employees obtained through professional employer organizations ("PEO's"), CONTRACTOR must ensure that such employees are covered by Workers' Compensation insurance through the PEO's or other leasing entities. CONTRACTOR must ensure that any equipment rental agreements that include operators or other personnel who are employees of independent contractors, sole proprietorships or partners are covered by insurance required under Florida's Workers' Compensation law.

v. Liability Insurance. CONTRACTOR shall carry Commercial General Liability insurance providing continuous coverage for all work or operations performed under the Agreement. Such insurance shall be no more restrictive than that provided by the latest occurrence form edition of the standard Commercial General Liability Coverage Form (ISO Form CG 00 01) as filed for use in the State of Florida. CONTRACTOR shall cause the State of Florida to be made an Additional Insured as to such insurance. Such coverage shall be on an "occurrence" basis and shall include Products/Completed Operations coverage. The coverage afforded to the State of Florida as an Additional Insured shall be primary as to any other available insurance and shall not be more restrictive than the coverage afforded to the Named Insured. The limits of coverage shall not be less than $1,000,000 for each occurrence and not less than a $5,000,000 annual general aggregate, inclusive of amounts provided by an umbrella or excess policy. The limits of coverage described herein shall apply fully to the work or operations performed under the Contract, and may not be shared with or diminished by claims unrelated to this Agreement. The policy/ies and coverage described herein may be subject to a deductible. CONTRACTOR shall pay all deductibles as required by the policy. No policy/ies or coverage described herein may contain or be subject to a Retention or a Self-Insured Retention. At all renewal periods which occur prior to final acceptance of the work, the CITY and the State of Florida shall be provided with an ACORD Certificate of Liability Insurance reflecting the coverage described herein. The CITY and the State of Florida shall be notified in writing within ten days of any cancellation, notice of cancellation, lapse, renewal, or proposed change to any po1icy or coverage described herein. The CITY's or the State of Florida's approval or failure to disapprove any policy/ies, coverage, or ACORD

Certificates shall not relieve or excuse any obligation to procure and maintain the insurance required herein, nor serve as a waiver of any rights or defenses the CITY or the State of Florida may have.

vi. Inspections. CONTRACTOR shall permit, and require its subcontractors to permit, the CITY's and the State of Florida's authorized representatives to inspect all work, materials, payrolls, and records, to audit the books, records, and accounts pertaining to the financing and development of the Services described in the Contract Documents.

vii. Auditor General Cooperation. CONTRACTOR shall comply with §20.055 (5), Florida Statutes, and shall incorporate in all subcontracts the obligation to comply with §20.055 (5), Florida Statutes.

n. **E-Verify Compliance.** CONTRACTOR affirmatively states, under penalty of perjury, that in accordance with Section 448.095, Fla. Stat., CONTRACTOR is registered with and uses the E-Verify system to verify the work authorization status of all newly hired employees, that in accordance with such statute, CONTRACTOR requires from each of its subcontractors an affidavit stating that the subcontractor does not employ, contract with, or subcontract with an unauthorized alien, and that Contractor is otherwise in compliance with Sections 448.09 and 448.095, Fla. Stat. The **E-VERIFY AFFIDAVIT** attached hereto is hereby incorporated into this Agreement by reference.

11. **Miscellaneous Provisions.** The following miscellaneous provisions apply to this Agreement:

a. **Binding Nature of Agreement.** This Agreement is binding upon the successors and assigns of the parties hereto.

b. **Entire Agreement.** This Agreement states the entire understanding between the parties and supersedes any written or oral representations, statements, negotiations, or agreements to the contrary. CONTRACTOR recognizes that any representations, statements, or negotiations made by the CITY'S staff do not suffice to legally bind the CITY in a contractual relationship unless they have been reduced to writing, authorized, and signed by the authorized CITY representatives.

c. **Amendment.** No modification, amendment, or alteration in the terms or conditions of this Agreement will be effective unless contained in a written document executed with the same formality as this Agreement.

d. **Severability**. If any term or provision of this Agreement is held, to any extent, invalid or unenforceable, as against any person, entity, or circumstance during the Term hereof, by force of any statute, law, or ruling of any forum of competent jurisdiction, such invalidity will not affect any other term or provision of this Agreement, to the extent that the Agreement will remain operable, enforceable, and in full force and effect to the extent permitted by law.

e. **Construction**. If any provision of this Agreement becomes subject to judicial interpretation, the court interpreting or considering such provision should not apply the presumption or rule of construction that the terms of this Agreement be more strictly construed against the party which itself or through its counsel or other agent prepared it. All parties hereto have participated in the preparation of the final form of this Agreement through review by their respective counsel, if any, or the negotiation of

specific language, or both, and, therefore, the application of such presumption or rule of construction would be inappropriate and contrary to the intent of the parties.

f. **Headings**. All headings in this Agreement are for convenience only and are not to be used in any judicial construction or interpretation of this Agreement or any paragraph.

g. **Waiver**. The indulgence of either party with regard to any breach or failure to perform any provision of this Agreement does not constitute a waiver of the provision or any portion of this Agreement, either at the time the breach or failure occurs or at any time throughout the term of this Agreement. The review of, approval of, or payment for any of CONTRACTOR's work product, services, or materials does not operate as a waiver, and should not be construed as a waiver, of any of the CITY's rights under this Agreement, or of any cause of action the CITY may have arising out of the performance of this Agreement.

h. **Force Majeure**. Notwithstanding any provisions of this Agreement to the contrary, the parties will not be held liable if failure or delay in the performance of this Agreement arises from fires, floods, strikes, embargos, acts of the public enemy, unusually severe weather, outbreak of war, restraint of government, riots, civil commotion, force majeure, act of God, or for any other cause of the same character which is unavoidable through the exercise of due care and beyond the control of the parties. This provision does not apply if the "Scope of Services" of this Agreement specifies that performance by CONTRACTOR is specifically required during the occurrence of any of the events herein mentioned.

i. **Compliance/Consistency with Scrutinized Companies Provisions of Florida Statutes.** Section 287.135(2)(a), Florida Statutes, prohibits a company from bidding on, submitting a proposal for, or entering into or renewing a contract for goods or services of any amount if, at the time of contracting or renewal, the company is on the Scrutinized Companies that Boycott Israel List, created pursuant to section 215.4725, Florida Statutes, or is engaged in a boycott of Israel. Section 287.135(2)(b), Florida Statutes, further prohibits a company from bidding on, submitting a proposal for, or entering into or renewing a contract for goods or services over one million dollars ($1,000,000) if, at the time of contracting or renewal, the company is on either the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, both created pursuant to section 215.473, Florida Statutes, or the company is engaged in business operations in Cuba or Syria. CONTRACTOR hereby certifies that CONTRACTOR is not listed on any of the following: (i) the Scrutinized Companies that Boycott Israel List, (ii) Scrutinized Companies with Activities in Sudan List, or (iii) the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List. CONTRACTOR further hereby certifies that CONTRACTOR is not engaged in a boycott of Israel or engaged in business operations in Cuba or Syria. CONTRACTOR understands that pursuant to Section 287.135, Florida Statutes, the submission of a false certification may subject CONTRACTOR to civil penalties, attorney's fees, and/or costs. CONTRACTOR further understands that any contract with CITY for goods or services of any amount may be terminated at the option of CITY if CONTRACTOR (i) is found to have submitted a false certification, (ii) has been placed on the Scrutinized Companies that Boycott Israel List, or (iii) is engaged in a boycott of Israel. And, in addition to the foregoing, if the amount of the contract is one million dollars ($1,000,000) or more, the contract may be terminated at the option of CITY if the company is found to have submitted a false

certification, has been placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or has been engaged in business operations in Cuba or Syria.

j. **Venue and Jurisdiction.** Notwithstanding any of other provision to the contrary, this Agreement and the parties' actions under this Agreement shall be governed by and construed under the laws of the state of Florida, without reference to conflict of law principles. As a material condition of this Agreement, each Party hereby irrevocably and unconditionally: i) consents to submit and does submit to the jurisdiction of the Circuit Court in and for Collier County, Florida for any actions, suits or proceedings arising out of or relating to this Agreement.

k. **Non-appropriation.** CITY's performance and obligation to pay under this Agreement is contingent upon an appropriation during the CITY's annual budget approval process. If funds are not appropriated for a fiscal year, then the CONTRACTOR shall be notified as soon as is practical by memorandum from the City Manager or designee that funds have not been appropriated for continuation of the Agreement, and the Agreement shall expire at the end of the fiscal year for which funding has been appropriated. The termination of the Agreement at fiscal year-end shall be without penalty or expense to the CITY subject to the CITY paying all invoices for services rendered during the period the Agreement was funded by appropriations.

12. **Special Provisions.**

a. None.

This Agreement may be executed in any number of counterparts, each of which shall be deemed to be an original as against any part whose signature appears thereon and all of which shall together constitute one and the same instrument.

IN WITNESS WHEREOF, the parties hereto have signed and sealed this Agreement effective the date first written above.

ATTEST:

By: _____

Patricia L. Rambosk, City Clerk

CITY OF NAPLES, FLORIDA

By: _____

Jay Boodheshwar, City Manager

Approved as to form and legal sufficiency:

By: _____

City Attorney

Eau Gallie Electric. Inc.
2012 Aurora Road
Melbourne, Florida 32935
Attention: Christopher Hughes, President

by _____
as its President and Authorized Agent

(CORPORATE SEAL)

ATTEST:

_____

Printed Name: Corey Derfuss Title Manager, Construction Dept.

STATE OF Florida

CITY OF Melbourne.

The foregoing instrument was acknowledged before me by means of ☒ physical presence or ☐ online notarization, this 20 day of April, 2023, by Chris Hughes of Eau Gallie Electa Florida Corporation, on behalf of the company, and he/she is personally known to me or has produced ϕ as identification.

_____
Signature of Notary Public - State of Florida

Kim A. Lanham
Printed/Typed/Stamped Name of Notary

My commission expires: 8-30-24

KIM A. LANHAM
COMMISSION
NUMBER
HH 003208
EXPIRES
Aug. 30, 2024
BONDED THRU AARON NOTARY
Notary Public, State of Florida

City of Naples, FL
ITB No. 23-014
23-014 Wastewater Treatment Plant (WWTP) Generator Installations and Electrical Improvements - ITB

Index

City of Naples, FL
RFQ No. 23-014
Wastewater Treatment Plant (WWTP) Generator Installations and Electrical Improvements - ITB

PROJECT REQUIREMENTS AND SPECIFICATIONS

A. PROJECT DESCRIPTION

This project will replace the two existing stand-alone generators with four generators connected in parallel. The generators, generator platform, and generator remote-mounted annunciators will be provided by the CITY.

1. Construction of the concrete pad for the four generators.

2. Purchase and installation of the custom generator tap box and generator remote input/output control panel (RIO-ANX).

3. Purchase and installation of the transformer (XFMR-ANX) and panelboard (DP-ANX) to supply 120/240V aux. power and networking for the generators.

4. Installation of four 600 kW generators on a common pad/platform as well as the panels, conduit, duct work, pull boxes, and cabling to connect the new generators to the existing power distribution equipment in electrical rooms #1 and #2.

5. Removal of the 1200 kW generator #1. Upon removal the generator is to be turned over to the CITY. Demo of the diesel lines and all appurtenances in generator room #1 including the roof mounted exhaust fans and external radiator.

6. Replace the roof of generator room #1. Generator room #1 will be renamed electrical room #1 annex.

B. AWARD OF BID

The City reserves the right to award the bid in a manner that best serves the interests of the City of Naples.

C. CONTRACT MANAGEMENT

The Utilities Department and/or his/her authorized representative will serve as the City's Contract Administrator, or Owner's Representative.

D. PROPOSED PROJECT SCHEDULE

CITY issues ITB Week of 2/13/2023

CITY issues Construction Contract: Week of 4/05/2023

Substantial Completion 9/1/2023

(Subject to change based on coordination efforts with selected Contractor)

The schedule for the services described herein will be included in the Bid. The schedule will include milestone dates for the completion of the individual tasks.

E. INSURANCE

The City's General Insurance Requirements on page 12 apply. Successful contractor(s) must furnish proof of insurance as per specifications. Contractors should investigate and determine they hold the necessary insurance prior to bid submittal.

F. SUB-CONTRACTORS AND MATERIAL SUPPLIERS

If the prospective contractor contemplates the use of sub-contractors, as a further condition of award of a contract, the prospective contractor must certify in writing that all of its sub- contractors are appropriately licensed and are registered with the State of Florida in accordance Florida Statues Chapters 607 or 620, and such statement will include any sub- contractors' corporate charter numbers. For additional information on registering, the prospective contractor should contact the Florida Secretary of State's Office.

Each prospective contractor must submit a list of all proposed sub-contractors and material suppliers intended for this project. No changes to this list shall be made without the express written consent of the City. Any request for changes shall be made in writing, to the City, clearly stating the reasons for the change. The City reserves the exclusive right to either approve or reject such request for change. Contractor agrees that the City's or its consultant's decision is final and binding. Contractor understands and agrees that he/she is solely responsible to the City for all work specified herein; and, that subsequent review of sub- contractors and/or material suppliers by the City or its consultants does not relieve the contractor and/or his surety of any liability or obligation stipulated herein. Failure to comply with the above may result in termination of this contract.

G. PROTECTION OF WORK, PROPERTY AND PERSON

The awarded vendor(s) and his employees will conduct themselves in such a manner

as to avoid embarrassment to the City of Naples and must at all times be courteous to the public. Although uniforms are not required, proper clothing must be worn at all times to include shirts, necessary safety equipment, pants, short or long, and proper footwear. Proper safety equipment must be worn at all times.

H. CONDUCT

The awarded vendor(s) and his employees will conduct themselves in such a manner as to avoid embarrassment to the City of Naples and must at all times be courteous to the public. Although uniforms are not required, proper clothing must be worn at all times to include shirts, necessary safety equipment, pants, short or long, and proper footwear. Proper safety equipment must be worn at all times.

I. CONTRACTORS EQUIPMENT

All vehicles and equipment must be maintained in good repair, appearance and sanitary condition at all times. Vehicles must be clearly identified with the name of the company and phone number clearly visible. In addition, the contractor will be responsible for using the necessary safety equipment according to State standards while working on City, County, or State roads as a sub-contractor of the City.

J. DISPOSAL OF DEBRIS

The awarded vendor(s) must dispose of all debris and other materials gathered from the described work in compliance with all applicable federal, state, and local regulations. Remove leftover materials, trash, and debris from project site and surrounding areas daily.

K. SCHEDULING OF WORK

1. All work will be performed from Monday to Friday between the hours of 7:30 am to 5:30 pm unless prior approval has been obtained from the Project Manager.

2. Water and maintenance activities may be performed from Monday to Saturday between the hours of 7:30 am to 5:30 pm

3. The awarded vendor(s) will correct work deficiencies and/or problems pointed out by the Project Manager within three working days of written notification by the Project Manager.

L. PAYMENT REQUESTS, INVOICES AND WORK REPORTS

1. Invoices shall be submitted after work is completed with a detailed description of the work performed. Invoices for progress payments may be submitted to the City monthly (every 30 days) for work completed.
    1. Payment for maintenance and watering shall be made monthly for the prior

month's watering. See sections 3.10-3.12 for maintenance requirements for the project work period and after Substantial Completion Acceptance. Payment for maintenance will begin after Substantial Completion Acceptance. Payment request shall include the monthly report for all work performed.

2. The awarded vendor(s) will meet with Project Manager and set up procedures prior to the start of work.

M. NON-PERFORMANCE

The City reserves the right to cancel the contract with a seven (7) day notice should the Contractor fail to perform up to the requirements and standards identified in the specifications. The City may withhold part or all payments due to the awarded vendor(s) until correction is made.

N. QUALIFICATIONS

The Contractor must be licensed with a minimum of five (5) years of experience in tree and palm planting on similar projects. All bidders must provide a listing of completed specific projects and send the attached reference questionnaire to the client who will submit the completed form directly to the City. The City reserves the right to contact these references, in order to determine the competency of the Contractor.

O. INSPECTION

The City reserves the right to make inspections and tests, when deemed advisable, to ascertain that requirements of the contract are being fulfilled. Should it be found that the standards specified are not being satisfactorily maintained, the City will immediately demand that the contractor comply with the Invitation to Bid to meet these requirements.

The Project Manager will make visits to the site at intervals appropriate to the various stages to observe the progress and quality of the executed work and determine if the work is proceeding in accordance with the Contract Documents. Project Manager may authorize minor variations from the requirements by written notification of the Contract Documents.

P. REJECTING DEFECTIVE WORK

The Utilities Department's authorized representative will have the authority to disapprove or reject work, which he believes to be unacceptable work and not in accordance with Contract Documents. The Utilities Department's authorized representative will be the final interpreter of the requirements of the Contract Documents and judge of the acceptability of the work performed. City will notify the contractor immediately of unacceptable work. If work has been rejected; the contractor must correct all defective work within 3 days of

notification. The contractor will bear all costs to correct the defective work. If the contractor fails to correct the defective work, or if the contractor fails to perform the work in accordance with the Contract Documents, the City may correct and remedy any such deficiency, with the contractor to bear all costs to correct the defective work.

Q. PROTECTION OF FACILITIES, PUBLIC AND PRIVATE PROPERTY

1. From the time the awarded contractor commences and until final acceptance by the City of any work specified on the Invitation to Bid, awarded contractor is required to initiate and maintain measures which must be proper and adequate to protect the building, its contents and any surrounding areas against damage by the elements. The contractor will assume full responsibility for any damage to any property including but not limited to walls, floors, tables, chairs, trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and underground facilities, resulting from the performance of the work.

2. Further, the awarded contractor must at all times guard against damage or loss to the property of the City or of other vendors or contractors and will be held responsible for replacing or repairing any such loss or damage. The City may withhold payment or make such deductions from payments as it deems necessary to insure reimbursement or replacement for loss or damage to property through negligence of the awarded contractor or his agents.

3. Further, provide adequate protection for both curbs/sidewalks/grass areas over which trucks and equipment pass to reach the project site and repair/replace all damaged areas, at no cost to the owner.

4. The contractor upon receipt of either written or oral notice must immediately discontinue any practice obviously hazardous in the opinion of the Project Manager. The contractor must comply with all OSHA and other Federal and State safety standards. Blocking of the public street, except under extreme emergency conditions, will not be permitted unless prior arrangements have been made with the Project Manager and the City Police and Fire Departments and other agencies having jurisdiction over the street to be closed.

R. PROTECTION OF OVERHEAD UTILITIES

The operations will be conducted in many areas where overhead electric, telephone, and cable television facilities exist. The contractor must protect all utilities from damage, will immediately contact the appropriate utility if damage has occurred, and will be responsible for all claims for damage due to his operations. The contractor must make arrangements with the utility for the removal of necessary limbs and branches, which may conflict with, or create a personal injury hazard in the removal of the tree. Delays encountered by the contractor in waiting for the utility to complete its work will not be the responsibility of the contractor.

S. PROTECTION OF UNDERGROUND UTILITIES

The Contractor will be responsible for following the Florida Underground Facility Damage Prevention & Safety Act (556), OSHA Standard 1926.651, Florida Trench and Safety Act (Chapter 90-96) and obtaining utility locations by calling Sunshine State One-Call of Florida Inc. at 1-800-432-4700. Contractor will have full responsibility for reviewing and checking all information and data for locating all underground facilities

STS-01000
TECHNICAL SPECIFICATIONS

Contract Documents
CITY of Naples Water Reclamation Facility

CITY of Naples
380 Riverside Circle
Naples, Florida 34102

WRF GENERATORS REPLACEMENT PROJECT

JOHNSON
ENGINEERING
Johnson Engineering, Inc.
2122 Johnson Street
Fort Myers, Florida 33901
Phone: (239) 334-0046
www.JohnsonEng.com

REV. 1-30-2023

STS-0100
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SUPPLEMENTAL TECHNICAL SPECIFICATIONS – JOHNSON ENGINEERING

These specifications supplement the standards of the CITY of Naples

TECHNICAL SPECIFICATIONS – STANDARDS OF THE CITY OF NAPLES

See web link https://www.naplesgov.com/utilities/page/utilities-specifications-and-standards-manual for other applicable general CITY standards below:

DIVISION 1	GENERAL REQUIREMENTS
01400	QUALITY CONTROL
01500	CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS
01600	MATERIALS AND EQUIPMENT
01710	CLEANING
01730	OPERATIONS & MAINTENANCE MANUALS
01750	PROJECT RECORD DOCUMENTS
DIVISION 2	SITE WORK
02050	DEMOLITION
02110	SITE CLEANING
DIVISION 3	CONCRETE
03100	CONCRETE FORMWORK
03200	CONCRETE REINFORCEMENT
03310	CONCRETE, MASONRY, MORTOR and GROUT

END OF SECTION

1 STS-01010 – SUMMARY OF WORK

1.1 PART 1 – GENERAL

Background

A. The WRF is designed with two separately located Electrical Rooms with standby emergency backup power generators. Each Electrical Room has independent electrical services with a combined total emergency standby nameplate power capacity of 2700 KW. Electrical Room #1 has one utility feed with one 1500 KVA transformer housed in an indoor FPL utility vault. The switchgear for Electrical Room #1 is served by a 1200 KW diesel generator for emergency standby power. Electrical Room #2 has two utility feeds each with one 1500 KVA FPL transformers that are located outdoors. The switchgear for Electrical Room #2 is served by a 1500 KW diesel generator for emergency standby power. The combined emergency standby nameplate power capacity for the plant is currently 2700 KW.

Project Justification

B. In May of 2020, the CONSULTANT analyzed the existing generator systems and delivered a Technical Memo (TM) to the City which holistically analyzed the existing generator systems and made recommendations accordingly. Based on the findings outlined in the TM, it was determined that the existing generator systems have reached end-of-life. As the WRF is considered critical infrastructure, it is deemed necessary to proactively replace the existing generator systems to alleviate issues with cooling systems, exhaust systems, diesel fuel delivery to the generator, the potential for diesel fuel leakage and the resultant environmental impact and leverage modern advances in paralleling generator controls technology, power capacity flexibility, the opportunity to re-purpose existing space, and the relatively favorable capital, operating, and maintenance costs for outdoor systems. Also, there are numerous operational advantages to abandoning all of the old existing diesel lines and above ground storage tanks in lieu of integrated diesel storage tanks on the generators.

1.1.1 Description of Work and Major Equipment

A. This project will replace the two existing stand-alone generators with four generators connected in parallel. The generators, generator platform, and generator remote-mounted annunciators will be provided by the CITY.

B. Construction of the concrete pad for the four generators.

C. Purchase and installation of the custom generator tap box and generator remote input/output control panel (RIO-ANX).

D. Purchase and installation of the transformer (XFMR-ANX) and panelboard (DP-ANX) to supply 120/240V aux. power and networking for the generators.

E. Installation of four 600 kW generators on a common pad/platform as well as the panels, conduit, duct work, pull boxes, and cabling to connect the new generators to the existing power distribution equipment in electrical rooms #1 and #2.

F. Removal of the 1200 kW generator #1. Upon removal the generator is to be turned over to the CITY. Demo of the diesel lines and all appurtenances in generator room #1 including the roof mounted exhaust fans and external radiator.

G. Replace the roof of generator room #1. Generator room #1 will be renamed electrical room #1 annex.

H. Removal of the 1500 kW generator #2. Upon removal the generator is to be turned over to the CITY. Demo of the diesel lines and all appurtenances in generator room #2. Generator room #2 will be cleared out and become an extension to the blowers room.

I. All programming, system integration, switchgear control and wiring modifications will be provided by others.

J. The demolition of the existing outdoor diesel tanks, concrete pad under the existing diesel tanks, monitoring wells around the existing diesel tanks, and soil remediation, as needed.

1.1.2 Provided by Others

A. Systems Integration

B. Systems integration of the GENERATORS will be provided by others, to include
   1. Generator Control Panel PLC programming
   2. CP-SWGR Operator Interface Terminal programming
   3. Ethernet and Modbus communications network setup
   4. Switchgear generator transfer commissioning
   5. SCADA HMI programming modifications

C. Engineering Analyses
   1. Short Circuit Analysis
   2. Arc Flash Analysis
   3. Protective Device and Selective Coordination Analysis

1.1.3 Construction Staging

A. There will be limited planned downtime during construction. Therefore, the CONTRACTOR shall be required to follow a detailed construction staging plan to ensure the least amount of equipment downtime during the construction process.

B. The existing 1250KW Generator #2 will be utilized for plant backup power while the new generators are installed. The CONTRACTOR shall provide a temporary fuel tank while the old tanks are removed and the new generators are installed with fuel storage for the following runtimes:

   1. 5,000 Gallons fuel storage before 6/1/23

   2. 7,500 Gallons fuel storage after 6/1/23

1.1.4 The Work includes

A. The Work to be done under this Contract is shown on the Plans and specified in Contract Documents.

B. Furnishing all labor, material, supervision, power, light, heat, fuel, water, tools, appliances, equipment, supplies, services and other means of construction necessary or proper for performing and completing the Work.

C. Maintaining the Work area and site in a clean and acceptable manner.

D. Maintaining existing facilities in service per the Construction Staging Plan.

E. Protection of finished and unfinished Work.

F. Repair and restoration of Work or existing facilities damaged during construction.

G. Furnishing as necessary proper equipment and machinery to facilitate the Work and to handle all emergencies normally encountered in Work of this character.

H. Furnishing, installing, and protecting all necessary appurtenances needed for the installation of the devices included in the equipment specified. Make anchor bolts of appropriate size, strength and material for the purpose intended. Furnish substantial templates and shop drawings for installation.

I. Implied and Normally Required Work

1. It is the intent of these Specifications to provide the CITY with complete operable systems, subsystems, and other items of Work. Any part or item of Work, which is reasonably implied or normally required to make each installation satisfactorily and completely operable, is deemed to be included in the Work and the Contract Amount. All miscellaneous appurtenances and other items of Work incidental to meeting the intent of these Specifications are included in the Work and the Contract Amount even though these appurtenances may not be specifically called for in these Specifications.

J. Quality of Work

1. Regard the apparent silence of the Contract Documents as to any detail, or the apparent omission from them of a detailed description concerning any Work to be done and materials to be furnished as meaning that only the best general practice is to prevail and that only materials and workmanship of the best quality are to be used. Interpretation of these specifications will be made upon this basis.

K. CONTRACTOR's Use of Site

1. In addition to the requirements of the General Conditions, limit use of site and premises for work to allow for the following:

2. Coordination of the Work under this CONTRACT with the work of the other CONTRACTORs where Work under this CONTRACT encroaches on the Work of other CONTRACTORs.

3. The CONTRACTOR may utilize on-site storage for the new equipment, as needed.

1.1.5 Work Sequence

Prior to commencing construction that will impact any operations at the plant, the CONTRACTOR shall submit to the ENGINEER for review a Construction Staging Plan designed to ensure that existing plant operations are maintained to the maximum extent possible. This Construction Staging Plan must be approved by the ENGINEER before the CONTRACTOR begins construction.

Coordinate Work of all the SUBCONTRACTORS.

CITY Occupancy

OWNER will occupy premises during entire period of construction in order to maintain normal operations. Cooperate with OWNER's representative in all construction operations to minimize conflict and to facilitate OWNER usage.

CONTRACTOR'S USE OF SITE

In addition to the requirements of the Supplemental Terms and Conditions, limit use of site and premises for

work and storage to allow for the following:

Coordination of the Work under this CONTRACT with the work of the other CONTRACTORs where Work under this CONTRACT encroaches on the Work of other CONTRACTORs.

CITY occupancy and access to operate existing facilities.

Coordination of site use with the OWNER.

Responsibility for protection and safekeeping of products under this CONTRACT.

Providing additional off-site storage at no additional cost to the CITY as needed.

Use of Premises

CONTRACTOR shall confine all construction equipment, the storage of materials and equipment and the operations of workers to the Project Site and land and areas identified in and permitted by the Contract Documents and other lands and areas permitted by law, rights of way, permits and easements, and shall not unreasonably encumber the Project site with construction equipment or other material or equipment. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or any land or areas contiguous thereto, resulting from the performance of the Work.

WORK SEQUENCE

The new generator installation will be completed before the removal of the old generators. Coordinate Work of all Sub-CONTRACTORs.

CITY OCCUPANCY

The CITY will occupy premises during entire period of construction in order to maintain normal operations. Cooperate with the CITY in all construction operations to minimize conflict, and to facilitate CITY usage.

PROTECTION OF EXISTING UTILITIES

In case of damage to existing utilities caused by construction activities, contact the owner of the utility or appropriate CITY department immediately. Repair any damage to existing utilities caused by construction activities in coordination with or as directed by the owner of the utility. CONTRACTOR shall locate all existing roadways, railways, drainage facilities and utility services above, upon, or under the Project site, said roadways, railways, drainage facilities and utilities being referred to in this Section as the "utilities". CONTRACTOR shall contact the owners of all Utilities to determine the necessity for relocating or temporarily interrupting any Utilities during the construction of the Project. CONTRACTOR shall schedule and coordinate its Work around any such relocation or temporary service interruption. CONTRACTOR shall be responsible for properly shoring, supporting and protecting all Utilities at all times during the course of the Work. The CONTRACTOR shall conduct his work at all times such that adequate drainage is provided and shall not interfere with or block existing drainage facilities such as gutters, ditches, storm drains, or other drainage appurtenances. Existing fire hydrants adjacent to the project shall be kept accessible for fire apparatus at all times and no material or equipment shall be placed within 25 feet of any hydrant.

1.2 PART 2 – PRODUCTS

See Section STS-01140 for acceptable equipment suppliers.

1.3 PART 3 – EXECUTION

1.3.1 Starting Work

Start Work within 10 days following the date stated in the Notice to Proceed and execute with such progress as may be required to prevent delay to other CONTRACTORs or to the general completion of the project. Execute Work at such items and in or on such parts of the project, and with such forces, material and equipment, as to complete the Work in the time established by the Contract. At all times, schedule and direct the Work so that it provides an orderly progression to completion within the specified time for completion. The CONTRACTOR shall obtain all necessary building permits prior to commencement of work. The CONTRACTOR shall become totally familiar with the requirements of all permits prior to start of work.

1.3.2 Intent of Contract Documents

It is the intent of the Contract Documents to describe a functionally complete project (or portion thereof) to be constructed in accordance with the Contract Documents. Any work, materials or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result shall be supplied whether or not specifically called for. When words which have a well-known technical or trade meaning are used to describe work, materials or equipment, such works shall be interpreted in accordance with that meaning. Reference to standards specifications, manuals or codes of any technical society, organization or association or to the laws or regulations of any governmental authority having jurisdiction over the Project, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code, law or regulation in affect at the time the Work is performed, except as may be otherwise specifically stated herein. If before or during the performance of the Work CONTRACTOR discovers a conflict, error or discrepancy in the Contract Documents, CONTRACTOR immediately shall report same to the ENGINEER in writing and before proceeding with the Work affected thereby shall obtain a written interpretation or clarification from the ENGINEER. CONTRACTOR shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to CONTRACTOR with the Contract Documents before commencing any portion of the Work. Drawings are intended to show general arrangements, design and extent of work and are not intended to serve as shop drawings. Specifications are separated into divisions for convenience of reference only and shall not be interpreted as establishing divisions for the Work, trades, subcontracts, or extent of any part of the Work. In the event of a discrepancy between or among the drawings, specifications or other Contract Document provisions, CONTRACTOR shall be required to comply with the provision which is the more restrictive or stringent requirement upon the CONTRACTOR, as determined by the ENGINEER. Unless otherwise specifically mentioned, all anchors, bolts, screws, fittings, fillers, hardware, accessories, trim and other parts required in connection with any portion of the Work to make a complete, serviceable, finished and first quality installation shall be furnished and installed as part of the Work, whether or not called for by the Contract Documents.

1.3.3 Investigation and Utilities

CONTRACTOR shall have the sole responsibility of satisfying itself concerning the nature and location of the Work and the general and local conditions, and particularly, but without limitation, with respect to the following: those affecting transportation, access, disposal, handling and storage of materials; availability and quality of labor; water and electric power; availability and condition of roads; work area; living facilities; climatic conditions and seasons; physical conditions at the work-site and the project area as a whole; topography and ground surface conditions; nature and quantity of the surface materials to be encountered; subsurface conditions; equipment and facilities needed preliminary to and during performance of the Work; and all other costs associated with such performance. The failure of CONTRACTOR to acquaint itself with any applicable conditions shall not relieve CONTRACTOR from any of its responsibilities to perform under the Contract Documents, nor shall it be considered the basis for any claim for additional time or compensation.

1.3.4 SCHEDULE

The CONTRACTOR, within ten (10) days after receipt of the Notice of Award, shall prepare and submit to the ENGINEER for review and approval, a progress schedule for the project. The Progress Schedule shall relate to all Work required by the Contract Documents and shall provide for expeditious and practicable execution of the Work within the Contract Time. The Progress Schedule shall indicate the dates for starting and completing the various stages of the Work. The Progress Schedule shall be updated monthly by the CONTRACTOR. All

monthly updates to the Progress Schedule shall be subject to the ENGINEER's review and approval. CONTRACTOR shall submit the updates to the Progress Schedule with its monthly Applications for Payment noted below. The ENGINEER's review and approval of the submitted Progress Schedule updates shall be a condition precedent to the CITY's obligation to pay the CONTRACTOR.

1.3.5 SUBMITTALS AND SHOP DRAWINGS

CONTRACTOR shall carefully examine the Contract Documents for all requirements for approval of materials to be submitted such as shop drawings, data, test results, schedules and samples. CONTRACTOR shall submit all such materials at its own expense and in such form as required by the Contract Documents in sufficient time to prevent any delay in the delivery of such materials and the installation thereof. Whenever materials or equipment are specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular supplier, the naming of the item is intended to establish the type, function and quality required. Unless the name is followed by words indicating that no substitution is permitted, materials or equipment of other suppliers may be accepted by the ENGINEER if sufficient information is submitted by CONTRACTOR to allow the ENGINEER to determine that the material or equipment proposed is equivalent or equal to that named. Requests for review of substitute items of material and equipment will not be accepted by the ENGINEER from anyone other than CONTRACTOR and all such request must be submitted by CONTRACTOR to the ENGINEER within thirty (30) calendar days after Notice of Award is received by CONTRACTOR. If CONTRACTOR wishes to furnish or use a substitute item of material or equipment, CONTRACTOR shall make application to the ENGINEER for acceptance thereof, certifying that the proposed substitute shall perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified and be suited to the same use as that specified. The application shall state that the evaluation and acceptance of the proposed substitute will not prejudice CONTRACTOR's achievement of substantial completion on time, whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with the CITY for the Project) to adapt the design to the proposed substitute and whether or not the incorporation or use by the substitute in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service shall be indicated. The application also shall contain an itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including costs for redesign and claims of other CONTRACTORs affected by the resulting change, all of which shall be considered by the ENGINEER in evaluating the proposed substitute. The ENGINEER may require CONTRACTOR to furnish at CONTRACTOR's expense additional data about the proposed substitute. If a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, method, sequence, technique or procedure of construction acceptable to the ENGINEER, if CONTRACTOR submits sufficient information to allow the ENGINEER to determine that the substitute proposed is equivalent to that indicated or required by the Contract Documents. The procedures for submission to and review by the ENGINEER shall be the same as those provided herein for substitute materials and equipment. The ENGINEER shall be allowed a reasonable time within which to evaluate each proposed substitute. The ENGINEER shall be the sole judge of acceptability, and no substitute will be ordered, installed or utilized without the ENGINEER's and the CITY's prior written acceptance which shall be evidenced by either a Change Order or an approved Shop Drawing. The CITY may require CONTRACTOR to furnish at CONTRACTOR's expense a special performance guarantee or other surety with respect to any substitute.

1.3.6 RECORDS

CONTRACTOR shall maintain in a safe place at the Project site one record copy of the Contract Documents, including all drawings, specifications, addenda, amendments, Change Orders, Work Directive Changes and Field Orders, as well as all written interpretations and clarifications issued by the ENGINEER, in good order and annotated to show all changes made during construction. The annotated drawings shall be continuously updated by the CONTRACTOR throughout the prosecution of the Work to accurately reflect all field changes that are made to adapt the Work to field conditions, changes resulting from Change Orders, Work Directive Changes and Field Orders, and all concealed and buried installations of piping, conduit and utility services. All

buried and concealed items, both inside and outside the Project site, shall be accurately located on the annotated drawings as to depth and in relationship to not less than two (2) permanent features (e.g. interior or exterior wall faces). The annotated drawings shall be clean, and all changes, corrections and dimensions shall be given in a neat and legible manner in a contrasting color. The "As-Built" record documents, together with all approved samples and a counterpart of all approved shop drawings shall be available to the ENGINEER for reference. Upon completion of the Work and as a condition precedent to the CONTRACTOR's entitlement to final payment, these "As-Built" record documents, samples and shop drawings shall be delivered to the ENGINEER by CONTRACTOR. CONTRACTOR shall keep all records and supporting documentation which concern or relate to the Work hereunder for a minimum of five (5) years from the date of termination of this Agreement or the date the Project is completed, whichever is later. The CITY, or any duly authorized agents or representatives of the CITY, shall have the right to audit, inspect and copy all such records and documentation as often as they deem necessary during the period of this Agreement and during the five (5) year period noted above; provided, however, such activity shall be conducted only during normal business hours.

1.3.7 Contract Time and Time Extensions

Should CONTRACTOR be obstructed or delayed as a result of unforeseeable causes beyond the control of the CONTRACTOR, CONTRACTOR shall notify the CITY in writing within forty-eight (48) hours after the commencement of such delay, stating the cause or causes thereof, or be deemed to have waived any right which CONTRACTOR may have had to request a time extension. No suspension or delay in the commencement or progress of the Work shall relieve the CONTRACTOR of the duty to perform or to any right to damages or additional compensation from the CITY. CONTRACTOR expressly acknowledges and agrees that it shall receive no damages for delay. CONTRACTOR's sole remedy, if any, against the CITY will be the right to seek an extension to the Contract Time, provided, however, the granting of any such time extension shall not be a condition precedent to the aforementioned "No Damage For Delay" provision. This paragraph shall expressly apply to claims for early completion, as well as to claims based on late completion.

1.3.8 Changes in Work

The CITY shall have the right at any time during the progress of the Work to increase or decrease the Work. Promptly after being notified of a change, CONTRACTOR shall submit an itemized estimate of any cost or time increases or savings it foresees as a result of the change. Except in an emergency endangering life or property, or as expressly set forth herein, no addition or changes to the Work shall be made except upon written order of the CITY, and the CITY shall not be liable to the CONTRACTOR for any increased compensation without such written order.

1.3.9 Claims and Disputes

A claim is a demand or assertion by one of the parties seeking an adjustment or interpretation of the terms of the Contract Documents, payment of money, extension of time or other relief with respect to the terms of the Contract Documents. The term "Claim" also includes other disputes and matters in question between the CITY and CONTRACTOR arising out of or relating to the Contract Documents. The responsibility to substantiate a Claim shall rest with the party making the Claim. Claims by the CONTRACTOR shall be made in writing to the CITY within forty-eight (48) hours after the first day of the event giving rise to such Claim or else the CONTRACTOR shall be deemed to have waived the Claim. Written supporting data shall be submitted to the CITY within fifteen (15) calendar days after the occurrence of the event, unless the CITY grants additional time in writing, or else the CONTRACTOR shall be deemed to have waived the Claim. The CONTRACTOR shall proceed diligently with its performance as directed by the CITY, regardless of any pending claim, action, suit or administrative proceeding, unless otherwise agreed to by the CITY in writing. The CITY shall continue to make payments in accordance with the Contract Documents during the pendency of any Claim. Other Work: The CITY may perform other work related to the Project at the site by the CITY's own forces, have other work performed by utility owners or let other direct contracts. If the fact that such other work is to be performed is not noted in the Contract Documents, written notice thereof will be given to CONTRACTOR prior to starting any such other work. If CONTRACTOR believes that such performance will involve additional expense to CONTRACTOR or require additional time, CONTRACTOR shall send written

notice of that fact to the CITY within forty-eight (48) hours of being notified of the other work. If the CONTRACTOR fails to send the above required forty-eight (48) hour notice, the CONTRACTOR will be deemed to have waived any rights it otherwise may have had to seek an extension to the Contract Time or adjustment to the Contract Amount. CONTRACTOR shall afford each utility owner and other CONTRACTOR who is a party to such a direct contract (or the CITY, if the CITY is performing the additional work with the CITY's employees) proper and safe access to the site and a reasonable opportunity for execution of such work and shall properly connect and coordinate its Work with theirs. CONTRACTOR shall do all cutting, fitting and patching of the Work that may be required to make its several parts come together properly and integrate with such other work. CONTRACTOR shall not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of the ENGINEER and the others whose work will be affected. The duties and responsibilities of CONTRACTOR under this paragraph are for the benefit of such utility owners and other CONTRACTORs to the extent that there are comparable provisions for the benefit of CONTRACTOR in said direct contracts between the CITY and such utility owners and other CONTRACTORs. If any part of CONTRACTOR's Work depends for proper execution or results upon the work of any other CONTRACTOR or utility owner (or the CITY), CONTRACTOR shall inspect and promptly report to the ENGINEER in writing any delays, defects or deficiencies in such work that render it unavailable or unsuitable for such proper execution and results. CONTRACTOR's failure to report will constitute an acceptance of the other work as fit and proper for integration with CONTRACTOR's Work.

1.3.10 Compliance with Laws

CONTRACTOR agrees to comply, at its own expense, with all federal, state and local laws, codes, statutes, ordinances, rules, regulations and requirements applicable to the Project, including but not limited to those dealing with taxation, worker's compensation, equal employment and safety (including, but not limited to, the Trench Safety Act, Chapter 553, Florida Statutes). If CONTRACTOR observes that the Contract Documents are at variance therewith, it shall promptly notify the ENGINEER in writing.

1.3.11 Assignment

CONTRACTOR shall not assign this Agreement or any part thereof, without the prior consent in writing of the CITY. If CONTRACTOR does, with approval, assign this Agreement or any part thereof, it shall require that its assignee be bound to it and to assume toward CONTRACTOR all of the obligations and responsibilities that CONTRACTOR has assumed toward the CITY.

1.3.12 Permits, Licenses and Taxes

Pursuant to Section 218.80, F.S., the CITY will pay for all permits and fees, including license fees, permit fees, impact fees or inspection fees applicable to the work. CONTRACTOR is not responsible for paying for permits issued by The CITY of Naples but is responsible for acquiring all permits. All permits, fees and licenses necessary for the prosecution of the Work which are not issued by the CITY shall be acquired and paid for by the CONTRACTOR unless otherwise noted.

1.3.13 Termination for Default

CONTRACTOR shall be considered in material default of the Agreement and such default shall be considered cause for the CITY to terminate the Agreement, in whole or in part, as further set forth in this Section, if CONTRACTOR:

Fails to begin the Work under the Contract Documents within the time specified herein;

Fails to properly and timely perform the Work as directed by the ENGINEER or as provided for in the approved Progress Schedule;

Performs the Work unsuitably or neglects or refuses to remove material or to correct or replace such Work as may be rejected as unacceptable or unsuitable;

Discontinues the prosecution of the Work;

Fails to resume Work which has been suspended within a reasonable time after being notified to do so;

Becomes insolvent or is declared bankrupt, or commits any act of bankruptcy

Allows any final judgment to stand against it unsatisfied for more than ten days

Makes an assignment for the benefit of creditors

Fails to obey any applicable codes, laws, ordinances, rules or regulations with respect to the Work;

Materially breaches any other provision of the Contract Documents.

The CITY shall notify CONTRACTOR in writing of CONTRACTOR's default(s). If the CITY determines that CONTRACTOR has not remedied and cured the default(s) within seven (7) calendar days following receipt by CONTRACTOR of said written notice, then the CITY, at its option, without releasing or waiving its rights and remedies against the CONTRACTOR's sureties and without prejudice to any other right or remedy it may be entitled to hereunder or by law, may terminate CONTRACTOR's right to proceed under the Agreement, in whole or in part, and take possession of all or any portion of the Work and any materials, tools, equipment, and appliances of CONTRACTOR, take assignments of any of CONTRACTOR's subcontracts and purchase orders, and complete all or any portion of CONTRACTOR's Work by whatever means, method or agency which the CITY, in its sole discretion, may choose. If the CITY deems any of the foregoing remedies necessary, CONTRACTOR agrees that it shall not be entitled to receive any further payments hereunder until after the Project is completed. All monies expended and all of the costs, losses, damages and extra expenses (including ENGINEER and attorney's fees) or damages incurred by The CITY incident to such completion, shall be deducted from the Contract Amount, CONTRACTOR agrees to pay promptly to the CITY on demand the full amount (including appeals) and interest thereon at the maximum legal rate of interest until paid. If the unpaid balance of the Contract Amount exceeds all such costs, expenditures and damages incurred by the CITY to complete the Work, such excess shall be paid to the CONTRACTOR. The amount to be paid to the CONTRACTOR, shall be approved by the ENGINEER, upon application, and this obligation for payment shall survive termination of the Agreement. The liability of CONTRACTOR hereunder shall extend to and include the full amount of any and all sums paid, expenses and losses incurred, damages sustained, and obligations assumed by The CITY in good faith under the belief that such payments or assumptions were necessary or required, in completing the Work and providing labor, materials, equipment, supplies, and other items therefore or re-letting the Work, and in settlement, discharge or compromise of any claims, demands suits, and judgments pertaining to or arising out of the work hereunder. If, after notice of termination of CONTRACTOR's right to proceed pursuant to this Section, it is determined for any reason that CONTRACTOR was not in default, or that its default was excusable, or that the CITY is not entitled to the remedies against CONTRACTOR provided herein, then CONTRACTOR's remedies against the CITY shall be the same as and limited to those afforded CONTRACTOR under "Completion" section below.

1.3.14 Termination for Convenience and Right of Suspension

The CITY shall have the right to terminate this Agreement without cause upon seven (7) calendar days written notice to CONTRACTOR. In the event of such termination for convenience, CONTRACTOR's recovery against the CITY shall be limited to that portion of the Contract Amount earned through the date of termination, together with any retainage withheld and reasonable termination expenses incurred, but CONTRACTOR shall not be entitled to any other or further recovery against the CITY, including, but not limited to, damages or any anticipated profit on portions of the Work not performed. The CITY shall have the right to suspend all or any portions of the Work upon giving CONTRACTOR not less than two (2) calendar days' prior written notice of such suspension. If all or any portion of the Work is so suspended, CONTRACTOR's sole and exclusive remedy shall be to seek an extension of time to its schedule in accordance with the procedures set forth in the Contract Documents. In no event shall the CONTRACTOR be entitled to any additional compensation or damages. Provided, however, if the ordered suspension exceeds

six (6) months, the CONTRACTOR shall have the right to terminate the Agreement with respect to that portion of the Work which is subject to the ordered suspension.

1.3.15 Completion

When the entire Work (or any portion thereof designated in writing by the CITY) is ready for its intended use, CONTRACTOR shall notify the ENGINEER in writing that the entire Work (or such designated portion) is substantially complete and request that the ENGINEER issue a Certificate of Substantial completion (or Certificate of Partial Substantial Completion). Within a reasonable time thereafter, the CITY, CONTRACTOR and ENGINEER shall make an inspection of the Work (or designated portion thereof) to determine the status of completion. If the CITY and ENGINEER do not consider the Work (or designated portion) substantially complete, the ENGINEER shall notify CONTRACTOR in writing giving the reasons therefore. If the CITY and ENGINEER consider the Work (or designated portion) substantially complete, the ENGINEER shall prepare and deliver to CONTRACTOR a Certificate of Substantial Completion (or Certificate of Partial Substantial Completion) which shall fix the date of Substantial Completion for the entire Work (or designated portion thereof) and include a tentative punch list of items to be completed or corrected by CONTRACTOR before final payment. The CITY shall have the right to exclude CONTRACTOR from the Work and Project site (or designated portion thereof) after the date of Substantial Completion, but the CITY shall allow CONTRACTOR reasonable access to complete or correct items on the tentative punchlist. Upon receipt of written certification by CONTRACTOR that the Work is completed in accordance with the Contract Documents and is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the ENGINEER will make such inspection and, if he finds the Work acceptable and fully performed under the Contract Documents, he shall promptly issue a final Certificate for Payment, recommending that, on the basis of his observations and inspection, and the CONTRACTOR's certification that the Work has been completed in accordance with the terms and conditions of the Contract Documents, that the entire balance found to be due CONTRACTOR is due and payable. Neither the final payment nor the retainage shall become due and payable until CONTRACTOR submits: all data establishing payment or satisfaction of al obligations, such as receipts, releases and waivers of liens, arising out of the Contract Documents, to the extent and in such form as may be designated by the CITY. The CITY reserves the right to inspect the Work and make an independent determination as to the Work's acceptability, even though the ENGINEER may have issued his recommendations. Unless and until the CITY is completely satisfied, neither the final payment nor the retainage shall become due and payable.

1.3.16 Warranty

CONTRACTOR shall obtain and assign to the CITY all express warranties given to CONTRACTOR or any SUBCONTRACTORS by any materialmen supplying materials, equipment or fixtures to be incorporated into the project. CONTRACTOR warrants to the CITY that any materials and equipment furnished under the Contract Documents shall be new unless otherwise specified, and that all Work shall be of good quality, free from all defects and in conformance with the Contract Documents. CONTRACTOR further warrants to the CITY that all materials and equipment furnished under the Contract Documents shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable manufacturers, fabricators, suppliers or processors except as otherwise provided for in the Contract Documents. If, within one (1) year after final completion, any Work is found to be defective or not in conformance with the Contract Documents, CONTRACTOR shall correct it promptly after receipt of written notice from the CITY. CONTRACTOR shall also be responsible for and pay for replacement or repair of adjacent materials or Work which may be damaged as a result of such replacement or repair. These warranties are in addition to those implied warranties to which the CITY is entitled as a matter of law.

1.3.17 Supervision

CONTRACTOR shall plan, organize, supervise, schedule, monitor, direct and control the work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the work in accordance with the contract documents. CONTRACTOR shall be responsible to see that

the finished work complies accurately with the Contract Documents. CONTRACTOR shall keep on the Work at all times during its progress a competent resident superintendent, who shall not be replaced without prior written notice to the ENGINEER except under extraordinary circumstances. The superintendent shall be CONTRACTOR's representative at the Project site and shall have authority to act on behalf of CONTRACTOR. All communications given to the superintendent shall be as binding as if given to the CONTRACTOR. The CITY shall have the right to direct CONTRACTOR to remove and replace its Project superintendent, with or without cause.

Protection of Work

CONTRACTOR shall fully protect the Work from loss or damage and shall bear the cost of any such loss or damage until final payment has been made. If CONTRACTOR or any one for whom CONTRACTOR is legally liable for is responsible for any loss or damage to the Work, or other work or materials of the CITY or the CITY's separate CONTRACTORs, CONTRACTOR shall be charged with the same, and any monies necessary to replace such loss or damage shall be deducted from any amounts due CONTRACTOR. CONTRACTOR shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall CONTRACTOR subject any part of the Work or adjacent property to stresses or pressures that will endanger it. CONTRACTOR shall not disturb any benchmark established by the ENGINEER with respect to the Project. If CONTRACTOR, or its SUBCONTRACTORS, agents or anyone for whom CONTRACTOR is legally liable, disturbs the ENGINEER's benchmark, CONTRACTOR shall immediately notify The CITY and ENGINEER. The ENGINEER shall re-establish the benchmark and CONTRACTOR shall be liable for all costs incurred by The CITY associated therewith.

1.3.18 Emergencies

In the event of an emergency affecting the safety or protection of persons or Work or property at the Project site of adjacent thereto, CONTRACTOR, without special instructions or authorization from the CITY or ENGINEER is obligated to act to prevent threatened damage, injury or loss. CONTRACTOR shall give ENGINEER written notice within forty-eight (48) hours after the occurrence of the emergency, if CONTRACTOR believes that after the occurrence of the emergency, if CONTRACTOR believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby. If the ENGINEER determines that a change in the Contract Documents is required because of the action taken in response to an emergency, a Change Order shall be issued to document the consequences of the changes or variations. If CONTRACTOR fails to provide the forty- eight (48) hour written notice noted above, the CONTRACTOR shall be deemed to have waived any right it otherwise may have had to seek an adjustment to the Contract Amount or an extension to the Contract Time.

1.3.19 Project Meetings

Prior to the commencement of Work, the CONTRACTOR shall attend a preconstruction conference with the ENGINEER and others as appropriate to discuss the Progress Schedule, procedures for handling shop drawings and other submittals, and for processing Applications for Payment, and to establish a working understanding among the parties as to the Work. During the prosecution of the Work, the CONTRACTOR shall attend any and all meetings convened by the ENGINEER or the CITY with respect to the Project, when directed to do so. CONTRACTOR shall have its SUBCONTRACTORS and suppliers attend all such meetings (including the preconstruction conference) as may be directed by the CITY or ENGINEER.

1.3.20 Hours of Work

Work within the travelled way of the project shall commence no earlier than 7:00 a.m. local time and be completed no later than 7:00 p.m. local time. Hours of work may be altered at any time at the discretion of the CITY.

1.3.21 Tax Exemption

The CITY of Naples is exempt from the payment of sales or use tax. The tax exemption certificate number is: 85-8012621645C-0.

1.4 PART 4 – SAFETY

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

All employees on the Work and other persons and/or organizations who may be affected thereby.

All the Work and materials and equipment to be incorporated therein, whether in storage on or off the Project site; and

Other property on Project site or adjacent thereto, including trees, shrubs, walks, pavements, roadways, structures, utilities and any underground structures or improvements not designated for removal, relocation or replacement in the Contract Documents.

CONTRACTOR shall comply with all applicable codes, laws, ordinances, rules and regulations of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss. CONTRACTOR shall erect and maintain all necessary safeguards for such safety and protection. CONTRACTOR shall notify owners of adjacent property and of underground structures and improvements and utility-owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation or replacement of their property. CONTRACTOR's duties and responsibilities for the safety and protection of the Work shall continue until such time as the Work is completed and final acceptance of same by The CITY has occurred.

CONTRACTOR shall designate a responsible representative at the Project site whose duty shall be the prevention of accidents. This person shall be CONTRACTOR's superintendent unless otherwise designated in writing by CONTRACTOR to The CITY.

END OF SECTION

1 STS-01026 – MEASUREMENT AND PAYMENT

1.1 PART 1 - GENERAL

1.1.1 EXPLANATION AND DEFINITIONS

A. The following explanation of the Measurement and Payment for the Bid Schedule items is made for information and guidance. The omission of reference to any item in this description shall not, however, alter the intent of the Bid Schedule or relieve the CONTRACTOR of the necessity of furnishing such as a part of the Contract. Measurement and payment for all Contract Items shall made be in accordance with this section or as modified by the Supplemental Terms and Conditions.

1.1.2 MEASUREMENT

A. The quantities set forth in the Bid Schedule are approximate and are given to establish a uniform basis for the comparison of bids. The CITY reserves the right to increase or decrease the quantity of any class or portion of the work during the progress of construction in accord with the terms of the Contract.

1.1.3 PAYMENT

A. Make payment for the items listed on the Bid Schedule on the basis of the work actually performed and completed, such work including but not limited to, the furnishing of all necessary labor, materials, equipment, transportation, clean up, restoration of disturbed areas, and all other appurtenances to complete the construction and installation of the work as shown on the drawings and described in the specifications.

B. Unit prices are used as a means of computing the final figures for bid and Contract purposes, for periodic payments for work performed, for determining value of additions or deletions and wherever else reasonable.

C. Revisions: With each Application for Payment, revise schedule to list approved Change Orders.

1.2 PART 2 – PRODUCTS

A. Acceptable product manufacturers are listed below:

1. Acceptable Lighting Panelboard Model/Manufacturer

   a. Schneider Electric NQ series, 120/240V, 1PH (DP-ANX)

2. Acceptable Lighting Transformer Model/Manufacturer

   a. Schneider Electric EE50S3H Dry type Low Voltage Transformer (XFMR-ANX)

3. Custom Control Panel fabrication shall be by BCI Technologies (RIO-ANX)
   6450 Corporate Park Circle, Ste 3
   Ft. Myers, FL 33966
   Attn: Dan Blocker (239) 707-0026

4. Custom Generators Tap Box Panel fabrication shall be by Industrial Electrical Mfg. (IEM), or equal
   Jacksonville, FL
   Attn: Matt Albert (904) 365-4464

B. The Owner reserves the right to direct-purchase any major equipment prior to Contract award at the Owner's discretion.

1.3 PART 3 – EXECUTION

1.3.1 MEASUREMENT AND PAYMENT

A. Make payment on the basis of work actually performed completing each item in the Bid, such work including, but not limited to, the furnishing of all necessary labor, materials, equipment, transportation, cleanup, and all other appurtenances to complete the construction and installation of the work to the configuration and extent as shown on the drawings and described in the specifications. Payment for each item includes compensation for cleanup and restorations. Cost of cleanup and surface restorations will be considered as the percentage retained in accordance with the Contract Documents, and complete payment will not be made until cleanup, restorations and as-builts are completed.

B. Payments will be made at the Contract lump sum price.

C. Prior to submitting first monthly Application for Payment, Contractor shall submit to Engineer, for review and approval, a schedule of values based upon the Contract Price, listing the major elements of the Work and the dollar value for each element. After its approval by the Engineer, this schedule of values shall be used as the basis for the Contractor's monthly Applications for Payment.

D. Prior to submitting first monthly Application for Payment, Contractor shall submit to The City a complete list of all its proposed subcontractors showing the work and materials involved and the dollar amount of each proposed subcontract and purchase order. The first Application for Payment shall be submitted no earlier than thirty (30) days after the Commencement Date.

E. If payment is requested on the basis of materials and equipment not incorporated into the Project, but delivered and suitably stored at the site or at another location agreed to by the City in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice or other documentation warranting that the City has received the materials and equipment free and clear of all liens, charges, security interests and encumbrances, together with evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect the City's interest therein, all of which shall be subject to the City's satisfaction.

F. Contractor shall submit their monthly Application for Payment to the Engineer on or before the 25th day of each month for work performed during the previous month. Invoices received after the 25th day of each month shall be considered for payment as part of the next month's application. Within ten (10) calendar days after receipt of each Application for Payment, the Engineer shall either:

1. indicate approval of the requested payment;

2. indicate approval of only a portion of the requested payment, stating in writing his reasons therefore; or

3. return the Application for Payment to the Contractor indicating, in writing, the reason for refusing to approve payment.

In the event of a total denial and return of the Application for Payment by the Engineer, the Contractor may make the necessary corrections and resubmit the Application for Payment. The City shall, within thirty (30) calendar days after the Engineer's approval of an Application for Payment, pay the Contractor the amounts so approved. Provided, however, in no event shall the City be obligated to pay any amount greater than that portion of the Application for Payment approved by the Engineer.

G. The City shall retain ten (10%) of the gross amount of each monthly payment request or ten percent

(10%) of the portion thereof approved by the Engineer for payment, whichever is less. Such sum shall be accumulated and not released to the Contractor until final payment is due.

H. Monthly payments to Contractor shall in no way imply approval or acceptance of Contractor's work.

I. Contractor agrees and understands that funding limitations exist and that the expenditure of funds must be spread over the duration of the Project at regular intervals based on the Contract Amount and Progress Schedule. Accordingly, prior to submitting its first monthly Application for Payment, Contractor shall prepare and submit for the Engineers review and approval, a detailed Project Funding Schedule, which shall be updated as necessary and approved by the City to reflect approved adjustments to the Contract Amount and Contract Time. No voluntary acceleration or early completion of the Work shall modify the time of payments to Contractor as set forth in the approved Project Funding Schedule.

1.3.2 PAYMENTS WITHHELD

A. The Engineer may decline to approve any Application for Payment, or portions thereof, because of subsequently discovered evidence or subsequent inspections. The Engineer may nullify the whole or any part of any approval for payment previously issued and the City may withhold any agreement between the City and Contractor, to such an extent as may be necessary in the City's opinion to protect it from loss because of:

1. Defective Work not remedied;
2. Third party claims filed or reasonable evidence indicating probable filing of such claims
3. Failure of Contractor to make payment properly to subcontractors or for labor, materials or equipment;
4. Reasonable doubt that the Work can be completed for the unpaid balance of the Contract Amount;
5. Reasonable indication that the Work will not be completed within the Contract Time;
6. Unsatisfactory prosecution of the Work by the Contractor; or
7. Any other material breach of the Contract Documents.

B. If these conditions in Subsection 5.1 are not remedied or removed, the City may, after three (3) days written notice, rectify the same at Contractor's expense. The City also may offset against any sums due Contractor the amount of any liquidated or unliquidated obligations of Contractor whether relating to or arising out of this Agreement or any other agreement between Contractor and the Engineer.

1.3.3 FINAL PAYMENT

A. The City shall make final payment to Contractor within thirty (30) calendar days after the Work is finally inspected and accepted by both the City and the Engineer in accordance with Section 20.1 herein provided that Contractor first, and as an explicit condition precedent to the accrual of Contractor's right to final payment, shall have furnished the City with any and all documentation that may be required by the Contract Documents and the City.

B. Contractor's acceptance of final payment shall constitute a full waiver of any and all claims by Contractor against the City arising out of this Agreement or otherwise relating to the Project, except those previously made in writing and identified by Contractor as unsettled at the time of the final Application for Payment. Neither the acceptance of the Work nor payment by the City shall be deemed to be a waiver of the City's right to enforce any obligations of Contractor hereunder or to the recovery of damages for defective Work not discovered by the Engineer at the time of final inspection.

END OF SECTION

1 STS-01440 – SPECIAL CONDITIONS

1.1 PART 1

1.1.1 CONTRACT TIME

A. OWNER desires the work to be completed under the following schedule:

1. The construction schedule shall allow the new generators to be operational to provide backup emergency power to both Switchgear #1 and Switchgear #2 by 6/1/23.
2. The new generators and platforms are scheduled to arrive onsite by 4/30/23.

1.1.2 SUBSTANTIAL COMPLETION

A. The following requirements and cleaning operations shall be completed before requesting inspection for Certification of Substantial Completion.

1. Construction shall be complete. For this purpose, completion of construction is defined as follows:

a. The CONTRACTOR has completed construction and erection of the work in conformance with the Contract Drawings and Specifications.

2. All shop drawings shall have final approval.

3. Clean the site of litter and other construction materials. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to smooth, even textured surfaces.

4. Remove waste and surplus materials, rubbish, fencing equipment, temporary utilities and construction facilities from the site, unless otherwise required by the ENGINEER.

5. CONTRACTOR shall be responsible for removal and disposal of all demoed equipment and materials.

B. Substantial Completion is officially defined in the General and Supplementary Conditions to the Construction Contract. The date of substantial completion will be certified by the ENGINEER. This date will not be certified until the following requirements have been satisfied by the CONTRACTOR.

1. All Contract requirements are coordinated into a fully operational system

1.1.3 FINAL COMPLETION

A. Prior to final completion, the following tasks shall be completed:

1. All items in the punch list shall be completed.

2. All Contract closeout documentation shall be submitted to and accepted by the ENGINEER.

1.1.4 UTILITIES OPERATIONS MANUAL

A. The City of Naples Utilities Specifications and Standards Manual (latest revision) shall be considered part of the Contract Documents, including all applicable detail drawings.

1.1.5 GENERAL INSURANCE REQUIREMENTS

A. The City of Naples and Johnson Engineering, Inc, shall be named as additional insured on the insurance certificate.

1.2 PART 2 - PRODUCTS

A. Major Equipment

1. All major equipment shall be from the same manufacturer.

B. The Owner reserves the right to direct purchase the major equipment prior to Contract award at the Owner's discretion.

1.3 PART 3 – QUALIFICATIONS

A. The CONTRACTOR shall be pre-qualified.

1.4 PART 4 - EQUIPMENT UNAVAILABILITY AND LIMITATIONS

A. A detailed construction staging plan is outlined in the Plans to limit the duration of planned downtime events. The CONTRACTOR shall confirm the feasibility of the proposed Construction Staging Plan in the Bid.

END OF SECTION

1 STS-26 05 00 – MATERIALS AND METHODS

1.1 PART 1 - GENERAL

1.1.1 SUMMARY

A. Section Includes: General requirements for providing basic electrical materials and methods.

B. Related Work Specified in Other Sections Includes:

1. Certain items of equipment, and various control devices including conduit and wiring which are indicated on electrical drawings to be connected, but are specified in other sections pertaining to plumbing, heating, ventilating, air conditioning, temperature control systems, process equipment, process control systems, and instrumentation. Install and connect these items to the electrical system as indicated or required in accordance with the Contract Documents.

C. Overall Application of Specifications: This Section applies to all sections of Division 26 and to other sections that include electrical equipment requirements except when in these individual sections requirements are otherwise specified to provide and install all materials necessary for a complete operational system.

D. Temporary Requirements: This Section applies to any temporary circuits, overcurrent devices, conduit, wiring, and other equipment required during changeover from existing to a new electrical system. This Section also applies to temporary rewiring of lighting and power circuits, instruments and devices.

1.1.2 SYSTEM DESCRIPTION

A. Design Requirements: Design requirements are specified in the applicable sections.

B. Performance Requirements: Performance requirements are specified in the applicable sections.

1.1.3 SUBMITTALS

A. General: Provide submittals for all electrical material and devices. Including the following:

1. Submit Technical Information Brochures at start of construction or within 30 days after Award of the Contract. Each brochure shall consist of an adequately sized, hard-cover, 3-ring binder for 8-1/2" X 11" sheets. Provide correct designation on outside cover and on end of brochure. When, in the judgment of the Engineer, one binder is not enough to adequately catalog all data, an additional binder will be required and data split as directed by the Engineer. Specific shop drawing submittals may be submitted separately after technical information brochures but before any equipment is purchased; provide index and schedule of shop drawings to be submitted within the technical information brochures.

2. First sheet in the brochure shall be a photocopy of the Electrical Index pages in these specifications. Second sheet shall be prepared by the Contractor, and shall list Project Addresses and phone numbers with key personnel for this project.

3. Provide reinforced separation sheets tabbed with the appropriate specification reference number.

4. The General Contractor shall review the brochures before submitting to the Engineer. No request for payment will be considered until the brochure has been submitted and reviewed completely.

5. Submit cost breakdown "Schedule of Values" for electrical work in the Technical Information Brochures. Cost of material and labor for each major item shall be shown.

6. Acceptance: When returned to Contractor, submittals will be marked with Engineer's stamp. If box marked "returned for correction resubmit" is checked, submittal is not approved and Contractor is to correct and resubmit as noted, otherwise submittal is approved and Contractor is to comply with notation making necessary corrections on submittal and resubmit for final record.

7. Note that the approval of shop drawings, or other information submitted in accordance with the requirements hereinbefore specified, does not assure that the Engineer, or any other Owner's Representative, attests to the dimensional accuracy or dimensional suitability of the material or equipment involved, the ability of the material or equipment involved or the Mechanical/Electrical performance of equipment. Approval of shop drawings does not invalidate the plans and specifications if in conflict with the submittal. It is the contractor's responsibility to request in writing and seek written approval from the engineer for all deviations of the plans and specifications.

B. Product Data and Information: Provide complete list of electrical equipment and materials to be furnished showing manufacturer, catalog number, size, type, voltage rating and other pertinent information.

1. Provide catalog data on manufacturer's standard equipment and materials. Clearly indicate on catalog cuts the equipment and devices being proposed.

2. Identification: Provide complete schedule and listing of system and equipment identification labels with legends.

3. Material shall not be ordered or shipped until the shop drawings have been approved.

4. The Engineer's shop drawing review shall be for conformance with the design concept of the project and compliance with the Specifications and the Drawings. Errors and omissions on approved shop drawings shall not relieve the Contractor from the responsibility of providing materials and workmanship required by the Specifications and the Drawings.

5. Shop drawings shall be stamped with the date checked by the contractor and a statement indicating that the shop drawings conform to the Specifications and the Drawings. This statement shall also list all exceptions to the Specifications and the Drawings. Shop drawings not so checked and noted shall be returned.

C. CONTRACTOR's Shop Drawings: Provide shop drawings on items manufactured for the Contract.

1. Provide connection diagram and schematic for each piece of electrical equipment. A manufacturer's standard connection diagram or schematic showing more than one method of connection is not acceptable unless it is clearly marked to show the intended method of connection.

2. Provide diagrams showing connections to field equipment. Clearly differentiate between manufacturer's wiring and field wiring.

3. Provide raceway layout drawings showing conduits, boxes, and panels which contain the conductors to be provided. Include schedules listing conduit sizes and conductor content and identification.

4. Where additions and modifications are made to existing equipment, provide drawings which include both retained existing equipment and new Work.

D. Coordination Drawings: Prepare to scale coordination drawings (1/4"=1'-0"); detailing major elements, components, and systems of electrical equipment and materials in relationship with other systems, installations, and building components. Indicate locations where space is limited for installation and access and where sequencing and coordination of installations are of importance to the efficient flow of

the Work, including but not necessarily limited to the following:

1. Indicate the proposed locations of major raceway systems, equipment, and materials. All dimensions shall be field verified at the job site and coordinated with the work of all other trades. Include the following:

   a. Clearances for servicing equipment, including space for equipment disassembly required for periodic maintenance.

   b. Exterior wall and foundation penetrations.

   c. Fire-rated wall and floor penetrations.

   d. Equipment connections and support details.

   e. Sizes and location of required concrete pads and bases.

E. Record Documents: Prepare record documents, and in addition to the requirements specified in Division 1. As the work progresses, legibly record all field changes on a set of Project Contract Drawings, (the "Record Drawings"). indicate installed conditions for:

1. Major raceway systems, size and location, for both exterior and interior; locations of control devices; distribution and branch electrical circuitry; and fuse and circuit breaker size and arrangements.

2. Equipment locations (exposed and concealed), dimensioned from prominent building lines.

3. Approved substitutions, and actual equipment and materials installed.

4. Record Drawings shall accurately show the installed condition of the following items: Power Riser Diagram(s). Equipment elevations (front views). Raceways and pullboxes. Conductor sizes and conduit fills. Control Wiring Diagram(s). Underground raceway and duct bank routing. Plan view, sizes and locations of distribution transformers and outdoor electrical equipment enclosure.

5. Submit a schedule of control wiring raceways and wire numbers, including the following information: Circuit origin, destination and wire numbers. Field wiring terminal strip names and numbers.

6. In addition to the schedule, provide point to point connection diagrams showing the same information submitted in the schedule of control wiring raceways including all designations and wire numbers. Comply with PLC tag designation on all instrumentation and control cabling in and out of PLC racks.

7. The schedule of control wiring raceways and wire numbers and the point to point connection diagrams shall be in electronic AutoCAD and Word format (i.e. no hand-written or drawn schedules, drawings, or diagrams will be accepted)

F. Operation and Maintenance Manuals: Prepare operation and maintenance manuals, and in addition to the requirements specified in other Divisions, include the following information for equipment items:

1. Description of function, normal operating characteristics and limitations, performance curves, engineering data and tests, and complete nomenclature and catalog numbers of replacement parts. Complete parts list with stock numbers, including spare parts. A complete bill of material supplied, including serial numbers, ranges and pertinent data.

2. Manufacturer's printed operating procedures to include start-up, break-in, and routine and normal operating instructions; regulation, control, stopping, shutdown, and emergency instructions; and summer and winter operating instructions. The operating instructions shall also incorporate a functional description of the entire system, with references to the systems schematic drawings and

instructions.

3. Maintenance procedures for routine preventative maintenance and troubleshooting; disassembly, repair, and reassembly; aligning and adjusting instructions.

4. A comprehensive index.

5. A complete "As Built" set of approved shop drawings.

6. A table listing of the "as left" settings for all timing relays and alarm and trip setpoints. A complete listing of As left programmable parameters for all drives, soft-starters and other microprocessor controlled equipment.

7. System schematic drawings "As Built", illustrating all components, piping and electric connections of the systems supplied under this Section.

1.1.4 QUALITY ASSURANCE

A. Codes: Provide all electrical Work in accordance with applicable local codes, regulations and ordinances. If there is a conflict between the requirements specified in the Contract Documents and the codes, follow the more stringent requirements as determined and approved.

B. Testing: As a minimum, provide standard factory and field tests for each type of equipment. Other tests may be specified in the applicable equipment section.

C. Labeling: Provide all electrical equipment and materials listed and approved by Underwriters Laboratories with the UL label or other OSHA recognized testing laboratories attached to it.

D. Standard Products: Unless otherwise indicated, provide electrical materials and equipment which are the standard products of manufacturers regularly engaged in the production of such materials and equipment. Provide the manufacturer's latest standard design that conforms to these Specifications. When two or more units of the same class of material and equipment are required, provide the products of the same manufacturer.

1.1.5 DELIVERY, STORAGE AND HANDLING

A. General: Deliver, store and handle all products and materials as specified in Division 1 and as follows:

1. Shipping and Packing: Provide materials and equipment suitably boxed, crated or otherwise completely enclosed and protected during shipment, handling, and storage. Clearly label such boxes, crates or enclosures with manufacturer's name, and name of material or equipment enclosed.

2. Acceptance at Site: Conform to acceptance requirements as required in Division 1. Repair or replace all materials and equipment damaged by handling and storage as directed at no additional Contract cost.

3. Storage and Protection: Protect materials and equipment from exposure to the elements and keep them dry at all times. Handle and store to prevent damage and deterioration in accordance with manufacturer's recommendations.

1.1.6 PROJECT CONDITIONS

A. General: The Drawings indicate the extent and general arrangement of the principal electrical elements, outlets and circuit layouts. Connect and install all electrical elements and devices to form a workable system as required by the Contract Documents whether the connections and installations are specifically stated in the Specifications or shown. Provide necessary materials and installation wherever required to conform to the specific requirements of the furnished equipment and for proper installation of the Work.

B. Schematics: In general the runs of feeders are shown schematically and are not intended to show exact routing and locations of raceways. Verify actual and final arrangement, equipment locations, and prepare circuit and raceway layouts before ordering materials and equipment. Equipment locations are approximate and are subject to modifications as determined by equipment dimensions.

C. Coordination of Work: Coordinate the Work so that the electrical equipment may be installed without altering building components, other equipment or installations.

D. Coordinate arrangement, mounting, and support of electrical equipment to allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated. To provide for ease of disconnecting the equipment with minimum interference to other installations. To allow the right of way for piping and conduit installed at the required slope. To clear connecting raceways, cables, wireways, cable trays, and busways of obstructions and of the working and access space of other equipment. Coordinate the installation of required supporting devices and set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed. Coordinate electrical testing of electrical, mechanical, and architectural items, so that functionally interdependent equipment and systems demonstrate successful interoperability.

E. Departure from Design: If departures are deemed necessary due to structural conditions, obstructions or other problems, provide details of such departures and the reasons for requesting approval as soon as practicable but not later than the submittal of the raceway layout drawings. Do not make any departures without written approval.

1.2 PART 2 – PRODUCTS (NOT USED)

1.3 PART 3 – EXECUTION

1.3.1 ROUGH-IN

A. Final location: verify final locations for rough-ins with field measurements, vendor shop drawings and with the requirements of the actual equipment to be connected.

B. The drawings are not intended to show exact locations of conduit runs. Coordinate the conduit installation with other trades and the actual supplied equipment.

C. Install each 3 phase circuit in a separate conduit unless otherwise shown.

D. Except where dimensions are shown, the locations of equipment, fixtures, outlets and similar devices shown on the drawings are approximate only. Exact locations shall be determined by the contractor and approved by the engineer during construction. Obtain information relevant to the placing of electrical work and in case of any interference with other work, proceed as directed by the engineer and furnish all labor and materials necessary to complete the work in an approved manner.

E. Surface mounted panel boxes, junction boxes, conduit, etc., shall be supported by spacers to provide a clearance between wall and equipment.

F. All floor mounted electrical equipment shall be placed on 4-inch thick (3/4-inch, 45 degree chamfer at all exposed edges) concrete pads, provide reinforcement, anchors, etc.

G. All "LB" type fitting hardware to be stainless steel. All junction box hardware to be aluminum or stainless steel only.

1.3.2 ELECTRICAL INSTALLATIONS

A. Sequence, coordinate, and integrate the various elements of electrical systems, materials, and equipment. Comply with the following requirements:

1. Coordinate electrical systems, equipment, and materials installation with other building components.

2. 2. Verify all dimensions by field measurements. Investigate each space in the structure through which equipment must pass to reach its final location.

3. Coordinate shipping splits with the manufacturer to permit safe handling and passage through restricted areas in the structure.

4. The equipment shall be kept upright at all times during storage and handling. When equipment must be tilted for passage through restricted areas, brace the equipment to ensure that the tilting does not impair the functional integrity of the equipment.

5. Arrange for chases, slots, and openings in other building components during progress of construction, to allow for electrical installations.

6. Coordinate the installation of required supporting devices and sleeves to be set in cast-in-place concrete and other structural components, as they are constructed.

7. Sequence, coordinate, and integrate installations of electrical materials and equipment for efficient flow of the work. Give particular attention to large equipment requiring positioning prior to closing in the building.

8. Where mounting heights are not detailed or dimensioned, install systems, materials, and equipment to provide the maximum headroom possible.

9. Coordinate connection of electrical systems with exterior underground and overhead utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies. Provide required connection for each service.

10. Install systems, materials, and equipment to conform with approved submittal data, including coordination drawings, to greatest extent possible. Conform to arrangements indicated by the contract documents, recognizing that portions of the work are shown only in diagrammatic form. Where coordination requirements conflict with individual system requirements, refer conflict to the engineer for resolution.

11. Install systems, materials, and equipment level and plumb, parallel and perpendicular to other building systems and components, where installed exposed in finished spaces.

12. Install electrical equipment to facilitate servicing, maintenance, and repair or replacement of equipment components. As much as practical, connect equipment for ease of disconnecting, with minimum of interference with other installations.

13. Install access panel or doors where units are concealed behind finished surfaces.

14. Install systems, materials, and equipment giving right-of-way priority to systems required to be installed at a specified slope.

1.3.3 CUTTING AND PATCHING

A. Perform cutting and patching as specified in division 1. In addition to the requirements specified in division 1, the following requirements apply:

1. Perform cutting, fitting, and patching of electrical equipment and materials required to:

   a. Uncover work to provide for installation of ill-timed work.

   b. Remove and replace defective work.

   c. Remove and replace work not conforming to requirements of the contract documents.

   d. Remove samples of installed work as specified for testing.

   e. Install equipment and materials in existing structures.

   f. Locate existing structural reinforcing where core drilled penetrations are required so as not to cut the steel reinforcing.

2. Cut, remove, and properly dispose of selected electrical equipment, components, and materials as indicated, including but not limited to removal of electrical items indicated to be removed and items made obsolete by the new work. Deliver all the existing removed to the owner as directed.

3. Protect the structure, furnishings, finishes, and adjacent materials not indicated or scheduled to be removed.

4. Provide and maintain temporary partitions or dust barriers adequate to prevent the spread of dust and dirt to adjacent areas.

5. Protection of installed work: during cutting and patching operations, protect adjacent installations.

6. Patch finished surfaces and building components using new materials as specified for the original installation and experienced installers. Installers' qualifications refer to the materials and methods required for the surface and building components being patched.

END OF SECTION

1 STS-26 05 11 – ELECTRICAL REQUIREMENTS

1.1 PART 1 - GENERAL

1.1.1 SCOPE OF WORK

A. Furnish all labor, materials, equipment, and incidentals required and install complete and make operational, electrical and process instrumentation systems for the Lee County Utilities Department as shown on the Drawings and as specified herein.

B. The work shall include furnishing, installing, and testing the equipment and materials specified in other Sections of the Specifications and shown on the Drawings.

C. It is the intent of these Specifications that the electrical system shall be suitable in every way for the service required. All material and all work which may be reasonably implied as being incidental to the work of this Section shall be furnished at no extra cost. The work shall include but not be limited to furnishing and installing the following:

1. Furnish and install new service entrance.
2. Furnish and install stand-by power generator set with skin tight enclosure and sub-base fuel tank.
3. Furnish and install ductbank systems for power distribution.
4. Conduit, wire and field connections for all motors, motor controllers, control devices, control panels and electrical equipment furnished under other Divisions of these specifications.
5. Provide a complete grounding system and special grounds as required or noted.
6. Provide Power and signal Surge Suppression systems.
7. Provide Concrete work for pad mounted equipment.
8. Provide Instrumentation and control conduit and wiring systems.
9. Provide Electrical testing of equipment
10. Provide Lightning protection, bonding and grounding systems.

D. Each bidder or their authorized representatives shall, before preparing their proposal, visit all areas of the existing site and structures in which work under this Division is to be performed and inspect carefully the present installation. The submission of the proposal by this bidder shall be considered evidence that their representative has visited the site and structures and noted the locations and conditions under which the work will be performed and that the bidder takes full responsibility for a complete knowledge of all factors governing the work.

E. Field verify all existing underground electrical and mechanical piping.

F. The Contractor shall prepare and furnish electrical and instrumentation conduit layout shop drawings for yard electrical, within and under all roads, buildings and structures to the Engineer for approval prior to commencing work. Layouts shall include but not be limited to equipment, pull boxes, conduit routing, dimensioning, methods and locations of supports, reinforcing, encasement, materials, conduit sizing, equipment access, potential conflicts, building and yard lighting, and all other pertinent technical specifications for all electrical and instrumentation conduits and equipment to be furnished. All layouts shall be drawn to scale on 22" x 34" sheets.

G. The work shall include complete testing of all equipment and wiring at the completion of work and making any minor correction changes or adjustments necessary for the proper functioning of the system and equipment. All workmanship shall be of the highest quality; substandard work will be rejected.

H. A single manufacturer shall provide panelboards, main breakers, transformers, disconnect switches, etc.

I. Contractor shall provide their own temporary power for miscellaneous power (drills, pumps, etc.). No facility circuits shall be used unless approved by the engineer. Any temporary power added shall be removed at job completion.

J. Complete coordination with other contractors. Contractor shall coordinate with all other contractors equipment submittals and obtain all relevant submittals.

K. Mount transmitters, process instruments, operator's stations, etc. furnished under other Divisions of these specifications.

L. Concrete electrical duct encasement, including but not limited to excavation, concrete, conduit, reinforcement, backfilling, grading and seeding is included. Excavation, bedding material, forms, concrete and backfill for underground raceways; forms and concrete for electrical equipment furnished herein is included in this Division.

1.1.2 Management

A. Superintendent shall be present at all times that work under this Division is being installed or affected.

1.1.3 RELATED WORK

A. Excavation and backfilling, including gravel or sand bedding for underground electrical work is specified in other Divisions.

B. Cast in place concrete work, including concrete encasements for electrical duct banks, equipment pads, and reinforcing steel, is specified in other Divisions.

1.1.4 REFERENCE STANDARDS

A. Electric equipment, materials and installation shall comply with the latest edition of National Electrical Code (NEC) and with the latest edition of the following codes and standards:

1. National Electrical Safety Code (NESC)
2. Occupational Safety and Health Administration (OSHA)
3. National Fire Protection Association (NFPA)
4. National Electrical Manufacturers Association (NEMA)
5. American National Standards Institute (ANSI)
6. Insulated Cable Engineers Association (ICEA)
7. Instrument Society of America (ISA)
8. Underwriters Laboratories (UL)
9. Factory Mutual (FM)

10. International Electrical Testing Association (NETA)
11. Institute of Electrical and Electronic Engineers (IEEE)
12. American Society for Testing and Materials (ASTM)
13. Electrical Safety in the Workplace (NFPA70E)
14. State and Local Codes and Ordinances

B. All electrical equipment and materials shall be listed or registered by Underwriter's Laboratories, if possible, and shall bear the appropriate UL mark or classification marking

1.1.5 CODES, INSPECTION AND FEES

A. Equipment, materials and installation shall comply with the requirements of the local authority having jurisdiction. Completed electrical installation shall be inspected and certified by all applicable agencies that it is in compliance with all codes.

B. Obtain all necessary permits and pay all fees required for permits and inspections.

1.1.6 TESTS AND SETTINGS

A. Test systems and equipment furnished under Division 26 and other divisions supplying electrical equipment. Repair or replace all defective work and equipment. Refer to section 260800 and the individual equipment sections for additional specific testing requirements.

B. Make adjustments to the systems and instruct the Owner's personnel in the proper operation of the systems.

C. In addition to the specific testing requirements listed in section 260800 and the individual Sections, the following minimum tests and settings shall be performed. Submit test reports upon completion of testing in accordance with Section 260800.

1. Mechanical inspection, testing and settings of circuit breakers, disconnect switches, motor starters, overload relays, control circuits and equipment for proper operation.
2. Check the full load current draw of each motor. Where power factor correction capacitors are provided the capacitor shall be in the circuit at the time of the measurement. Check ampere rating of thermal overloads for motors and submit a typed record to the Engineer of the same, including driven load designation, motor service factor, horsepower, and Code letter. If incorrect thermal overloads are installed replace same with the correct size overload.
3. Check power and control power fuse ratings. Replace fuses if they are found to be of the incorrect size.
4. Check settings of the motor circuit protectors. Adjust settings to lowest setting that will allow the motor to be started when under load conditions.
5. Check motor nameplates for correct phase and voltage. Check bearings for proper lubrication.
6. Check rotation of motors prior to testing the driven load. Disconnect the driven equipment if damage could occur due to wrong rotation. If the rotation is incorrect for the driven equipment correct motor connections at the motor terminal box.

7. Check interlocking, control and instrument wiring for each system and/or part of a system to prove that the system will function properly as indicated by control schematic and wiring diagrams.

8. Inspect each piece of equipment in areas designated as HAZARDOUS to ensure that equipment of proper rating is installed.

9. Verify all terminations at transformers, equipment, panels and enclosures by producing a 1, 2, 3 rotation on a phase sequenced motor when connected to "A", "B" and "C" phases.

10. Check all wire and cable terminations. Verify to the Engineer connections meet the equipments torque requirements.

11. Field set all transformer taps as required to obtain the proper secondary voltage.

12. Infra red hot spot inspection shall be made of all electrical equipment including but not limited to switchgear, motor control centers, transformers, switches, power and control panels, etc. This shall be done under representative load conditions before the equipment is used by the Owner.

1.1.7 PHASE BALANCING

A. The Drawings do not attempt to balance the electrical loads across the phases. Circuits on panelboards shall be field connected to result in evenly balanced loads across all phases.

B. Field balancing of circuits shall not alter the conductor color coding requirements as specified herein.

1.1.8 EQUIPMENT IDENTIFICATION

A. Identify equipment (disconnect switches, control stations, etc) furnished under Division 26 with the name of the equipment it serves. Control panels, panelboards, main breakers, junction or terminal boxes, etc, shall have nameplate designations as shown on the Drawings. Nameplates shall adequately describe the function of the particular equipment involved. Where nameplates are detailed on the drawings, inscription and size of letters shall be as shown and shop drawing submitted for approval. Nameplates for panelboards and switchboards shall include the panel designation, voltage and phase of the supply. For example, "Panel A, 277/480V, 3-phase, 4-wire". The name of the machine on the nameplates for a particular machine shall be the same as the one used on all motor starters, disconnect and P.B. station nameplates for that machine.

B. Nameplates shall be engraved, laminated plastic, not less than 1/16 in thick by 3/4 in by 2 1/2 in with 3/16 in high white letters on a black background. Attach with stainless steel nuts and bolts.

C. Electrical systems shall be identified at junction and pull boxes, terminal cabinets and equipment racks. Electrical contractor is responsible for nameplates on electrical equipment supplied by other divisions and installed and wired by electrical contractor including all instrumentation and controls equipment. A portion of existing equipment affected by this contract shall also receive nameplates as determined by the Engineer.

D. Nameplates shall be screw mounted to NEMA 1 enclosures. Nameplates shall be bonded to all other enclosure types using an epoxy or similar permanent waterproof adhesive. Two sided foam adhesive tape is not acceptable. Where the equipment size does not have space for mounting a nameplate, the nameplate shall be permanently fastened to the adjacent mounting surface. Cemented nameplates shall not be drilled.

E. All voltages (e.g. 480 volts, 240 volts, etc.) within pull boxes, junction boxes etc. shall be identified on the front exterior cover. Signs shall be red background with white engraved lettering, lettering shall be a minimum of 1" high.

F. All receptacles, wall switches, lighting fixtures, photo cells, emergency lights, exit lights, etc. shall be identified with the panel and circuit to which it is connected. Identification shall be with machine generated labels with ¼" high letters.

1.1.9 SAFETY REQUIREMENTS

A. The Contractor shall make every effort to keep all employees and/or subcontractors aware of the danger inherent in working in dangerous proximity to the existing power lines. The minimum recommended precautionary measures are as follows:

1. Make sure that all persons responsible for operating cranes, draglines and other mobile equipment have a copy of, and are familiar with the State Department of Commerce Regulations for Use of Cranes, Draglines and Similar Equipment Near Power Lines, as well as the U.S. Department of Labor OSHA Regulations, before commencing operation of said equipment.

2. Make sure that all cranes, draglines and other mobile equipment have attached to them the black and yellow Department of Commerce warning signs required by the said Regulations of State Department of Commerce.

3. Warn all employees on the ground, new and old employees alike, of the danger of holding on to or touching a cable or other piece of equipment or machinery that is located or working close to any overhead power line.

4. If, during the course of construction, it becomes necessary for the contractor, or subcontractor, and their employees, to operate cranes, draglines, or their mobile equipment, in dangerous proximity of any overhead power lines, or in such a manner that such equipment might come close to any overhead power lines, the Contractor shall give the Power Company or overhead power line owner prior notice of such proposed operation

1.2 PART 2 - PRODUCTS (NOT USED)

1.3 PART 3 – EXECUTION

1.3.1 SLEEVES AND FORMS FOR OPENINGS

A. Provide and place all sleeves for conduits penetrating floors, walls, partitions, etc. Locate all necessary slots for electrical work and form before concrete is poured.

B. Exact locations are required for stubbing up and terminating concealed conduit. Obtain shop drawings and templates from equipment vendors or other subcontractors and locate the concealed conduit before the floor slab is poured.

C. Where setting drawings are not available in time to avoid delay in scheduled floor slab pours, the Engineer may allow the installations of such conduit to be exposed. Requests for this deviation must be submitted in writing. No additional compensation for such change will be allowed.

D. Seal all openings, sleeves, penetration and slots as specified in Section 260551.

1.3.2 INSTALLATION

A. Any work not installed according to the Drawings and this Division or without approval by the Engineer shall be subject to change as directed by the Engineer. No extra compensation will be allowed for making these changes.

B. Electrical equipment shall at all times during construction be adequately protected against mechanical injury or damage by water. Electrical equipment shall not be stored out of doors. Electrical equipment shall be stored in dry permanent shelters. If an apparatus has been damaged, such damage shall be repaired at no additional cost. Any repair must be pre-approved by owner and engineer. If any apparatus has been subject to possible injury by water, it shall be replaced at no additional cost to the Owner, the damaged unit(s) or systems shall remain on site and returned to the manufacturer after the replacement unit(s) or systems have been delivered to the site. Under no circumstances will electrical equipment damaged by water be rehabilitated or repaired, new equipment shall be supplied and all cost associated with replacement shall be borne by the Contractor.

C. Equipment that has been damaged shall be replaced or repaired by the equipment manufacturer, at the Engineer's discretion.

D. Repaint any damage to factory applied paint finish using touch up paint furnished by the equipment manufacturer. The entire damaged panel or section shall be repainted at no additional cost to the Owner.

1.3.3 MANUFACTURERS SERVICE

A. N/A.

1.3.4 TRAINING

A. N/A.

1.3.5 WARRANTY

A. The work under this Division shall include a two-year warranty. This warranty shall be by the Contractor to the Owner for any defective workmanship or material that has been furnished under this Contract at no cost to the Owner for a period of two years from the date of final completion of the System. This guarantee shall not include light bulbs or batteries in service after six months from date of final Completion of the System.

END OF SECTION

1 STS-26 05 19 – LOW VOLTAGE CONDUCTORS

1.1 PART 1 - GENERAL

1.1.1 REFERENCED STANDARDS

A. Institute of Electrical and Electronics Engineers, Inc./American National Standards
B. Institute (IEEE/ANSI).

C. Standard for Flame Testing of Cables for Use in Cable Tray in Industrial and Commercial Occupancies.

D. National Electrical Manufacturers Association (NEMA): ICS 4, Industrial Control and Systems: Terminal Blocks.

E. National Electrical Manufacturers Association/Insulated Cable Engineers Association (NEMA/ICEA): WC 57/S-73-532, Standard for Control Cables: WC 70/S-95-658, Non-Shielded Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy.

F. National Fire Protection Association NFPA-70, National Electrical Code (NEC).

G. Underwriters Laboratories, Inc. (UL44): Standard for Safety Thermoset-Insulated Wires and Cables; (UL83): Standard for Safety Thermoplastic-Insulated Wires and Cables; UL467 Standard for Safety Grounding and Bonding Equipment. UL486A Standard for Safety Wire Connectors and Soldering Lugs for use with Copper Conductors; UL 486C, Standard for Safety Splicing Wire Connections. UL510, Standard for Safety Polyvinyl Chloride, Polyethylene and Rubber Insulating Tape.

1.1.2 DEFINITIONS

A. Building Wire: Copper single conductor, cross link polyethylene insulated; type XHHW-2 or thermoplastic insulated THHN and THWN.

B. Cable: Multi-conductor, insulated, with outer sheath containing either building wire or instrumentation wire.

C. Instrumentation Cable (Analog signal cable): Multiple conductor, insulated, twisted Pair/Triad, with individual Pair/Triad shield and outer overall shield and outer sheath. Used for the transmission of low current (e.g., 4-20mA DC) using No. 18 AWG conductors. Common Types, TSP: Twisted shielded pair, TST: Twisted shielded triad.

D. Control Cable: Multi-conductor, insulated, with outer sheath containing building wires, No. 16, AWG. With overall shield where specified. Type SIS and MTW approved for use in the wiring of control equipment within control panels and field wiring of control equipment within switchgear, switchboards, motor control centers; otherwise type XHHW-2.

E. Power Cable: Multi-conductor, insulated, with outer sheath containing building wire, No. 8 AWG and larger, Rated XHHW-2. No. 12-6 AWG, Rated THHN or THWN.

F. Digital signal cable: Used for the transmission of digital signals between computers, PLC's, RTU's, etc. Common Types: Ethernet UTP-unshielded twisted pair.

1.1.3 SUBMITTALS

A. Submit cut sheets on all major types of wires and cables including splicing tape, and terminating/splicing lugs, conductor identification systems and connectors and cable sleeves. Submit sample of all instrumentation and control cable. Sample shall be a minimum of 24" with exterior sheath clearly marked.

B. Submit sample of all cable identification systems products.

1.2 PART 2 – PRODUCTS

1.2.1 POWER CONDUCTORS:

A. Branch circuits and feeder conductors for all three phase electric power shall be stranded copper type XHHW-2 cross-link polyethylene (XLP) insulation and derated to 75 degrees Centigrade for #8 AWG and larger. No. 12-6 AWG, shall be type THHN or THWN, thermoplastic insulation and derated to 75 degrees Centigrade. No aluminum wiring shall be permitted. Wire shall be in accordance to NEC and minimum No. 12, except that branch "homeruns" over 50 ft. in length shall be minimum No. 10 for 120/208V circuits. All branch lighting circuits serving HID and Fluorescent fixtures shall be minimum #10 with each circuit provided with a separate neutral.

B. Taps and Splices:

1. All power wiring taps and splices in No. 8 or smaller wire shall be fastened together by means of terminal strips except within lighting fixtures and wiring devices where conformance to NEC practices will be acceptable (Twist/screw on type connectors). All taps and splices in wire larger than No. 8 shall be made with compression type connectors and taped to provide insulation equal to wire. Tape shall be heavy duty, flame retardant and weather resistant vinyl electrical tape, minimum 7 mil premium grade with an operating temperature of 0 degree F. to 220 degree F. Provide tape meeting UL 510 and CSA standard C22.2.

2. All taps and splices in manholes or in ground pull boxes, etc. shall be approved by the engineer on a case by case basis; be made with high press long barrel double crimp compression type connectors and covered with Raychem heavy wall cable sleeves (type CTE or WCS) with type "S" sealant coating. Install sleeve kits as per manufacturer's installation instructions.

C. Color Coding:

1. All power feeders and branch circuits No. 6 and smaller shall be wired with color-coded wire with the same color used for a system throughout the building. Power feeders above No. 6 shall either be fully color-coded or shall have black insulation and be similarly color-coded with tape or paint in all junction boxes and panels. Tape or paint shall completely cover the full length of conductor insulation within the box or panel except for the wire markings.

2. Unless otherwise approved, color-code shall be as follows: Neutrals to be white for 120/208V system, natural grey for 277/480V system; ground wire green, bare or green with yellow strips. Nominal Voltage: 120/208V, Phase A -black; Phase B - red; Phase C - blue. 480/277V, Phase A brown; Phase B - orange; Phase C -yellow. All switch legs, other voltage system wiring, control and interlock wiring shall be color-coded other than those above. In exiting or expansion projects, comply with existing color coding established within the facility.

1.2.2 INSTRUMENTATION AND CONTROL CABLE:

A. Multiconductor and Multi pair Process instrumentation cable shall be #18 AWG stranded, twisted pair, 600 V, (XLP) cross link polyethylene insulated, aluminum tape pair shielding, cross link polyethylene or chlorinated polyethylene (CPE) overall sheathed and shielded, type TC instrument cable as manufactured by the American Insulated Wire Co., Belden Wire Co. or equal.

B. Multiconductor control cable shall be #16 AWG stranded, 600V, (XLP) cross link polyethylene insulated or polyolefin, with cross link polyethylene or chlorinated polyethylene (CPE or Hypalon) overall sheathed type TC control cable except for control cable into and out of VFD cabinets. Multiconductor control cable into and out of VFD cabinets shall be as indicated above and in addition include an aluminum polyester tape overall shield and drain wire. As a contractor alternate to shielded control cable into and out of VFD cabinets, provide twisted shielded instrument cable as specified above. Contractor to provide increased conduit size as required if instrument cable alternate is used into and out of VFD cabinets.

C. Connections:

1. All conductor connections shall be on terminal strips including all spare conductors. Provide terminal strips in all cabinets; motor control centers; etc.

2. All connections of stranded wire to screw terminals shall be by insulated spade lugs, crimp fastened to wire. Provide stranded wire crimp ferrules for all stranded wire connections not requiring spade lugs for screw type terminal blocks. The stranded wire ferrule is to be crimped to all stranded wire using a crimping tool specifically approved for crimping the size and type of ferrule.

3. All conductors shall be marked with mylar wrap type "Brady" labels. Identification labels shall be permanent type, properly shrunk, and be machine printed. All terminal block terminations shall be labeled. The inside portion of the terminal cabinet doors shall display a protected terminal cabinet drawing with all connections shown and described as to color code, number assigned to connection function of conductor and destination.

4. Wire shall be guided within terminal cabinets by cable supports. All conductors shall be neatly led to terminations.

5. Instrumentation and control field cables on the unprotected side of SPD devices within the cabinet shall not run in parallel to the cables on the protected side of the SPD device. Separate cable supports (duct) will be provided.

6. Cabinets: All cabinets shall be labeled with an engraved plastic laminate label riveted to the door.

7. No splices shall be made within a conduit run or in manholes.

D. All plant control system field wiring shall be labeled per the instrumentation and control contractor loop drawings from the field device, through the intermediate cabinets, to the PLC cabinet. The labeling system shall be consistent throughout the loop and follow the standard tag designation: PLC#-Rack#-Slot#-Point# (example PLC1-R2-S3-P4).

E. Provide for separation of instrumentation, control and power conductors. Provide a minimum of 24" inch separation for parallel run of power conduit and instrumentation or control conduit. This separation can be reduced to 8" if metallic grounded separation is provided.

1.2.3 ETHERNET MEDIA CABLE

A. Multiconductor and Multi pair Data Signal cable shall be TIA 5638B Cat 5e, #22 AWG solid, twisted pair, 600V, PVC insulated, aluminum tape pair shielding, thermoplastic elastomer (TPE) overall sheathed and shielded, industrial Ethernet cable as manufactured by the Allen Bradley 1585-C8HB or equal. Option to provide premolded RJ45 patch cords Allen Bradley 1585D and 1585J is acceptable at contractors option.

B. Connections:

1. All conductor connections shall be to RJ45 and M12 compatible jacks.

2. All conductors shall be marked with mylar wrap type "Brady" labels. Identification labels shall be permanent type and be machine printed. All terminal block terminations shall be labeled. The inside portion of the terminal cabinet doors shall display a protected terminal cabinet drawing with all connections shown and described as to color code, number assigned to connection function of conductor and destination.

3. Wire shall be guided within terminal cabinets by cable supports. All conductors shall be neatly led to terminations.

4. Instrumentation and control field cables on the unprotected side of SPD devices within the cabinet shall not run in parallel to the cables on the protected side of the SPD device. Separate cable supports (duct) will be provided.

5. No splices shall be made within a conduit run or in manholes.

END OF SECTION

1 STS-26 05 26 - GROUNDING AND BONDING SYSTEMS

1.1 PART 1 - GENERAL

1.1.1 Description

The terms "connect", "ground" and "bond" are used interchangeably in this specification and have the same meaning.

This section specifies general grounding and bonding requirements of electrical equipment operations and to provide a low impedance path for possible ground fault currents.

"Grounding electrode system" refers to all electrodes required by NEC, as well as including made, supplementary, perimeter counterpoise ground, lightning protection system grounding electrodes.

1.1.2 Submittals

A. Submit in accordance with Section 26 05 00

B. Shop Drawings:

1. Sufficient information, clearly presented, shall be included to determine compliance with drawings and specifications.

2. Include the location of system grounding electrode connections and the routing of aboveground and underground grounding electrode conductors.

C. Test Reports: Provide certified test reports of ground resistance.

D. Certifications: Two weeks prior to final inspection, submit four copies of the following to the Project Engineer:

1. Certification, by the Contractor, that the complete installation has been properly installed and tested.

1.1.3 Applicable Publications- Latest Edition

A. American Society for Testing and Materials (ASTM):

B. Institute of Electrical and Electronics Engineers, Inc. (IEEE): Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System

C. National Fire Protection Association (NFPA): National Electrical Code (NEC)

D. Underwriters Laboratories, Inc. (UL): Thermoset-Insulated Wires and Cables Thermoplastic-Insulated Wires and Cables Grounding and Bonding Equipment Wire Connectors

1.2 PART 2 – PRODUCTS

1.2.1 Grounding and Bonding Conductors

A. Equipment grounding conductors shall be UL 83 insulated stranded copper, except that sizes 2 AWG and smaller may be solid copper unless otherwise noted on the drawings. Insulation color shall be continuous green for all equipment grounding conductors, except that wire sizes 4 AWG and larger shall be permitted to be identified per NEC.

B. Bonding conductors shall be ASTM B8 bare stranded copper, except that sizes 2 AWG and smaller may be ASTM B1 solid bare copper wire.

C. Electrical System Grounding: Conductor sizes shall not be less than what is shown on the drawings and not less than required by the NEC, whichever is greater.

1.2.2 Splices and Termination Components

A. Components shall meet or exceed UL 467 and be clearly marked with the manufacturer, catalog number, and permitted conductor size(s).

1.2.3 Ground Connections

A. Above Grade:

1. Bonding Jumpers: compression type connectors, using zinc-plated fasteners and external tooth lock washers.

2. Ground Busbars: Two-hole compression type lugs using tin-plated copper or copper alloy bolts and nuts.

1.3 PART 3 – EXECUTION

1.3.1 General

A. Ground in accordance with the NEC, as shown on drawings, and as hereinafter specified.

B. System Grounding:

1. Secondary service neutrals: Ground at the supply side of the secondary disconnecting means and at the related transformers.

2. Separately derived systems (transformers downstream from the service entrance): Ground the secondary neutral.

C. Equipment Grounding: Metallic structures (including ductwork and building steel), enclosures, raceways, junction boxes, outlet boxes, cabinets, machine frames, and other conductive items in close proximity with electrical circuits shall be bonded and grounded.

D. The cable tray system shall be utilized as an Equipment Grounding Conductor (EGC).

1.3.2 Grounding Connections

Make grounding connections that are below grade by exothermic weld. Make grounding connections that are above grade but are otherwise normally inaccessible (poured columns, within walls) with exothermic weld.

1.3.3 Secondary Equipment and Connections

A. Transformers:

1. Exterior: Exterior transformers supplying interior service equipment shall have the neutral grounded at the transformer secondary. Provide a grounding electrode at the transformer.

2. Separately derived systems (transformers downstream from service equipment): Ground the secondary neutral at the transformer. Provide a grounding electrode conductor from the transformer to the ground bar at the service equipment.

B. Conduit Systems:

1. Ground all metallic conduit systems. All conduit systems shall contain an equipment grounding conductor (except service entrance with grounded neutral). Ground conductor shall be bonded to metallic conduit systems at the entrance and exit from the conduit.

C. Boxes, Cabinets, Enclosures, and Panelboards:

1. Bond the equipment grounding conductor to each pullbox, junction box, outlet box, device box, cabinets, and other enclosures through which the conductor passes.

2. Provide lugs in each box and enclosure for equipment grounding conductor termination.

3. Provide ground bars in panelboards, bolted to the housing, with sufficient lugs to terminate the equipment grounding conductors.

D. Motors and Starters: Provide lugs in motor terminal box and starter housing or motor control center compartment to terminate equipment grounding conductors.

E. Receptacles shall not be grounded through their mounting screws. Ground with a jumper from the receptacle green ground terminal to the device box ground screw and the branch circuit equipment grounding conductor.

1.3.4 Corrosion Inhibitors

When making ground and ground bonding connections, apply a corrosion inhibitor to all contact surfaces. Use corrosion inhibitor appropriate for protecting a connection between the metals used.

1.3.5 Conductive Piping

Bond all conductive piping systems, interior and exterior, to the building to the grounding electrode system.

1.3.6 Ground Resistance

A. Grounding system resistance shall not exceed that allowed per plans. Make necessary modifications or additions to the grounding electrode system for compliance without additional cost to the owner. Final tests shall assure that this requirement is met.

B. Resistance of the grounding electrode system shall be measured using a four-terminal fall-of-potential method as defined in IEEE 81. Ground resistance measurements shall be made before the electrical distribution system is energized and shall be made in normally dry conditions not less than 48 hours after the last rainfall. Resistance measurements of separate grounding electrode systems shall be made before the systems are bonded together below grade. The combined resistance of separate systems may be used to meet the required resistance, but the specified number of electrodes must still be provided. Document with test results for approval and include approved test results in the O&M manual.

C. Below-grade connections shall be visually inspected by the Project Engineer prior to backfilling. Provide ground inspection wells at all ground rod locations.

1.3.7 Ground Rod Installation

A. Drive each rod vertically in the earth, not less than 20 feet in depth.

B. Where permanently concealed ground connections are required, make the connections by the exothermic process to form solid metal joints. Make above grade accessible ground connections with mechanical pressure type ground connectors.

C. Where rock prevents the driving of vertical ground rods, drill rock then install rod. Backfill with flowable fill or concrete mix. Obtain the necessary permits if required for drilling.

END OF SECTION

1 STS-26 05 29 – HANGERS AND SUPPORTS

1.1 PART 1 - GENERAL

1.1.1 SCOPE

A. The work under this section includes conduit and equipment supports, straps, clamps, steel channel, etc., and fastening hardware for supporting electrical work. Furnish and install all supports, hangers and inserts required to mount fixtures, conduit, cables, pull boxes and other equipment furnished under this Division. All supporting devices and hardware exterior of buildings or interior of structures except in air-conditioned spaces shall be stainless steel. Aluminum and nonmetallic supports (fiberglass) and hardware will be reviewed by the Engineer on a case-by-case basis.

B. All items shall be supported from the structural portion of the building. Supports and hangers shall be of a type approved by Underwriters' Laboratories. Wire shall not be used as a support. Boxes and conduit shall not be supported or fastened to ceiling suspension wires or to ceiling channels.

C. The Contractor shall furnish and install all sleeves that may be required for openings through floors, wall etc. Where plans call for conduit to be run exposed, the Contractor shall furnish and install all inserts and clamps for the supporting of conduit. If the Contractor does not properly install all sleeves and inserts required, contractor to provide cutting and patching to the satisfaction of the Engineer.

1.1.2 SUBMITTALS

Product Data: Provide data for support channel.

1.1.3 QUALITY ASSURANCE

Support systems shall be adequate for weight of equipment and conduit, including wiring, which they carry.

1.2 PART 2 - PRODUCTS

1.2.1 MATERIAL

A. Support Channel: Stainless steel throughout except galvanized steel in conditioned interior areas.

B. Hardware: Stainless steel throughout

C. Minimum sized threaded rod for supports shall be 3/8".

D. Conduit clamps, straps, supports, etc., shall be stainless steel or malleable iron. One-hole straps shall be heavy duty type.

1.3 PART 3 – EXECUTION

1.3.1 INSTALLATION

A. All steel conduits shall be securely fastened in place on maximum of 6 foot intervals; all PVC conduits shall be securely fastened in place on maximum of 3 foot intervals vertically and 2 foot intervals horizontally. Hangers, supports or fastenings shall be provided at each elbow and at the end of each straight run terminating at a box or cabinet. The required strength of the supporting equipment and size and type of anchors shall be based on the combined weight of conduit, hanger and cables. Horizontal and vertical conduit runs may be supported by two-hole malleable straps, clamp-backs, or other approved devices with suitable bolts, expansion shields (where needed) or beam-clamps for mounting to building structure or special brackets.

B. On concrete or masonry construction, use "Tapcon" type fasteners. For brick construction, insert anchors shall be installed with round head machine screws. In wood construction, round head screws shall be used. An electric or hand drill shall be used for drilling holes for all inserts in brick, concrete or similar construction. Steel members shall be drilled and tapped, and round head machine screws shall be used. All screws, bolts, washers, etc., used for supporting conduit or outlets shall be fabricated from stainless steel, or approved substitution.

C. Fasten hanger rods, conduit clamps, outlet, junction and pull boxes to building structure using preset inserts, beam clamps, expansion anchors, or spring steel clips (interior metal stud walls only). Use toggle bolts or hollow wall fasteners in hollow masonry, plaster, or gypsum board partitions and walls; expansion anchors or preset inserts in solid masonry walls; self-drilling anchors or expansion anchors on concrete surfaces; sheet metal screws in sheet metal studs and wood screws in wood construction.

D. File and de-bur cut ends of support channel and spray paint with cold galvanized paint to prevent rusting. Do not fasten supports to piping, ductwork, mechanical equipment, cable tray or conduit. Do not drill structural steel members unless approved by the engineer.

E. Fabricate supports from 316 stainless steel channel, rigidly welded or bolted to present a neat appearance. Use hexagon head bolts with spring lock washers under all nuts. Install surface-mounted cabinets and panelboards with minimum of four anchors. Provide steel channel supports to stand cabinet one inch (25 mm) off wall.

F. Furnish and install all supports as required to fasten all electrical components required for the project, including free standing supports required for those items remotely mounted from the building structure, catwalks, walkways etc.

END OF SECTION

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1 STS-26 05 36 – CABLE TRAY

1.1 PART 1 – GENERAL

1.1.1 SUMMARY

A. The work covered under this section consists of the furnishing of all necessary labor, supervision, materials, equipment, tests, and services to install complete cable tray systems as shown on the drawings.

B. Cable tray systems are defined to include but are not limited to straight sections of ladder type cable trays, bends, tees, elbows, drop-outs, supports and accessories.

1.1.2 DRAWINGS

A. The drawings, which constitute a part of these specifications, indicate the general route of the cable runway systems. Data presented on these drawings is as accurate as preliminary surveys and planning can determine until final equipment selection is made. Accuracy is not guaranteed and field verification of all dimensions, routing, etc., is required.

B. Specifications and drawings are for assistance and guidance, but exact routing, locations, distances and levels will be governed by actual field conditions. Contractor is directed to make field surveys as part of his work prior to submitting system layout drawings.

1.1.3 QUALITY ASSURANCE

A. NEMA Compliance: NEMA Standards Publication Number VE1, "Cable Tray Systems".

B. NEC Compliance: NEC Article 392

C. UL Compliance:UL File No. E341872

1.1.4 DELIVERY, STORAGE AND HANDLING

A. Deliver cable tray systems and components carefully to avoid breakage, denting and scoring finishes. Do not install damaged equipment.

B. Store cable trays and accessories in original cartons and in clean dry space; protect from weather and construction traffic. Wet materials should be unpacked and dried before storage.

1.1.5 SUBMITTALS

A. Shop Drawings: Indicate tray type, dimensions, support points, and finishes.

B. Product Data: Submit fittings and accessories.

C. Manufacturer's Installation Instructions: Submit application conditions and limitations of use stipulated by Product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, and installation of Product.

1.1.6 CLOSEOUT SUBMITTALS

A. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.

B. Project Record Documents: Record actual routing of cable tray and locations of supports.

1.2 PART 2 - PRODUCTS

1.2.1 ACCEPTABLE MANUFACTURERS/MODEL

A. Subject to compliance with these specifications, cable tray systems shall be as manufactured by the following:

1. United Structural Products, LLC
560-E Wharton Cir., Atlanta, Ga., 30336, USA. Phone:(404) 696-8585 or USTray.com
Model:Cable Tray System No. A520A

2. Engineer approved equivalent

1.2.2 CABLE TRAY SECTIONS AND COMPONENTS

A. General

1. Except as otherwise indicated, provide metal cable trays, of types, classes and sizes indicated; with splice plates, bolts, nuts and washers for connecting units. Construct units with rounded edges and smooth surfaces; in compliance with applicable standards; and with the following additional construction features.

1.2.3 TYPE OF TRAY SYSTEM

A. Material: Extruded Aluminum Alloy 6063-T6

B. Finish: Plain

C. Type: Ladder, Two Rails

D. Load Rating (NEMA): 57 lbs/ft, 20' span. Class 20A, Safety Factor = 1.5

E. Side Rail Height: 5" nominal (or as shown on Plans)

F. Inside Load Depth: 4" nominal (or as shown on Plans)

G. Rung Spacing: 9" nominal (or as shown on Plans)

H. Bottom: 1.13" Wide rungs (tubular with open slot)

I. Construction: Arc-welded on both sides of rungs

J. Min. Cross-Sectional Area Per NEC 392: 1.5 in2

K. Amperage Rating Per NEC 392: 1600 Amperes

L. Flanges: 2" Wide

M. Fastener Finish: 316 Stainless Steel

N. MFR: Atkore

O. The Cable Tray system shall support a 200 pound concentrated static load applied at the center of any rung in addition to the full safe cable load without failure of the rung or side rails.

P. Splice plates shall be furnished with straight sections and fittings.

Q. Cable Tray Supports: Shall be placed so that the support spans do not exceed maximum span indicated on drawings. Supports shall be constructed from 12 gauge steel formed shape channel members 1-5/8 inch by 1-5/8 inch with necessary hardware. Cable trays installed adjacent to walls shall be supported on wall mounted brackets.

R. Center hung supports shall be manufactured of 12 gauge, 1-5/8 inch by 1-5/8 inch stainless steel strut

S. Trapeze hangers and center-hung supports shall be supported by 1/2 inch (minimum) diameter rods.

T. Barrier Strips: Shall be placed as specified on drawings and be fastened into the tray with self-drilling screws.

U. Accessories - special accessories shall be furnished as required to protect, support, and install a cable tray system. Accessories shall consist of but are not limited to; section splice plates, expansion plates, blind-end plates, specially designed ladder dropouts, barriers, etc.

1.3 PART 3 - EXECUTION

1.3.1 INSTALLATION

A. Install cable trays as indicated on the Plans. Installation shall be in accordance with equipment manufacturer's instructions, and with recognized industry practices to ensure that cable tray equipment comply with requirements of NEC and applicable portions of NFPA 70B. Reference NEMA-VE2 for general cable tray installation guidelines.

B. Coordinate cable tray with other electrical work as necessary to properly integrate installation of cable tray work with other work.

C. Provide sufficient space encompassing cable trays to permit access for installing and maintaining cables.

D. Cable tray fitting supports shall be located such that they meet the strength requirements of straight sections. Install fitting supports per NEMA VE-2 guidelines, or in accordance with manufacturer's instructions.

E. Cable tray should be free of burrs and sharp edges.

F. Cable tray shall be grounded according to manufacturer's specifications.

1.3.2 TESTING

A. Test cable trays to ensure electrical continuity of bonding and grounding connections, and to demonstrate compliance with specified maximum grounding resistance. See NFPA 70B, Chapter 18, for testing and test methods.

END OF SECTION

1 STS-26 05 51 – CONDUIT

1.1 PART 1 – GENERAL

1.1.1 DESCRIPTION

A. Description of System: This Section includes requirements for raceways, fittings, boxes, enclosures, and cabinets for electrical, instrumentation and control system wiring.

B. Heavy wall PVC (Schedule 80) shall be used for all raceways trapped underground without concrete encasement protection. Conduits in concrete encasement use Schedule 40-PVC. Use rigid aluminum conduit above grade on exterior of buildings and in above grade interior wet locations. Where PVC conduit penetrates a floor from underground or in a slab; a black mastic coated rigid aluminum conduit elbow shall be used for all conduits. EMT and rigid steel are permitted within air conditioned spaces only.

C. Minimum conduit size for all systems shall be 3/4". All conduits shall be U.L. listed and labeled. Conduit sizes shown on the drawings are to aid the contractor in bidding only; the contractor is responsible for conduit sizes as required by NEC fill tables but do not provide smaller conduits than indicated. The contractor is responsible to coordinate the required conduit sizes and conductor quantities for all control and instrumentation system conduit and wiring with the controls subcontractor prior to installation.

D. Provide stainless steel or non-metallic conduit supports and 316 stainless steel hardware in all areas except air conditioned spaces.

1.1.2 SUBMITTALS

A. Product Data:

1. Product data shall be submitted on:
   a. Conduit, raceways, wireways.
   b. Conduit fittings, boxes, enclosures and cabinets.
   c. Surface metal raceway

1.2 PART 2 - PRODUCTS

1.2.1 FLEXIBLE STEEL CONDUIT

Continuous length, spirally wound steel strip, zinc-coated, each convolution interlocked with following convolution. Federal Specification WW-C 566. Liquid-tight Flexible Steel Conduit: Plastic (PVC) jacketed flexible steel conduit with copper bonding conductor (UL 1660). Flexible conduit fittings: UL 514B.

1.2.2 PVC CONDUIT

PVC conduit shall be composed of High Impact Virgin homopolymer, PVC (polyvinyl chloride C 200 Compound), and shall conform to industry standards, and be UL 651 listed in accordance with Article 347 of National Electrical Code for underground and exposed use and NEMA standard TC-2. Materials must have tensile strength of 55 PSI, at 70°F, flexural strength of 11,000 PSI, compression strength of 8,600 PSI. Manufacturer shall have five years' extruding PVC experience.

1.2.3 RIGID ALUMINUM CONDUIT

A. Provide Rigid Aluminum Conduit of 6063 alloy in temper designation T-1. The fittings are of the same alloy. Provide threaded Rigid Aluminum Conduit to Underwriters Laboratories U.L. 6A, "Standard for Electrical Rigid Metal Conduit and manufactured to ANSI C80.5.

B. Provide threaded aluminum conduit fittings, of 6063 alloy, cast aluminum with integral insulated throat as manufactured by Allied, OZ Gedney, T&B, Crouse-Hinds, Killark or Appleton.

C. Provide supplementary corrosion protection for aluminum conduit imbedded in concrete or in contact with soil. Where aluminum conduits are in contact with or penetrate concrete, coat conduit with asphaltic or bitumastic type coating.

1.2.4 CONDUIT FITTINGS

A. Fittings for Conduit (Including all Types and Flexible and Liquidtight), EMT, and Cable: NEMA FB 1; listed for type and size raceway with which used, and for application and environment in which installed.

B. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 886.

C. Fittings, surface boxes and conduit bodies for Rigid Aluminum Conduit shall be heavy cast aluminum with external raised hubs and mounting lugs, Appleton, Crouse Hinds or approved substitution. Cover plates cast aluminum. Zinc die cast not acceptable.

D. Conduit locknuts shall be aluminum throughout.

E. Conduit expansion fittings shall be malleable iron and shall be hot dipped galvanized inside and outside. These fittings shall have a four-inch expansion chamber to allow approximately two-inch movement parallel to conduit run in either direction from normal. They shall have factory-installed packing and internal tinned copper braid packing to serve as an emergency bonding jumper. Unless the fitting used is listed by Underwriters' Laboratories for use "without external bonding jumpers", an external copper bonding jumper shall be installed with each expansion fitting with one end clamped on each conduit entering fitting.

1.3 PART 3 – EXECUTION

1.3.1 INSTALLATION

A. All raceways shall be run in neat and workmanlike manner and shall be properly supported in accordance with latest edition of NEC with approved conduit clamps, hanger rods and structural fasteners except for PVC conduit installed in exterior locations. PVC conduit installed in exterior locations shall be supported at two foot intervals. Supporting conduit and boxes with wire is not approved. All raceways except those from surface-mounted switches, outlet boxes or panels shall be run concealed from view. Exposed raceways shall be supported with clamp fasteners with toggle bolt on hollow walls, and with lead expansion shields on masonry. Rigid steel box connections shall be made with double locknuts and bushings. Where PVC penetrates a floor from underground or in slab, a black mastic coated aluminum conduit elbow shall be used on all conduits. All individual bare copper ground conductors (i.e. service, transformer, or lightning protection grounds) shall be installed in PVC conduit, not metal conduit. This does not apply to bare copper ground conductors run with feeders (as specified in this section). Conduits shall be run parallel to building walls wherever possible, exposed or concealed, and shall be grouped in workmanlike fashion. Crisscrossing of conduits shall be minimized.

B. All raceways runs, whether terminated in boxes or not, shall be capped during the course of construction and until wires are pulled in, and covers are in place. No conductors shall be pulled into raceways until construction work which might damage the raceways has been completed.

C. All raceways shall be kept clear of plumbing fixtures to facilitate future repair or replacement of said fixtures without disturbing wiring. Except where it is necessary for control purposes, all raceways shall be kept away from items producing heat.

D. All raceway runs in masonry shall be installed at the same time as the masonry so that no face cutting

is required, except to accommodate boxes.

E. All raceways shall be run from outlet to outlet exactly as shown on the drawings, unless permission is granted to alter arrangement shown. If permission is granted arrangement shall be marked on field set of drawings as previously specified.

F. All underground raceways (with exception of raceways installed under floor slab) shall be installed in accordance with Section 300 5 of the NEC except that the minimum cover for any conduit shall be two feet. Included under this Section shall be the responsibility for verifying finished lines in areas where raceways will be installed underground before the grading is complete.

G. All raceways shall have an insulated copper system ground conductor throughout the entire length of circuit installed within conduit in strict accordance with NEC. Grounding conductor shall be included in total conduit fill determining conduit sizes, even though not included or shown on drawings. Grounding conductors run with feeders shall be bonded to portions of conduit that are metal by approved ground bushings.

H. Insulated bushings shall be used on all rigid steel conduits terminating in panels, wire gutters, or cabinets, and shall be impact resistant plastic molded in an irregular shape at the top to provide smooth insulating surface at top and inner edge. Material in these bushings must not melt or support flame.

I. Spare conduit stubs shall be capped and location and use marked with concrete marker set flush with finish grade or terminated in a manhole. Marker shall be 6" round X 6" deep with appropriate symbol embedded into top to indicate use. Also, tag conduits in panels where originating.

J. All conduit stubbed above floor shall be separated with plastic interlocking spacers manufactured specifically for this purpose, or shall be strapped to Kindorf channel supported by conduit driven into ground or tied to steel.

K. Raceways which do not have conductors furnished under this Division of the specifications shall be left with an approved nylon pullcord in raceway.

L. Rigid Metallic Conduit, electrical metallic tubing, flexible steel conduit and PVC conduit shall be manufactured within the United States.

M. All connections to motors or other vibrating equipment (except dry type transformers) or at other locations where required shall be made with not less than 12" nor more than 20" of flexible liquid-tight steel conduit, using special type of connectors with strain relief fittings at both terminations of conduit. Flex connectors shall have insulated throat and shall be T & B 3100 Series or approved substitution. Use angle connectors wherever necessary to relieve angle strain on flex conduit. Connections to dry type transformers shall be made with flexible conduit. Typical length of flex conduit shall be limited to 20" unless specifically approved by the engineer.

N. PVC joints shall be solvent welded. Threads will not be permitted on PVC conduit and fittings, except for aluminum to PVC couplings. Installation of PVC conduit shall be in accordance with manufacturer's recommendations. PVC conduit shall not be used to support fixture or equipment. Field bends shall be made with approved hotbox. Heating with flame and hand held heat guns are prohibited.

O. Expansion fittings shall be installed in the following cases: In each conduit run wherever it crosses an expansion joint in the concrete structure; on one side of joint with its sliding sleeve end flush with joint, and with a length of bonding jumper in expansion equal to at least three times the normal width of joints; in each conduit run which mechanically attached to separate structures to relieve strain caused by shift on one structure in relation to the other; in straight conduit run above ground which is more than fifty feet long and interval between expansion fittings in such a runs shall not be greater than 100 feet for aluminum conduit and 50 feet for PVC conduit.

P. Underground cable identification: bury a continuous, pre-printed, bright colored metalized plastic

(electronically traceable) ribbon cable marker with each underground conduit (or group of conduits), regardless of whether conduits are in ductbanks. Locate directly over conduits, 6" to 8" below finished grade. Delete this requirement under building slabs.

Q. Provide for separation of instrumentation, control and power conductors. Provide a minimum of 24" inch separation for parallel runs of power conduit to instrumentation or control conduit with either conduit being PVC or Aluminum. This separation can be reduced to 8" if metallic grounded separation is provided (steel conduit).

END OF SECTION

1 STS-26 08 00 - ELECTRICAL RELIABILITY VERIFICATION

1.1 PART 1 – GENERAL

1.1.1 GENERAL SCOPE

A. The Contractor shall engage the services of a recognized corporately and financially independent testing firm for the purpose of performing inspections and tests on all new electrical equipment supplied in this contract and on existing modified equipment as herein specified. All tests shall be documented. It is the intent of these specifications that the testing firm work in direct communication with the engineer of record with frequent testing data updates as the work progresses.

B. The testing firm shall provide all material, equipment, labor and technical supervision to perform such tests and inspections. Testing shall be supervised by qualified professional engineering staff.

C. It is the purpose of these tests to assure that all tested electrical equipment, is operational and within industry and manufacturer's tolerances and is installed in accordance with design specifications. Tests shall be performed with and in cooperation with certification tests performed by switchgear and generator manufacturer. The testing contractor shall be an integral part in assuring the coordinated testing and startup of the power system. The tests and inspections shall determine suitability for energization.

D. An itemized description of existing equipment to be inspected and tested is as follows:

1. Provide testing of existing feeders that are relocated, extended or disturbed in any way.

2. Provide testing of existing breakers that are re-fed, relocated, re-cabled or disturbed in any way.

E. The above electrical testing shall be used in the development of the final testing report encompassing all new and existing electrical equipment; submitted with the operation and maintenance manuals prior to substantial completion of the project. The testing report shall be submitted on 8.5" X 11" paper bound with all field test data in appendix form plus an electronic copy in Adobe PDF format. All tested breakers shall be fitted with a sticker indicating the testing firm, date and technician performing the test.

1.1.2 APPLICABLE CODES, STANDARDS, AND REFERENCES

A. All inspections and test shall be in accordance with the following codes and standards except as provided otherwise herein:

1. National Electrical Manufacturer's Association – NEMA

2. American Society for Testing and Materials – ASTM

3. Institute of Electrical and Electronic Engineers – IEEE

4. International Electrical Testing Association - NETA Acceptance Testing Specifications - ATS-1991

5. American National Standards Institute - ANSI C2: National Electrical Safety Code.

6. State and local codes and ordinances

7. Insulated Cable Engineers Association – ICEA

8. Association of Edison Illuminating Companies – AEIC

9. Occupational Safety and Health Administration – OSHA

10. National Fire Protection Association – NFPA
    a. ANSI/NFPA 70: National Electrical Code
    b. ANSI/NFPA 70B: Electrical Equipment Maintenance
    c. NFPA 70E: Standard for Electrical Safety in the Workplace
    d. ANSI/NFPA 780: Lightning Protection Code
    e. ANSI/NFPA 101: Life Safety Code

B. All inspections and test shall utilize the following references:
    1. Project design specifications
    2. Project design drawings
    3. Manufacturer's instruction manuals applicable to each particular apparatus

1.1.3 QUALIFICATIONS OF TESTING FIRM

A. The testing firm shall be an independent testing organization which can function as an unbiased testing authority, professionally independent of the manufacturers, supplier, and installers of equipment or systems evaluated by the testing firm.
B. The testing firm shall be regularly engaged in the testing of electrical equipment devices, installations, and systems.
C. The testing firm shall meet OSHA criteria for accreditation of testing laboratories, Title 29, Part 1907, or be a Full Member company of the International Electrical Testing Association (NETA).
D. The lead, on-site, technical person shall be currently certified by the International Electrical Testing Association (NETA) or National Institute for Certification in Engineering Technologies (NICET) in electrical power distribution system testing or be a electrical professional engineer in the state of Florida.
E. The testing firm shall utilize engineers and technicians who are regularly employed by the firm for testing services. The testing firm shall provide in house electrical studies and reports as specified. The testing firm shall have a Florida registered professional electrical engineer on staff.
F. The testing firm shall submit proof of the above qualifications when requested. Pre-qualified testing firms for this project are:
    1. Emerson Electrical Reliability Services, Inc.
    2. Industrial Electrical Testing, Inc.
    3. Electric Power Systems

    Other firms will be considered by the engineer on submittal of qualifications on or before 20 days prior to bid.

1.1.4 DIVISION OF RESPONSIBILITY

A. The contractor shall perform routine insulation-resistance, continuity, and rotation test for all distribution and utilization equipment prior to and in addition to tests performed by the testing firm specified herein.

B. The contractor shall supply a suitable and stable source of electrical power to each test site.

C. The contractor shall notify the testing firm when equipment becomes available for acceptance tests. Work shall be coordinated to expedite project scheduling. However the testing firm shall visit the job a minimum of once a week to perform coordination duties required and make reports to the engineer of the installation progress.

D. The testing firm shall notify the engineer prior to commencement of any testing.

E. Any system, material, or workmanship which is found defective on the basis of acceptance tests shall be reported to the engineer.

F. The testing firm shall maintain a written record of all tests and, upon completion of project, shall assemble and certify a final test report.

G. Safety and Precautions

1. Safety practices shall include, but are not limited to, the following requirements:

a. Occupational Safety and Health Act.

b. Accident Prevention Manual for Industrial Operations, National Safety council

c. Applicable state and local safety operating procedures.

d. Owner's safety practices.

e. National Fire Protection Association - NFPA 70E

f. American National Standards for Personnel Protection

2. All test shall be performed with apparatus de-energized. Exceptions must be thoroughly reviewed to identify safety hazards and devise adequate safeguards.

3. The testing firm shall have a designated safety representative on the project to supervise the testing operations with respect to safety.

1.1.5 SUITABILITY OF TEST EQUIPMENT

A. All test equipment shall be in good mechanical and electrical condition.

B. Digital multimeters used shall be RMS sensing when the variable being measured contains harmonics or dc offset or any deviation from a pure sine wave. Accuracy of metering in test equipment shall be appropriate for the test being performed but not in excess of 2 percent of the scale used.

C. Equipment calibration and certification is required to be up to date per equipment manufacturers recommendations and in accordance with NETA standards.

1.2 PART 2 - INSPECTION AND TEST PROCEDURES

1.2.1 CABLES - LOW VOLTAGE

600V Maximum (all cables except 20 and 30amp lighting and receptacle circuits).

A. Visual and Mechanical Inspection

1. Inspect cables for physical damage and proper connection in accordance with drawings.

2. Test cable mechanical connections to manufacturer's recommended values or NETA Standards using a calibrated torque wrench.

3. Check cable color coding with applicable engineer's specifications and National Electrical Code

standards.

B. Electrical Tests

Perform insulation-resistance test on each conductor with respect to ground and adjacent conductors. Applied potential shall be 1000 volts dc for 3 minutes.

Perform continuity test to insure proper cable connection.

Test Values; Evaluate results by comparison with cables of same length and type. Minimum acceptable value shall be no less than 50 megohms for new feeders; 5megohms for existing reused, renovated, rerouted or extended feeders.

1.2.2 CIRCUIT BREAKERS

All breakers except 20 and 30amp breakers; test all GFCI breakers

A. Circuit Breakers - Low Voltage insulated case/molded case

1. Visual and Mechanical Inspection

a. Check circuit breaker for proper mounting and compare nameplate data to drawings and specifications.

b. Operate circuit breaker to ensure smooth operation.

c. Inspect case for cracks or other defects.

d. Check tightness of connections using calibrated torque wrench. Refer to manufacturer's instructions or NETA standards for proper torque levels.

2. Electrical Tests

a. Perform a contact-resistance test.

b. Perform an insulation-resistance test at 1000 volts dc from pole to pole and from each pole to ground with breaker closed and across open contacts of each phase.

3. Test Values

a. Compare contact resistance or millivolt drop values to adjacent poles and similar breakers. Investigate deviations of more than fifty percent (50%). Investigate any value exceeding manufacturer's recommendations.

b. Insulation resistance shall not be less than 100 megohms.

1.2.3 METERING AND INSTRUMENTATION

A. Visual and Mechanical Inspection

1. Examine all devices for broken parts, shipping damage and tightness of connections.

2. Verify that meter types, scales and connections are in accordance with drawings and specifications.

B. Electrical Tests

1. Determine accuracy of meters at 25/50/75/100% of full scale.
2. Calibrate watthour meters to one-half percent (0.5%).
3. Verify all instrument multipliers.
4. Verify calibration of all instrumentation is accurate to the operator interface terminals

1.2.4 GROUNDING SYSTEMS

Provide for new and upgraded grounding systems.

A. Visual and Mechanical Inspection

B. Inspect ground systems for compliance with drawings and specifications.

C. Perform ground-impedance measurements utilizing the fall-of-potential method per ANSI/IEEE Standard 81 "IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System." Instrumentation utilized shall be as Approved by NETA Standards and shall be specifically designed for ground impedance testing. Provide sufficient spacing so that plotted curves flatten. In large ground grid systems where adequate pole distance is not practical provide Tagg Slope technique or the intersecting curves method (Ref. Nos. 40 and 41 in IEEE Std. 81.) of calculating system resistance.

D. Equipment Grounds: Utilize two-point method of IEEE Std. 81. Measure between equipment ground being tested and known low-impedance grounding electrode of system:

E. Lightning protection ground system test values within the ground system should be 5 ohms or less tested with a clamp on ground test instrument. Down conductor tests at grade level should be 2 ohms or less. Investigate high resistance connections and correct readings above these limits.

F. The main ground electrode system impedance-to-ground should be no greater than one (1) ohms. Equipment grounds, depending on size and length of grounding conductor, should be only fractionally higher than system ground.

1.2.5 GROUND-FAULT SYSTEMS

A. Visual and Mechanical Inspection

1. Inspect for physical damage and compliance with drawings and specifications.
2. Inspect neutral main bonding connection to assure:
    a. Zero-sequence sensing system is grounded.
    b. Ground-strap sensing systems are grounded through sensing device.
    c. Ground connection is made ahead of neutral disconnect link on zero-sequence sensing systems.
    d. Grounded conductor (neutral) is solidly grounded.
3. Inspect control power transformer to ensure adequate capacity for system.
4. Manually operate monitor panels (if present) for: Trip test; No trip test; Non-automatic reset.

5. Record proper operation and test sequence.

6. Set pick-up and time-delay settings in accordance with the settings provided by the manufacturer.

B. Electrical Tests

1. Measure system neutral insulation resistance to ensure no shunt ground paths exist. Remove neutral-ground disconnect link. Measure neutral insulation resistance and replace link.

2. Determine the relay pickup current by current injection at the sensor and operate the circuit interrupting device.

3. Test the relay timing by injecting three hundred percent (300%) of pickup current, or as specified by manufacturer.

4. Test the system operation at fifty-seven percent (57%) rated control voltage, if applicable.

5. Test zone interlock systems by simultaneous sensor current injection and monitoring zone blocking function.

6. On multiple source, tie breaker, etc., systems, devise a simulation scheme that fully proves correct operation.

1.2.6 MOTORS (5hp and greater)

A. Visual and Mechanical Inspection

1. Inspect for physical damage.

2. Inspect for proper anchorage, mounting, grounding, connection and lubrication.

3. When applicable, perform special tests as air gap spacing and pedestal alignment.

B. Electrical Tests - Induction Motors

1. Perform insulation resistance tests in accordance with ANSI/IEEE Std. 43.

2. Motors 200Hp and Less - Test duration shall be for one minute with resistances tabulated at 30 and 60 seconds and calculate the dielectric absorption ratio. Motors larger than 200 horsepower perform tests for ten minutes and calculate polarization index. Minimum acceptable polarization index for Class B or F insulated motors shall be 2.0.

3. Perform insulation resistance test on pedestal per manufacturer instructions.

4. Perform insulation resistance test on surge protection device in accordance with this specification.

5. Check that the motor space heater circuit is in proper operating condition.

6. Check all protective devices in accordance with other sections of these specifications.

7. Perform a rotation test to ensure proper shaft direction if the motor has been disconnected.

8. Measure running current and evaluate relative to load conditions and nameplate full load amperes. Verify proper overload relays.

1.2.7 MOTOR CONTROL (all motors)

A. Visual and Mechanical Inspection

1. Inspect for physical damage, proper anchorage, and grounding.

2. Inspect equipment for compliance with drawings and specifications. Motor-running protection

   a. Compare overload heater rating with motor full-load current rating to verify proper sizing.

   b. If motor-running protection is provided by fuses, verify proper rating considering motor characteristics and power-factor correction capacitors if applicable. Check tightness of bolted connections using calibrated torque wrench.

B. Electrical Tests

1. Insulation tests:

   a. Measure insulation resistance of each bus section phase-to-phase and phase-to-ground for three (3) minutes. Test voltage shall be in accordance with NETA Standards.

   b. Measure insulation resistance of each starter section phase-to-phase and phase-to-ground with the starter contacts closed and the protective device open. Test voltage shall be in accordance with NETA Standards.

   c. Measure insulation resistance of each control circuit with respect to ground.

2. Test motor overload units by injecting current through overload unit and monitoring trip time at three hundred percent (300%) of motor full-load current.

3. Three phase power unbalance: Run motor at full load steady state conditions and take current readings on all three leads. Roll the motor leads maintaining the proper rotation and take motor current readings on all three possible hook-ups. Choose the least unbalance hookup for each motor. The maximum acceptable unbalance is 10 percent at full load. If the unbalance cannot be corrected by rolling leads, the source of the unbalance must be located and corrected. If on the three possible hook ups, the leg of "greatest unbalance" (furthest from the average) stays on the same power lead then most of the unbalance is being caused by the power source. However, if the leg of greatest unbalance moves on each of the hookups with a particular motor lead, the primary source of unbalance is on the motor side of the starter. Check for damaged cable, leaking splices, poor connections, or faulty motor winding.

1.2.8 TRANSFORMERS

Dry Type Transformers - Small Dry Type, Air-Cooled (600 Volt and Below)

A. Inspect for physical damage, broken insulation, tightness of connections, defective wiring, and general condition.

B. Thoroughly clean unit prior to making any tests.

C. Perform insulation-resistance test. Perform test verification for impedance.

D. Energize primary winding with system voltage. Measure secondary voltage with the secondary load disconnected. Record results.

1.2.9 THERMOGRAPHIC SURVEY

Provide for all new or modified switchgear, bus ducts, transformers, points of power connection equal to or greater than 30amps, MCC's and distribution centers.

A. Visual and Mechanical

1. Remove all necessary covers prior to scanning.

2. Inspect for physical, electrical, and mechanical condition.

B. Equipment to be Scanned

1. All new and existing equipment with ratings of 30amps or more.

C. Provide report indicating the following:

1. Problem area (location of "hot spot")

2. Temperature rise between "hot spot" and normal or reference area.

3. Cause of heat rise

4. Phase unbalance, if present

5. Areas scanned

D. Test Parameters

1. Scanning distribution system with ability to detect 1oC between subject area and reference at 30oC.

2. Equipment shall detect emitted radiation and convert detected radiation to visual signal.

3. Infrared surveys should be performed during periods of maximum possible loading but not less than twenty percent (20%) of rated load of the electrical equipment being inspected.

4. Provide photographs and/or the thermogram of the deficient area as seen on the imaging system.

1.2.10 LOW VOLTAGE SURGE SUPPRESSORS

A. Visual and mechanical inspection

1. Verify suppressors are installed with minimum length leads to the protected equipment. Verify connections to bus.

2. Verify ground connections to ground bus.

B. Electrical Tests

1. Test clamping voltage and verify meets specified ratings; test in accordance with ANSI C62.33 section 4.4 and 4.7

1.2.11 LOW VOLTAGE AIR SWITCHES

Disconnect switches, manual & automatic transfer switches

A. Visual and Mechanical Inspection

1. Compare equipment nameplate data with drawings and specs.
2. Inspection for mechanical and physical damage. Cleaning of interior, insulators, arc chutes.
3. Testing of mechanical operator. Cleaning and lubrication of contacts and mechanism, as applicable.
4. Verification of contact alignment and wipe. Verify phase barrier insulation.
5. Inspect anchorage, alignment, grounding, and required clearances.
6. Documentation of fuse and types are in accordance with drawings, short circuit studies and coordination study.
7. Verification of tightness of accessible bolted electrical connections by calibrated torque-wrench method.
8. Verification of presence of expulsion-limiting devices on all holders having expulsion-type elements.
9. Verification of interlocking systems for proper operation and sequencing.
10. Verify proper lubrication on current carrying and moving sliding parts.

B. Electrical Tests

1. Contact resistance testing across each switch blade and fuse holder.
2. Measurement of fuse resistance.
3. Insulation resistance testing on each pole, phase-to-phase and phase-to-ground with switch closed and across each open pole for one minute.
4. AC or DC overpotential testing phase-to-phase and phase-to-ground.
5. Verification of proper space heater operation.

END OF SECTION

1 STS-260543 - UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS

1.1 PART 1 - GENERAL

1.1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.1.2 SUMMARY

This Section includes the following:

a) Conduit, ducts, and duct accessories for direct-buried and concrete-encased duct banks and in single duct runs.
b) Handholes and boxes.
c) Manholes.

1.1.3 DEFINITIONS

RNC: Rigid nonmetallic conduit

1.1.4 SUBMITTALS

Product Data:
a) Duct-bank materials, including separators and miscellaneous components.
b) Ducts and conduits and their accessories, including elbows, end bells, bends, fittings, and solvent cement.
c) Accessories for manholes, handholes, boxes.

Shop Drawings for Precast or Factory-Fabricated Underground Utility Structures
Include plans, elevations, sections, details, attachments to other work, and accessories, including the following:

a) Duct entry provisions, including locations and duct sizes.
b) Reinforcement details.
c) Frame and cover design and manhole frame support rings.
d) Grounding details.
e) Dimensioned locations of cable rack inserts, pulling-in and lifting irons, and sumps.
f) Joint details.

Shop Drawings for Factory-Fabricated Handholes and Boxes Other Than Precast Concrete
Include dimensioned plans, sections, and elevations, and fabrication and installation details, including the following:

a) Duct entry provisions, including locations and duct sizes.
b) Cover design.
c) Grounding details.
d) Dimensioned locations of cable rack inserts, and pulling-in and lifting irons.

Duct-Bank Coordination Drawings: Show duct profiles and coordination with other utilities and underground structures.

a) Include plans and sections, drawn to scale, and show bends and locations of expansion fittings.
b) Drawings shall be signed and sealed by a qualified professional engineer.

Qualification Data: For professional engineer and testing agency.

Source quality-control test reports.

Field quality-control test reports.

1.1.5 QUALITY ASSURANCE

Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.

Comply with ANSI C2.

Comply with NFPA 70.

1.1.6 DELIVERY, STORAGE, AND HANDLING

Deliver ducts to Project site with ends capped. Store nonmetallic ducts with supports to prevent bending, warping, and deforming.

Store precast concrete and other factory-fabricated underground utility structures at Project site as recommended by manufacturer to prevent physical damage. Arrange so identification markings are visible. Lift and support precast concrete units only at designated lifting or supporting points.

1.1.7 PROJECT CONDITIONS

Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electrical service according to requirements indicated:

Notify Owner no fewer than two days in advance of proposed interruption of electrical service.
Do not proceed with interruption of electrical service without Owner's written permission.

1.1.8 COORDINATION

Coordinate layout and installation of ducts, manholes, handholes, and boxes with final arrangement of other utilities, site grading, and surface features as determined in the field.

Coordinate elevations of ducts and duct-bank entrances into manholes, handholes, and boxes with final locations and profiles of ducts and duct banks as determined by coordination with other utilities, underground obstructions, and surface features. Revise locations and elevations from those indicated as required to suit field conditions and to ensure that duct runs drain to manholes and handholes, and as approved by Architect.

1.1.9 EXTRA MATERIALS

Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1.2 PART 2 – PRODUCTS

1.2.1 CONDUIT

Rigid Steel Conduit: Galvanized. Comply with ANSI C80.1.

RNC: NEMA TC 2, Type EPC-40-PVC, UL 651, with matching fittings by same manufacturer as the conduit, complying with NEMA TC 3 and UL 514B.

1.2.2 NONMETALLIC DUCT ACCESSORIES

1.2.3 PRECAST CONCRETE HANDHOLES AND BOXES

1.3 PART 3 – EXECUTION

1.3.1 UNDERGROUND DUCT APPLICATION

a) Ducts for Electrical Feeders 600 V and Less: RNC, NEMA Type EPC-40 PVC, unless otherwise indicated.
b) Underground Ducts Crossing Driveways and Roadways: RNC, NEMA Type EPC-40-PVC, encased in reinforced concrete.

1.3.2 UNDERGROUND ENCLOSURE APPLICATION

Handholes and Boxes for 600 V and Less, Including Telephone, Communications, and Data Wiring:

a) Units in Roadways and Other Deliberate Traffic Paths: Precast concrete. AASHTO HB 17, H-20 structural load rating.

b) Units in Driveway, Parking Lot, and Off-Roadway Locations, Subject to Occasional, Nondeliberate Loading by Heavy Vehicles: Precast concrete, AASHTO, H-20 structural load rating.

EARTHWORK

Excavation and Backfill: Comply with Division 22 Section "Earth Moving," but do not use heavy-duty, hydraulic-operated, compaction equipment.

Restore surface features at areas disturbed by excavation and reestablish original grades, unless otherwise indicated. Replace removed sod immediately after backfilling is completed.

Restore areas disturbed by trenching, storing of dirt, cable laying, and other work. Restore vegetation and include necessary topsoiling, fertilizing, liming, seeding, sodding, sprigging, and mulching.

Cut and patch existing pavement in the path of underground ducts and utility structures.

1.3.3 DUCT INSTALLATION

Slope: Pitch ducts a minimum slope of 1:300 down toward manholes and handholes and away from buildings and equipment. Slope ducts from a high point in runs between two manholes to drain in both directions.

Curves and Bends: Use manufactured long sweep RGS bends with a minimum radius of 12.5 feet (4 m), both horizontally and vertically, at other locations, unless otherwise indicated.

Joints: Use solvent-cemented joints in ducts and fittings and make watertight according to manufacturer's written instructions. Stagger couplings so those of adjacent ducts do not lie in same plane.

Duct Entrances Concrete and Polymer Concrete Handholes: Use end bells, spaced approximately 10 inches (250 mm) on center for 5-inch (125-mm) ducts, and vary proportionately for other duct sizes.

1. Begin change from regular spacing to end-bell spacing 10 feet (3 m) from the end bell without reducing duct line slope and without forming a trap in the line.

2. Direct-Buried Duct Banks: Install an expansion and deflection fitting in each conduit in the area of disturbed earth adjacent to manhole or handhole.

Building Wall Penetrations: Make a transition from underground duct to rigid steel conduit at least 10 feet (3 m) outside the building wall without reducing duct line slope away from the building, and without forming a trap in the line.

Sealing: Provide temporary closure at terminations of ducts that have cables pulled. Seal spare ducts at terminations. Use sealing compound and plugs to withstand at least 15-psig (1.03-MPa) hydrostatic pressure.

Pulling Cord: Install, unless otherwise specified, 2500# mule tape in empty conduits and 1250# mule tape in innerducts.

Concrete-Encased Ducts: Support ducts on duct separators.

1. Separator Installation: Space separators close enough to prevent sagging and deforming of ducts, with not less than 4 spacers per 20 feet (6 m) of duct. Secure separators to earth and to ducts to prevent floating during concreting. Stagger separators approximately 6 inches (150 mm) between tiers. Tie entire assembly together using fabric straps; do not use tie wires or reinforcing steel that may form conductive or magnetic loops around ducts or duct groups.

2. Concreting Sequence: Pour each run of envelope between manholes or other terminations in one continuous operation.

    a. Start at one end and finish at the other, allowing for expansion and contraction of ducts as their temperature changes during and after the pour. Use expansion fittings installed according to manufacturer's written recommendations or use other specific measures to prevent expansion-contraction damage.

    b. If more than one pour is necessary, terminate each pour in a vertical plane and install 3/4-inch (19-mm) reinforcing rod dowels extending 18 inches (450 mm) into concrete on both sides of joint near corners of envelope.

3. Pouring Concrete: Spade concrete carefully during pours to prevent voids under and between conduits and at exterior surface of envelope. Do not allow a heavy mass of concrete to fall directly onto ducts. Use a plank to direct concrete down sides of bank assembly to trench bottom. Allow concrete to flow to center of bank and rise up in middle, uniformly filling all open spaces. Do not use power-driven agitating equipment unless specifically designed for duct-bank application.

4. Reinforcement: Reinforce concrete-encased duct banks where they cross disturbed earth and where indicated. Arrange reinforcing rods and ties without forming conductive or magnetic loops around ducts or duct groups.

5. Forms: Use walls of trench to form side walls of duct bank where soil is self-supporting and concrete envelope can be poured without soil inclusions; otherwise, use forms.

6. Minimum Space between Ducts: 3 inches (75 mm) between ducts and exterior envelope wall, 2 inches (50 mm) between ducts for like services, and 4 inches (100 mm) between power and signal

ducts.

7. Depth: Install top of duct bank at least 36 inches (914.4 mm) below finished grade in areas not subject to deliberate traffic, and at least 30 inches (750 mm) below finished grade in deliberate traffic paths for vehicles, unless otherwise indicated.

8. Stub-Ups: Use manufactured duct elbows for stub-ups at poles and equipment and at building entrances through the floor, unless otherwise indicated. Extend concrete encasement throughout the length of the elbow.

9. Stub-Ups: Use manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through the floor.

    a. Couple steel conduits to ducts with adapters designed for this purpose and encase coupling with 3 inches (75 mm) of concrete.

    b. Stub-Ups to Equipment: For equipment mounted on outdoor concrete bases, extend steel conduit horizontally a minimum of 60 inches (1500 mm) from edge of base. Install insulated grounding bushings on terminations at equipment.

10. Detectable Warning Tape. An electronically detectable 6" Fiber Warning tape shall be installed 18" above the conduit. Tape shall be acid and alkali- resistant polyethylene film, 6 inches wide with a minimum thickness of 0.004 inch. The tape shall have a minimum strength of 7500 PSI lengthwise and 1,500 PSI crosswise. The tape shall be manufactured with integral wires, foil backing, or other means to enable its detection by a metal detector when the tape is buried up to a depth of 3 feet deep. The tape shall be orange in color and have the following continuous inscription, "CAUTION - FIBER OPTIC CABLE BURIED BELOW". The inscription shall be 2-inch black letters.

1.3.4 INSTALLATION OF CONCRETE HANDHOLES, AND BOXES

Precast Concrete Handhole and Manhole Installation:

1. Comply with ASTM C 891, unless otherwise indicated.

2. Install units level and plumb and with orientation and depth coordinated with connecting ducts to minimize bends and deflections required for proper entrances.

3. Unless otherwise indicated, support units on a level bed of crushed stone or gravel, graded from 1-inch (25-mm) sieve to No. 4 (4.75-mm) sieve and compacted to same density as adjacent undisturbed earth.

Elevations:

1. Handhole Covers: In paved areas and trafficways, set surface flush with finished grade. Set covers of other handholes 1 inch (25 mm) above finished grade.

2. Where indicated, cast handhole cover frame integrally with handhole structure.

1.3.5 GROUNDING

Ground underground ducts and utility structures according to Division 26 Section "Grounding and Bonding for Electrical Systems."

1.3.6 FIELD QUALITY CONTROL

Perform the following tests and inspections and prepare test reports:

Demonstrate capability and compliance with requirements on completion of installation of underground ducts and utility structures.

All conduit runs shall be clearance tested after the completion of all backfilling and subgrade preparation operations. This test shall consist of pulling a mandrel through the conduit run. The mandrel shall be segmented with an outer diameter not less than 1/4 inch smaller than the inside diameter of the conduit and shall be 10" inches in length. The test shall be considered acceptable when the mandrel can be passed through the entire conduit run with a pulling force of 300 pounds or less. Each conduit run shall be verified for continuity along its entire length, as noted on the plans, and by means of an underground line locator. The installed conduit system shall be marked on the ground using standard blue stake color code and markings procedures.

Test manhole and handhole grounding to ensure electrical continuity of grounding and bonding connections. Measure and report ground resistance.

Correct deficiencies and retest as specified above to demonstrate compliance.

1.3.7 CLEANING

Pull leather-washer-type duct cleaner, with graduated washer sizes, through full length of ducts. Follow with rubber duct swab for final cleaning and to assist in spreading lubricant throughout ducts.

Clean internal surfaces of manholes, including sump. Remove foreign material.

END OF SECTION

1 STS-26 28 20.09 - LOW VOLTAGE PANELBOARDS

1.1 PART 1 – GENERAL

1.1.1 SUMMARY

A. Scope: Provide labor, material, equipment, related services, and supervision required, including, but not limited to, manufacturing, fabrication, configuration and installation for lighting and appliance panelboards (also identified as panelboard, PP) as required for the complete performance of the Work, as shown on the Drawings, as specified herein, and as specified elsewhere for the assemblies or systems comprised of the components specified herein.

B. Related Sections: Related sections include, but shall not be limited to, the following:

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

2. Applicable general requirements for electrical Work specified within Division 26 Specification Sections apply to this Section.

1.1.2 REFERENCES

A. General, Publications: The publications listed below form a part of this Specification to the extent referenced. The publications are referred to in the text by the basic designation only. The edition/revision of the referenced publications shall be the latest date as of the date of the Contract Documents, unless otherwise specified.

1. National Electrical Manufacturers Association (NEMA):

a. NEMA AB 1, "Molded Case Circuit Breakers and Molded Case Switches."

b. NEMA PB 1, "Panelboards."

c. NEMA PB 1.1, "General Instructions for Proper Installation, Operation and Maintenance of Panelboards Rated 600 Volts or Less."

2. National Fire Protection Agency (NFPA)

a. NFPA 70, "National Electrical Code," hereinafter referred to as NEC.

b. NFPA 5000, "Building Construction and Safety Code."

3. Underwriter Laboratories (UL):

a. UL 50, "Enclosures for Electrical Equipment, Non-Environmental Considerations."

b. UL 67, "Standard for Panelboards."

c. UL 489, "Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures."

1.1.3 SUBMITTALS

A. General

1. Submit sufficient information to determine compliance with the Contract Documents. Identify submittal data with the specific equipment tags and/or service descriptions to which they pertain. Submittal data shall be clearly marked to identify the specific model numbers, options, and features of equipment and work proposed.

2. Deviations from the Contract Documents shall be indicated within the submittal. Each deviation shall reference the corresponding drawing or specification number, show the Contract Document requirement text and/or illustration, and shall be accompanied by a detailed written justification for the deviation.

3. Product Data: For each type of panelboard:

   a. Bus Materials, devices, and accessories indicated.

   b. Dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.

   c. Installation instructions complying with NEMA PB 1.1.

4. Shop Drawings: Submit the following additional shop drawing information for each product and accessory required. Include information not fully detailed in manufacturer's standard product data.

   a. Drawings shall include, but shall not be limited to: environmental protection; interior mounting dimensions; and wiring gutter dimensions.

   b. The location of the main shall be clearly shown.

   c. The location of the branches and solid neutral shall be clearly shown.

   d. Shop drawings shall illustrate one-line diagrams with applicable voltage systems.

   e. Evidence of NRTL listing for series rating on OCPDs.

B. Operation & Maintenance (O&M) manuals shall be provided.

1. Submit required Operations & Maintenance data specific to each product and accessory proposed. In addition, include the following information:

   a. Installation instructions and NEMA Standards Publication PB 1.1 - Instructions for Safe Installation, Operation and Maintenance of Panelboards Rated 600 Volts or Less.

1.1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer shall be a firm engaged in the manufacture of specified products of types and sizes required, and whose products have been in satisfactory use in similar service for a minimum of 50 years.

1. The manufacturer shall have a valid ISO 9001 certification and an applicable quality assurance system that is regularly reviewed and audited by a third-party registrar. Manufacturing, inspection, and testing procedures shall be developed and controlled under the guidelines of the quality assurance system.

2. The manufacturer or their representative shall have service, repair, and technical support services available 24 hours 7 days a week basis.

B. All work performed and all materials used shall be in accordance with the National Electrical Code, and with applicable local regulations and ordinances. Process controllers, assemblies, materials, and equipment shall be listed and labeled by Underwriter's Laboratories or by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

1.1.5 DELIVERY, STORAGE AND HANDLING

A. Prior to delivery to the Project site, ensure that suitable storage space is available to store materials in a well-ventilated area protected from weather, moisture, soiling, extreme temperatures, humidity, and corrosive atmospheres. Materials shall be protected during delivery and storage and shall not exceed the manufacturer stated storage requirements. As a minimum, store indoors in clean, dry space with uniform temperature to prevent condensation. In addition, protect electronics from all forms of electrical and magnetic energy that could reasonably cause damage.

B. Deliver materials to the Project site in supplier's or manufacturer's original wrappings and containers, labeled with supplier's or manufacturer's name, material or product brand name, and equipment tag number or service name as identified within the Contract Documents.

C. Inspect and report any concealed damage or violation of delivery storage, and handling requirements to the Engineer.

1.1.6 WARRANTY

A. Additional Owner Rights: The warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

1.2 PART 2 – PRODUCTS

1.2.1 MANUFACTURERS

A. Acceptable Products: Panelboards specified herein shall be the product of a single manufacturer. Products and manufacturers specified are to establish a standard of quality for design, function, materials, and appearance. Products shall be modified as necessary by the manufacturer for compliance with requirements. Provide the following specified product

and manufacturer without exception, unless approved as a substitute by addendum to the Contract Documents prior to the bid date:

1. Power Panelboards (480V, 3PH) shall be Schneider Electric "I-Line" Series

2. Lighting Panelboards (120-240V) shall be Schneider Electric "NQ" Series

1.2.2 PANELBOARD Interior

A. Shall be rated per the Plans.

B. Provide UL Listed short circuit current ratings (SCCR) as indicated on the associated] not to exceed the lowest interrupting capacity rating of any circuit breaker installed with a maximum of 200,000 RMS symmetrical amperes. Main lug and main breaker panelboards shall be suitable for use as Service Equipment when application requirements comply with UL 67 and NFPA70 National Electric Code.

C. The panelboard interior shall have three flat bus bars stacked and aligned vertically with glass reinforced polyester insulators laminated between phases. The molded polyester insulators shall support and provide phase isolation to the entire length of bus.

D. The bussing shall be fully rated with sequentially phased branch distribution. Panelboard bussing shall be plated copper. Bus bar plating shall run the entire length of the bus bar. The entire interleaved assembly shall be contained between two (2) U-shaped steel channels, permanently secured to a galvanized steel-mounting pan by fasteners.

E. Interior trim shall be of dead-front construction to shield user from all energized parts. Main circuit breaker and main lug interiors shall be field convertible for top or bottom incoming feed.

F. A solidly bonded copper equipment ground bar shall be provided.

G. Solid neutral shall be equipped with a full capacity bonding strap for service entrance applications.

H. Nameplates shall contain system information and catalog number or factory order number. Interior wiring diagram, neutral wiring diagram, UL Listed label, and Short Circuit Current Rating shall be displayed on the interior or in a booklet format. Leveling provisions shall be provided for flush mounted applications.

I. Group mounted circuit breakers through 1200A

1. Circuit breaker(s) shall be group mounted with plug-on electrical connection, bolted to common pan or rail assembly.

2. The interior shall have three flat bus bars stacked and aligned vertically with glass reinforced polyester insulators laminated between phases. The molded polyester insulators shall support and provide phase isolation to the entire length of bus.

3. Circuit breakers equipped with line terminal jaws shall not require additional external mounting hardware. Circuit breakers shall be held in mounted position by a self-

contained bracket secured to the mounting pan by fasteners. Circuit breakers of different frame sizes shall be capable of being mounted across from each other.

4. Line-side circuit breaker connections are to be jaw type.

5. All unused spaces provided, unless otherwise specified, shall be fully equipped for future devices, including all appropriate breaker connectors and mounting hardware.

J. Molded Case Circuit Breaker Characteristics - General

1. Power Panel circuit breakers shall be "I-LINE" type.

2. Lighting Panel circuit breakers shall be "QO" type.

3. Circuit breaker/circuit breaker combinations for series connected interrupting ratings shall be listed by UL as recognized component combinations.

4. All circuit breakers with permanent trip units shall be UL Listed for reverse connection without restrictive line and load markings and be suitable for mounting in any position.

1.2.3 Panelboard Enclosures

A. Type 1 Boxes

1. Boxes shall be hot zinc dipped galvanized steel constructed in accordance with UL 50 requirements. Unpainted galvannealed steel is not acceptable.

2. Boxes shall have removable blank end walls and interior mounting studs. Interior support bracket shall be provided for ease of interior installation.

B. Type 1 Trim Fronts

1. Trim front steel shall meet strength and rigidity requirements per UL 50 standards. Shall have an ANSI 49 medium gray enamel electrodeposited over cleaned phosphatized steel.

2. Trim front shall be 4-piece with door surface mount. Trim front door shall have rounded corners and edges free of burrs. A clear plastic directory cardholder shall be mounted on the inside of the door.

3. Locks shall be cylindrical tumbler type with larger enclosures requiring sliding vault locks with 3-point latching. All lock assemblies shall be keyed alike. One (1) key shall be provided with each lock.

C. Type 3R, 5, and 12

1. Enclosures shall be constructed in accordance with UL 50 requirements. Enclosures shall be painted with ANSI 49 gray enamel electrodeposited over cleaned phosphatized steel.

1.3 PART 3 – EXECUTION

1.3.1 GENERAL

A. Examine equipment exterior and interior prior to installation. Report any damage and do not install any equipment that is structurally, moisture, or mildew damaged.

B. Verification of Conditions: Examine areas and conditions under which the work is to be installed, and notify the Contractor in writing, with a copy to the Owner and the Engineer, of any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.

C. Beginning of the work shall indicate acceptance of the areas and conditions as satisfactory by the Installer.

D. Install equipment in accordance with reviewed product data, final shop drawings, manufacturer's written instructions and recommendations, and as indicated on the Drawings.

E. Functional testing, commissioning, and first parameter adjusting shall be carried out by a factory trained manufacturer's representative field service engineer. Test and adjust controls and safeties. Replace damaged or malfunctioning controls and equipment. Report to the Engineer any discrepancies or issues with the installation.

F. Provide final protection and maintain conditions in a manner acceptable to the manufacturer that shall help ensure that the equipment is without damage at time of Substantial Completion.

1.3.2 INSTALLATION

A. Install panelboards in accordance with manufacture's written instructions, NEMA PB 1.1 and NEC Standards.

B. Inspect complete installation for physical damage, proper alignment, anchorage, and grounding.

C. Measure steady state load currents at each panelboard feeder; rearrange circuits in the panelboard to balance the phase loads within 20% of each other. Maintain proper phasing for multi-wire branch circuits.

D. Check tightness of bolted connections and circuit breaker connections using calibrated torque wrench or torque screwdriver per manufacturer's written specifications.

END OF SECTION

1 STS-26 29 13 - CONTROL PANELS

1.1 PART 1 – GENERAL

1.1.1 WORK INCLUDED

A. Furnish all labor, equipment, and materials for control panels as indicated on the drawings and specified herein. The panel supplier shall be a UL listed panel shop and all panels shall be UL-508 certified and labeled.

B. Control panel equipment shall be coordinated to provide all the specified control as indicate in the elementary diagrams or specified herein.

C. The Contractor shall be responsible for coordinating and interfacing with equipment and instrumentation supplied under other sections of the Contract Documents that are an integral part of the plant control systems. This interfacing shall be incorporated in the detailed systems drawings and data sections to be submitted by the contractor prior to rough-in work.

1.1.2 SUBMITTALS

A. Acceptable Manufacturers: See Spec. STS-01026.

B. The contractor shall submit to the Engineer for approval complete shop drawings, wiring diagrams, data, and operation and maintenance manuals of all equipment to be furnished under this section.

C. Coordination and Shop Drawings

Prepare and submit coordination drawings for installation of products and materials fabricated. Coordination and shop drawings shall be prepared using a computer aided drafting system compatible with Autocad. Coordination and shop drawings shall be submitted on hard copy (PDF) and electronically (DWG).

1. Submit component interconnect drawings showing the interconnecting wiring between each component including equipment supplied under other sections requiring interfacing with the control system. Diagrams shall show all component and panel terminal board identification numbers, and external wire and cable numbers. Note, this diagram shall include all intermediate terminations between field elements and panels (e.g., terminal junction boxes, pull boxes, etc.). Diagrams' device designations, and symbols shall be in accordance with NEMA ICS 1-101.

2. Panel Wiring Diagrams: Elementary diagrams shall be similar to those diagrams shown in the drawings, but with the addition of all auxiliary devices such as additional relays, alarms, fuses, lights, fans, heaters, etc.

3. Panel wiring diagrams shall identify wire numbers and types, terminal numbers, tag numbers and PLC I/O identification (address) numbers. Wiring diagrams shall show all circuits individually; no common diagrams shall be allowed.

4. Submit arrangement and construction drawings for consoles, control panels, and for other special enclosed assemblies for field installation. Include dimensions, identification of all components, preparation and finish data, nameplates, enough other details to define the style and overall appearance of the assembly and a finish treatment. Drawings shall show the location of all front panel mounted devices to scale and shall include a panel legend and a bill of materials. The panel legend shall list and identify all front of panel devices by their assigned tag numbers, all nameplate inscriptions, service legends and annunciator inscriptions. The bill of materials shall list all devices mounted within the panel that are not listed in the panel legend, and shall include the tag number, description, manufacturer and complete model number for each device.

5. Submit installation, mounting, and anchoring details for all components.

D. Operation, Maintenance and Repair Manuals

1. Submit operation and maintenance manuals.

E. Panel Record Drawings

1. Provide one set of laminated approved panel record drawings inside each control panel.

1.1.3 CODES AND STANDARDS:

Equipment, materials, and workmanship shall comply with the latest revisions of the following codes and standards

1. Instrumentation: Instrument Society of America (ISA).
2. National Electrical Code (NEC).
3. Wiring: ISA S5.3 and S5.4, latest issue.
4. Control Panels and equipment: NEMA, UL and ANSI.
5. Control Logic: Joint Industrial Council (JIC).
6. UL508A and UL508A-SB

1.2 PART 2 – PRODUCTS

1.2.1 GENERAL

A. Control panels shall be UL508A compliant. Control panels with resident voltages greater than 120V shall be marked with a short circuit current rating (SCCR). The SCCR shall be equal to or more than the short circuit current available at the panel line terminals and in no case be less than 10,000A SCCR. The panel designer shall verify the available short circuit required.

B. The electrical control equipment shall be mounted within a pad-lockable enclosure equipped with a 3-point latch with all hardware and exterior components construction of 300 series stainless steel (except control panels in air conditioned spaces and electrical room may be NEMA 1 painted steel). Back panel shall be secured to enclosure with collar studs. All hardware shall be stainless steel. Provide safety hardware to hold the door in an open position.

C. Components: All motor branch circuit breakers, motor starters and control relays shall be of highest industrial quality, securely fastened to the removable back panels with screws and lock washers. Back panels shall be tapped to accept all mounting screws.

D. If voltages exceeding 120V are present, a circuit breaker shall be provided on each control panel as a means of disconnecting power to the control panel. The circuit breaker operating handle shall be installed on the right side of the cabinet not in the door. The door shall be interlocked from opening when the circuit breaker is in the on position. The circuit breaker operating handle shall have an interlock defeat mechanism for qualified personnel to gain access to the panel without shutting off power.

E. Control transformers shall be installed where shown to provide control power. Transformers shall be fused on the primary and secondary circuits. The transformer secondary shall be grounded on one leg.

F. All control panel wiring shall be identified at both ends with type written heat shrinkable wire markers with the numbering system shown on the control submittal drawings.

1. Control wiring shall be stranded tinned copper, minimum size #16 AWG (except for shielded instrumentation cable may be #18 AWG), with 600volt, 90DegC, flame retardant, Type MTW thermoplastic insulation.

2. Wire shall be guided within control and terminal cabinets by cable supports (duct). Instrumentation and control field cables on the unprotected side of SPD devices within the cabinet shall not run in parallel to the cables on the protected side of the SPD device. Separate cable supports (duct) will be provided.

3. All conductors shall be neatly led to terminations. All connections of stranded wire to screw type terminal blocks shall be by insulated spade lugs, crimp fastened to wire. Provide stranded wire crimp ferrules for all stranded wire connections not requiring spade lugs for screw type terminal blocks.

G. The control panel shall be provided with nameplates identifying each component, selector switches, pilot lights, etc. Nameplates shall be permanently affixed using an epoxy process. Nameplates shall be laminated plastic, engraved white letters with a black background.

H. Corrosion Inhibitor Emitter: Provide an industrial corrosion inhibitor emitter on all exterior mounted control panels that will protect internal components of the control panel from corrosion one year. Provide a year supply of spare emitters, for each control panel.

I. Terminal strips shall be provided for all signals as indicated on the drawings plus all spare conductors as specified. Terminal strips shall be switch type with integral fuses equal to Allen Bradley 1492-H6. Wiring from the control panel to the terminal strips shall be factory installed. All spare conductors shall be terminated and identified. All terminals over 200V phase to phase shall be covered with approved plastic shields.

J. RELAYS

1. Relays for interfacing and control applications shall be the compact ice-cube type general purpose plug-in type having low coil inrush and holding current characteristics. An LED status-indicating light shall be provided with each relay. Coil voltage shall be as noted or shown. Non-latching relays shall have a single coil. Relays shall have plain plastic dust covers, test buttons, and mounting sockets with screw terminals and hold-down springs. Relays shall be UL recognized.

2. Time delay relays shall be adjustable time delay relays with the number of contacts and contact arrangements as shown. A neon status-indicating light shall be provided with each relay. Contacts shall be rated for 10 amperes at 120V ac. Integral knob with calibrated scale shall be provided for adjustment of time delay. Initial setting shall be as shown with time delay range approximately three times the initial setting. Time delay rangeability shall be at least 10:1. Operating voltage shall be 120V ac, plus 10 percent, -15 percent at 60-Hz. Operating temperature shall be -20 degrees F to 165 degrees F. Repeat timing accuracy shall be plus or minus 10 percent over the operating range.

3. All relays shall have a screw terminal interface with the wiring. Terminals shall have a permanent, legible identification. Relays shall be mounted such that the terminal identifications are clearly visible and the terminals are readily accessible.

K. Panel Operating Controls and Instruments

1. All operating controls and instruments shall be securely mounted on the control compartment door or interior deadfront as detailed on panel enclosure drawings. All controls and instruments shall be clearly labeled to indicate function.

2. Indicator lamps shall be 30mm LED full voltage push to test type and mounted in NEMA 4X (800H) modules, as manufactured by Allen Bradley or SKPI as manufactured by Square D. Lamp modules shall be equipped to operate at 24 or 120 volt input. Lamps shall be easily replaceable from the front of the control compartment door without removing lamp module from its mounted position. Units shall be heavy-duty, oiltight, push to test industrial type with screwed on prismatic glass lenses in colors as shown, and shall have factory engraved legend plates

3. Selector switches shall be 30mm heavy-duty, oiltight, industrial type selector switches with contacts rated for 120V ac service at 10 amperes continuous. Units shall have standard size, black field, legend plates with white markings, as indicated. Operators shall be black knob type. Units shall have the number of positions and contact arrangements and spring return function (if any) as shown. Units shall be single-hole mounting, accommodating panel thickness from 1/16-inch minimum to 1/4-inch maximum. Units with up to four selection positions shall be Allen Bradley 800H, Square D Type K, Cutler-Hammer Type T, or equal.

L. Custom Control Panel fabrication shall be by BCI Technologies
6450 Corporate Park Circle, Ste 3
Ft. Myers, FL 33966
Attn: Dan Blocker (239) 707-0026

1.3 PART 3 – EXECUTION

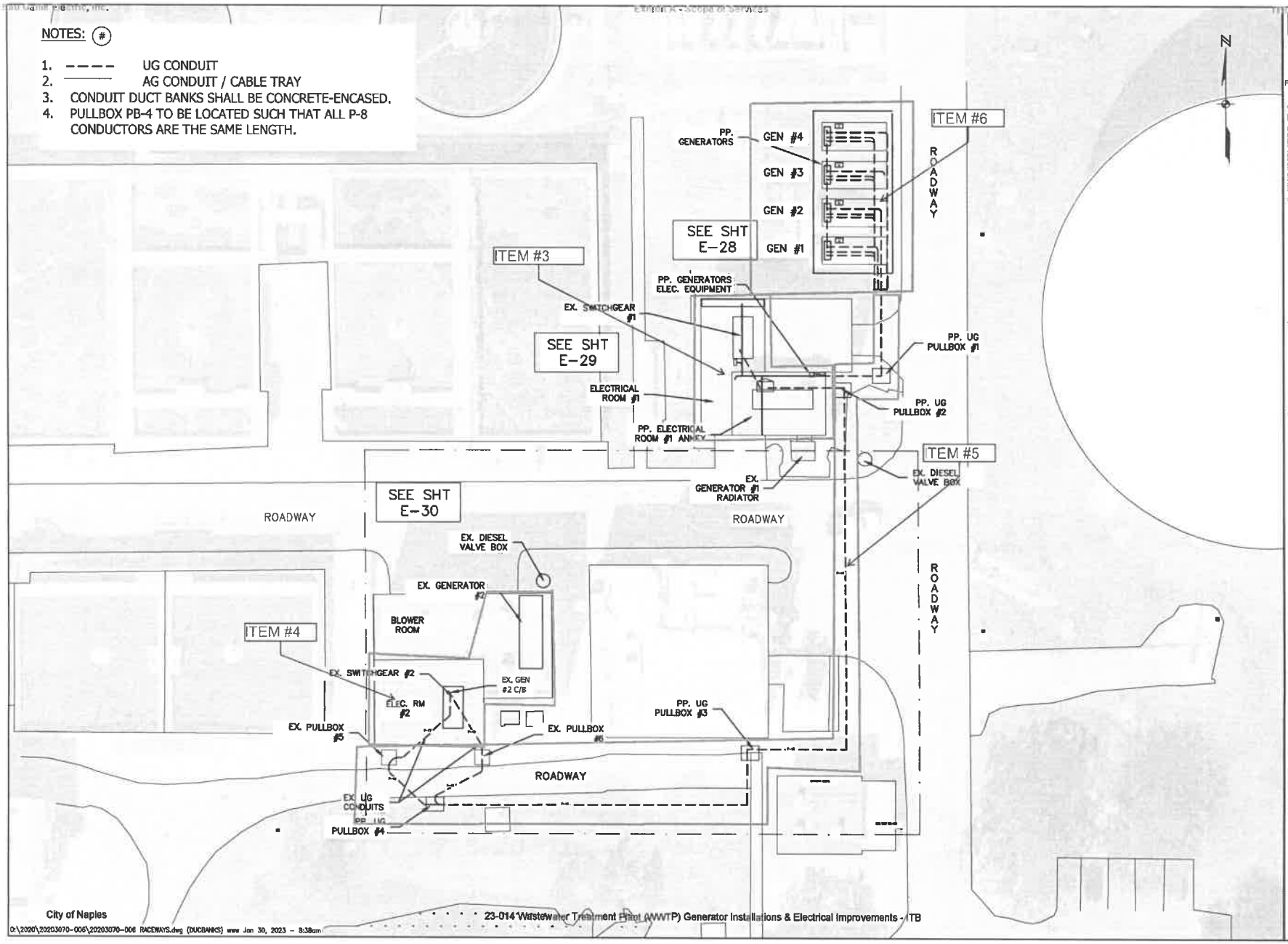
1.3.1 MOUNTING OF EQUIPMENT AND ACCESSORIES

A. Install and mount equipment in accordance with the Contract Documents, and installation detailed shop drawings. Mount equipment so that they are rigidly supported, level and plumb, and in such a manner as to provide accessibility; protection from damage; isolation from heat, shock and vibration; and freedom from interference with other equipment, piping, and electrical work.

B. Mount local equipment in cabinets or existing panels as specified. Mount associated terminals on a common panel or rack; all terminals over 200V phase to phase shall be covered with plastic shields.

C. Provide services of panel manufacturer to test the completed system after installation to assure that all components are operating within the specified range and all interlocks are functioning properly. Panel manufacturer shall certify functional operation and calibration in written startup report. Perform field tests on all completed control assemblies to demonstrate conformance to specifications and functional compatibility.

END OF SECTION



JOHNSON ENGINEERING
JOHNSON ENGINEERING, INC.
2122 JOHNSON STREET
P.O. BOX 1550
FORT MYERS, FLORIDA 33902-1550
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WAYNE WILDEY WRIGHT, PE
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City of Naples

FOR CONSTRUCTION
GENERATORS REPLACEMENT
WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

REVISIONS

NO.	DESCRIPTION	DATE

DATE:	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	1" = 40'

PP. RACEWAYS OVERVIEW

SHEET NUMBER
E-27

FOR CONSTRUCTION
GENERATORS REPLACEMENT
WATER RECLAMATION FACILITY
FOR
CITY OF NAPLES
NAPLES, FL
JANUARY 2023

LOCATION MAP

JOHNSON ENGINEERING
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P.O. BOX 1550
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City of Naples

FOR CONSTRUCTION
GENERATORS REPLACEMENT
WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

REVISIONS

NO.	DESCRIPTION	DATE

DATE	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE	NONE

COVER SHEET

SHEET NUMBER
MC-00

ABBREVIATIONS

A	AMPERES, AMBER OR ALARM
AH	AMP HOUR OR ALARM HORN
AL	ALARM LIGHT
ALM	ALARM
ASR	ALARM SILENCE RELAY
AHU	AIR HANDLING UNIT
AIC	AMPS INTERRUPTING CURRENT
ATS	AUTOMATIC TRANSFER SWITCH
AUX	AUXILIARY
BAT	BATTERY
BPC	BACKUP PUMP CONTROLLER
BOM	BILL OF MATERIAL
CB	CIRCUIT BREAKER
C	CONDUIT
CP	CONTROL PANEL
CPSA	CONTROL PANEL SURGE ARRESTOR
CT	CURRENT TRANSFORMER
CU	COPPER
DISC	DISCONNECT
DO	DIGITAL OUTPUT
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
EG	EQUIPMENT GROUND
ETM	ELAPSED TIME METER
F	FUSE
FLT	FAULT
FPL	FLORIDA POWER AND LIGHT
FMC	FLEXIBLE METALLIC CONDUIT
FS	FLOAT SWITCH
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND, G	GROUND
GRS	GALVANIZED RIGID STEEL
H	HIGH
HS	HAND SWITCH
HOA	HAND-OFF-AUTOMATIC
HOR	HAND-OFF-REMOTE
HMI	HUMAN MACHINE INTERFACE
I	INDICATOR
I&C	INSTRUMENTATION & CONTROL
INTR	INTRUSION
JB	JUNCTION BOX
L	LEVEL OR LOW
LR	LINE REACTOR
NEUT, N	NEUTRAL
NTS	NOT TO SCALE
O/C	OPEN / CLOSE
OIT	OPERATOR INTERFACE TERMINAL
MOV	MOTOR OPERATED VALVE
NF	NON-FUSIBLE
P	PRESSURE
PB	PUSHBUTTON
PLC	PROGRAMMABLE LOGIC CONTROLLER
PH, Ø	PHASE
PC	PHOTOCELL
PCP	PUMP CONTROL PANEL
PM	PHASE MONITOR
PS	POWER SUPPLY
PTT	PUSH-TO-TEST
Q	TOTALIZER
RECPT.	RECEPTACLE
R	RELAY, TREND, RESISTOR
RAC	RIDGID ALUMINUM CONDUIT
RIO	REMOTE INPUTS/OUTPUTS
RTU	REMOTE TELEMETRY UNIT
SCCR	SHORT CIRCUIT CURRENT RATING
SHLD	SHIELDED
SPD	SURGE PROTECTION DEVICE
S	SWITCH
SS	SELECTOR SWITCH
SSOL	SOLID STATE OVERLOAD
SV	SOLENOID VALVE
TB	TERMINAL BLOCK
TD	TIME DELAY
TSP	TWISTED SHIELDED PAIR
UG	UNDERGROUND
UPS	UNINTERRUPTABLE POWER SUPPLY
VFD	VARIABLE FREQUENCY DRIVE
XFMR	TRANSFORMER
Z	POSITION

SYMBOLS

PIT	MAGNETIC FLOW INDICATING TRANSMITTER
MAG	PRESSURE INDICATING TRANSMITTER
PIT	FLOW INDICATING TRANSMITTER
FIT	FLOW ELEMENT
FE	LEVEL (FLOAT) SWITCH
LS	PRESSURE SWITCH
PS	FLOW SWITCH
FS	MOTOR OPERATED VALVE (MOV)
M	SOLENOID VALVE (SV)
M	SOLENOID VALVE (SV)
	DIAPHRAGM VALVE
V	VOLTMETER
A	AMMETER
GFI	GROUND FAULT INTERRUPTER
	DRAW-OUT CIRCUIT BREAKER
30A	CIRCUIT BREAKER WITH TRIP RATING
HP	MOTOR WITH HP RATING
	EQUIPMENT GROUND
	DRIVEN ROD-TYPE GROUNDING ELECTRODE
	DRIVEN ROD-TYPE GROUNDING ELECTRODE WITH GROUND ACCESS WELL
	NON-FUSIBLE DISCONNECT SWITCH, 30A, 3P UNLESS OTHERWISE INDICATED
	CURRENT TRANSFORMER
	TRANSFORMER
	TRANSFORMER
	CONDUIT OR WIRE ROUTING; SHORT HASH MARK = PHASE CONDUCTOR LONG HASH MARK = NEUTRAL CONDUCTOR
	MOTOR OVERLOAD (EUTECTIC ALLOY)
	DUPLEX RECEPTACLE
	NORMALLY OPEN CONTACT
	NORMALLY CLOSED CONTACT
	LIMIT SWITCH, NORMALLY OPEN
	LIMIT SWITCH, NORMALLY CLOSED
	PRESSURE SWITCH, NORMALLY OPEN
	PRESSURE SWITCH, NORMALLY CLOSED
	FLOAT SWITCH, NORMALLY OPEN
	FLOAT SWITCH, NORMALLY CLOSED
	FLOW SWITCH, NORMALLY OPEN
	FLOW SWITCH, NORMALLY CLOSED
	TEMP. SWITCH, NORMALLY OPEN
	TEMP. SWITCH, NORMALLY CLOSED
	NORMALLY OPEN TIMED TO CLOSE CONTACT
	NORMALLY CLOSED TIMED TO OPEN CONTACT
	NORMALLY CLOSED TIMED TO CLOSE CONTACT
	NORMALLY OPEN TIMED TO OPEN CONTACT
LS	LIMIT SWITCH
TS	TORQUE SWITCH
PS	PRESSURE SWITCH
VS	VIBRATION SWITCH
AR	ALARM RELAY
CR	CONTROL RELAY
M	MOTOR STARTER
TR	TIMING RELAY
	INDICATING LIGHT WITH COLOR
	NORMALLY OPEN PUSHBUTTON
	NORMALLY CLOSED PUSHBUTTON
	MAINTAINED SWITCH
	FUSE WITH RATING
	REMOTE TERMINAL POINT
	HORN
	PUMP
	SURGE SUPPRESSOR (PROTECTED/UNPROTECTED)
	FUSED LEVER-TYPE TERMINAL BLOCK WITH LED INDICATOR

PROJECT ELECTRICAL NOTES

1. THIS PROJECT WILL REPLACE EXISTING ELETRICAL ROOM #1 STAND-ALONE GENERATOR WITH TWO GENERATORS CONFIGURED IN PARALLEL AND EXISTING ELECTRICAL ROOM #2 STAND-ALOND GENERATOR WITH TWO GENERATORS CONFIGURED IN PARALLEL.
2. DEMO 1200KW GENERATOR #1, DIESEL LINES, AND ALL APPURTANANCES IN GENERATOR ROOM #1. GENERATOR ROOM #1 WILL BE RENAMED "ELECTRICAL ROOM #1 ANNEX".
3. DEMO 1500KW GENERATOR #2, DIESEL LINES, AND ALL APPURTANANCES IN GENERATOR ROOM #2. GENERATOR ROOM #2 WILL BE CLEARED OUT AND BECOME AN EXTENSION TO THE BLOWERS ROOM.
4. INSTALL (4) 600KW GENERATORS IN LOCATION OF EX. DIESEL TANKS. PROVIDE CONCRETE GENERATOR PAD, CONDUIT, CONCRETE-ENCASED DUCT BANKS, CONDUCTORS, PULLBOXES, CABLE TRAY, AND RELATED EQUIPMENT.
5. DEMO EX. OUTDOOR DIESEL TANKS, CONCRETE MOUNTING PAD AND MONITORING WELLS, INCLUDING SOIL REMEDIATION, AS NEEDED.
6. NEW GENERATORS AND PLATFORMS WILL BE PROVIDED BY OTHERS. FURNISH AND INSTALL ALL ASSOCIATED GENERATOR ELECTRICAL EQUIPMENT PER PLANS AND SPECIFICATIONS.
7. ALL PROGRAMMING, SYSTEM INTEGRATION AND SWITCHGEAR CONTROL WIRING AND MODIFICATIONS WILL BE PROVIDED BY OTHERS.
8. REPLACE THE ENTIRE ROOF FOR THE RENAMED ELECTRICAL ROOM #1 ANNEX (OLD GENERATOR ROOM #1) BUILDING.
9. DEMOED EQUIPMENT WILL BE DELIVERED TO THE OWNER.
10. FURNISH AND INSTALL GENERATOR TAP BOX, RIO CONTROL PANEL "RIO-ANX", TRANSFORMER "XFMR-ANX", DISTRIBUTION PANELBOARD "DP-ANX", AND PULLBOXES #1, #2, #3, AND #4.
11. MODIFY EX. GENERATOR PLC CONTROL PANEL.

GENERAL ELECTRICAL NOTES

1. ALL NEW CONSTRUCTION SHALL COMPLY WITH APPLICABLE N.E.C. AND LOCAL CODES.
2. CONDUCTORS SHALL NOT BE SPLICED.
3. ALL CONDUCTORS SHALL BE 600-VOLT RATED, STRANDED COPPER. #8AWG AND LARGER SHALL BE RATED 90 DEGREE CELSIUS INSULATED STRANDED COPPER CONDUCTORS, THHN-2 OR XHHW-2. ALL MULTICONDUCTOR CONTROL CABLE SHALL BE #14 AWG XHHW-2, OMNICABLE P/N AF11400, OR EQ.
4. ALL CONDUIT RUNS SHALL BE SCHEDULE 80 PVC CONDUIT.
5. ALL BONDING CONDUCTORS SHALL BE ROUTED IN SCHEDULE 80 PVC CONDUIT. GROUND WIRE FROM SERVICE SHALL BE INSTALLED IN SCH. 40 CONDUIT.
6. TOP PENETRATIONS OF ELECTRICAL ENCLOSURES ARE NOT PERMITTED, UNLESS NOTED. ALL PENETRATIONS IN ELECTRICAL EQUIPMENT SHALL BE BOTTOM-ENTRY, UNLESS NOTED OTHERWISE.
7. ALL RACEWAYS SHALL HAVE AN INSULATED COPPER SYSTEM GROUND CONDUCTOR THROUGHOUT THE ENTIRE LENGTH OF THE CIRCUIT INSTALLED PER N.E.C.
8. ALL RACEWAYS WHICH ARE INSTALLED FOR FUTURE USE SHALL HAVE A NYLON PULLCORD.
9. PVC CONDUIT JOINTS SHALL BE SOLVENT-WELDED, EXCEPT FOR RIGID METALLIC TO PVC COUPLINGS.
10. MINIMUM CONDUIT SIZE SHALL BE 3/4". MINIMUM LIQUIDTIGHT FLEXIBLE STEEL CONDUIT SIZE SHALL BE 1/2".
11. ALL RACEWAYS SHALL BE RUN IN NEAT AND WORKMANLIKE MANNER AND SHALL BE PROPERLY SUPPORTED PER N.E.C.
12. ALL CONNECTIONS TO MOTORS AND OTHER VIBRATING EQUIPMENT OR AT OTHER LOCATIONS WHERE REQUIRED SHALL BE MADE WITH FLEXIBLE LIQUID-TIGHT STEEL CONDUIT 12" TO 36" IN LENGTH.
13. ALL FEEDER AND BRANCH CIRCUIT WIRING SHALL BE COLOR CODED AS FOLLOWS:

3-PHASE 480Y/277VAC (A/B/C/N/G) :	PUR/BRN/YEL/WHT/GRN
3-PHASE 240/120VAC (A/B(HI)/C/N/G) :	BLK/RED(ORG)/BLU/WHT/GRN
1-PHASE AC POWER :	BLK, 12 AWG MIN.
AC POWER HOT :	BLK, 12 AWG MIN.
AC POWER NEUTRAL :	WHT, 12 AWG MIN.
AC SWITCHED :	RED, 16 AWG MIN.
EXTERNALLY POWERED :	YEL, 16 AWG MIN.
GROUND :	GRN, 12 AWG MIN.
DC + :	BLU, 16 AWG MIN.
DC - :	BLU WITH WHT STRIPE, 16 AWG MIN.
TSP (+/-) :	RED/BLK, 16 AWG. MIN., BELDEN 1118A, OR EQ.

14. CONTROL PANEL WIRING TO UTILIZE SCREW TYPE TERMINALS WITH LOCKING FORK TONGUE OR RING TONGUE LUGS. MAX. OF ONE WIRE TO BE TERMINATED IN A CRIMP LUG. MAX. OF TWO LUGS TO BE INSTALLED IN A SCREW TERMINAL.
15. DC AND AC CIRCUITS SHALL BE ON SEPARATE TERMINAL BLOCK STRIPS.
16. ETHERNET CABLE SHALL BE CAT-5e 600V UL AWM RATED
17. ALL WIRES AND CABLES SHALL BE MARKED USING WHITE HEAT SHRINK MARKERS.
18. BRANCH CIRCUITS EXCEEDING 75' SHALL BE WIRED WITH MINIMUM #10AWG WIRE.
19. ALL OUTDOOR ENCLOSURES TO MEET FBC WIND LOAD REQUIREMENTS.
20. PROVIDE DESSICANT PACKETS IN DISCONNECT SWITCHES AND CONTROL PANEL ENCLOSURES, SIZED ACCORDINGLY.
21. ALL RACEWAYS SHALL BE RUN IN NEAT AND WORKMANLIKE MANNER, PROPERLY SUPPORTED.
22. ALL EXISTING EQUIPMENT, CABLING, AND CONDUIT DESIGNATED TO BE REPLACED SHALL BE DEMOED AND REMOVED BY THE CONTRACTOR.
23. COORDINATE ALL SERVICE ENTRANCE WORK WITH FP&L, AND ADHERE TO ALL UTILITY STANDARDS.
24. PROVIDE TYPED CIRCUIT DIRECTORIES FOR ALL PANELBOARDS.
25. CONTRACTOR SHALL APPLY FOR AND SCHEDULE INSTALLATION OF NEW SERVICES AND REQUEST CONFIRMATION PER PLANS OF MAX AVAILABLE FAULT CURRENT FROM THE UTILITY.
26. CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMING THE WORK AND FURNISHING ALL MATERIALS OUTLINED IN THESE PLANS AND ANY OTHER MATERIALS AND WORK NECESSARY FOR A FULLY OPERATIONAL SYSTEM.
27. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL EXTERNALLY-MOUNTED SURGE PROTECTOR AS SHOWN. INSTALL SPD AND CUT SPD LEADS SO THAT LEADS ARE AS SHORT AND STRAIGHT AS POSSIBLE. MOUNT TO ENCLOSURE BOTTOM WITH STATUS LIGHTS FACING FRONT. INSTALL AND BIND THE LEAD WIRES TOGETHER WITH ONE TWIST/INCH TO REDUCE THE LEAD WIRE IMPEDANCE.
28. CUSTOM ELECTRICAL ENCLOSURES TO BE UL508A LISTED.
29. ALL ELECTRICAL ENCLOSURES TO HAVE PADLOCKING PROVISIONS.
30. NAMEPLATES TO BE ADHESIVE BACKED, PHENOLIC, UV RATED.
31. PROVIDE 2" MIN. SPACE FROM TERMINAL BLOCKS TO WIRE DUCT.
32. DC AND AC CIRCUIT WIRING TO BE TERMINATED ON SEPARATE TERMINAL STRIPS.
33. ALL WIRES 10 AWG AND SMALLER TO UTILIZE FORK TONGUE, RING TONGUE, OR FERRULES. WIRE CRIMP LUGS TO HAVE ONLY ONE WIRE, TERMINAL BLOCKS TO HAVE NO MORE THAN TWO WIRES PER LUG.
34. ONLY A PORTION OF THE REQUIRED CONDUIT RUNS ARE SHOWN.
35. LABEL ALL ELECTRICAL EQUIPMENT USING MIN. 1/2" BLACK LETTERING ON WHITE PLASTIC LABELS SS SCREW MOUNTED ON TO FRONT OF ALL PANELS AND CABINETS.
36. MAJOR COMPONENTS AND GENERAL ARRANGEMENT ARE PROVIDED AS A BASIS FOR DESIGN. ALL REQUIRED COMPONENTS ARE NOT SHOWN. CONTRACTOR IS RESPONSIBLE FOR PROVIDING A FULLY FUNCTIONAL SYSTEM.
37. ALL BELOW GRADE GROUND CONNECTIONS SHALL BE MADE VIA EXOTHERMIC WELD OR IRREVERSIBLE CONNECTORS.
38. ALL ABOVE GRADE BOND CONNECTIONS SHALL BE MADE VIA BOLTED CONNECTION, BURNDY TYPE QUA-QIRLUG.
39. ALL REQUIRED CONDUIT AND CONDUCTORS ARE NOT SHOWN. SEE SINGLE LINE DIAGRAM FOR CONDUITS AND CONDUCTORS REQUIRED FOR CONTROL AND POWER CIRCUITS.
40. PROVIDE GROUND TEST REPORT VERIFYING RESISTANCE IS < 20 OHMS FROM THE GROUND RODS TO EARTH. CONTRACTOR TO PROVIDE ADDITIONAL GROUNDING, IF NECESSARY, TO ACHIEVE 20 OHMS MAX. GROUND RESISTANCE.
41. GROUND POTENTIAL SHALL BE CONSISTENT FOR ENTIRE SITE. GROUNDING JUMPERS AND COUNTERPOISE SHALL BE #4/0 BARE COPPER. GROUND RODS SHALL BE 3/4" X 20' COPPER-CLAD GROUND RODS. EXOTHERMICALLY WELD CONNECTIONS BELOW GRADE. MECHANICALLY CONNECT CONNECTIONS ABOVE GRADE, MECHANICAL LUGS SHALL ONLY HAVE ONE WIRE LANDED IN EACH TERMINATION. EACH LUG SHALL BE FASTENED WITH A STAINLESS STEEL NUT AND BOLT. STACKING OF INDIVIDUAL LUGS WILL NOT BE ACCEPTABLE.
42. GROUND BOXES SHALL BE 11" X 18" QUAZITE #PC-1118-CA-00-24. INSTALL LEVEL WITH THE ADJACENT GROUND, PROVIDE 57 STONE OR MATCH SITE STONE IN BOX, WITH GROUND ROD LOCATED OFF CENTER OF BOX. QUAZITE BOX COVER TO READ "GROUND". EXPOSED GROUNDING SHALL BE IN 1" SCHEDULE 80 PVC OR LIQUID TIGHT FLEXIBLE CONDUIT.
43. 4/0 AND LARGER CABLES IN CABLE TRAY SHALL BE INSTALLED IN A SINGLE LAYER AND SEGREGATED FROM SMALLER CABLES WITH A CABLE TRAY DIVIDER.

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City of Naples

FOR CONSTRUCTION
GENERATORS REPLACEMENT
WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

REVISIONS

NO.	DESCRIPTION	DATE

DATE:	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	NONE

ELECTRICAL NOTES

SHEET NUMBER
MC-01

MISCELLANEOUS

MC-00 - COVER SHEET
MC-01 - ELECTRICAL NOTES
MC-02 - PROJECT SHEET INDEX
MC-03 - GENERATORS CONCEPTUAL PLAN
MC-04 - CODES AND STDS SHT 1
MC-05 - CODES AND STDS SHT 2
MC-06 - EPSS DESIGN CRITERIA

GENERATOR PLC CONTROL PANEL

CP-01 - GENERATOR CP WIRING SCHEMATIC
CP-02 - GENERATOR CONTROL PANEL WIRING SCHEMATIC
CP-03 - GENERATOR CONTROL PANEL WIRING SCHEMATIC

GENERATOR RIO CONTROL PANEL

RIO-01 - RIO CP EXTERNAL LAYOUT
RIO-02 - RIO CP INTERNAL LAYOUT
RIO-03 - RIO CP ELECTRICAL SCHEMATIC
RIO-04 - RIO CP ELECTRICAL SCHEMATIC DI MODULE
RIO-05 - RIO CP ELECTRICAL SCHEMATIC DO MODULE
RIO-06 - RIO CP BOM

DIESEL LINES

DE-01 - DIESEL LINES DEMO PLAN

GENERATORS

GN-01 - GENERATORS PLAN VIEW
GN-02 - GENERATORS ELEVATION VIEW
GN-03 - GENERATOR PAD EXISITNG CONDITIONS
GN-04 - GENERATOR PAD OVERALL SITE PLAN
GN-05 - GENERATOR PAD SITE PLAN
GN-06 - GENERATOR PAD PLACEMENT PLAN
GN-07 - GENERATOR PAD GRADING
GN-08 - GENERATOR PAD DETAILS
GN-09 - GENERATOR PAD DETAILS

ELECTRICAL

E-01 - PP. GENERATOR ONE LINE DIAGRAM
E-02 - EX. SINGLE LINE ELEC. RM. #1
E-03 - PP. SINGLE LINE ELEC. RM. #1
E-04 - PP. SWITCHGEAR #1 ELEVATION
E-05 - EX. SINGLE LINE ELEC. RM. #2
E-06 - PP. SINGLE LINE ELEC. RM. #2
E-07 - GENERATOR RM. #1 DEMO PLAN
E-08 - GENERATOR RM. #1 DEMO PLAN
E-09 - GENERATOR RM. #1 DEMO PLAN
E-10 - GENERATOR RM. #1 DEMO PLAN
E-11 - GENERATOR RM. #1 DEMO PLAN
E-12 - EX. ELEC. RM. #1 CABLE TRAY
E-13 - PP. ELEC. RM #1 ANNEX LAYOUT
E-14 - EX. LAYOUT GENERATOR ROOM #2
E-15 - PP. GENERATOR RM #2 AG CONDUITS & PULLBOX
E-16 - GENERATOR RM. #2 DEMO PLAN
E-17 - PP. DISTRIBUTION PANELBOARD DP-ANX
E-18 - GENERATORS TAP BOX
E-19 - GENERATORS TAP BOX
E-20 - PP. ELEC. RM. #1 ANNEX EAST WALL EXTERIOR
E-21 - PP. ELEC. RM. #1 ANNEX EAST WALL INTERIOR
E-22 - PP. ELEC. RM. #1 ANNEX NORTH WALL
E-23 - PP. GENERATOR GROUNDING PLAN
E-24 - PP. GENERATOR NETWORK
E-25 - PP. GENERATOR CONTROLS INTERCONNECTIONS
E-26 - PP. GENERATORS CONDUIT PAD STUB-UPS
E-27 - PP. RACEWAYS OVERVIEW
E-28 - PP. RACEWAYS AREA 1
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E-30 - PP. RACEWAYS AREA 3
ED-01 - GROUNDING ELECTRICAL DETAILS
ED-02 - GROUNDING ELECTRICAL DETAILS
ED-03 - SECTIONS A,B
ED-04 - SECTIONS D,E
ED-05 - FUTURE HVAC DIMENSIONAL DETAILS
ED-06 - CABLE TRAY DETAILS
ED-07 - DUCT BANK ELECTRICAL DETAILS
ED-08 - UG PULLBOX ELECTRICAL DETAILS

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PROJECT SHEET INDEX

SHEET NUMBER
MC-02

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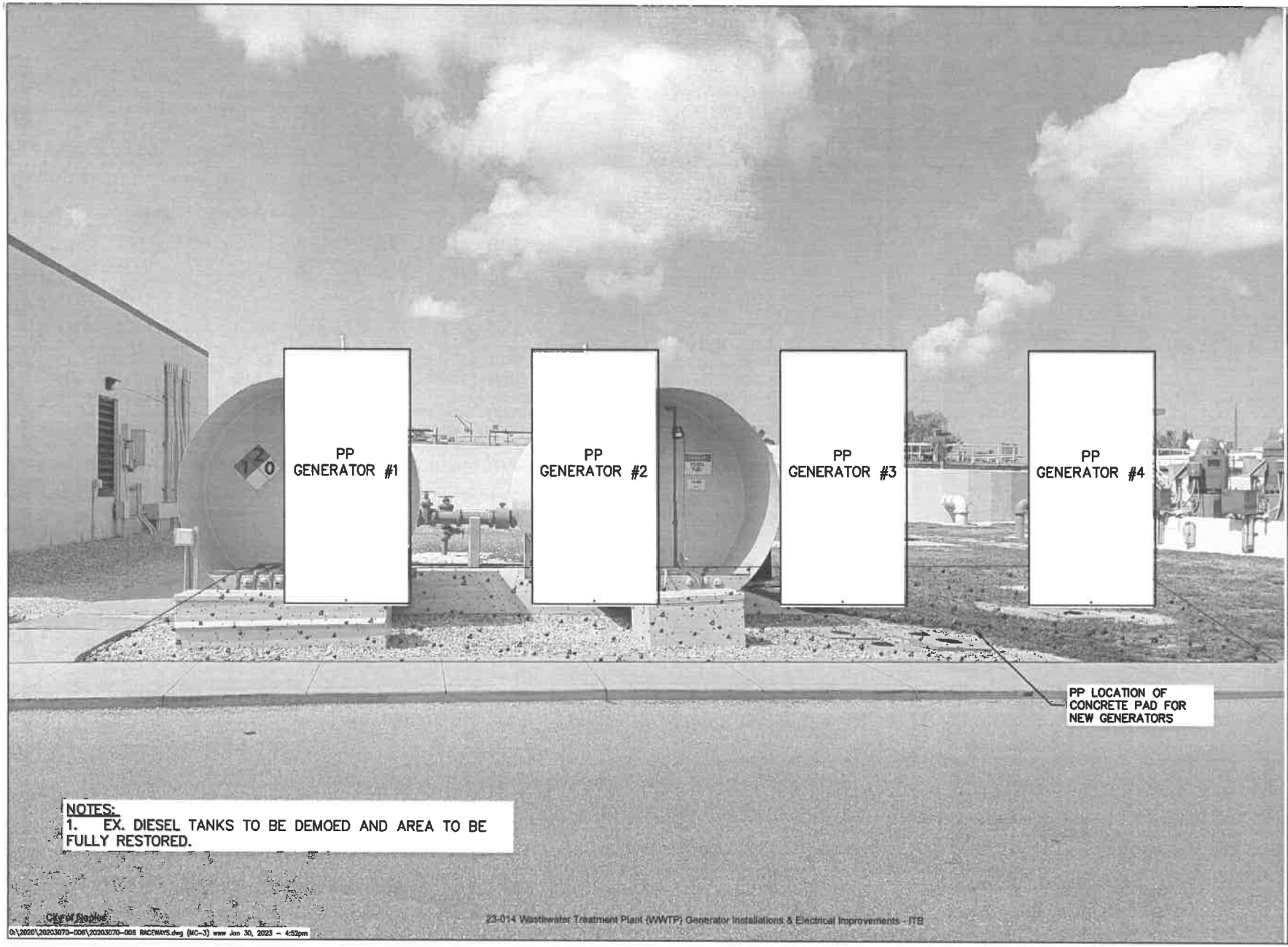

NOTES:
1. EX. DIESEL TANKS TO BE DEMOED AND AREA TO BE FULLY RESTORED.

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GENERATORS CONCEPTUAL PLAN

SHEET NUMBER
MC-03

City of Naples

DIVISION 1. GENERAL REQUIREMENTS:

THESE DRAWINGS AND SPECIFICATIONS AND THE PROJECT MANUAL, IF PRESENT, ARE THE CONTRACT DOCUMENTS FOR THE STRUCTURAL PART OF THIS PROJECT. THE CONTRACTOR MUST USE THESE DOCUMENTS TOGETHER WITH THE DOCUMENTS OF THE OTHER DISCIPLINES TO PROVIDE A COMPLETE PROJECT

EXISTING CONDITIONS:
THE CONTRACTOR SHALL REVIEW THE EXISTING SITE AND ALL EXISTING CONSTRUCTION BEFORE STARTING DEMOLITION AND/OR CONSTRUCTION. VERIFY ALL EXISTING CONSTRUCTION MEETS THE REQUIREMENTS OF THE STRUCTURAL DRAWINGS AND THE DRAWINGS OF THE OTHER DISCIPLINES

DETAILS ON THE DRAWINGS THAT SHOW CONDITIONS IN HIDDEN AREAS ARE BASED ON DOCUMENTS PROVIDED BY THE OWNER. THE ENGINEER DOES NOT GUARANTEE THE ACCURACY OF THE EXISTING CONSTRUCTION DOCUMENTS. DETAILS ON THESE DRAWINGS REGARDING HIDDEN CONDITIONS COULD NOT BE VERIFIED BEFORE CONSTRUCTION.

THE CONTRACTOR SHALL REVIEW HIDDEN CONDITIONS IN EXISTING CONSTRUCTION AS THEY BECOME ACCESSABLE AND REPORT ALL DIFFERENCES AND DEVIATIONS BETWEEN EXISTING CONDITIONS AND THE DRAWINGS TO THE ENGINEER IMMEDIATELY UPON DISCOVERY

DESIGN STANDARDS AND LOADS:
THE BUILDING STRUCTURE HAS BEEN DESIGNED USING THE FOLLOWING BUILDING CODES
-2017 FLORIDA BUILDING CODE (SECTION 1609 FOR WIND LOADS)

DESIGN DEAD LOADS
FLOOR - ACTUAL MATERIAL WEIGHT PLUS THE FOLLOWING ADDITIONAL LOADS
- 15 PSF LIGHT GAGE STEEL NON-LOAD BEARING PARTITIONS

ROOF -ACTUAL MATERIAL WEIGHT PLUS THE FOLLOWING ADDITIONAL LOADS

DESIGN LIVE LOADS
FLOOR - 60 PSF FIRST FLOOR OFFICES, LABS AND MEETING ROOMS

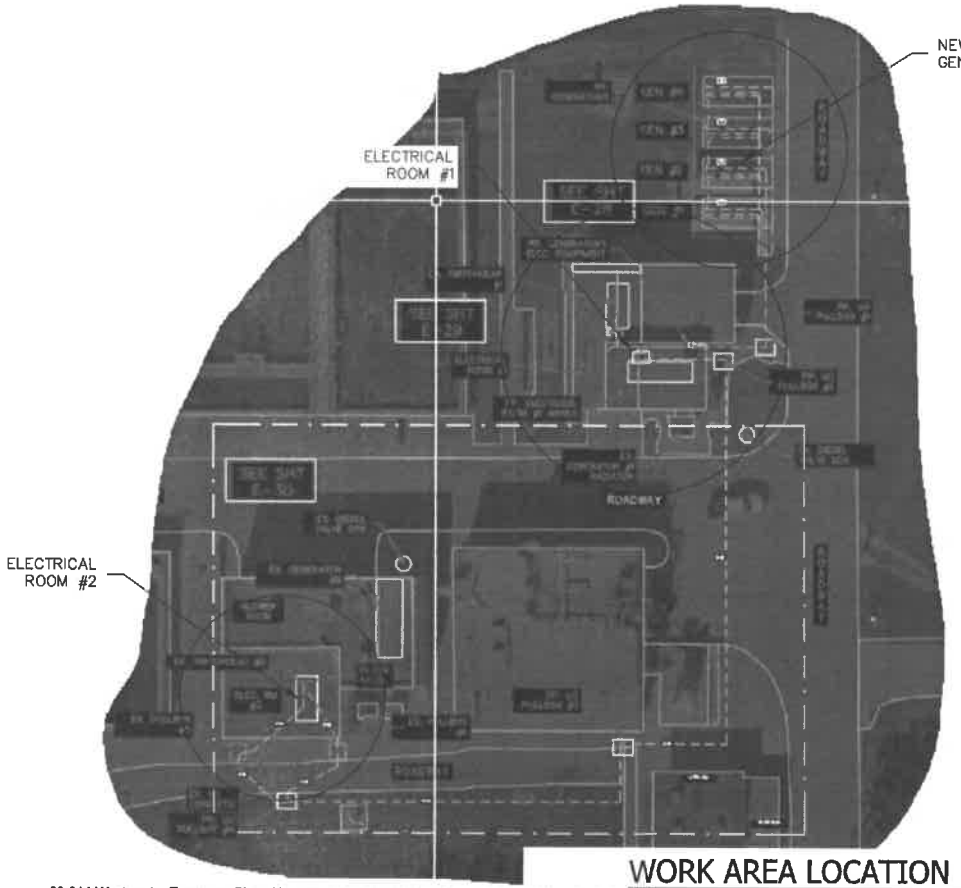
ROOF - 20 PSF

WIND DESIGN DATA (PER FBCB 1603.1.4):
- ULTIMATE DESIGN WIND SPEED (Vult FBCB SECT. 1609.3) = 170 MPH
- NOMINAL WIND SPEED (Vasd PER FBCB TABLE 1609.3.1) = 132 MPH
- RISK CATEGORY (Table 1604.5) = III
- WIND EXPOSURE CATEGORY (Sec 1609.4) = B
- INTERNAL PRESSURE COEFF (ASCE7) = +/- 0.18

CODE COMPLIANCE

ALL WORK SHALL CONFORM TO THE FOLLOWING CODES AND ORDINANCES, LATEST ADOPTED EDITIONS:

- FLORIDA BUILDING CODE:	2017 6TH EDITION
- FLORIDA BUILDING CODE EXISTING BUILDING:	2017 6TH EDITION
- FLORIDA FIRE PREVENTION CODE:	2017 EDITION W/ NFPA 1 & 101 2012 EDITION
- FLORIDA PLUMBING CODE:	2017 5TH EDITION
- FLORIDA MECHANICAL CODE:	2017 EDITION
- FLORIDA ELECTRICAL CODE:	2017 5TH EDITION
- FLORIDA ACCESSIBILITY CODE CHAPTER 11:	2017 5TH EDITION
- FLORIDA ENERGY CONSERVATION CODE:	2017 5TH EDITION



WORK AREA LOCATION KEY

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CODES AND STDS SHT 1

SHEET NUMBER
MC-04

DIVISION 2 SITE WORK FOR BUILDING FOUNDATIONS:

THE CONTRACTOR SHALL NOTE THAT THESE DRAWINGS HAVE BEEN PREPARED WITHOUT THE BENEFIT OF A GEOTECHNICAL INVESTIGATION AND REPORT. ALL SOILS DATA NEEDED TO SUPPORT THE DESIGN OF FOUNDATION ELEMENTS SUCH AS ELEVATIONS, SIZES, REINFORCING HAVE BEEN ASSUMED AND HAVE NOT BEEN VERIFIED BY A GEOTECHNICAL ENGINEER. THE ALLOWABLE SAFE BEARING PRESSURE USED FOR THIS STRUCTURE IS BASED ON OUR EXPERIENCE WITH SIMILAR STRUCTURES SET ON SIMILAR SITES.

CONTINUOUS FOOTINGS AND SPREAD FOOTINGS ARE DESIGNED TO BE CONSTRUCTED ON AND SUPPORTED BY SOILS THAT ARE PREPARED TO PROVIDE A MINIMUM ALLOWABLE SAFE BEARING PRESSURE OF 2000 PSF.

CONTRACTOR SHALL VERIFY THAT THE MINIMUM ALLOWABLE SAFE BEARING PRESSURE OF THE SOILS HAS BEEN PROVIDED. AN APPROVED GEOTECHNICAL ENGINEER LICENSED IN FLORIDA SHALL PERFORM SOIL COMPACTION TESTS ON THE SOILS UNDER FOOTINGS AND REPORT THE RESULTS. CONSULT ENGINEER FOR NUMBER AND LOCATION OF TESTS.

REMOVE ALL ORGANIC MATERIAL, ROOTS, TRASH AND OTHER FOREIGN MATERIAL FROM THE SOILS IN THE BUILDING AREA PLUS ONE FOOT PER FLORIDA BUILDING CODE SECTION 2304.13.2 BEFORE STARTING CONSTRUCTION.

PROOF_ROLL AND COMPACT EXISTING SOILS TO 95% OF THE SOILS MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D1557) TO A DEPTH 24" BELOW CLEARED GROUND SURFACE. ALL SOFT AND YIELDING AREAS SHALL BE EXCAVATED AND REPLACED.

INSTALL NEW FILL IN 12" THICK LAYERS TO THE SPECIFIED ELEVATION. EACH LAYER OF FILL AND BACKFILL IS TO BE COMPACTED TO 95% OF THE SOILS MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D1557).

DIVISION 3 CONCRETE:

THE FOLLOWING PUBLICATIONS ARE CONSIDERED A PART OF THIS STRUCTURAL SPECIFICATION
1) AMERICAN CONCRETE INSTITUTE (ACI). GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION, ACI 302.1R.
2) AMERICAN CONCRETE INSTITUTE (ACI): STANDARD PRACTICE FOR CURING CONCRETE. ACI_308.

CONCRETE MATERIALS SHALL CONFORM TO ASTM C94 AND AS FOLLOWS:
1) PORTLAND CEMENT SHALL CONFORM TO ASTM C150 AND BE TYPE I OR TYPE III
2) AGGREGATES SHALL CONFORM TO ASTM C33, AND SHALL BE WASHED AND CLEAN
3) WATER SHALL BE CLEAN AND POTABLE
4) ADMIXTURES CONTAINING CHLORIDES SHALL NOT BE USED

MINIMUM CONCRETE COMPRESSION STRENGTH AT 28 DAYS (f'c) SHALL BE AS FOLLOWS
3000 PSI MASONRY VERTICAL CELL FILL (3/8" MAX. AGGREGATE)
3000 PSI SLAB ON GRADE, TIE BEAMS, (3/4" MAX. AGGREGATE)
3000 PSI FOOTINGS (1-1/2" MAX. AGGREGATE)
5000 PSI PRECAST SLABS

REINFORCEMENT MATERIALS SHALL CONFORM TO THE FOLLOWING
1) BARS SHALL BE NEW BILLET STEEL CONFORMING TO ASTM A 615, GRADE 60
2) WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A 185

MINIMUM REQUIRED CONCRETE COVER FOR REINFORCING STEEL (UNLESS NOTED OTHERWISE)

FOOTINGS	3" BOTTOM AND SIDES, 2" TOP
PIERS	1_1/2" TO TIES, 2" TOP
SLABS	3/4"
COLUMNS	1_1/2" TO TIES, 2" TOP
BEAMS	1_1/2" TO STIRRUPS
WALLS	2"

REINFORCEMENT SHALL BE ACCURATELY PLACED, SUPPORTED, AND SECURED AGAINST DISPLACEMENT. USE METAL CHAIRS, RUNNERS, BOLSTERS, SPACERS, AND HANGERS AS REQUIRED. REINFORCEMENT ACCESSORIES IN CONTACT WITH FORMS SHALL HAVE GALVANIZED LEGS OR PLASTIC TIPS.

PROVIDE CORNER BARS AT ALL CORNERS OF FOOTINGS, GRADE BEAMS, EDGE BEAMS, TIE BEAMS AND WALLS. CORNER BARS SHALL BE BENT LAP SPLICE BARS AND SHALL BE THE SAME SIZE AND SPACING AS HORIZONTAL BARS.

LAP SPLICES SHALL BE 40 BAR DIAMETERS OR 25 INCHES WHICHEVER IS GREATER. TIE ALL REINFORCING MATS, CAGES, BUNDLES AND OTHER BAR ASSEMBLIES WITH BLACK ANNEALED WIRE, 16 GA MINIMUM.

LAP SPLICES IN HORIZONTAL BARS IN FOOTINGS AND TIE BEAMS SHALL BE STAGGERED. IF LAP SPLICES ARE REQUIRED OVER OPENINGS PROVIDE 40 BAR DIAMETERS MINIMUM AT MID-SPAN FOR TOP BARS, AND 36 BAR DIAMETERS MINIMUM AT SUPPORTS FOR BOTTOM BARS, UNO

DO NOT WELD REINFORCING BARS, EXCEPT BUTT SPLICES MAY BE WELDED IN ACCORDANCE WITH AWS D1.4

FURNISH CONTINUOUS WALL FOOTING REINFORCING IN STOCK LENGTHS. PROVIDE DOWELS AND SPLICE BARS AT CORNERS AND THROUGH FOOTING STEPS. CONTINUOUS FOOTING REINFORCING SHALL BE SUPPORTED BY STEEL CHAIRS WITH SAND PLATES OR BY CONCRETE BRICKS. DO NOT USE WIRE SUPPORTS ALONE.

CAST DOWELS IN FOOTINGS FOR CONCRETE WALLS AND COLUMNS ABOVE. WALL DOWELS TO BE SAME NUMBER, SIZE AND SPACING AS THE VERTICAL WALL REINFORCING. COLUMN DOWELS TO BE SAME SIZE AND NUMBER AS VERTICAL COLUMN REINFORCING.

DOWELS IN FOOTINGS ARE TO PROJECT FROM FOOTINGS A MINIMUM OF 25" OR 40 BAR DIAMETERS, WHICHEVER IS GREATER. PROVIDE STANDARD HOOK IN FOOTING DOWELS.

ALL REINFORCEMENT SHALL BE INSTALLED AND SUPPORTED PRIOR TO START OF CONCRETE PLACEMENT. "WET_STICKING" OF REINFORCING IS PROHIBITED.

AT OPENINGS IN SLABS OR WALLS, PROVIDE A MINIMUM OF 2-#5 BARS EACH SIDE OF OPENING. BARS SHALL EXTEND A MINIMUM OF 24 INCHES IN EACH DIRECTION BEYOND CORNERS OF OPENING. PROVIDE 2-#5 DIAGONAL BARS, 48 INCHES LONG, AT ALL OTHER CORNERS.

PROVIDE #3 STIRRUPS @ 12" O.C. IN TIE BEAMS OVER ALL OPENINGS.

CURE ALL CONCRETE IN ACCORDANCE WITH ACI-308.

APPLY 2-COMPONENT EPOXY BONDING AGENT TO EXISTING SURFACES WHERE NEW CONCRETE IS TO BE PLACED AGAINST EXISTING CONCRETE.

EMPLOY A TESTING LABORATORY ACCEPTABLE TO ENGINEER TO PERFORM FIELD TESTS DURING PLACEMENT OF CONCRETE. SUBMIT TEST REPORTS DOCUMENTING THE SAMPLING AND TESTING FOR QUALITY CONTROL.

CONCRETE SLABS-ON-GRADE:

INSTALL ALL PLUMBING, PIPING, CONDUITS AND OTHER UNDERSLAB UTILITIES BEFORE CONSTRUCTION OF SLAB COMPONENTS.

COMPACT SOILS AFTER SOILS HAVE BEEN DISTURBED FOR ANY REASON.

SOIL BELOW INTERIOR SLABS ON GRADE SHALL BE TREATED WITH TERMITICIDE AS REQUIRED BY THE FLORIDA BUILDING CODE SECTION.

PROVIDE .010" (10 MIL MIN) POLYETHYLENE VAPOR BARRIER UNDER SLAB-ON-GRADE. LAP SHEET EDGES A MINIMUM OF 6 INCHES AND TAPE JOINTS WITH "DUCT" TAPE OR EQUAL. TAKE PRECAUTIONS TO PREVENT DAMAGE TO VAPOR BARRIER DURING CONSTRUCTION. REPAIR ALL HOLES, TEARS, AND OTHER DAMAGE PRIOR TO POURING CONCRETE.

PROVIDE WELDED WIRE REINFORCING (WWR) 6X6-W2.1XW2.1 IN ALL SLABS-ON-GRADE. WWR SHALL BE PLACED AT 2 INCHES FROM TOP OF SLAB. SUPPORT WWR ON STEEL CHAIRS WITH SAND PLATES OR ON CONCRETE BRICKS.

CONSTRUCT ALL SLABS-ON-GRADE IN GENERAL CONFORMANCE WITH ACI 302.1R.

CONTRACTION JOINTS IF EVERY SECOND WIRE IS CUT AND BENT BACK. DEPTH OF JOINTS SHALL BE A MINIMUM OF 1/4 SLAB THICKNESS. FILL ALL CONTRACTION JOINTS WITH SEALANT.

SAW CUT CONTRACTION JOINTS AS SOON AS POSSIBLE AFTER CONCRETE HARDENS, BUT NOT MORE THAN 24 HOURS OF PLACING CONCRETE.

PRECAST PRESTRESSED CONCRETE PLANK:
PRECAST CONCRETE FABRICATOR SHALL BE RESPONSIBLE FOR ALL OPENINGS THROUGH PRESTRESSED PLANK REGARDLESS OF SIZE. VERIFY SIZE, NUMBER AND LOCATION OF ALL OPENINGS WITH MECHANICAL, ELECTRICAL AND ALL OTHER CONTRACTORS.

ALL HEADERS AT OPENINGS THROUGH PRECAST PLANK SHALL BE PROVIDED BY PRECAST SUPPLIER. PRECAST PLANKS ADJACENT TO OPENINGS SHALL BE DESIGNED FOR THE ADDITIONAL LOAD AT EACH HEADER LOCATION.

PROVIDE INSERT AND ANCHORS IN PRECAST UNITS WHERE SHOWN. SUPPORT OF ELECTRICAL AND MECHANICAL EQUIPMENT AND ARCHITECTURAL ITEMS SHALL BE MADE WITH INSERTS AND/OR ANCHORS. PROVIDE SHOP DRAWINGS OF ALL ANCHORS AND INSERTS.

ALL PRECAST CONCRETE UNITS SHALL BE DESIGNED TO SUPPORT THE SUPERIMPOSED LOAD AS INDICATED ON THE CONSTRUCTION DRAWINGS FOR THE INDICATED SPAN CONDITIONS. DESIGN SHALL BE IN ACCORDANCE WITH ACI 318. ALL PRECAST UNITS SHALL BE POURED 28 DAYS PRIOR TO ERECTION.

PRECAST CONCRETE PLANKS SHALL BE ERECTED SIMULTANEOUSLY ON EACH SIDE OF ALL SUPPORTING BEAMS. BEAMS SHALL BE SHORED TO PREVENT ROTATION UNTIL THE PRECAST PLANK IS TOTALLY ERECTED.

DIVISION 4 MASONRY:

THE FOLLOWING PUBLICATIONS ARE CONSIDERED A PART OF THIS STRUCTURAL SPECIFICATION:
1) AMERICAN CONCRETE INSTITUTE (ACI). BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES, ACI/ASCE 530.
2) AMERICAN CONCRETE INSTITUTE (ACI). SPECIFICATIONS FOR MASONRY STRUCTURES, ACI/ASCE 530.1.

MASONRY MATERIALS SHALL CONFORM TO ASTM C90 AND AS FOLLOWS:
1) CONCRETE MASONRY UNITS (CMU) SHALL CONFORM TO ASTM C90, TYPE II, GRADE N, AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF f'm=1500 PSI.
2) PROVIDE ONLY MORTAR CONFORMING TO ASTM C270, TYPE "M", FRESHLY PREPARED, WITH A MINIMUM COMPRESSIVE STRENGTH OF 2500 PSI AT 28 DAYS.

INSTALL FOOTING DOWEL AT EACH VERTICAL BAR LOCATION.

ALL CELLS AND CAVITIES IN MASONRY OR BETWEEN MASONRY UNITS SHALL BE CLEANED OF TRASH, DEBRIS AND ANY MATERIAL THAT COULD CAUSE A VOID IN GROUTING OR A PEST FOOD SOURCE. SEE FLORIDA BUILDING CODE SECTION 2114.1.

POUR ALL CORES IN CMU FOUNDATION WALLS BELOW GRADE SOLID WITH CONCRETE.

PROVIDE CONTINUOUS GALVANIZED LADDUR-TYPE HORIZONTAL JOINT REINFORCEMENT AT 16" O.C. VERTICALLY WITH MINIMUM OF ONE (1) 9 GAUGE WIRE AT THE CENTER OF EACH FACE SHELL.

PROVIDE VERTICAL CMU REINFORCING WHERE SHOWN ON THE PLANS. VERTICAL BARS ARE TO BE INSTALLED IN THE CENTER OF THE CMU CELL AND SHALL BE HELD IN THAT POSITION BY BAR POSITIONERS.

PROVIDE 1#5 VERTICAL BAR IN THE FIRST FULL CELL ADJACENT TO EACH WINDOW AND DOOR OPENING. VERTICAL BARS SHALL EXTEND AT LEAST 24" PAST THE HEAD OF THE OPENING AND SHALL BE TIED TO A DOWEL FROM THE LOWER FLOOR.

PROVIDE #5 VERTICAL BARS IN THE SHORT WALLS UNDER ALL WINDOW OPENINGS @ 48" O.C.. REFER TO ARCHITECTURAL DRAWINGS FOR ALL WINDOW SIZES.

FILL ALL CELLS CONTAINING REINFORCING BARS WITH GROUT. DO NOT USE MORTAR FOR GROUT. PROPORTION GROUT IN ACCORDANCE WITH FLORIDA BUILDING CODE TABLE 2103.10 OR ASTM C476 USING ASTM C404 SIZE NO 2 FINE AGGREGATE. GROUT SHALL HAVE MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS AND A SLUMP OF 9" TO 11". THE USE OF PLASTICIZER IS PREFERRED IN LIEU OF WATER TO ATTAIN PROPER SLUMP.

USE MECHANICAL VIBRATORS TO CONSOLIDATE GROUT LIFTS OF MORE THAN 12 INCHES. PROVIDE CLEANOUT OPENINGS AT BOTTOM COURSE OF LIFTS OF HEIGHTS OF MORE THAN

PRECAST LINTELS:
UNLESS INDICATED OTHERWISE, ALL LINTELS TO BE "U" TYPE PRECAST CONCRETE UNITS EQUAL TO UNITS MANUFACTURED BY CAST_CRETE CORP. AND PRESTRESSED (AND ADDITIONALLY REINFORCED AS REQUIRED) IN ACCORDANCE WITH CAST_CRETE CORP "DESIGN MANUAL", LATEST EDITION, FOR THE SPAN AND LOADING CONDITION RELATIVE TO LINTEL LOCATION.

PROVIDE 8" MINIMUM BEARING FOR LINTELS UNLESS NOTED OTHERWISE.

DIVISION 5 METALS:
THIS DIVISION NOT USED.

DIVISION 6 WOOD:
THIS DIVISION NOT USED

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WAYNE WILDEY WRIGHT, PE
FL License No. 58220

City of Naples

FOR CONSTRUCTION
GENERATORS REPLACEMENT
WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

REVISIONS

NO.	DESCRIPTION	DATE

DATE:	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	NONE

CODES AND STDS SHT 2

SHEET NUMBER
MC-05

LOAD CALCULATIONS
(BASED ON PRIOR 24-MONTHS OF ACTUAL USAGE DATA)

1.	SERVICE #1 ACTUAL MAX. DAILY USAGE:	13,720 KWH/DAY
2.	SERVICE #2 ACTUAL MAX. DAILY USAGE:	16,028 KWH/DAY
3.	SERVICE #1 ACTUAL AVG. DAILY USAGE:	12,382 KWH/DAY; (516KW CONT.)
4.	SERVICE #2 ACTUAL AVG. DAILY USAGE:	13,513 KWH/DAY; (563KW CONT.)
5.	SERVICE #1 ACTUAL PEAK USAGE:	1,084 KWD
6.	SERVICE #2 ACTUAL PEAK USAGE:	805 KWD

EMERGENCY POWER SUPPLY (EPS) SPECIFICATIONS

1.	TYPE:	STATIONARY EMERGENCY STANDBY DIESEL ENGINE-DRIVEN GENSET
2.	CONFIGURATION:	(2) UNITS IN PARALLEL EACH SERVICE
3.	EXCITATION:	PERMANENT MAGNET EXCITATION
4.	GEN. RATING (EACH):	600 KW GENERATORS WITH UPSIZED 832 KW ALTERNATOR @ 3PH, 4W, 277/480V
5.	ENCLOSURE:	LEVEL 2 ACOUSTIC ALUMINUM
6.	WIND RATING:	170 MPH
7.	ANNUNCIATION:	NFPA 110 COMPLIANT REMOTE ANNUNCIATOR
8.	FUEL CAPACITY (EACH):	4,550 GALS TOTAL; 3,980 GALS USABLE
9.	FUEL TANKS:	FDEP SUB-BASE FUEL TANK; INTERSTITIAL SPACE WITH LEAK DETECTION SHIPPED UNDER VACUUM PER F.A.C.
10.	CERTIFICATIONS:	PE CERT. FOR FLOATATION AND LIFT

EMERGENCY POWER SUPPLY SYSTEM (EPSS) DESIGN CRITERIA

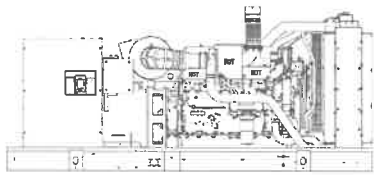
1.	NFPA 110 EPSS CLASSIFICATION:	LEVEL 2
2.	TOTAL NAMEPLATE POWER RATING:	2400 KW
3.	POWER RESTORATION:	TYPE 10
4.	RUNTIME CLASS (DESIGN MINIMUM):	96 HRS @ 50% NAMEPLATE CAPACITY
5.	FUEL STORAGE TANKS:	4
6.	FUEL STORAGE TANKS TOTAL CAPACITY:	18,200 GALS (4,550 GALS/TANK)
7.	FUEL STORAGE TANKS USABLE CAPACITY:	15,920 GALS (3,980 GALS/TANK)
8.	FUEL STORAGE TANKS MIN. CAPACITY:	8,774 GALS
9.	FUEL STORAGE ADD'L CAPACITY PER NFPA 110 SECTION 5.5.3:	2,895 GALS
11.	FUEL STORAGE TANKS MIN. DESIGN CAPACITY:	11,669 GALS
10.	TOTAL FUEL CONSUMPTION RATE:	165.6 GAL/HR @ 100% NAMEPLATE CAPACITY
11.	ENCLOSURE SOUND ATTENUATION:	LEVEL 2
12.	GENERATOR WEIGHT:	12,500 LBS.
13.	TANK DRY WEIGHT:	10,500 LBS.
14.	FUEL WEIGHT:	27,860 LBS.
15.	TANK SIZE:	276"L x 114"W x 48"H (+5" BEAMS ON TOP OF TANK)
16.	DESIGN FLOOD ELEVATION:	FEMA ZONE X
17.	PAD NAVD ELEVATION:	9.7 NAVD88

MD600 | 18.1L | 600 kW
INDUSTRIAL DIESEL GENERATOR SET
EPA Certified Stationary Emergency

GENERAC | INDUSTRIAL POWER

Standby Power Rating
600 kW, 750 kVA, 60 Hz

Prime Power Rating*
540 kW, 675 kVA, 60 Hz



*EPA Certified Prime ratings are not available in the US or its territories

Image used for illustration purposes only

Codes and Standards

Not all codes and standards apply to all configurations. Contact factory for details.

- UL2200, UL6200, UL1238, UL489, UL142
- CSA C22.2, ULC S601
- BS5514 and DIN 6271
- SAE J1349
- NFPA 37, 70, 99, 110
- NEC700, 701, 702, 708
- ISO 3046, 7637, 8528, 9001
- NEMA ICS10, MG1, 250, ICS8, AB1
- ANSI C82.41
- IBC 2009, CBC 2010, IBC 2012, ASCE 7-05, ASCE 7-10, ICC-ES AC-156 (2012)

Powering Ahead

For over 60 years, Generac has provided innovative design and superior manufacturing.

Generac ensures superior quality by designing and manufacturing most of its generator components, including alternators, enclosures and base tanks, control systems and communications software.

Generac gensets utilize a wide variety of options, configurations and arrangements, allowing us to meet the standby power needs of practically every application.

Generac searched globally to ensure the most reliable engines power our generators. We choose only engines that have already been proven in heavy-duty industrial applications under adverse conditions.

Generac is committed to ensuring our customers' service support continues after their generator purchase.

SPEC SHEET

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CITY OF NAPLES, FLORIDA

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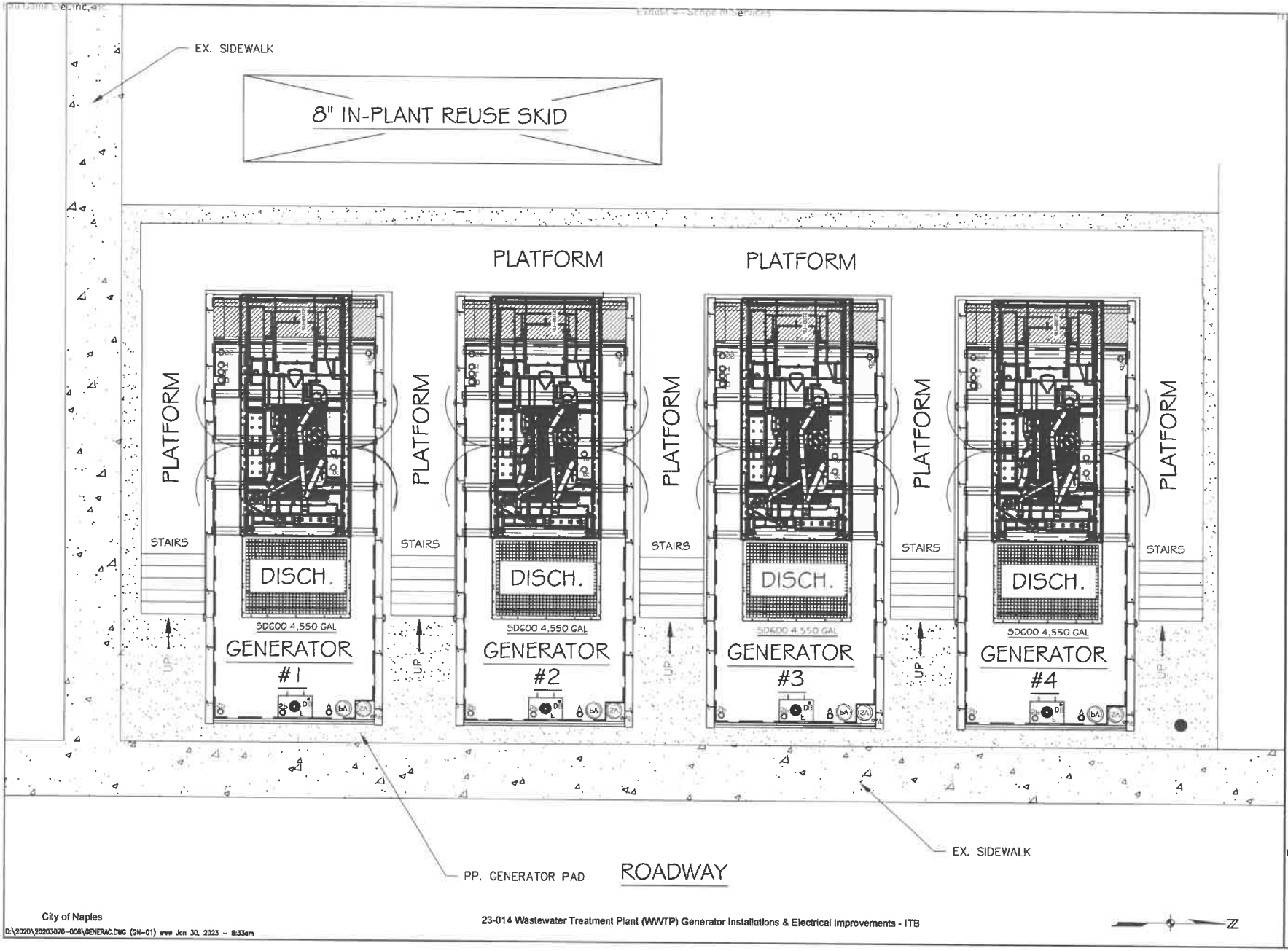
SCALE:	NONE

EPSS DESIGN CRITERIA

SHEET NUMBER
MC-06



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NO.	DESCRIPTION	DATE

DATE:	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	1" = 60'

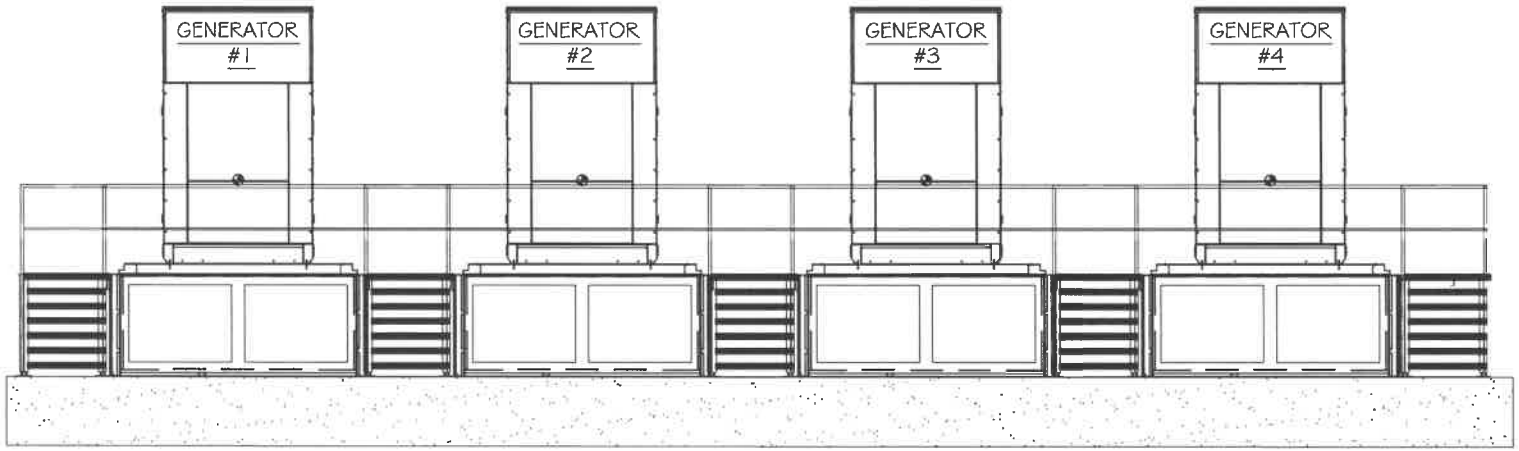
GENERATORS PLAN VIEW

SHEET NUMBER
GN-01

City of Naples

23-014 Wastewater Treatment Plant (WWTP) Generator Installations & Electrical Improvements - ITB

D:\2020\20203070-006\GENERAC.DWG (GN-01) www Jan 30, 2023 - 8:33am



INTAKE END VIEW

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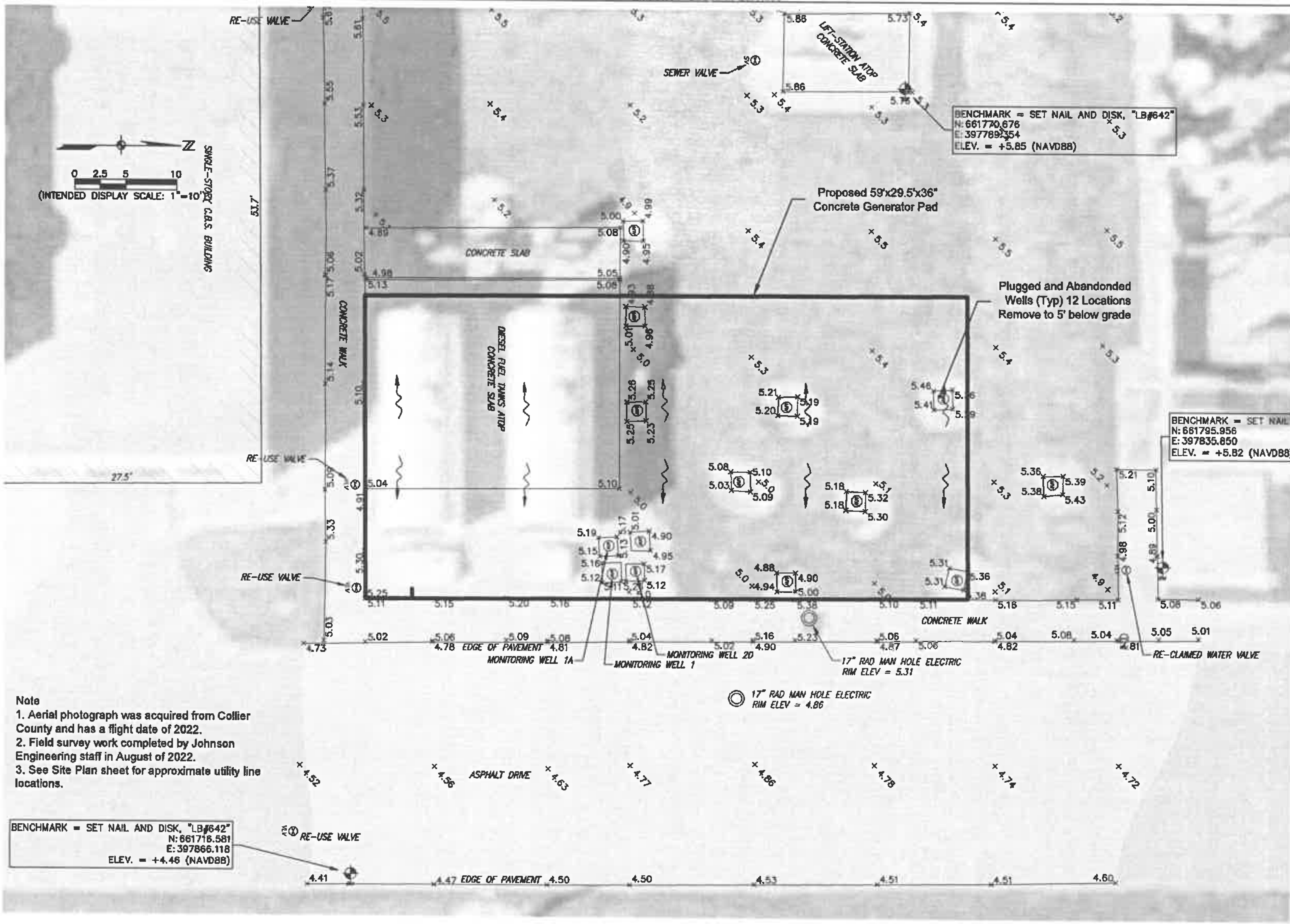
REVISIONS		
NO.	DESCRIPTION	DATE

DATE	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	1" = 60'

GENERATORS ELEVATION VIEW

SHEET NUMBER
GN-02



Note
1. Aerial photograph was acquired from Collier County and has a flight date of 2022.
2. Field survey work completed by Johnson Engineering staff in August of 2022.
3. See Site Plan sheet for approximate utility line locations.

ELEVATIONS SHOWN HEREON ARE BASED ON NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88). TO CONVERT TO NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD '29) ADD 1.27 TO NAVD 88 ELEVATIONS.

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City of Naples

FOR CONSTRUCTION PLANS
GENERATOR REPLACEMENTS
WATER REPLACEMENT FACILITY
CITY OF NAPLES, FLORIDA

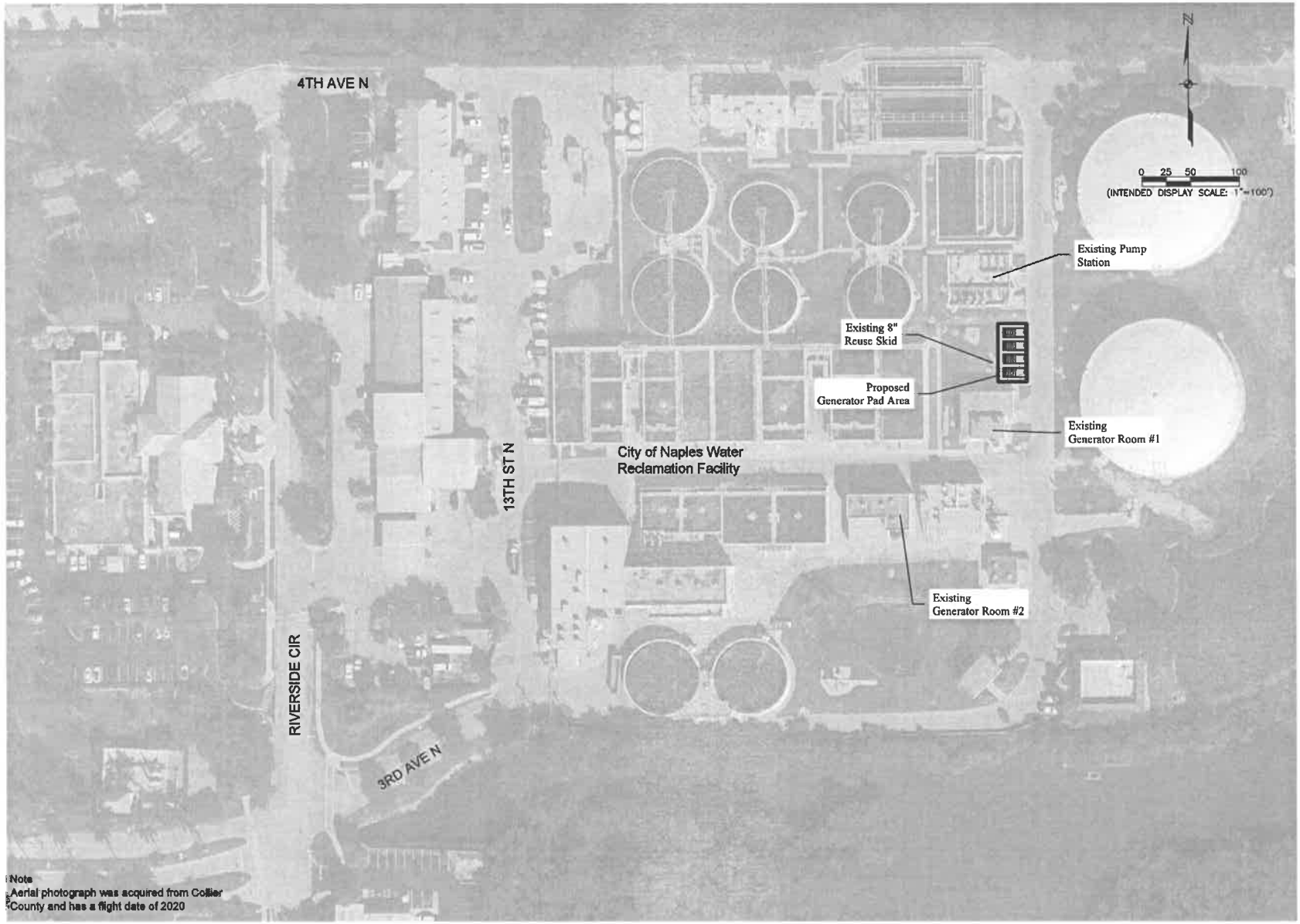
REVISIONS

NO.	DESCRIPTION	DATE

DATE:	AUGUST 2022
PROJECT NO.	20203070-000
FILE NO.	3-25-50
SCALE:	AS SHOWN

EXISTING TOPOGRAPHIC CONDITIONS

SHEET NUMBER
GN-03



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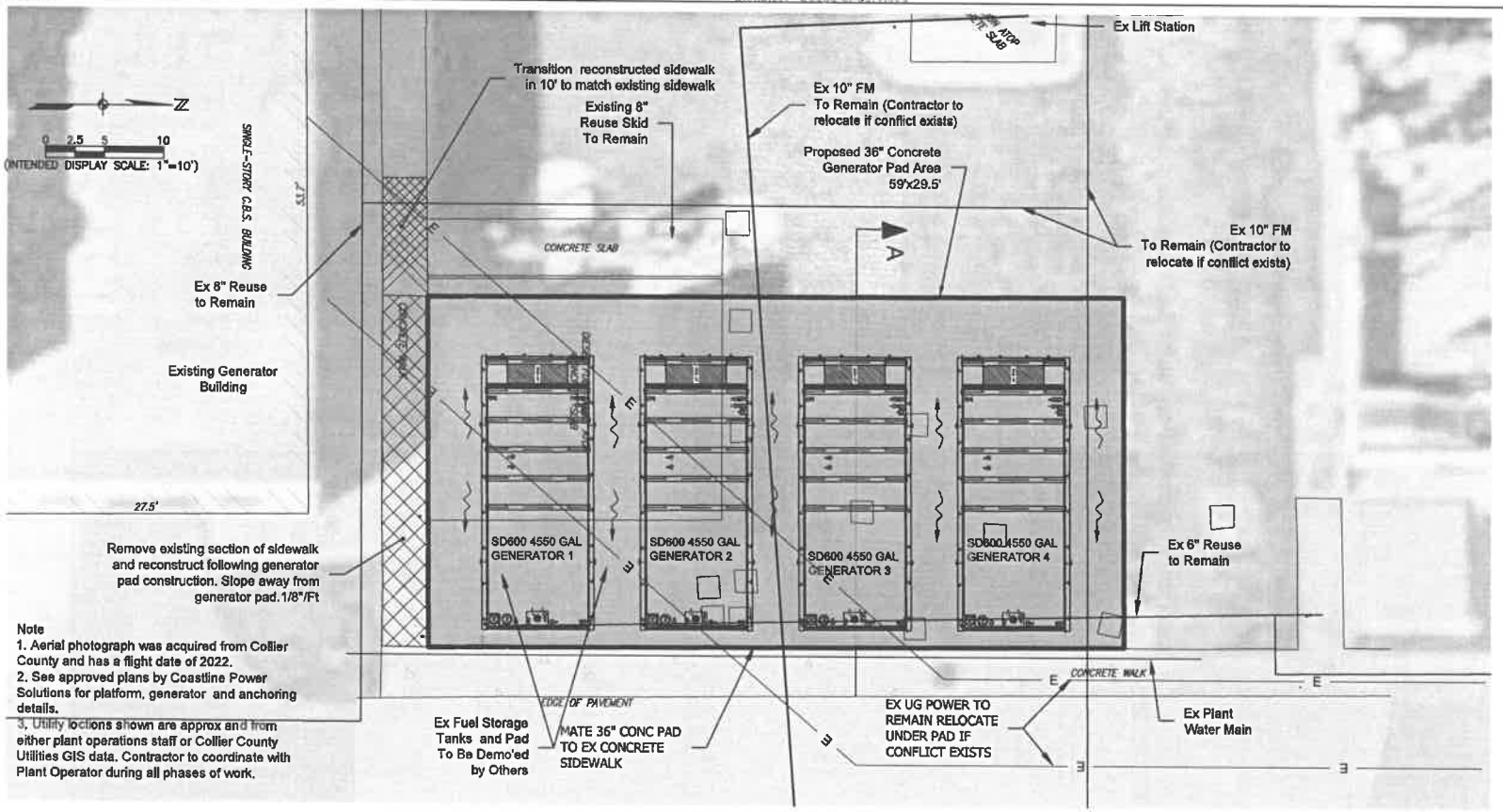
REVISIONS

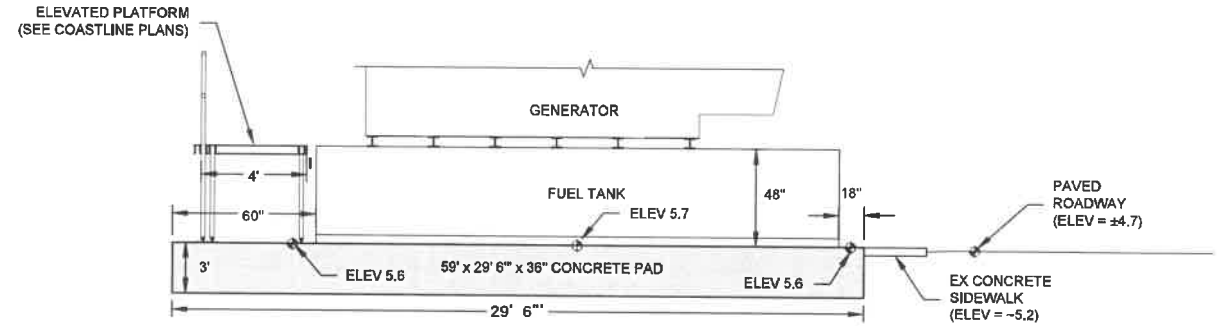
NO.	DESCRIPTION	DATE

DATE	AUGUST 2022
PROJECT NO.	0203070-006
FILE NO.	3-25-50
SCALE	AS SHOWN

OVERALL SITE PLAN

SHEET NUMBER
GN-04





SECTION A-A

ELEVATIONS SHOWN HEREON ARE BASED ON NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88), TO CONVERT TO NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD '29) ADD 1.27' TO NAVD 88 ELEVATIONS.

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REVISIONS

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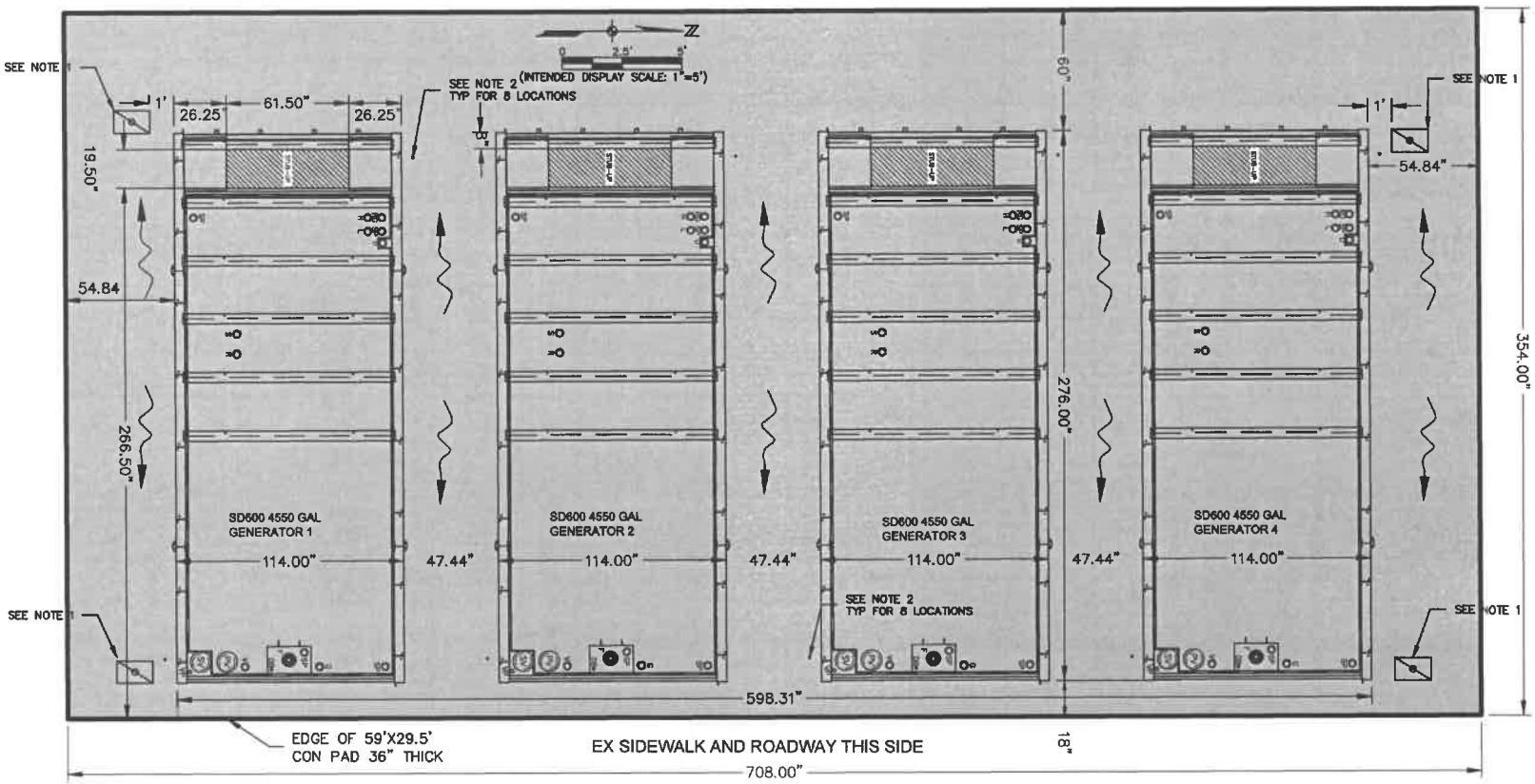
DATE: AUGUST, 2022
PROJECT NO. 20203070-000
FILE NO. 3-25-50
SCALE: AS SHOWN

CONCRETE PAD SITE PLAN

SHEET NUMBER
GN-05



GENERAL NOTES:

1. INSTALL (4) 11"x18"x12" GROUNDING WELL BOXES WITH 3" PVC GROUNDING ROD CONDUIT. CONDUIT TO EXTEND 2" ABOBE AND 2" BELOW CONCRETE PAD. BOX TO BE FLUSH WITH TOP OF CONCRETE PAD. SEE ELECTRICAL DETAIL SHEET.
2. INSTALL 1" PVC GROUNDING CABLE CONDUIT 6" OFFSET FROM FUEL TANK FRAME AT 8 LOCATIONS. CONDUIT TO EXTEND 2" ABOVE AND BELOW CONCRETE PAD.
3. ADJUST CONDUIT AND GROUNDING WELL BOX LOCATIONS TO MISS PLATFORM SUPPORT LEGS.

ELEVATIONS SHOWN HEREON ARE BASED ON NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88). TO CONVERT TO NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD '29) ADD 1.27 TO NAVD 88 ELEVATIONS.

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FOR CONSTRUCTION PLANS
GENERATOR REPLACEMENTS
WATER REPLACEMENT FACILITY
CITY OF NAPLES, FLORIDA

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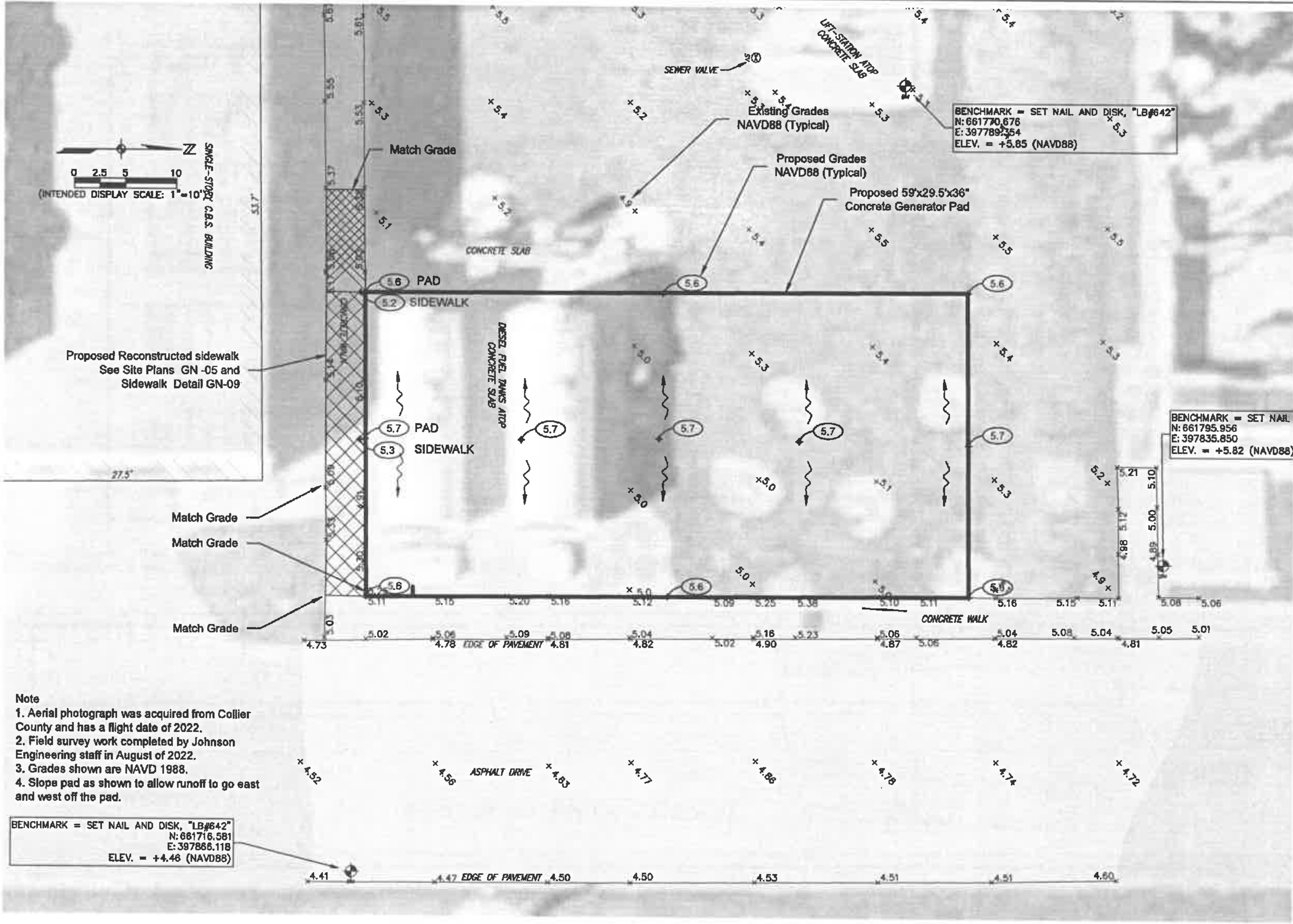
DATE:	AUGUST, 2023
PROJECT NO.	20203070-000
FILE NO.	3-25-50
SCALE:	AS SHOWN

GENERATOR PAD PLACEMENT

SHEET NUMBER
GN-06



Note
1. Aerial photograph was acquired from Collier County and has a flight date of 2022.
2. Field survey work completed by Johnson Engineering staff in August of 2022.
3. Grades shown are NAVD 1988.
4. Slope pad as shown to allow runoff to go east and west off the pad.

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GENERATOR REPLACEMENTS
WATER REPLACEMENT FACILITY
CITY OF NAPLES, FLORIDA

REVISIONS

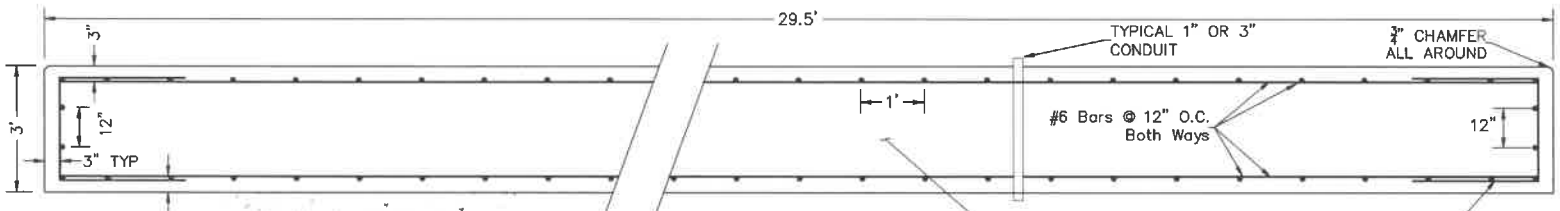
NO.	DESCRIPTION	DATE

DATE:	AUGUST, 2022
PROJECT NO.	20203070-000
FILE NO.	3-25-50
SCALE:	AS SHOWN

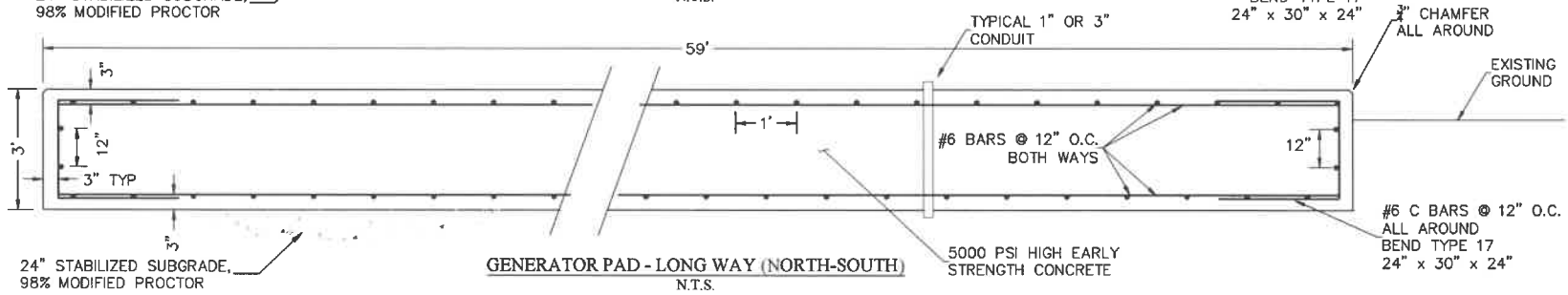
GENERATOR PAD GRADING PLAN

SHEET NUMBER
GN-07

ELEVATIONS SHOWN HEREON ARE BASED ON NORTH AMERICAN VERTICAL DATUM 1988 (NAVD 88). TO CONVERT TO NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD '29) ADD 1.27' TO NAVD 88 ELEVATIONS.



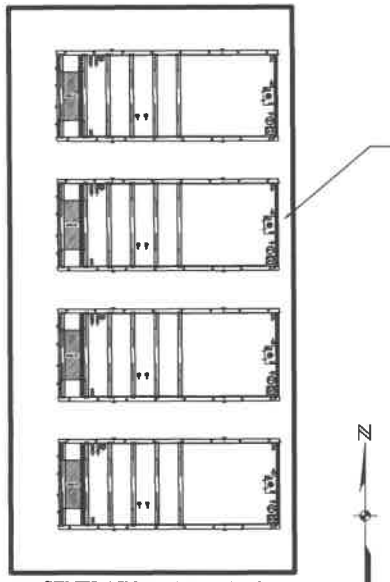
GENERATOR PAD - SHORT WAY (EAST-WEST)
N.T.S.



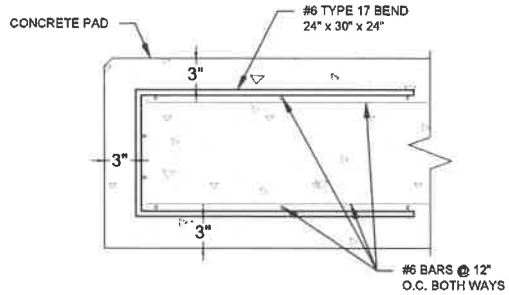
GENERATOR PAD - LONG WAY (NORTH-SOUTH)
N.T.S.

GENERAL NOTES:

1. FOR CONDUIT DETAILS AND PLACEMENT SEE SHEETS GN-06 AND E-22.
2. SEE SHEETS GN-09 FOR GENERAL CONCRETE PAD NOTES



GENERATOR PAD - LAYOUT
N.T.S.



C-BAR DETAIL
N.T.S.

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City of Naples

FOR CONSTRUCTION
GENERATOR REPLACEMENT
CITY OF NAPLES
COLLIER COUNTY, FLORIDA

REVISIONS
NO. | DESCRIPTION | DATE

DATE	MAY 2020
PROJECT NO.	20203097-000
FILE NO.	27-25-49
SCALE	AS SHOWN

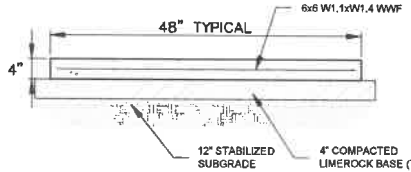
GENERATOR CONCRETE PAD DETAILS

SHEET NUMBER
GN-08

GENERAL NOTES:

1. PAD SIZE SHALL BE MINIMUM INDICATED AS SHOWN ON THE PLANS OR AS INDICATED BY THE MANUFACTURER AND APPROVED BY THE ENGINEER.
2. THE SIZE, NUMBER,TYPE, LOCATION, AND THREAD PROJECTION OF THE ANCHOR BOLTS SHALL BE DETERMINED BY THE EQUIPMENT MANUFACTURER AND AS APPROVED BY THE ENGINEER. ANCHOR BOLTS SHALL BE HELD IN POSITION WITH A TEMPLATE OR OTHER ACCEPTABLE MEANS, MATCHING THE BASE PLATE WHILE PAD IS BEING PLACED. ALTERNATIVELY, ANCHOR HOLES MAY BE DRILLED FOLLOWING CONCRETE CURING.
3. CONCRETE DESIGN MIX TO BE APPROVED BY ENGINEER AND BE 5000 PSI HIGH EARLY STRENGTH. MAXIMUM SLUMP AT TIME OF PLACEMENT NO MORE THAN 5 INCHES. TEST CYLINDERS TO BE CAST AND TESTED BY AN APPROVED TESTING LABORATORY. SURFACE FINISH TO BE BROOMED AND WITHIN A 1/16TH" TOLERANCE OF GRADES SHOWN.
4. NOTE FROM GN-07 THAT GENERATOR PAD HAS A SLIGHT FINISHED SLOPE. SHOULD TANK/GENERATOR INSTALLATION REQUIRE SHIMMING FOR PROPER INSTALLATION, CONTRACTOR TO SUBMIT SHOP DRAWINGS DETAILING ANCHOR CONNECTIONS.
5. ALL REINFORCEMENT STEEL TO BE ASTM A615, GRADE 60. MINIMUM COVER NO LESS THAN 3 INCHES. MINIMUM LAP LENGTH = 36 INCHES. STEEL PLACEMENT TO BE INSPECTED BY OWNER/ENGINEER'S REPRESENTATIVE PRIOR TO PLACING CONCRETE.
6. PLATFORM SUPPORT ANCHORS WILL BE PER PLATFORM MANUFACTURER SPECIFICATIONS.
7. FOLLOWING INITIAL CURING, CONCRETE PAD WILL BE FLOODED AND RUNOFF OBSERVED TO DETECT PRESENCE OF LOW AREAS (BIRD BATHS). LOW AREAS GREATER THAN 1/16TH INCH USING A 16 FT BOARD WILL NOT BE ACCEPTED.
8. ALL ASPECTS OF CONCRETE OPERATIONS AND PLACEMENT SHALL MEET ACI 318 LATEST EDITION GUIDELINES.

CONCRETE PAD-NOTES

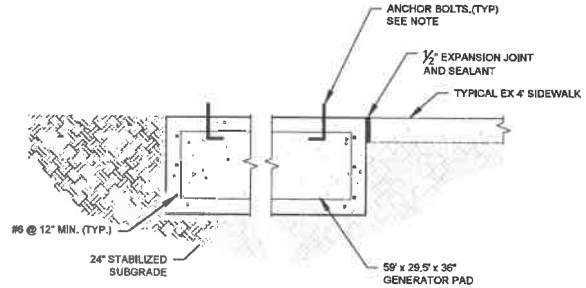


NOTE:

CONCRETE TO BE 3,000 PSI WITH CONTRACTION JOINTS AT 5' INTERVALS. IN-LIEU OF WIRE MESH, CONCRETE MAY USE FIBER REINFORCED @ LB/CY). SAWCUT CONTROL JOINT EVERY 5'.

RECONSTRUCTED SIDEWALK DETAIL

N.T.S.



GENERATOR PAD

NTS

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City of Naples

FOR CONSTRUCTION
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COLLIER COUNTY, FLORIDA

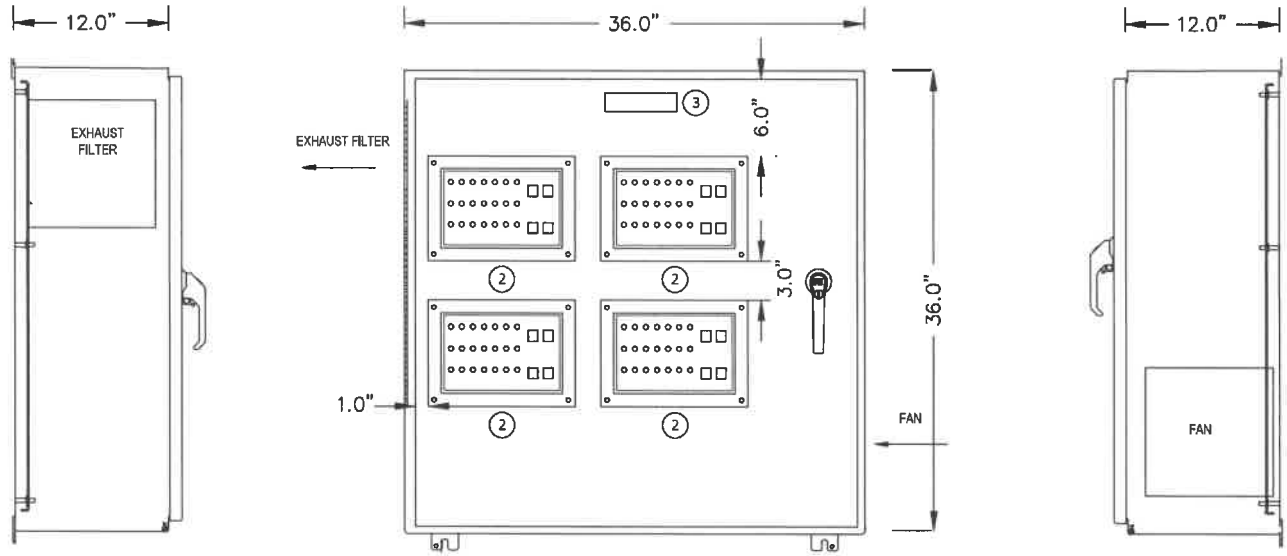
REVISIONS

NO.	DESCRIPTION	DATE

DATE:	MAY 2020
PROJECT NO.	20203087-000
FILE NO.	27-25-49
SCALE:	AS SHOWN

GENERATOR PAD DETAILS

SHEET NUMBER
GN-09



NOTES: (#)

1. ENCLOSURE TO BE N1 WITH 3-PT LATCH.
2. ANNUNCIATOR MOUNTING BEZEL IS 8.25"H x 11.5"W AND REQUIRES A 6.25"H x 9.5"W CUT-OUT. ANNUNCIATORS PROVIDED BY OTHERS.
3. NAMEPLATE: "GENERATORS RIO CONTROL PANEL"

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PHONE (239) 334-0046

WAYNE WILDEY WRIGHT, PE
FL License No. 58220

City of Naples

FOR CONSTRUCTION
GENERATORS REPLACEMENT
WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

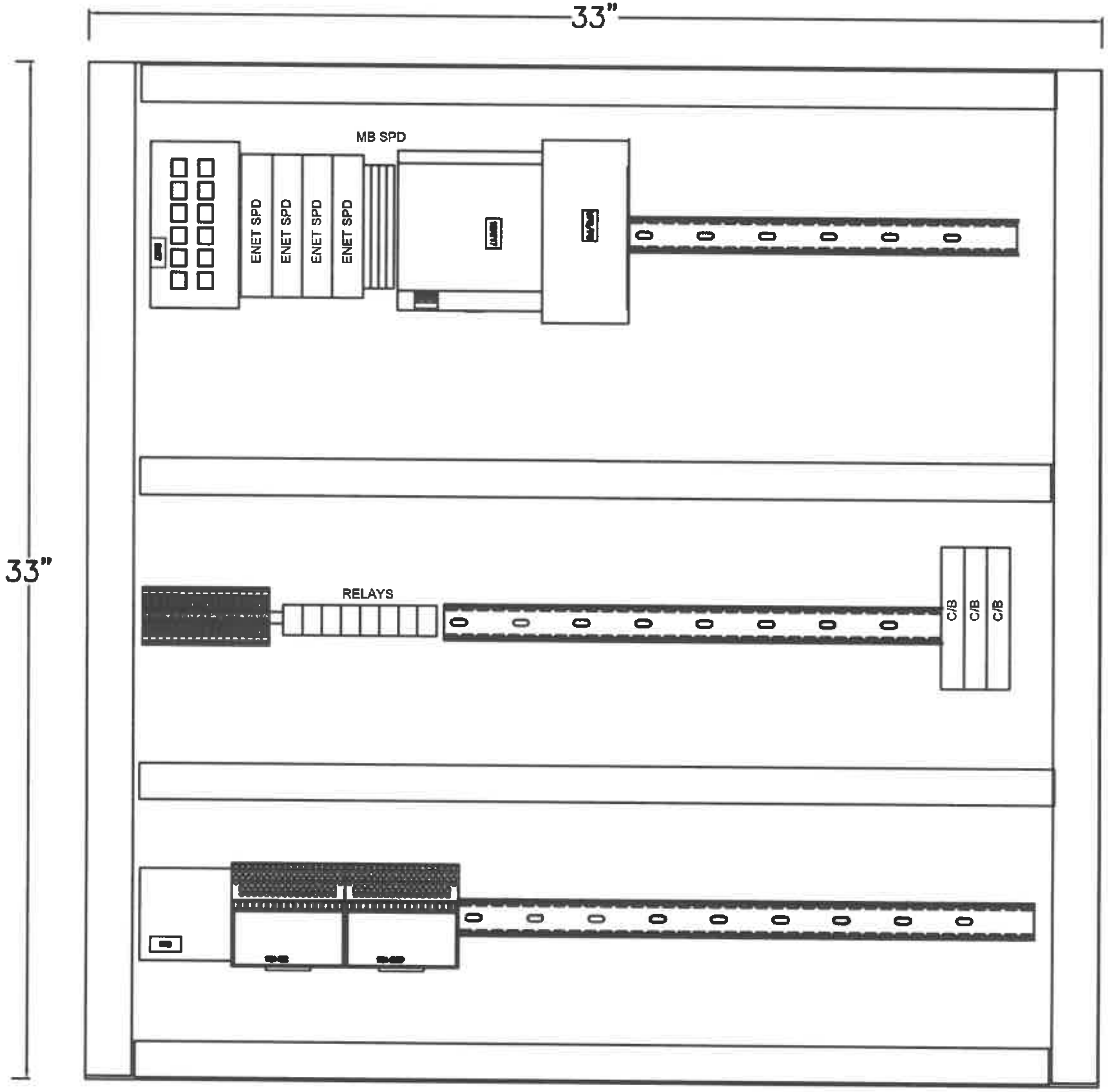
REVISIONS

NO.	DESCRIPTION	DATE

DATE:	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	1" = 10'

RIO CP EXTERNAL LAYOUT

SHEET NUMBER
RIO-01



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FOR CONSTRUCTION
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WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

REVISIONS		
NO.	DESCRIPTION	DATE

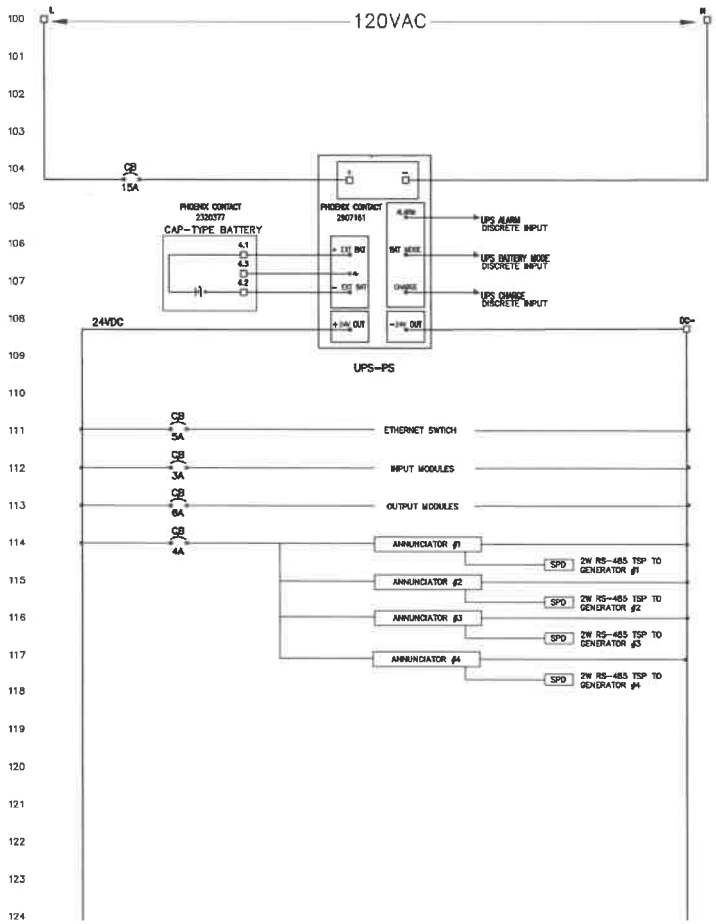
DATE:	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	NONE

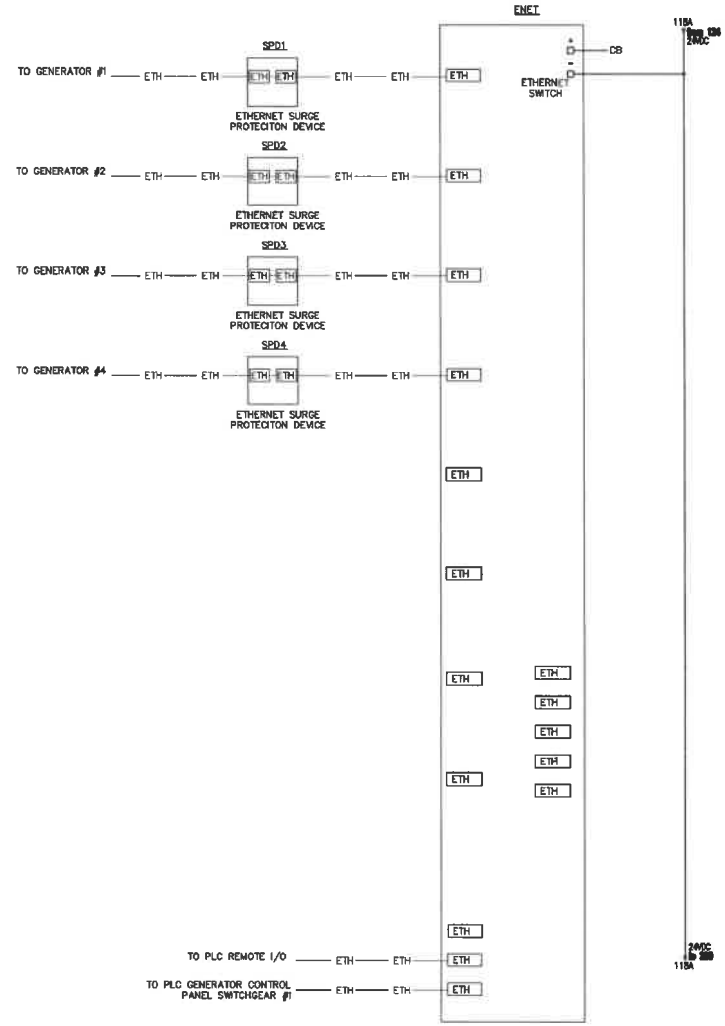
RIO CP INTERNAL LAYOUT

SHEET NUMBER

RIO-02

O:\2020\20203070-006\20203070-006 Control Panel 5.dwg (RIO-2) www Jan 30, 2023 - 8:32am





NOTES:

1. TERMINATE ALL CONDUCTORS #10 AWG AND LESS WITH WIRE FERRULES

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City of Naples

FOR CONSTRUCTION
GENERATORS REPLACEMENT
WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

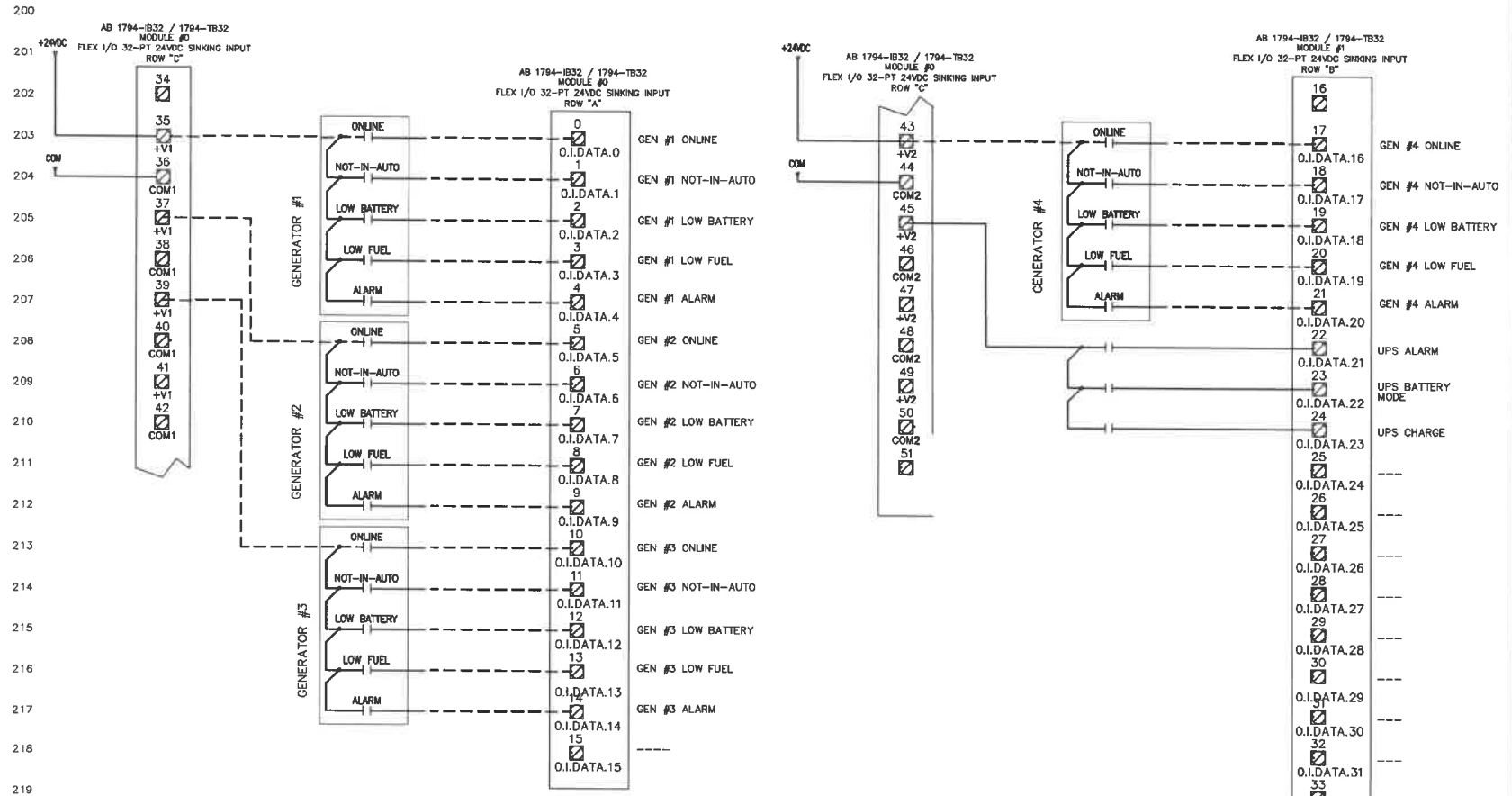
REVISIONS

NO.	DESCRIPTION	DATE

DATE	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE	NONE

RIO CP ELECTRICAL SCHEMATIC

SHEET NUMBER
RIO-03



NOTES:

1. TERMINATE ALL CONDUCTORS #12 AWG AND LESS WITH WIRE FERRULES.
2. TERMINATE FIELD I/O DIRECTLY ONTO FLEX I/O TERMINALS.

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City of Naples

FOR CONSTRUCTION
GENERATORS REPLACEMENT
WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

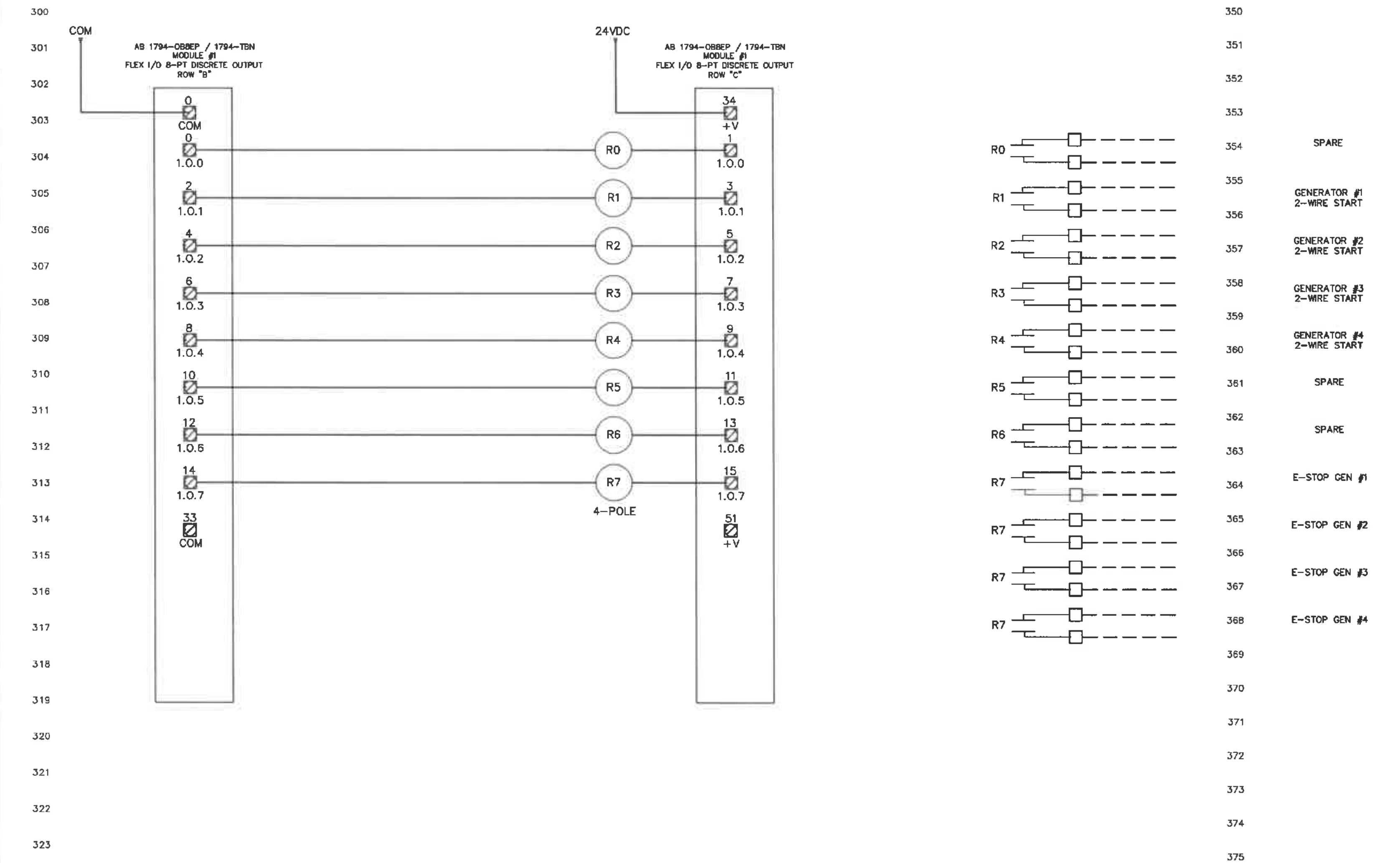
REVISIONS

NO.	DESCRIPTION	DATE

DATE: JANUARY 2023
PROJECT NO. 20203070-006
FILE NO. 03-50-25E
SCALE: NONE

RIO CP ELECTRICAL SCHEMATIC DI MODULE

SHEET NUMBER
RIO-04



NOTES:

1. TERMINATE ALL CONDUCTORS #12 AWG AND LESS WITH WIRE FERRULES.
2. TERMINATE FIELD I/O DIRECTLY ONTO FLEX I/O TERMINALS.

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City of Naples

FOR CONSTRUCTION
GENERATORS REPLACEMENT
WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

REVISIONS

NO.	DESCRIPTION	DATE

DATE	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE	NONE

RIO CP ELECTRICAL SCHEMATIC DO MODULE

SHEET NUMBER

RIO-05

O:\2020\20203070-006\20203070-006 Control Panel 4.dwg (RIO-5) www Jan 30, 2023 - 8:32am

GENERATOR RIO CP BILL OF MATERIALS

ITEM	ID	QTY	DESCRIPTION	MFR.	PART #
1	CP	1	ENCLOSURE, 36"H X 36"W X 12"D, N1, 3-PT LATCH, PADLOCKABLE HANDLE	SCHAEFFER	SPN12-363612
2	CP	1	ENCLOSURE SUBPLATE		ES-P3636
3	CP	1	FAN, AC, 169CFM		PF-43000
4	CP	1	EXHAUST FILTER		PFA-40000
5	RIO	1	Flex Ethernet/IP Adapter	Allen-Bradley	1794-AENT
6	PS1	1	FLEX POWER SUPPLY, 1.3A		1794-PS13
7	DI0	1	FLEX 32-PT DIGITAL SINK INPUT MOD		1794-IB32
8	DO1	1	FLEX 8-PT DISCRETE OUTPUT MOD.		1794-OB8EP
9	DI0	1	FLEX IO MOUNTING BASE		1794-TB32
10	DO1	1	FLEX IO MOUNTING BASE		1794-TBN
11	MCB	1	Circuit Breaker, 15A/1P		1489-M1C150
12	CB-	*	Circuit Breaker, MINIATURE		1489 SERIES
13	–	–	–	PHOENIX	
14	SPD#	4	MODBUS SERIAL SURGE PROTECTOR		1065316
15	UPS	1	TRIO UPS+PS, 24VDC/10ADC		2907161
16	BAT	1	UPS-CAP/24VDC/10A CAPACITOR BATT		2320377
17	ENET	1	ETHERNET SWITCH, 16-RJ45		1085255
18	SPD#	4	ETHERNET SURGE PROTECTOR		2881007
19	R#	7	RELAY, 24VDC COIL, 2PDT		2987943
20	R#	7	BASE		2900930
21	R8	1	RELAY, 24VDC COIL, 4PDT		2903320
22					
23					

GENERATOR RIO CP I/O LIST

MODULE	PT	DESCRIPTION	DEVICE	NOTES
		AB 1794-AENT COMMS ADAPTER		
		AB 1794-PS13 POWER SUPPLY		
AB FLEX 1794-IB32 1794-TB32		**24VDC DISCRETE INPUTS MOD. #0**		
	0	GEN #1 ON-LINE	GENERATOR #1	CONTACTOR
	1	GEN #1 NOT-IN-AUTO		AUX RELAY #1
	2	GEN #1 LOW BATTERY		AUX RELAY #2
	3	GEN #1 LOW FUEL		AUX RELAY #3
	4	GEN #1 ALARM		AUX RELAY #4
	5	GEN #2 ON-LINE	GENERATOR #2	CONTACTOR
	6	GEN #2 NOT-IN-AUTO		AUX RELAY #1
	7	GEN #2 LOW BATTERY		AUX RELAY #2
	8	GEN #2 LOW FUEL		AUX RELAY #3
	9	GEN #2 ALARM		AUX RELAY #4
	10	GEN #3 ON-LINE	GENERATOR #3	CONTACTOR
	11	GEN #3 NOT-IN-AUTO		AUX RELAY #1
	12	GEN #3 LOW BATTERY		AUX RELAY #2
	13	GEN #3 LOW FUEL		AUX RELAY #3
	14	GEN #3 ALARM		AUX RELAY #4
	15	spare		
	16	GEN #4 ON-LINE	GENERATOR #4	CONTACTOR
	17	GEN #4 NOT-IN-AUTO		AUX RELAY #1
	18	GEN #4 LOW BATTERY		AUX RELAY #2
	19	GEN #4 LOW FUEL		AUX RELAY #3
	20	GEN #4 ALARM		AUX RELAY #4
	21	UPS ALARM	UPS	
	22	UPS BATTERY MODE		
	23	UPS CHARGE		
	24	spare		
	25	spare		
	26	spare		
	27	spare		
	28	spare		
	29	spare		
	30	spare		
	31	spare		
AB FLEX 1794-OB8EP 1794-TBN		**24VDC DISCRETE OUTPUTS MOD. #1**		
	0	SPARE	---	RELAY
	1	GEN #1 REMOTE START	PLC RIO CP	RELAY
	2	GEN #2 REMOTE START	PLC RIO CP	RELAY
	3	GEN #3 REMOTE START	PLC RIO CP	RELAY
	4	GEN #4 REMOTE START	PLC RIO CP	RELAY
	5	spare		RELAY
	6	spare		RELAY
	7	GENERATOR E-STOPS	PLC RIO CP	RELAY

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WAYNE WILSEY WRIGHT, PE FL License No. 56220

City of Naples

REVISIONS

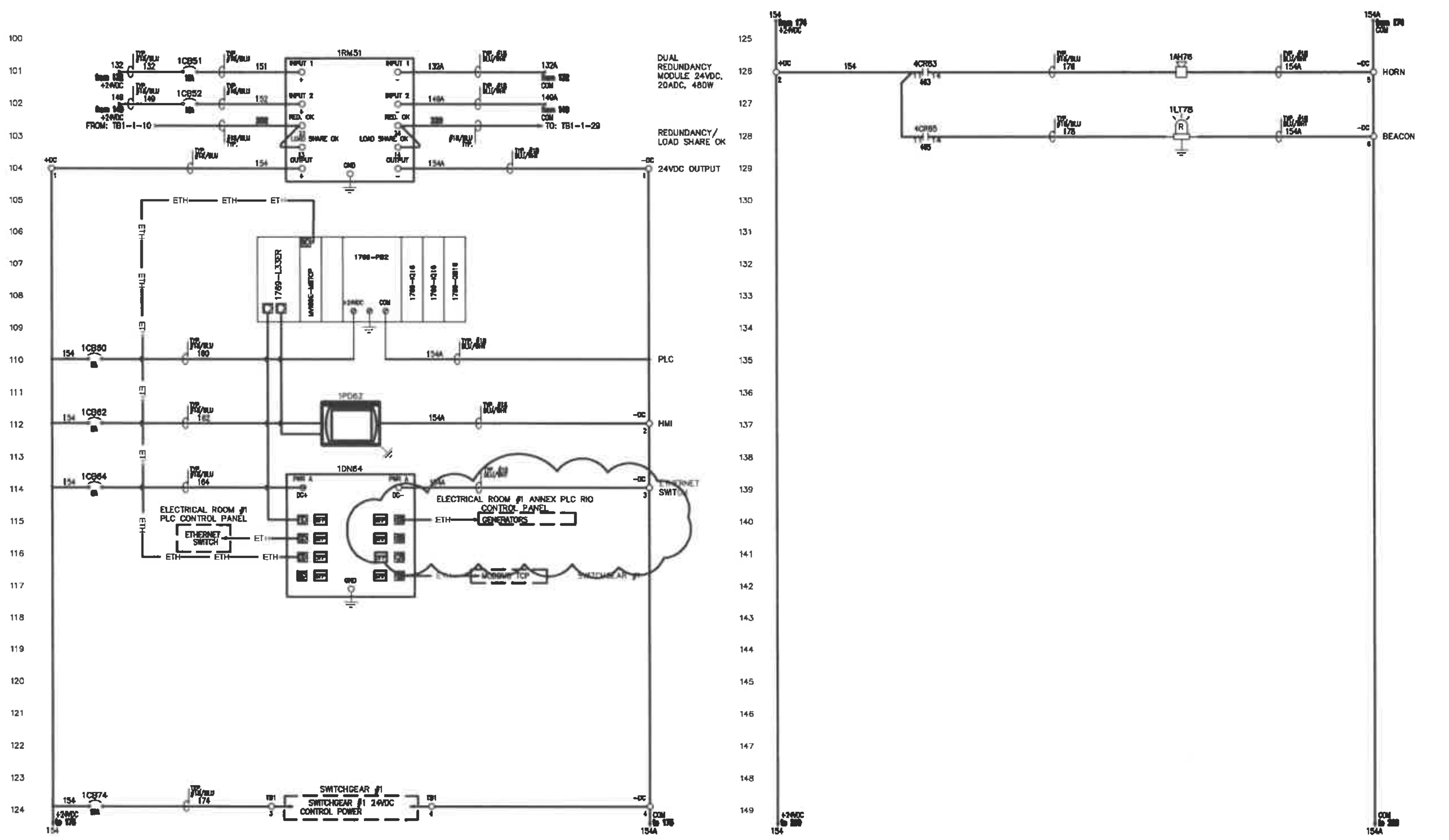
NO.	DESCRIPTION	DATE

FOR CONSTRUCTION
GENERATORS REPLACEMENT
WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

DATE: JANUARY 2023
PROJECT NO. 20203070-006
FILE NO. 03-50-25E
SCALE: NONE

RIO CP BOM

SHEET NUMBER
RIO-06



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City of Naples

GENERATOR REPLACEMENT
WATER RECLAMATION FACILITY
CITY OF NAPLES
COLLIER COUNTY, FLORIDA

REVISIONS

NO.	DESCRIPTION	DATE

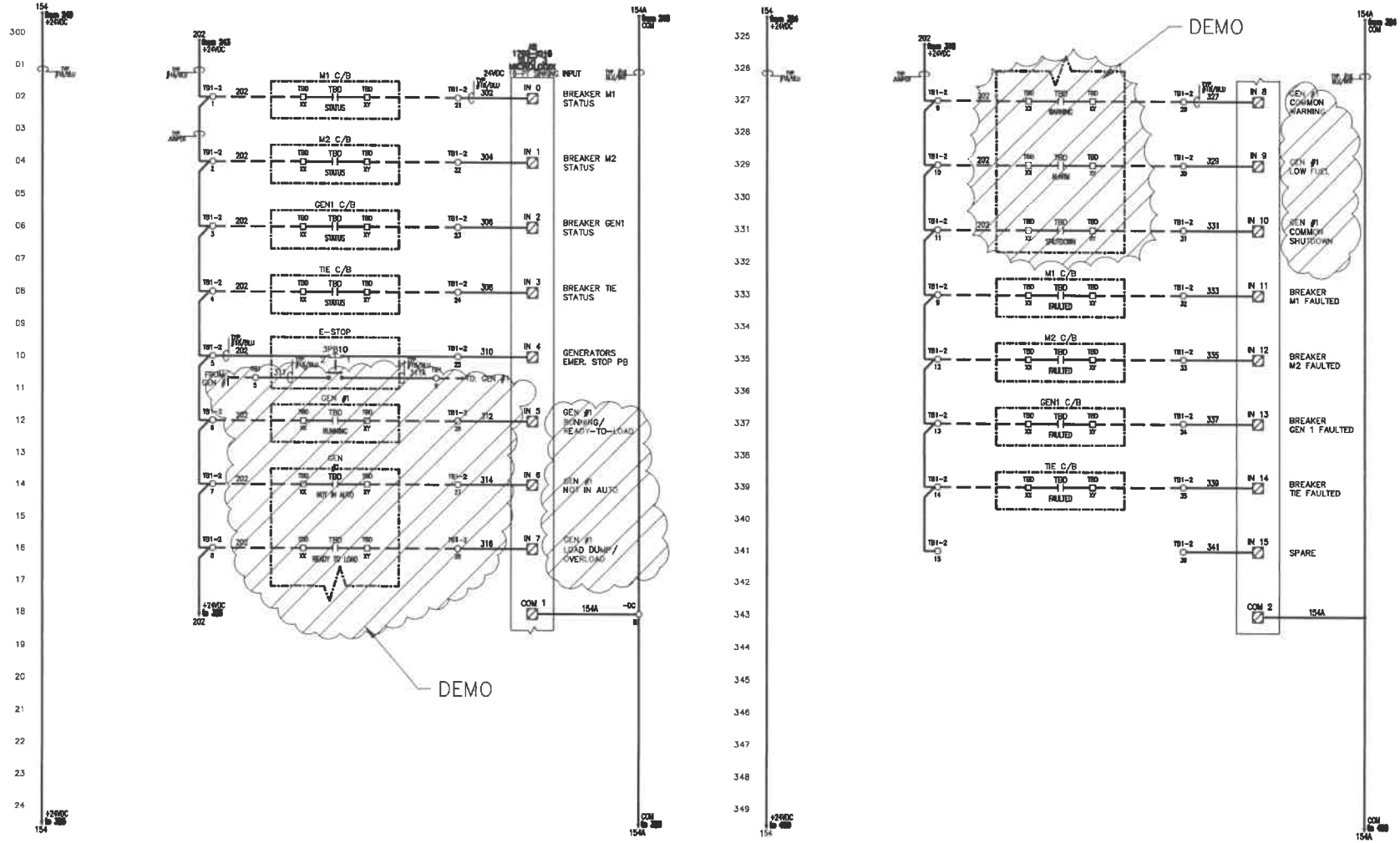
DATE	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE	NONE

GENERATOR CP WIRING SCHEMATIC

SHEET NUMBER
CP-01

141

WRF CP.dwg (CP-1) Jan 30, 2023 - 8:31am



NOTES: ALL WIRES CONNECTING TO UTB'S WILL USE APPROPRIATELY SIZED FERRULE.

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City of Naples

FOR CONSTRUCTION
GENERATORS REPLACEMENT
WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

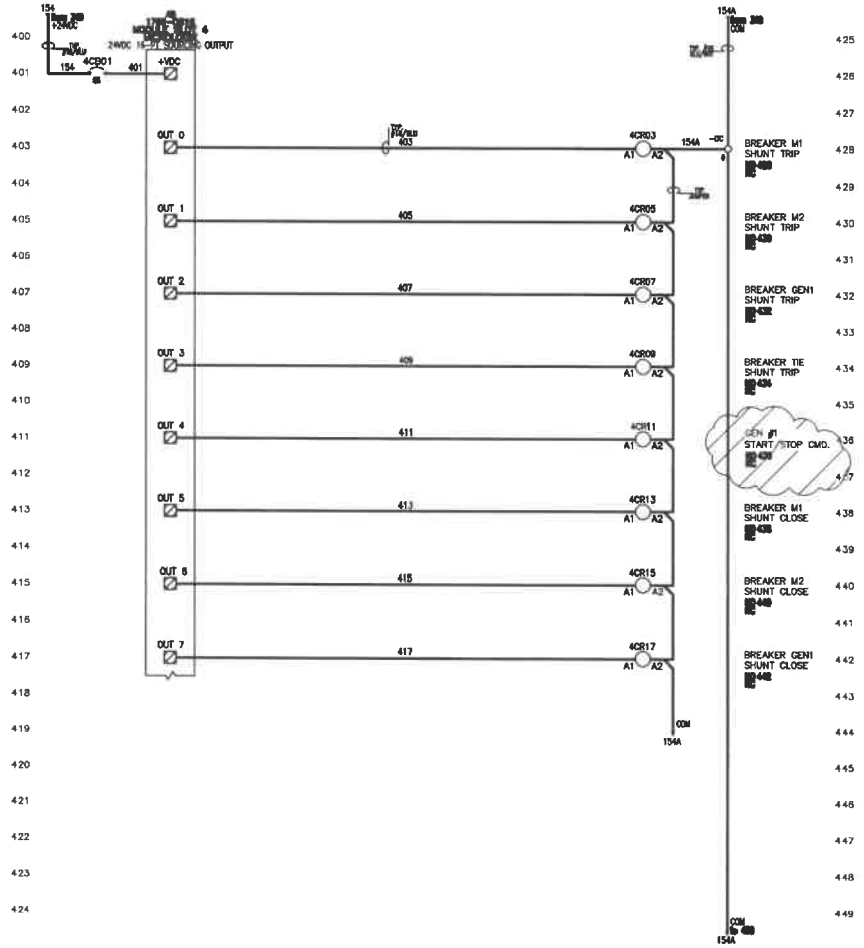
REVISIONS

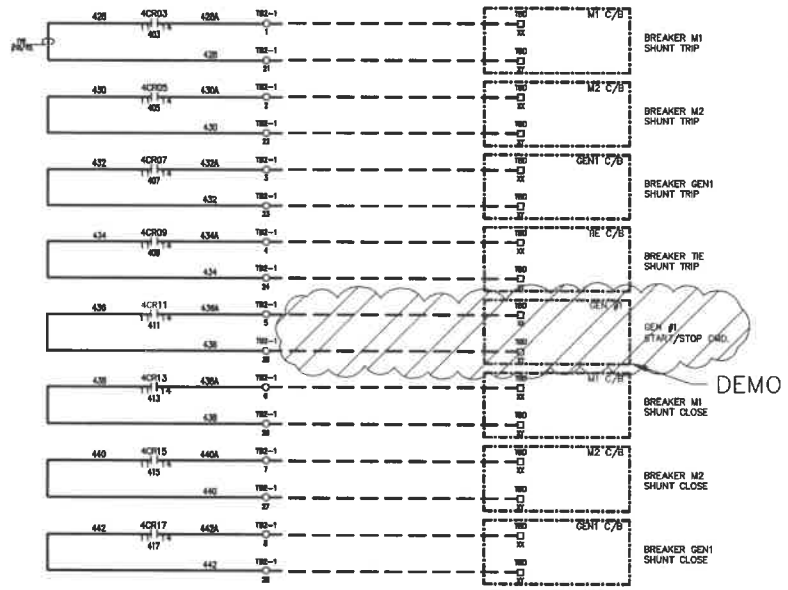
NO.	DESCRIPTION	DATE
1	GENERATORS REPLACEMENT	3/1/22

DATE: JANUARY 2023
PROJECT NO. 20203070-008
FILE NO. 03-50-25E
SCALE: NONE

GENERATOR CONTROL PANEL WIRING SCHEMATIC

SHEET NUMBER
CP-02





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FOR CONSTRUCTION
GENERATORS REPLACEMENT
WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

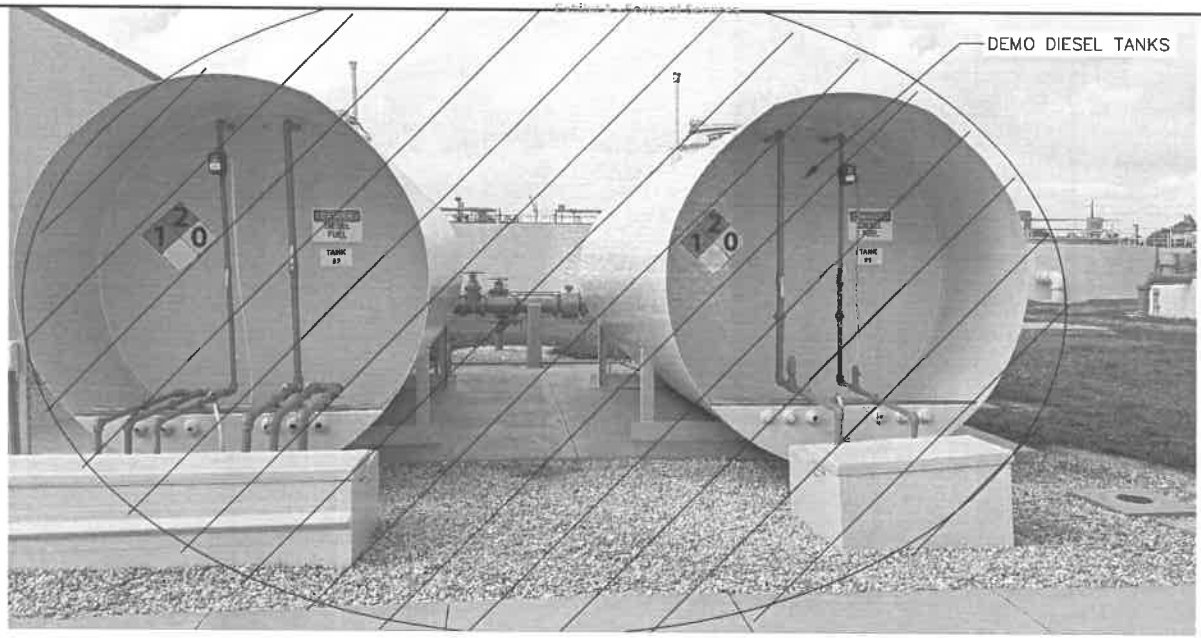
REVISIONS

NO.	DESCRIPTION	DATE
1	GENERATORS REPLACEMENT	3/1/22

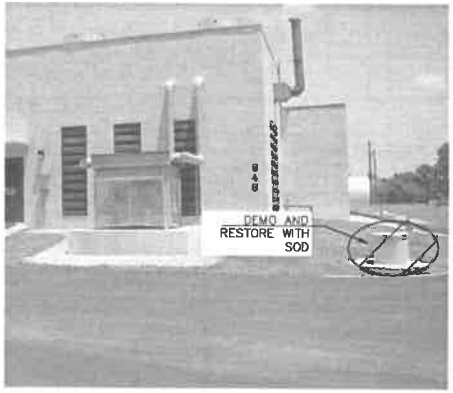
DATE JANUARY 2
PROJECT NO. 20203070-006
FILE NO. 03-50-25E
SCALE NONE

GENERATOR CONTROL PANEL WIRING SCHEMATIC

SHEET NUMBER
CP-03

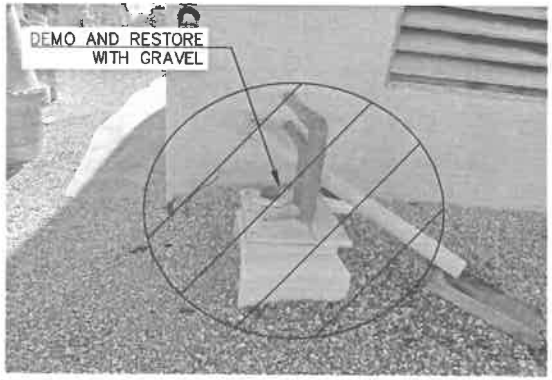


EX. DIESEL TANKS



EX. DIESEL WELL

EX. DIESEL WELL GEN #1



EX. DIESEL WELL GEN #2

NOTES:

1. DEMO EX. DIESEL TANKS AND PAD. EX. MONITORING WELLS IN THE AREA OF THE NEW GENERATOR PAD WILL BE DEMOED BELOW PAD, FILLED WITH GROUT OR REMOVED.
2. DEMO ALL DIESEL LINES, DIESEL WELLS, AND DIESEL CONTROLS (CLOUDED AREAS).
3. DEMO (3) DIESEL VALVE WELLS, FILL WITH SOIL, AND RESTORE AREA.
4. PURGE DIESEL LINES WITH GROUT AND ABANDON UG DIESEL LINES IN PLACE.

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City of Naples

FOR CONSTRUCTION
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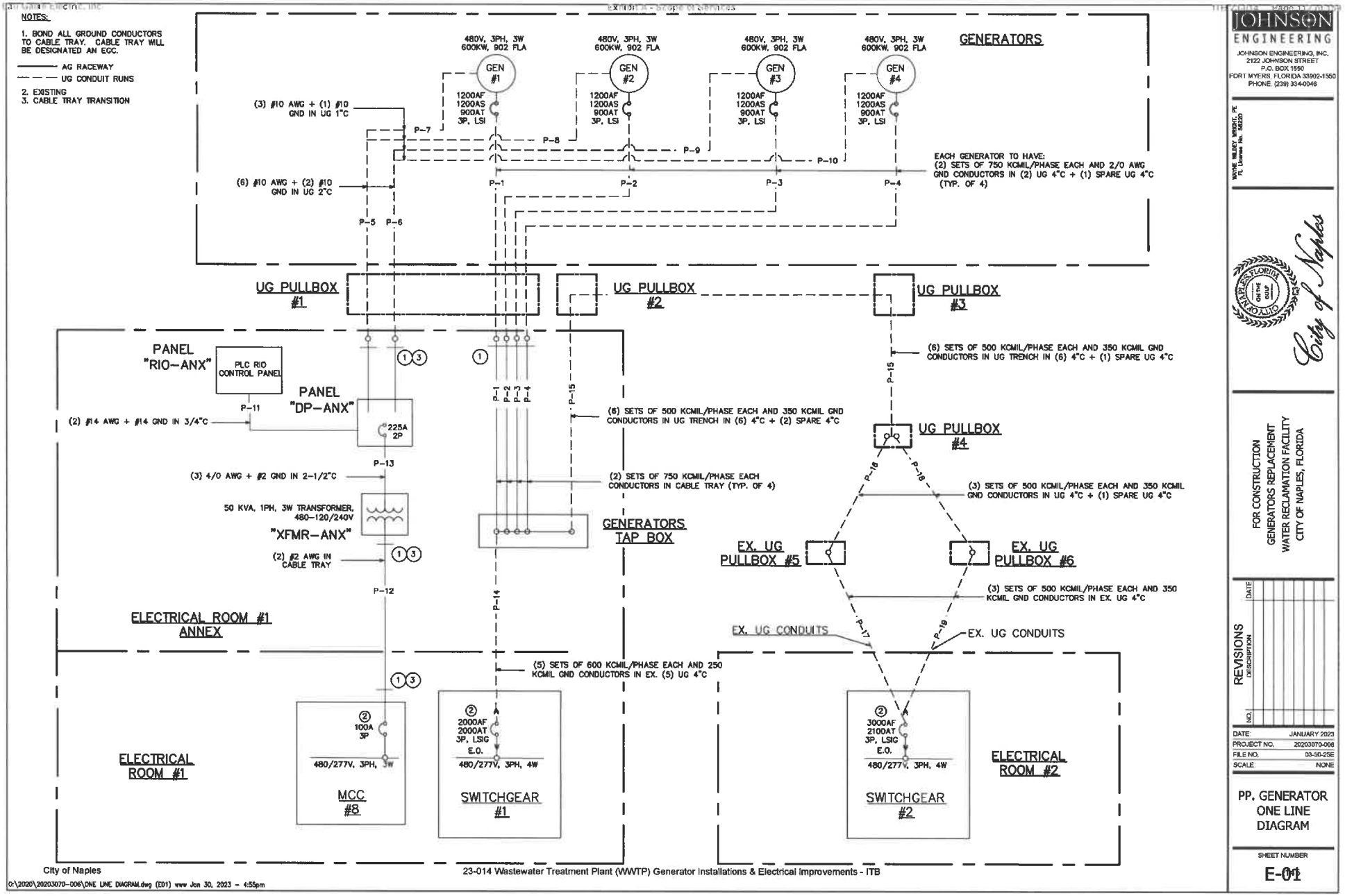
REVISIONS

NO.	DESCRIPTION	DATE

DATE: JANUARY 2023
PROJECT NO. 20203070-006
FILE NO. 03-50-25E
SCALE: NONE

DIESEL LINES
DEMO PLAN

SHEET NUMBER
DE-01



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CITY OF NAPLES, FLORIDA

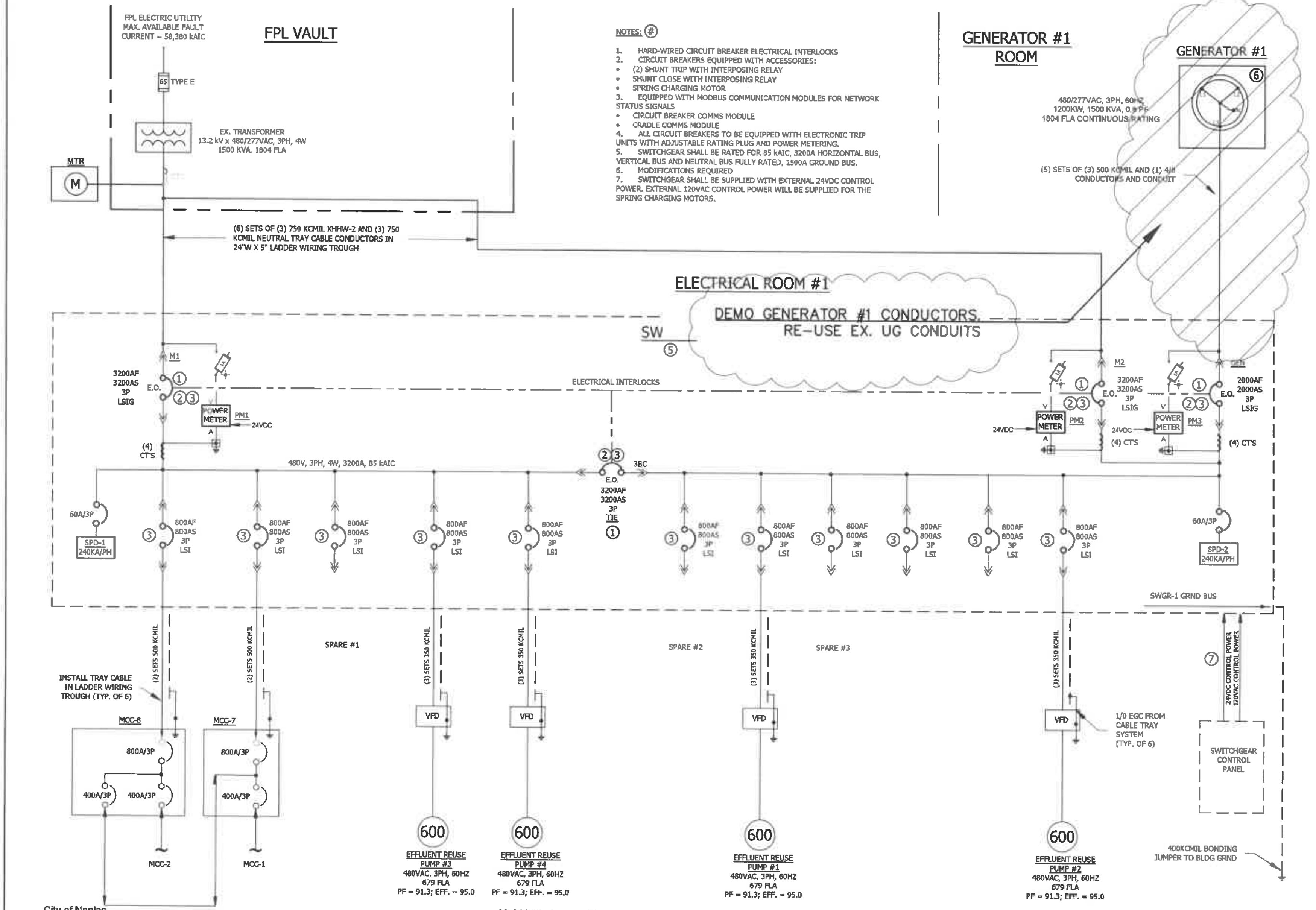
REVISIONS

NO.	DESCRIPTION	DATE

DATE:	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	NONE

PP. GENERATOR ONE LINE DIAGRAM

SHEET NUMBER
E-01



NOTES: (#)

1. HARD-WIRED CIRCUIT BREAKER ELECTRICAL INTERLOCKS
2. CIRCUIT BREAKERS EQUIPPED WITH ACCESSORIES:
- (2) SHUNT TRIP WITH INTERPOSING RELAY
- SHUNT CLOSE WITH INTERPOSING RELAY
- SPRING CHARGING MOTOR
3. EQUIPPED WITH MODBUS COMMUNICATION MODULES FOR NETWORK STATUS SIGNALS
- CIRCUIT BREAKER COMMS MODULE
- CRADLE COMMS MODULE
4. ALL CIRCUIT BREAKERS TO BE EQUIPPED WITH ELECTRONIC TRIP UNITS WITH ADJUSTABLE RATING PLUG AND POWER METERING.
5. SWITCHGEAR SHALL BE RATED FOR 85 kAIC, 3200A HORIZONTAL BUS, VERTICAL BUS AND NEUTRAL BUS FULLY RATED, 1500A GROUND BUS.
6. MODIFICATIONS REQUIRED
7. SWITCHGEAR SHALL BE SUPPLIED WITH EXTERNAL 24VDC CONTROL POWER. EXTERNAL 120VAC CONTROL POWER WILL BE SUPPLIED FOR THE SPRING CHARGING MOTORS.

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FOR CONSTRUCTION
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WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

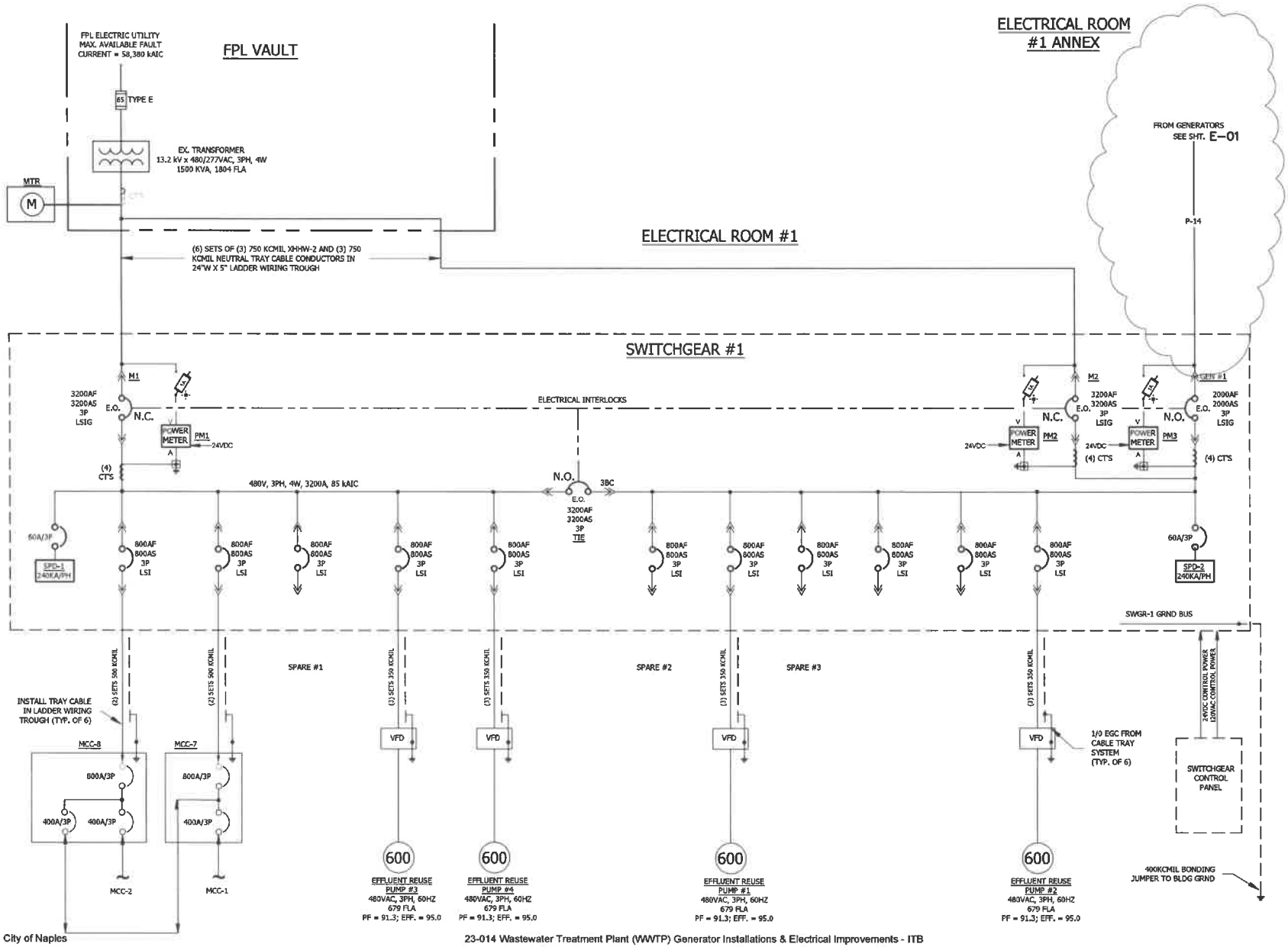
REVISIONS

NO.	DESCRIPTION	DATE

DATE: JANUARY 2023
PROJECT NO. 20203070-006
FILE NO. 03-50-25E
SCALE: NONE

EX. SINGLE LINE ELEC. RM. #1

SHEET NUMBER
E-02



City of Naples

23-014 Wastewater Treatment Plant (WWTP) Generator Installations & Electrical Improvements - ITB

D:\2020\20203070-006\PP. SINGLE LINE ELEC RM #1.dwg (E03) www Jan 30, 2023 - 4:55pm

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City of Naples

FOR CONSTRUCTION
GENERATORS REPLACEMENT
WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

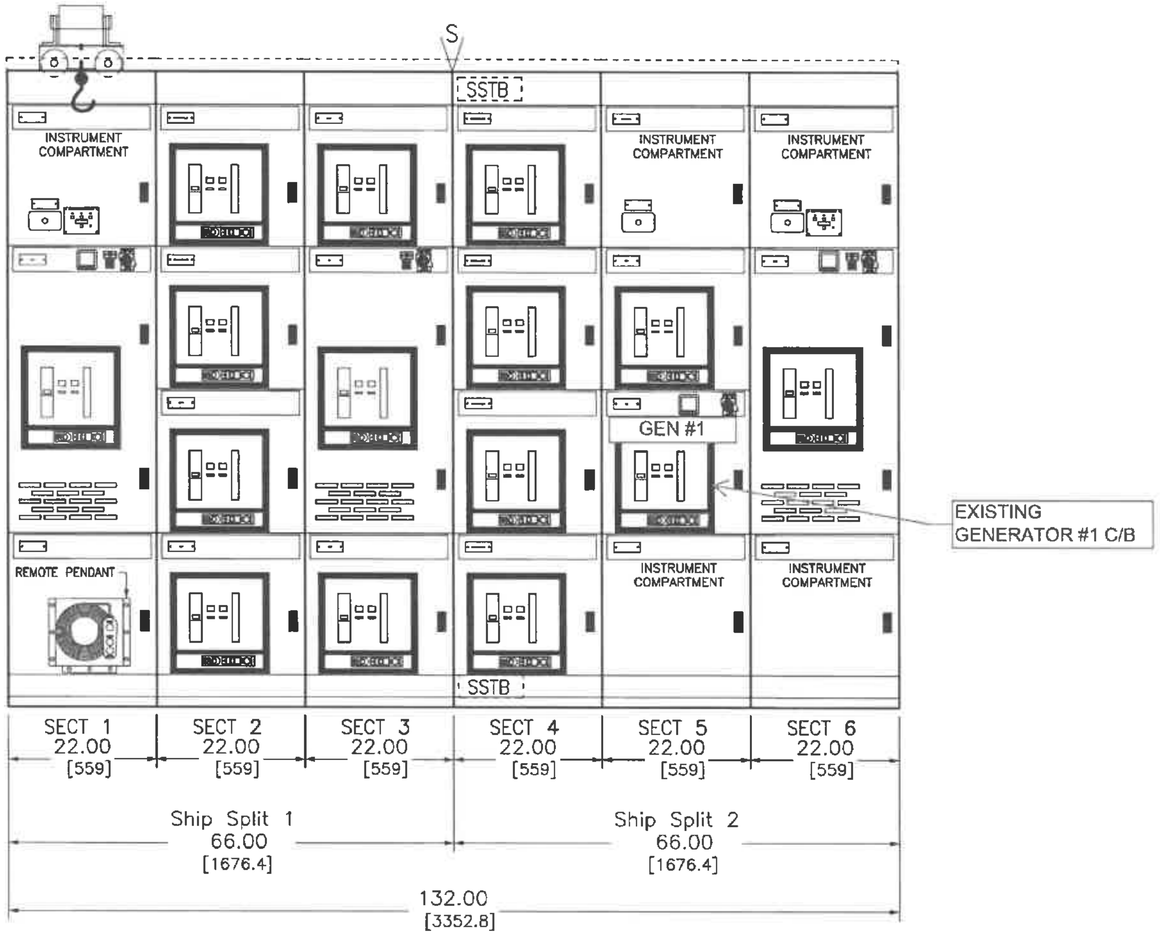
REVISIONS

NO.	DESCRIPTION	DATE
1		

DATE	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE	NONE

PP. SINGLE LINE ELEC. RM. #1

SHEET NUMBER
E-03



SYMBOL KEY

Symbol	Description	Symbol	Description	Symbol	Description	Symbol	Description
(lifter)	MANUAL OVERHEAD LIFTER	(latch)	STANDARD DOOR LATCH	(display)	PM8214 DISPLAY	(socket)	HUBBEL REMOTE CONTROL SOCKET
		(latch)	LOCKING DOOR LATCH	(switch)	ERMS SWITCH	(bracket)	REMOTE RACKING BRACKET
S	SHIPPING SPLIT	(display)	TVSS DISPLAY				
		(pole)	PK2 6-POLE				

JOB NAME:	NAPLES WWTP MCC AND SWITCHGEAR REP
JOB LOCATION:	NAPLES FL
DRAWN BY:	MANILA KAMBOJ / DARREN S.
	M. KAMBOJ / DAS
DATE:	MAY 30, 2019

EQUIPMENT
EQUIPMENT
DRAWING TYP

FR

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WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

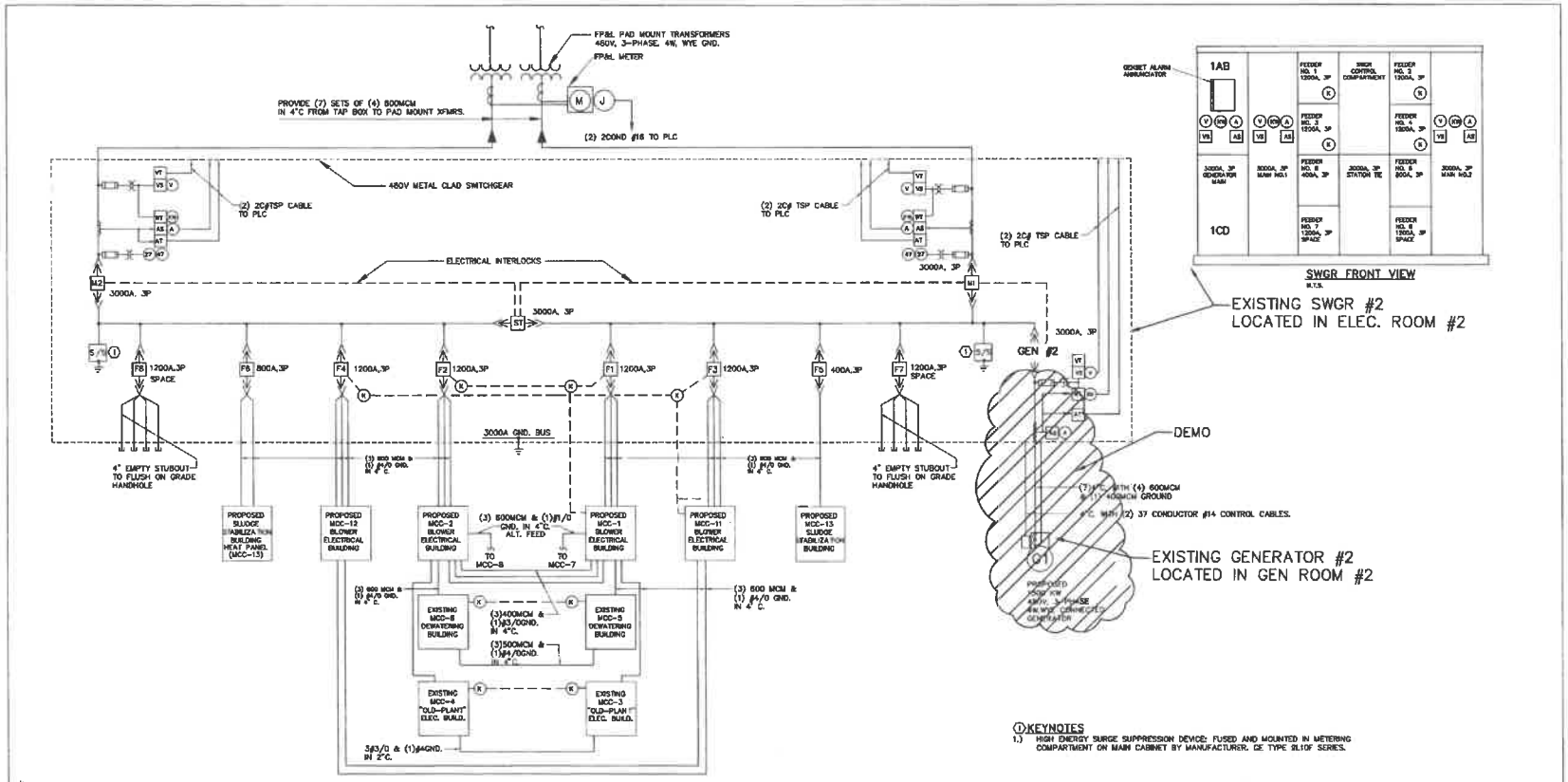
REVISIONS		
NO.	DESCRIPTION	DATE
1		

DATE:	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	1" = 19 FT

PP. SWITCHGEAR #1 ELEVATION

SHEET NUMBER
E-04

O:\2020\20203070-006\PP. SWITCHGEAR #1 ELEVATION.dwg (E04) www Jan 30, 2023 - 4:55pm



①KEYNOTES
1.) HIGH ENERGY SURGE SUPPRESSION DEVICE: FUSED AND MOUNTED IN METERING COMPARTMENT ON MAIN CABINET BY MANUFACTURER. GE TYPE 2L10F SERIES.

RECORD DRAWINGS
Revisions Drawn by: MEF Date: 11/28/99
THESE RECORD DRAWINGS HAVE BEEN PREPARED IN PART ON THE BASIS OF INFORMATION COMPILED BY OTHERS. THEY ARE NOT INTENDED TO REPRESENT IN DETAIL THE EXACT LOCATION TYPE OF COMPONENT NOR MANNER OF CONSTRUCTION. THE ENGINEER WILL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH HAVE NOT BEEN INCORPORATED INTO THE RECORD DRAWINGS.

PROPOSED SERVICE
SINGLE LINE POWER DIAGRAM DUAL GENSETS

L:\MAPWKTP\ 44801e3.dwg 11/22/99 14:37 MEF
PLOT SCALE: 1=48

JOB NO. 424-480
CAD FILE 44801E3
SCALE NONE
DATE AUG 1995

TLC Tilden Labnitz Cooper CONSULTING ENGINEERS INC.
1000 Royal Palm Square Blvd., Ste. 102, Ft. Myers, Florida 33919 (813) 275-4340
Orlando • Ft. Myers • Tallahassee • Cleveland • Cocoa

REVISIONS | NO. | DATE | ISSUED FOR | BY

DON WILLIAMS, P.E. Florida Reg. No. 26504

HMA HOLE, MONTES & ASSOCIATES, INC.
ENGINEERS - PLANNERS - SURVEYORS
DESIGNED | DRAWN | CHECKED | PROJ. ENG.

CITY OF NAPLES WWTRF EXPANSION & UPGRADE
PROPOSED SERVICE SINGLE LINE DIAGRAM

PROJECT NO. 94.30
DATE 08/95
SHEET 1E3

NOTES:
1. THIS DRAWING IS PROVIDED FOR REFERENCE ONLY AND TO SHOW REQUIRED MODIFICATIONS.

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City of Naples

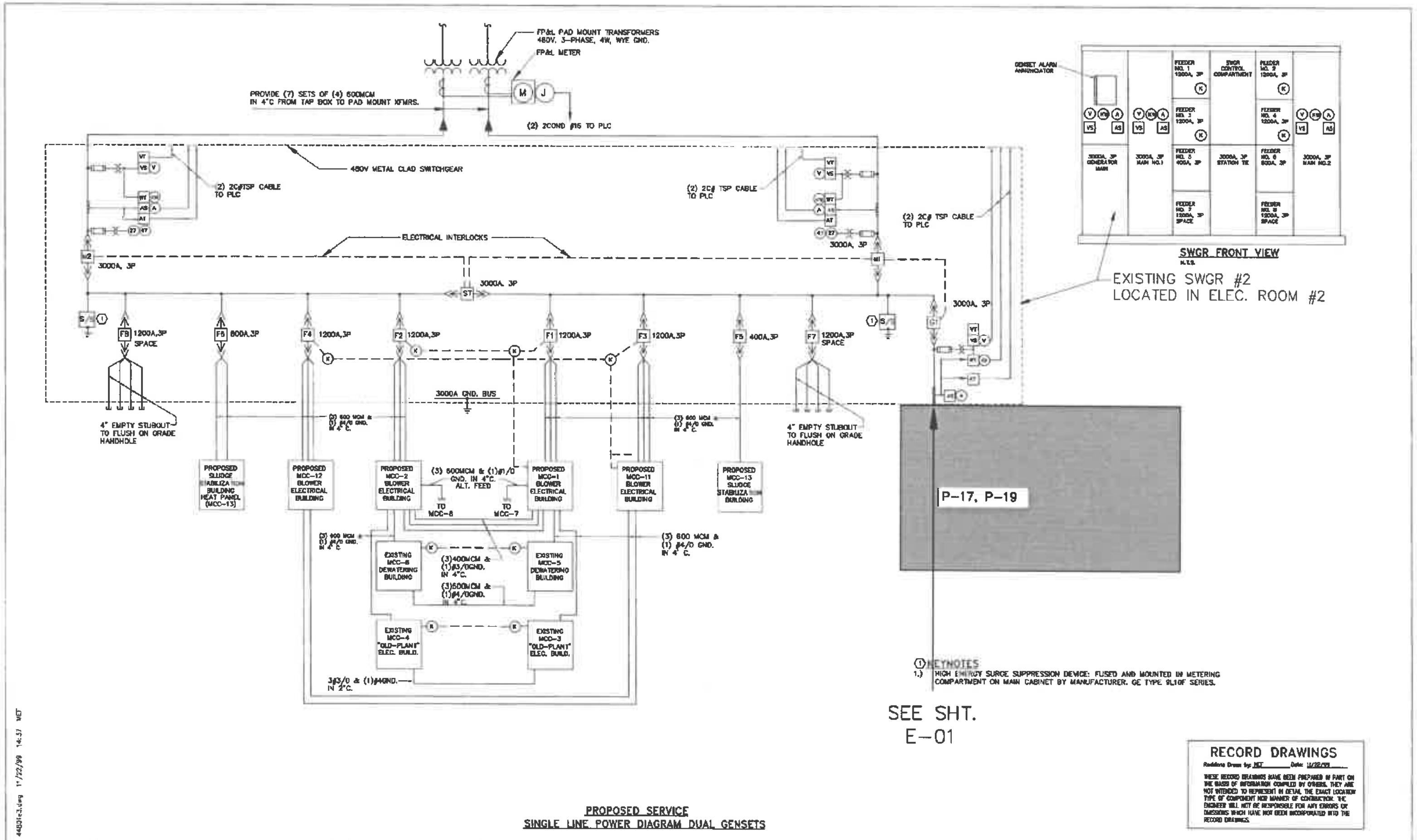
FOR CONSTRUCTION
GENERATORS REPLACEMENT
WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

REVISIONS | NO. | DESCRIPTION | DATE

DATE JANUARY 2023
PROJECT NO. 20203070-006
FILE NO. 03-50-25E
SCALE NONE

EX. SINGLE LINE ELEC. RM. #2

SHEET NUMBER
E-05



Tilden Lobnitz Cooper Consulting Engineers Inc.

HOLE, MONTES & ASSOCIATES, INC. ENGINEERS – PLANNERS – SURVEYORS

DON WILLIAMS, P.E. Florida Reg. No. 29584

CITY OF NAPLES WWTRF EXPANSION & UPGRADE

PROPOSED SERVICE SINGLE LINE DIAGRAM

PROJECT NO. 94.30 — DATE 08/95 — SHEET 1E3

JOB NO. 464-480 — FILE 44801E3 — SCALE NONE — DATE AUG 1995

NOTES:
1. THIS DRAWING IS PROVIDED FOR REFERENCE ONLY AND TO SHOW REQUIRED MODIFICATIONS.

O:\2020\20203070-006\PP. SINGLE LINE ELEC RM #2.dwg (E06) www Jun 30, 2023 – 4:55pm

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2122 JOHNSON STREET
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FORT MYERS, FLORIDA 33902-1550
PHONE: (239) 334-0046

City of Naples

FOR CONSTRUCTION
GENERATORS REPLACEMENT
WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

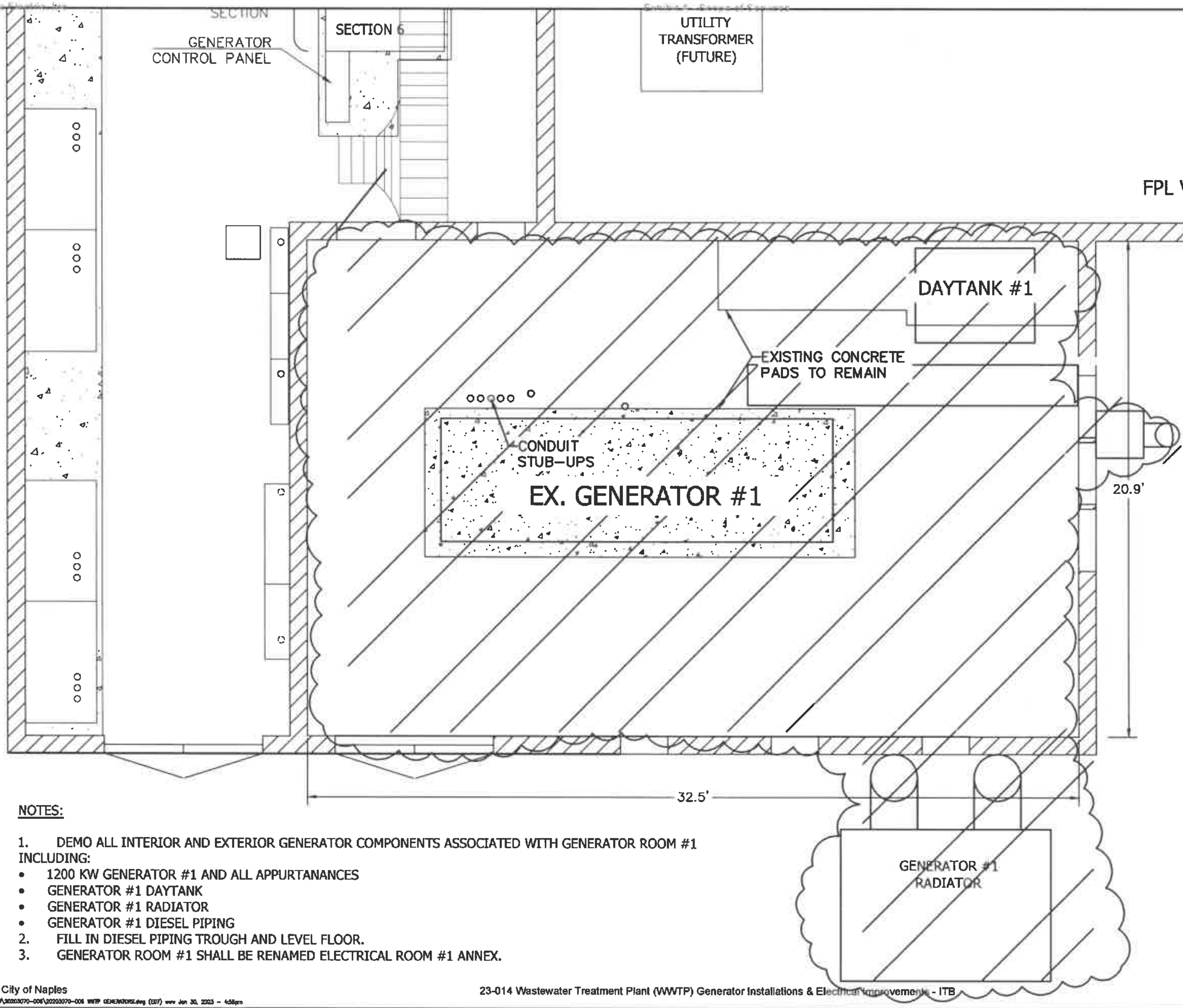
REVISIONS

NO.	DESCRIPTION	DATE

DATE:	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	NONE

PP. SINGLE LINE ELEC. RM. #2

SHEET NUMBER
E-06



NOTES:

1. DEMO ALL INTERIOR AND EXTERIOR GENERATOR COMPONENTS ASSOCIATED WITH GENERATOR ROOM #1 INCLUDING:
   - 1200 KW GENERATOR #1 AND ALL APPURTANANCES
   - GENERATOR #1 DAYTANK
   - GENERATOR #1 RADIATOR
   - GENERATOR #1 DIESEL PIPING
2. FILL IN DIESEL PIPING TROUGH AND LEVEL FLOOR.
3. GENERATOR ROOM #1 SHALL BE RENAMED ELECTRICAL ROOM #1 ANNEX.

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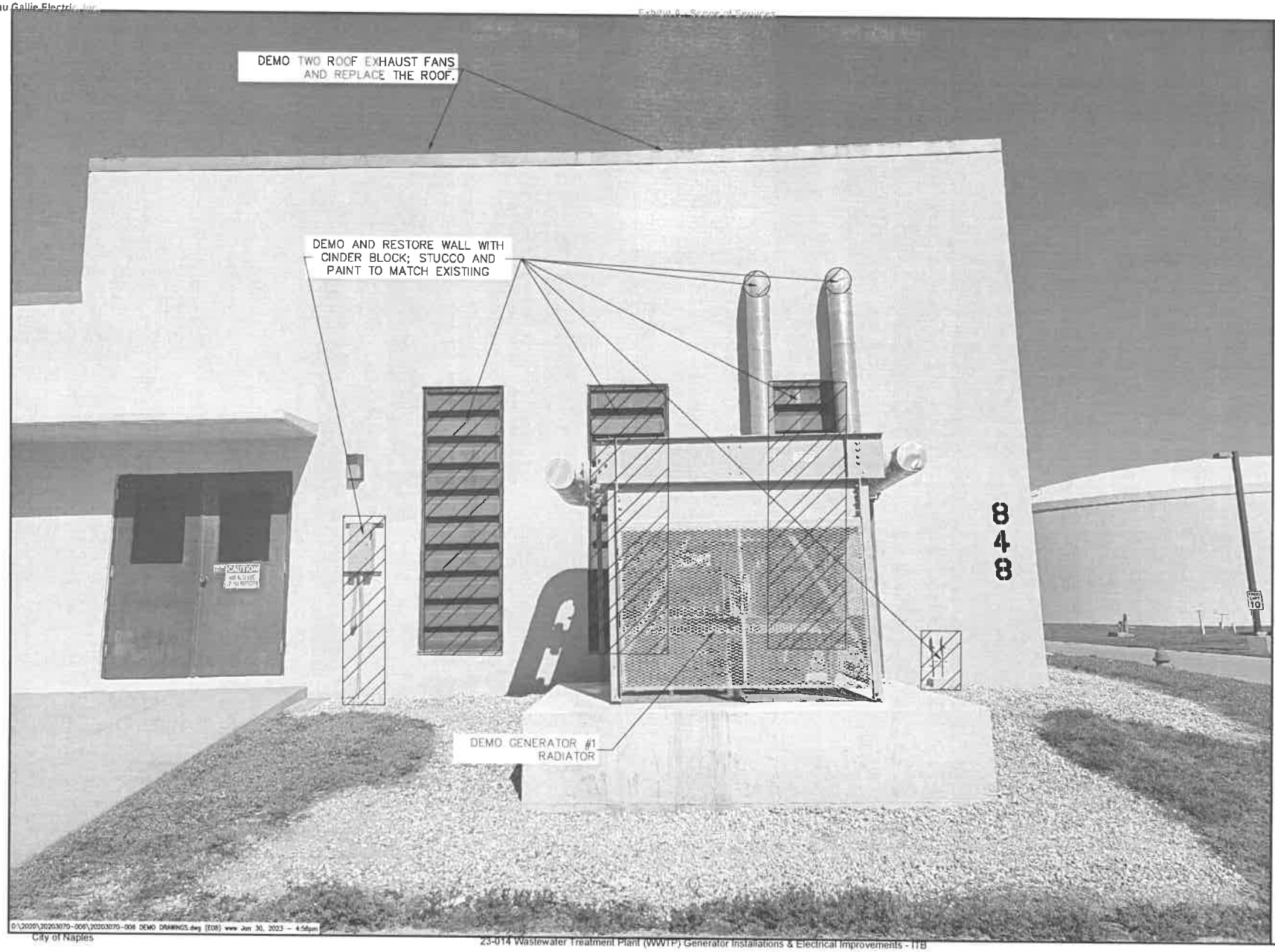
REVISIONS		
NO.	DESCRIPTION	DATE

DATE: JANUARY 2023
PROJECT NO. 20203070-008
FILE NO. 03-50-25E
SCALE: NONE

GENERATOR RM. #1 DEMO PLAN

SHEET NUMBER
15 E-07



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REVISIONS

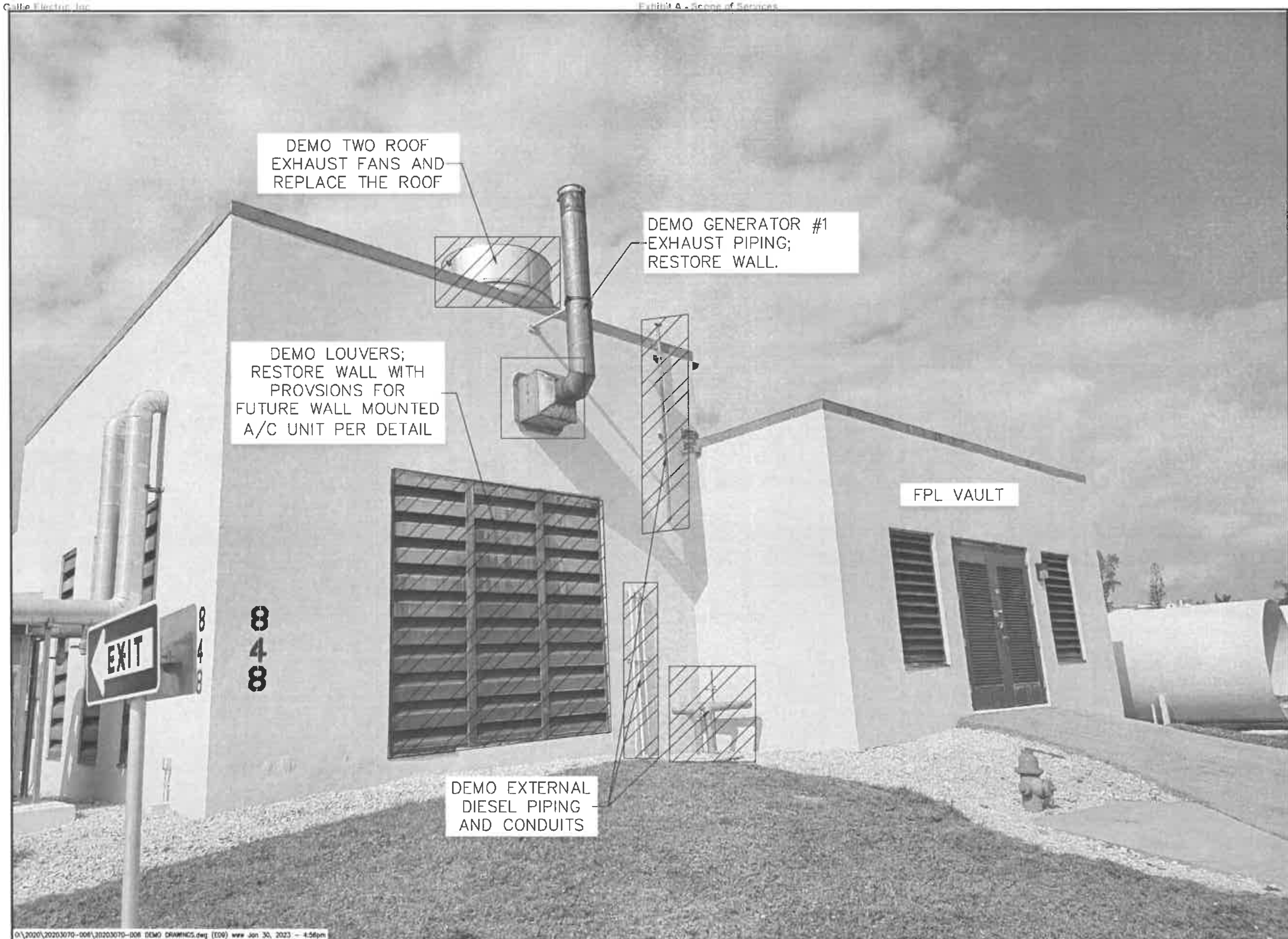
NO.	DESCRIPTION	DATE

DATE:	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	NONE

GENERATOR RM. #1 DEMO PLAN

SHEET NUMBER
E-08

D:\2020\20203070-006\20203070-006 DEMO DRAWINGS.dwg [E08] wwe Jan 30, 2023 - 4:56pm



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REVISIONS

NO.	DESCRIPTION	DATE

DATE:	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	NONE

GENERATOR RM. #1 DEMO PLAN

SHEET NUMBER
E-09

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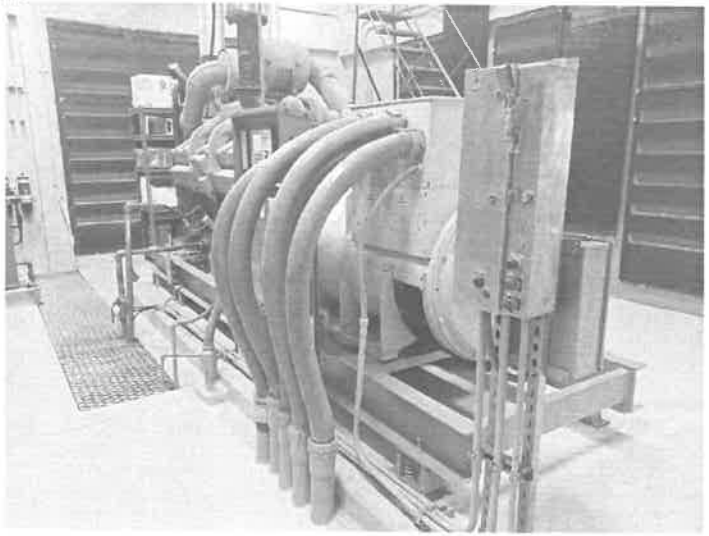

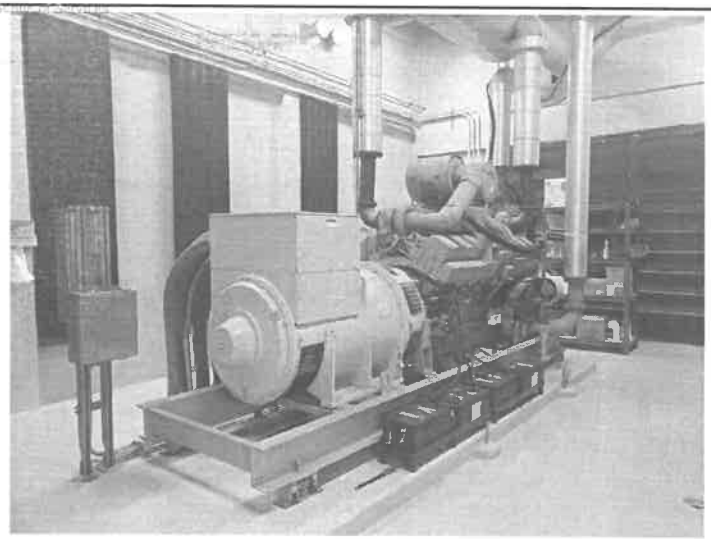

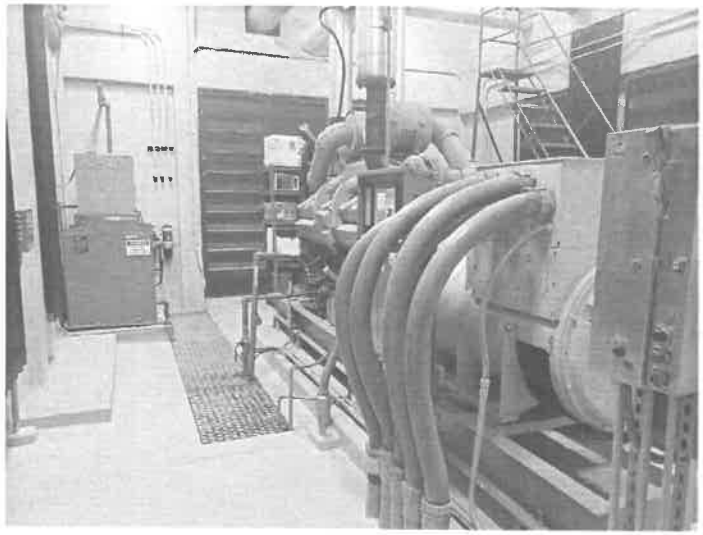

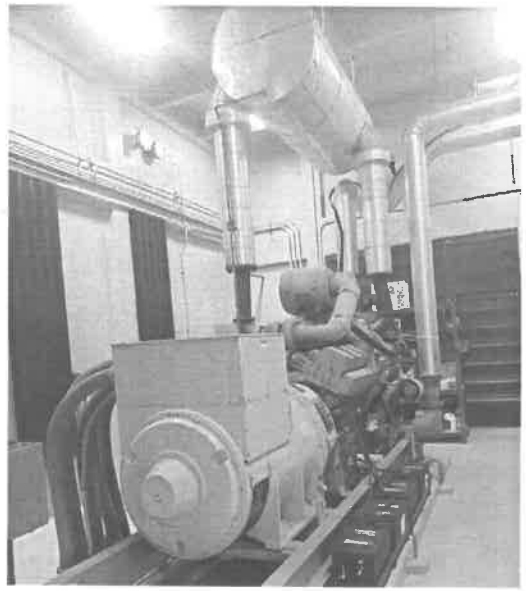

EX. GENERATOR ROOM #1

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REVISIONS

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PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	NONE

GENERATOR RM. #1 DEMO PLAN

SHEET NUMBER
E-10

O:\2020\20203070-006\20203070-006 DEMO DRAWINGS.dwg (E10) www Jan 30, 2023 - 4:56pm

EX. GENERATOR ROOM #1

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REVISIONS

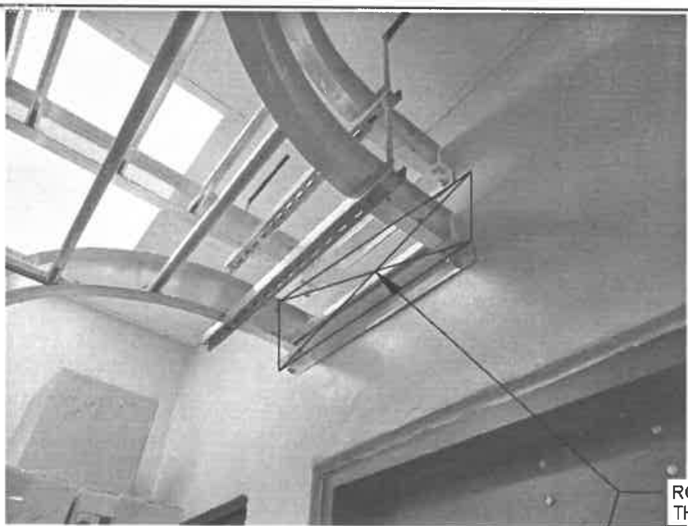
NO.	DESCRIPTION	DATE

DATE	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	NONE

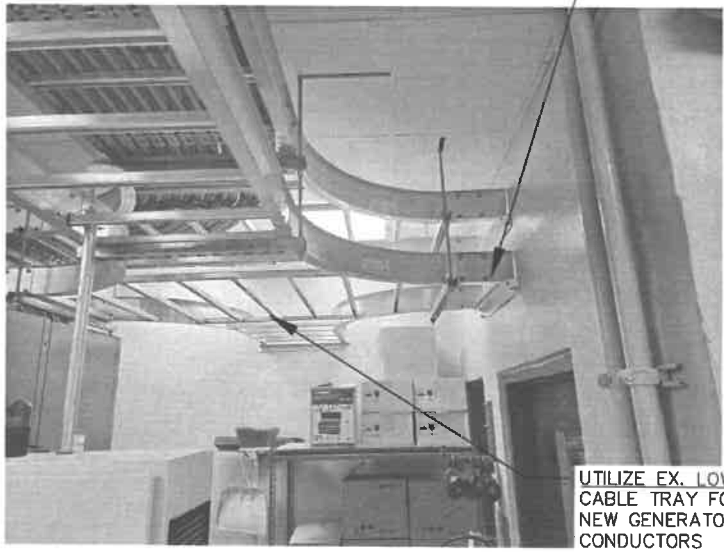
GENERATOR RM. #1 DEMO PLAN

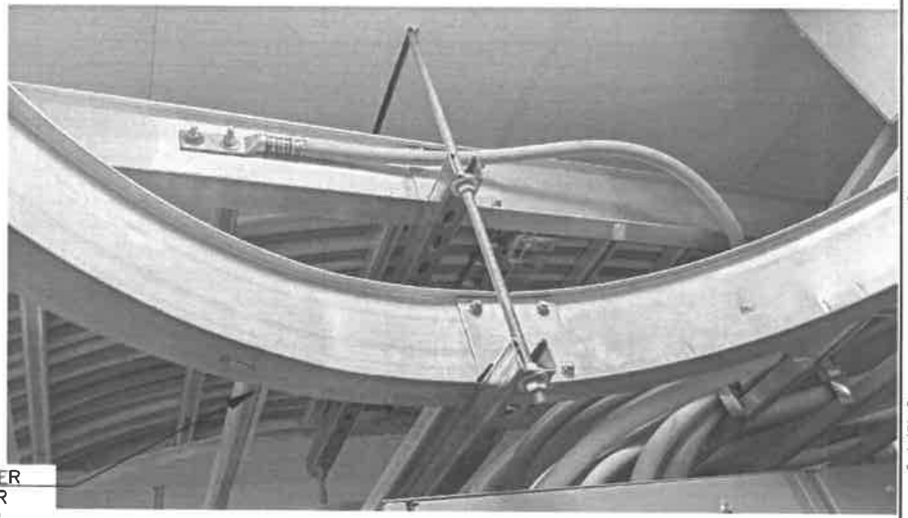
SHEET NUMBER
E-11

O:\2020\20203070-006\20203070-006 DEMO DRAWINGS.dwg (E11) www Jan 30, 2023 - 4:56pm



ROUTE CONDUCTORS
THROUGH THE WALL





UTILIZE EX. LOWER
CABLE TRAY FOR
NEW GENERATOR
CONDUCTORS

ELECTRICAL ROOM #1

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City of Naples
CITY OF NAPLES FLORIDA ON THE GULF

FOR CONSTRUCTION
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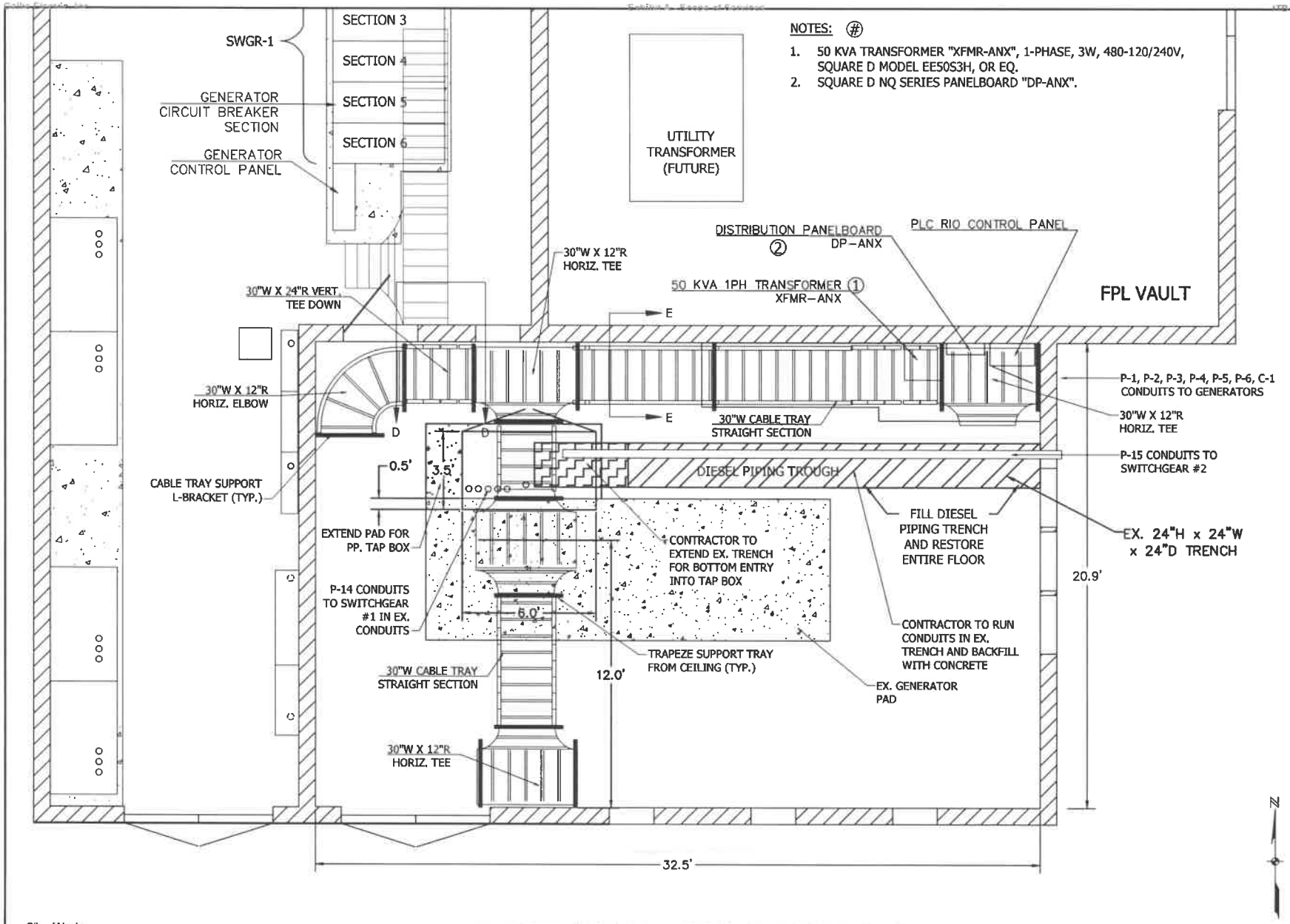
WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

REVISIONS		
NO.	DESCRIPTION	DATE

DATE:	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	NONE

EX. ELEC. RM.
#1 CABLE TRAY

SHEET NUMBER
E-12



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FOR CONSTRUCTION
GENERATORS REPLACEMENT
WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

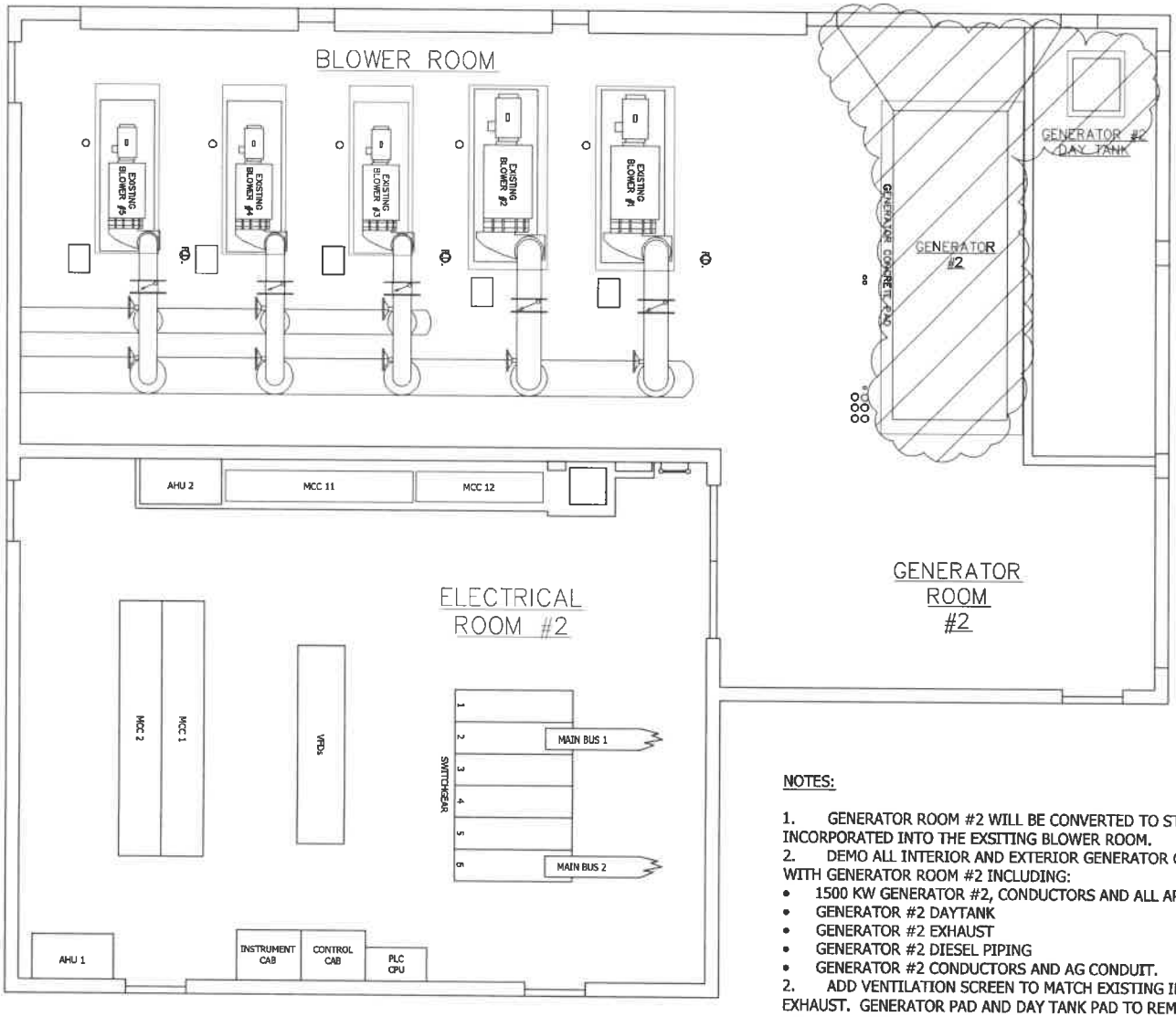
REVISIONS

NO.	DESCRIPTION	DATE

DATE	JANUARY 2023
PROJECT NO.	20203070-008
FILE NO.	03-50-25E
SCALE	1" = 2'

PP. ELEC. RM #1 ANNEX LAYOUT

SHEET NUMBER
157 E-13



N

NOTES:

1. GENERATOR ROOM #2 WILL BE CONVERTED TO STORAGE SPACE AND INCORPORATED INTO THE EXSITING BLOWER ROOM.
2. DEMO ALL INTERIOR AND EXTERIOR GENERATOR COMPONENTS ASSOCIATED WITH GENERATOR ROOM #2 INCLUDING:
   - 1500 KW GENERATOR #2, CONDUCTORS AND ALL APPURTANANCES
   - GENERATOR #2 DAYTANK
   - GENERATOR #2 EXHAUST
   - GENERATOR #2 DIESEL PIPING
   - GENERATOR #2 CONDUCTORS AND AG CONDUIT.
2. ADD VENTILATION SCREEN TO MATCH EXISTING IN AREA OF GENERATOR EXHAUST. GENERATOR PAD AND DAY TANK PAD TO REMAIN. NO FLOOR MODIFICATIONS ARE REQUIRED EXCEPT TO FILL IN DIESEL PIPING TROUGH TO GRADE.

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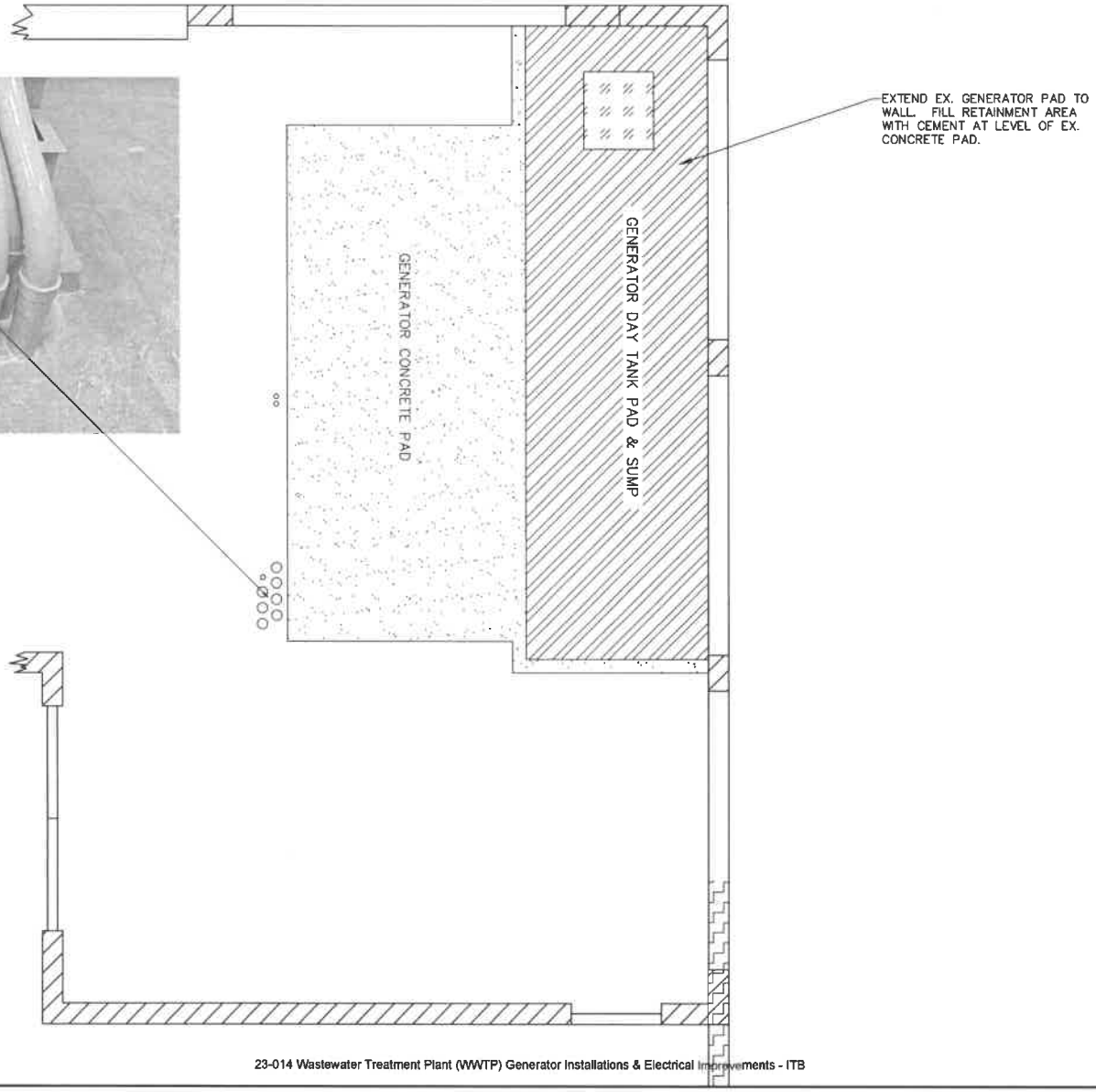
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	NONE

EX. LAYOUT GENERATOR ROOM #2

SHEET NUMBER
E-14



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CITY OF NAPLES, FLORIDA

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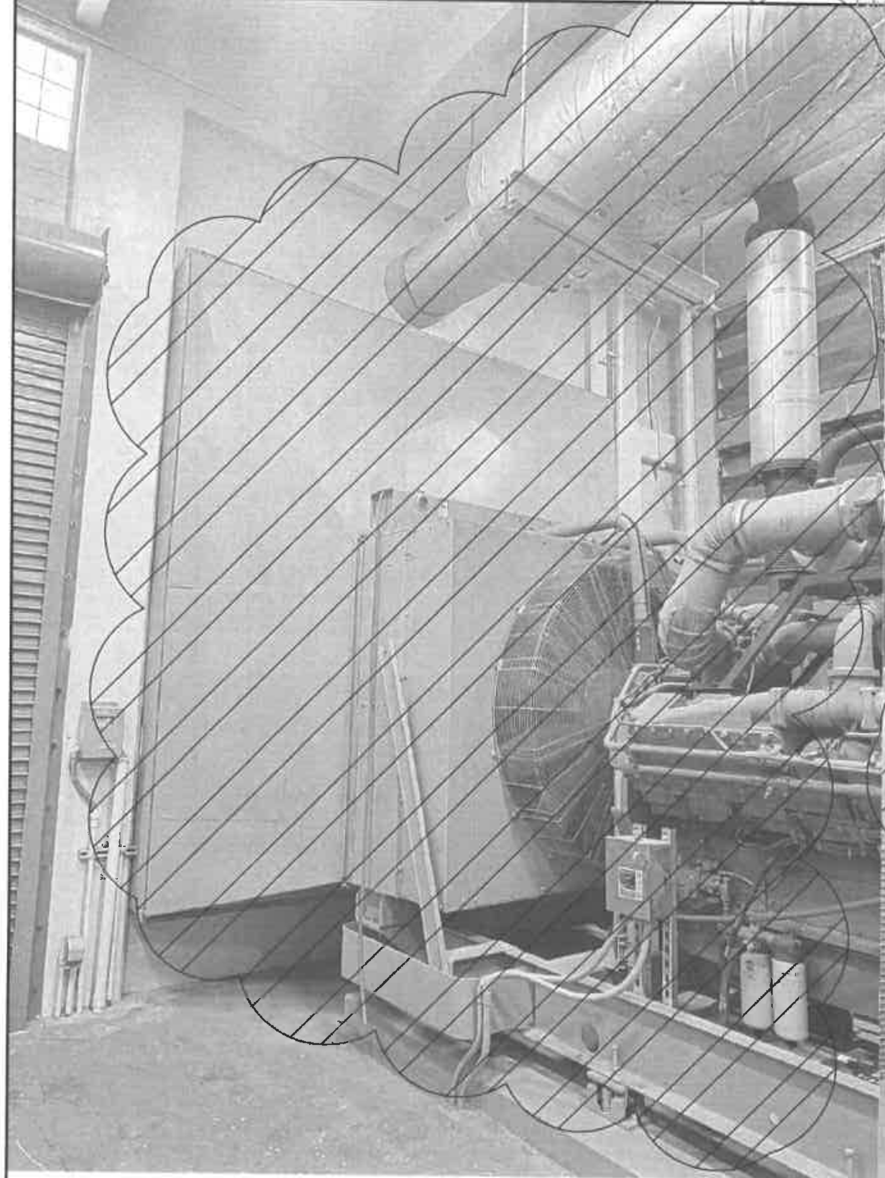
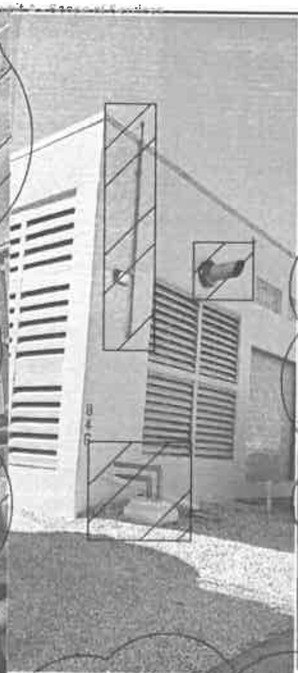
NO.	DESCRIPTION	DATE

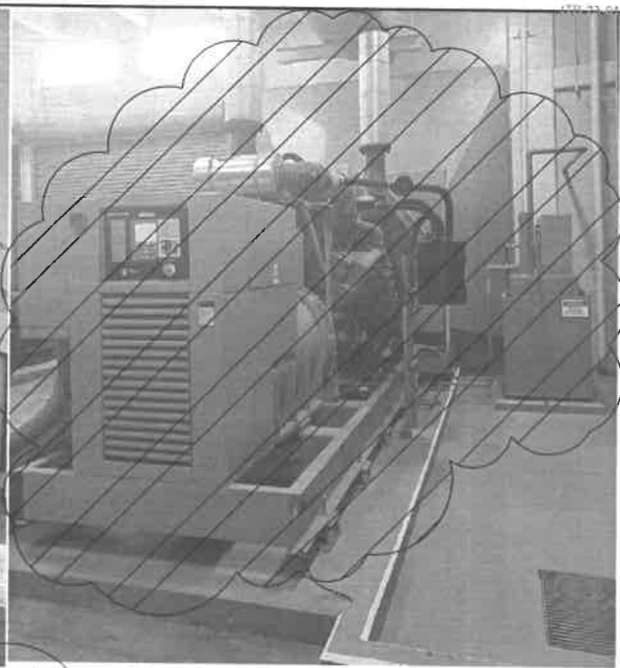
DATE: JANUARY 2023
PROJECT NO. 20203070-006
FILE NO. 03-50-25E
SCALE: NTS

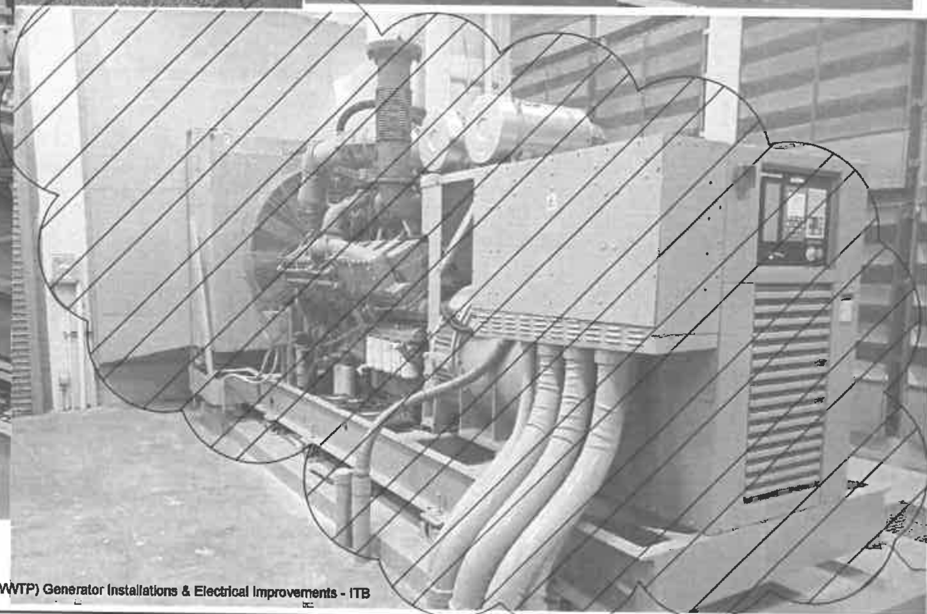
PP. GENERATOR RM #2 AG CONDUITS & PULLBOX

SHEET NUMBER
E-15









NOTES:

1. DEMO ALL INTERIOR AND EXTERIOR GENERATOR COMPONENTS (CLOUDED AREAS).

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City of Naples

FOR CONSTRUCTION
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WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

REVISIONS

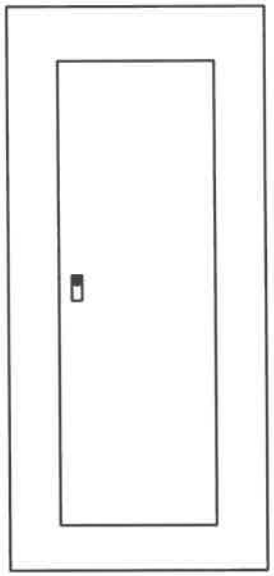
NO.	DESCRIPTION	DATE

DATE:	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE	NONE

GENERATOR RM. #2 DEMO PLAN

SHEET NUMBER

16 E-16



PANEL DP-ANX

LOCATION: ELECTRICAL ROOM #1 ANNEX	VOLTAGE: 120/240, 1-PH, 3W FROM "XFMR ANX"	MIN. AIC RATING: 18KAIC
MFR/MODEL: SQUARE D - TYPE NQ	MAINS: 225A MAIN C/B, BOTTOM ENTRY	MOUNTING: SURFACE
FED FROM: 50kVA TRANSFORMER VIA MCC 8	ENCLOSURE: NEMA 1, 42-CKT	DIMS: 20"W x 5.75"D x 50"H

CKT. NO.	LOAD DESCRIPTION	NOTES	BRANCH CIRCUIT PH	NEUT	GND	COND	C/B	LOAD AMPS	PH A	PH B	LOAD AMPS	C/B	BRANCH CIRCUIT PH	NEUT	GND	COND	NOTES	LOAD DESCRIPTION	CKT. NO.
1	GEN #1 AUX. LOADS	--	10	10	10	1"	30	10.0	10.0		0.0	--	--	--	--	--	1	SURGE PROTECTOR	2
3								10.0		10.0	0.0								4
5	GEN #2 AUX. LOADS	--	10	10	10	1"	30	10.0	15.0		5.0	15	14	14	14	3/4"	--	PLC RIO CONTROL PANEL	6
7								10.0		10.0	0.0	20	--	--	--	--	--	SPARE	8
9	GEN #3 AUX. LOADS	--	10	10	10	1"	30	10.0	10.0		0.0	20	--	--	--	--		SPARE	10
11								10.0		10.0	0.0	20	--	--	--	--		SPARE	12
13	GEN #4 AUX. LOADS	--	10	10	10	1"	30	10.0	10.0		0.0	--	--	--	--	--		space	14
15								10.0		10.0	0.0	--	--	--	--	--		space	16
17	space	--	--	--	--	--	--	0.0	0.0		0.0	--	--	--	--	--		space	18
19	space	--	--	--	--	--	--	0.0		0.0	0.0	--	--	--	--	--		space	20
21	space	--	--	--	--	--	--	0.0	0.0		0.0	--	--	--	--	--		space	22
23	space	--	--	--	--	--	--	0.0		0.0	0.0	--	--	--	--	--		space	24
25	space	--	--	--	--	--	--	0.0	0.0		0.0	--	--	--	--	--		space	26
27	space	--	--	--	--	--	--	0.0		0.0	0.0	--	--	--	--	--		space	28
29	space	--	--	--	--	--	--	0.0	0.0		0.0	--	--	--	--	--		space	30
31	space	--	--	--	--	--	--	0.0		0.0	0.0	--	--	--	--	--		space	32
33	space	--	--	--	--	--	--	0.0	0.0		0.0	--	--	--	--	--		space	34
35	space	--	--	--	--	--	--	0.0		0.0	0.0	--	--	--	--	--		space	36
37	space	--	--	--	--	--	--	0.0	0.0		0.0	--	--	--	--	--		space	38
39	space	--	--	--	--	--	--	0.0		0.0	0.0	--	--	--	--	--		space	40
41	space	--	--	--	--	--	--	0.0	0.0		0.0	--	--	--	--	--		space	42
								CONNECTED LOAD PER PHASE (AMPS)			45.0	40.0	0.0					
								TOTAL LOAD (KW)			10.2		0.0					

NOTES:

1. INTEGRALLY-MOUNTED SURGE PROTECTION DEVICE SQUARE D MODEL QO21755B
2. COPPER EQUIPMENT GROUND BAR, COPPER NEUTRAL
3. TIN-PLATED COPPER BUS BAR
4.
5.

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WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

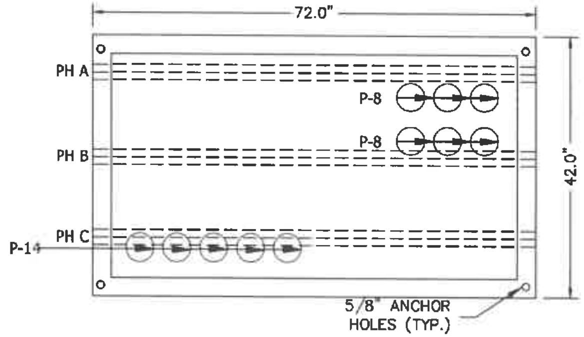
REVISIONS

NO.	DESCRIPTION	DATE

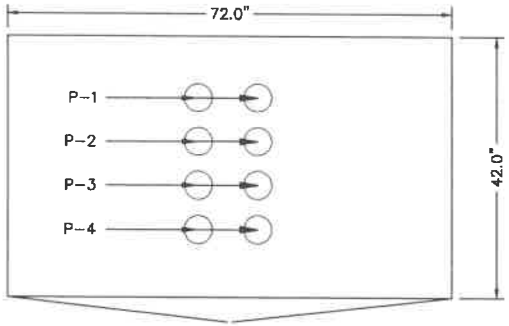
DATE: JANUARY 2023
PROJECT NO. 20203070-006
FILE NO. 03-50-25E
SCALE 1" = 10'

PP.
DISTRIBUTION
PANELBOARD
DP-ANX

SHEET NUMBER
E-17

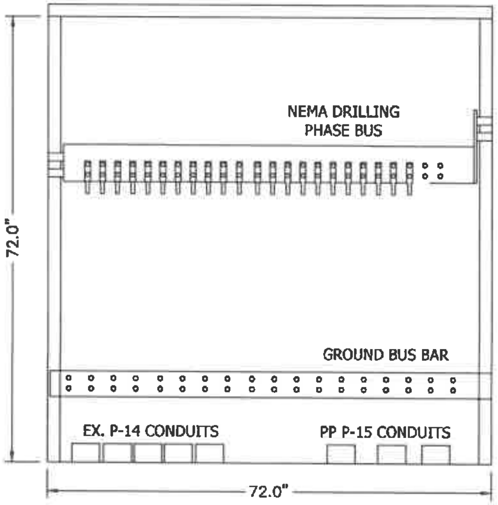


PLAN VIEW - BOTTOM

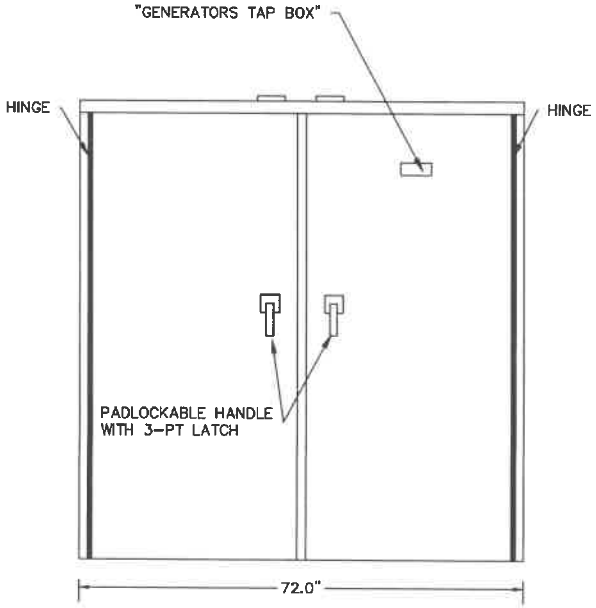


PLAN VIEW - TOP

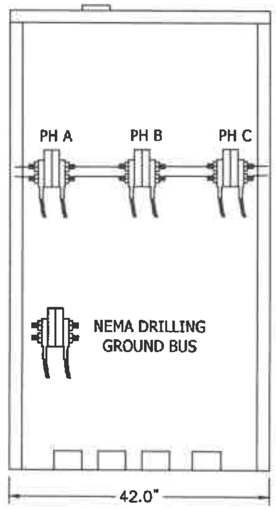
PROVIDE COMPRESSION LUGS AND NEMA DRILLING FOR
(5) 600 KCMIL/PH,
(6) 500 KCMIL/PH,
(8) 750 KCMIL/PH,
(6) 350 KCMIL GND,
(5) 250 KCMIL GND,
(8) 2/0 KCMIL GND



FRONT INTERIOR VIEW



FRONT EXTERIOR VIEW



SIDE INTERIOR VIEW

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REVISIONS		
NO.	DESCRIPTION	DATE

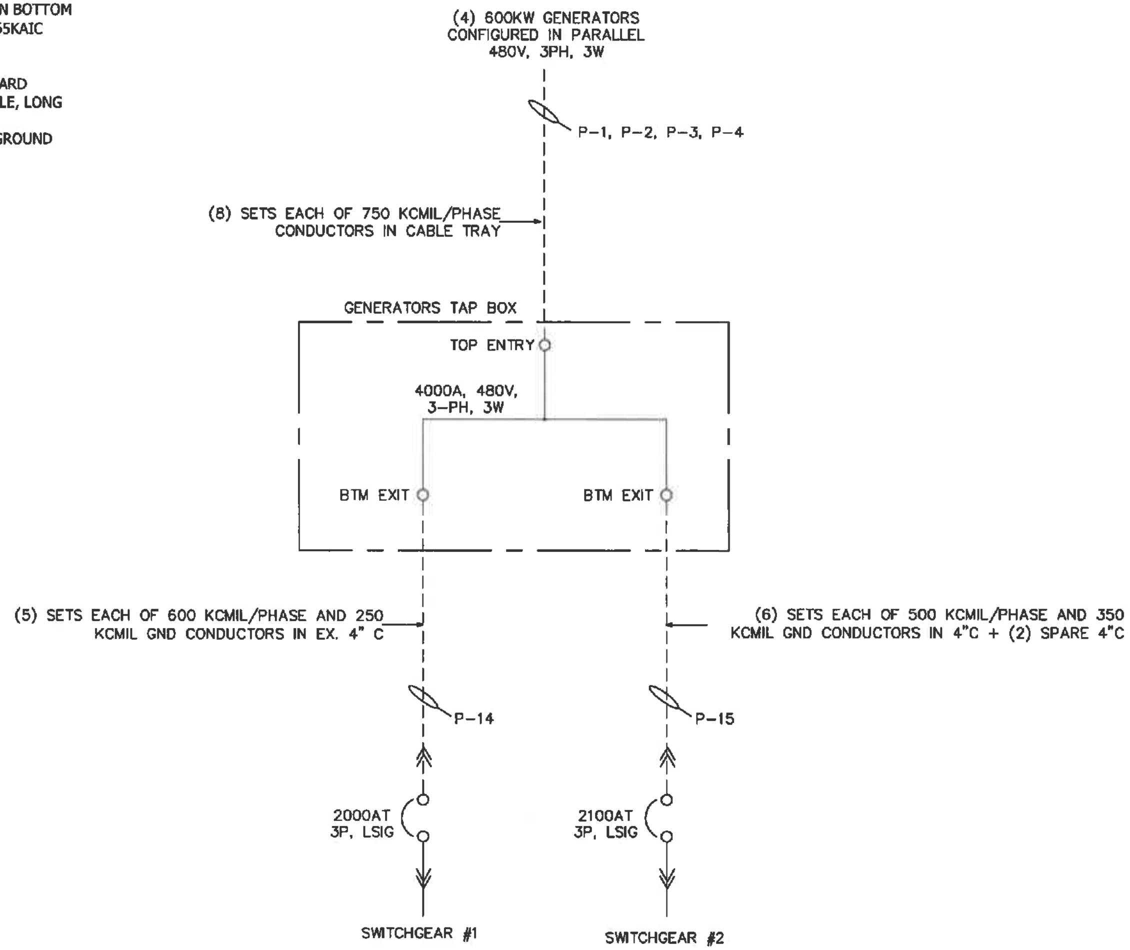
DATE:	JANUARY
PROJECT NO.	202030…
FILE NO.	03-50-25E
SCALE:	########

GENERATORS TAP BOX

SHEET NUMBER
E-18

O:\2020\20203070-006\20203070-006 GENERATOR Tap Box.dwg (X18) www Jan 30, 2023 - 4:57pm

NOTES:
1. CERTIFICATION: UL 891 LISTED AS LOW VOLTAGE SWITCHBOARD
2. ENCLOSURE: FREESTANDING SWITCHBOARD CONSTRUCTION, NEMA 1, PADLOCKABLE HANDLE WITH 3-PT LATCH, FRONT ACCESS, OPEN BOTTOM
3. ELECTRICAL RATING: 480Y/277V, 3PH, 3W, 4000A CU, SCCR = 65KAIC
4. PHASE BUSSING: 4000A SILVER-PLATED COPPER
5. HARDWARE: MIN. GRADE 5 BOLTS WITH SPLIT LOCK WASHERS
6. GROUND: COPPER BUS EXTENDED FULL LENGTH OF SWITCHBOARD
7. LUGS: FURNISH AND INSTALL COPPER COMPRESSION, TWO-HOLE, LONG BARREL, 90C, BURNDY TYPE YA-2N, OR EQ.
8. NAMEPLATE: PLASTIC 2" X 5" WHITE LETTERS ON BLACK BACKGROUND W/SS SCREWS "GENERATOR POWER TAP BOX".
9. MFR:
   INDUSTRIAL ELECTRICAL MFG. (IEM)
   JACKSONVILLE, FL.
   MATT ALBERT @ 904-365-4464



JOHNSON ENGINEERING

JOHNSON ENGINEERING, INC.
2122 JOHNSON STREET
P.O. BOX 1550
FORT MYERS, FLORIDA 33902-1550
PHONE: (239) 334-0046

WAYNE WILDEY WRIGHT, PE
FL License No. 58220

City of Naples

FOR CONSTRUCTION
GENERATORS REPLACEMENT
WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

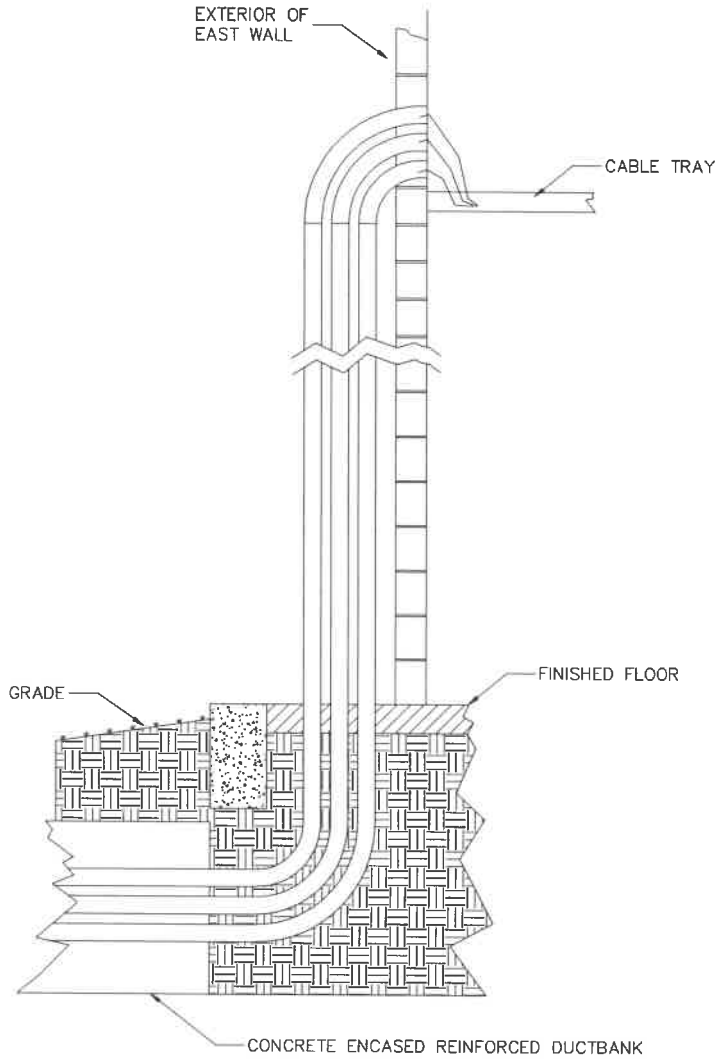
REVISIONS		
NO.	DESCRIPTION	DATE

DATE	JANUARY
PROJECT NO.	2020307[illegible]
FILE NO.	03-50-25E
SCALE	########

GENERATORS TAP BOX

SHEET NUMBER
E-19

O:\2020\20203070-006\20203070-006 GENERATOR Top Box.dwg (X19) www Jan 30, 2023 - 4:57pm



CONDUIT DUCT BANK ENTRANCE INTO
ELECTRICAL ROOM #1 ANNEX
(SIDE VIEW) NTS

JOHNSON ENGINEERING
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City of Naples

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WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

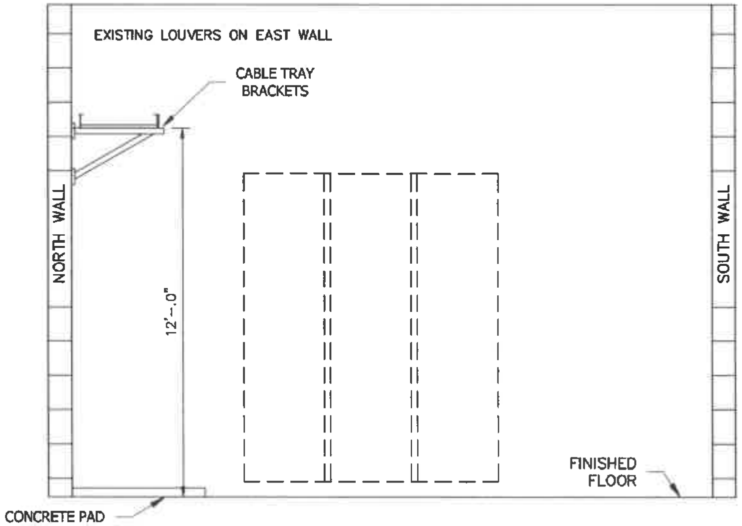
REVISIONS

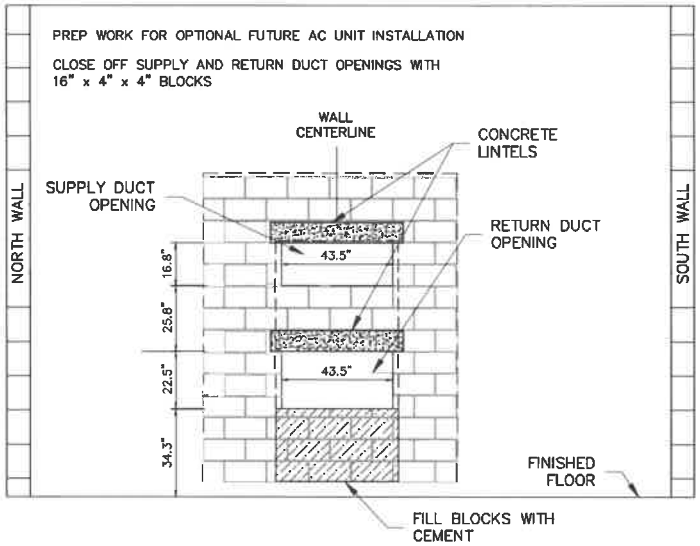
NO.	DESCRIPTION	DATE

DATE:	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	NONE

PP. ELEC. RM.
#1 ANNEX EAST
WALL EXTERIOR

SHEET NUMBER
E-20





ELECTRICAL ROOM #1 ANNEX EAST WALL INTERIOR VIEWS
NTS

NOTES:

1. STUCCO AND PAINT FINISHED WALL TO MATCH EXISTING.
2. REFER TO SPECIFIC SYSTEMS HVAC WALL CUTOUT DETAIL FOR MODEL APK-90 7.5 TON A/C UNIT DWG. # T20-000800-02.

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CITY OF NAPLES, FLORIDA

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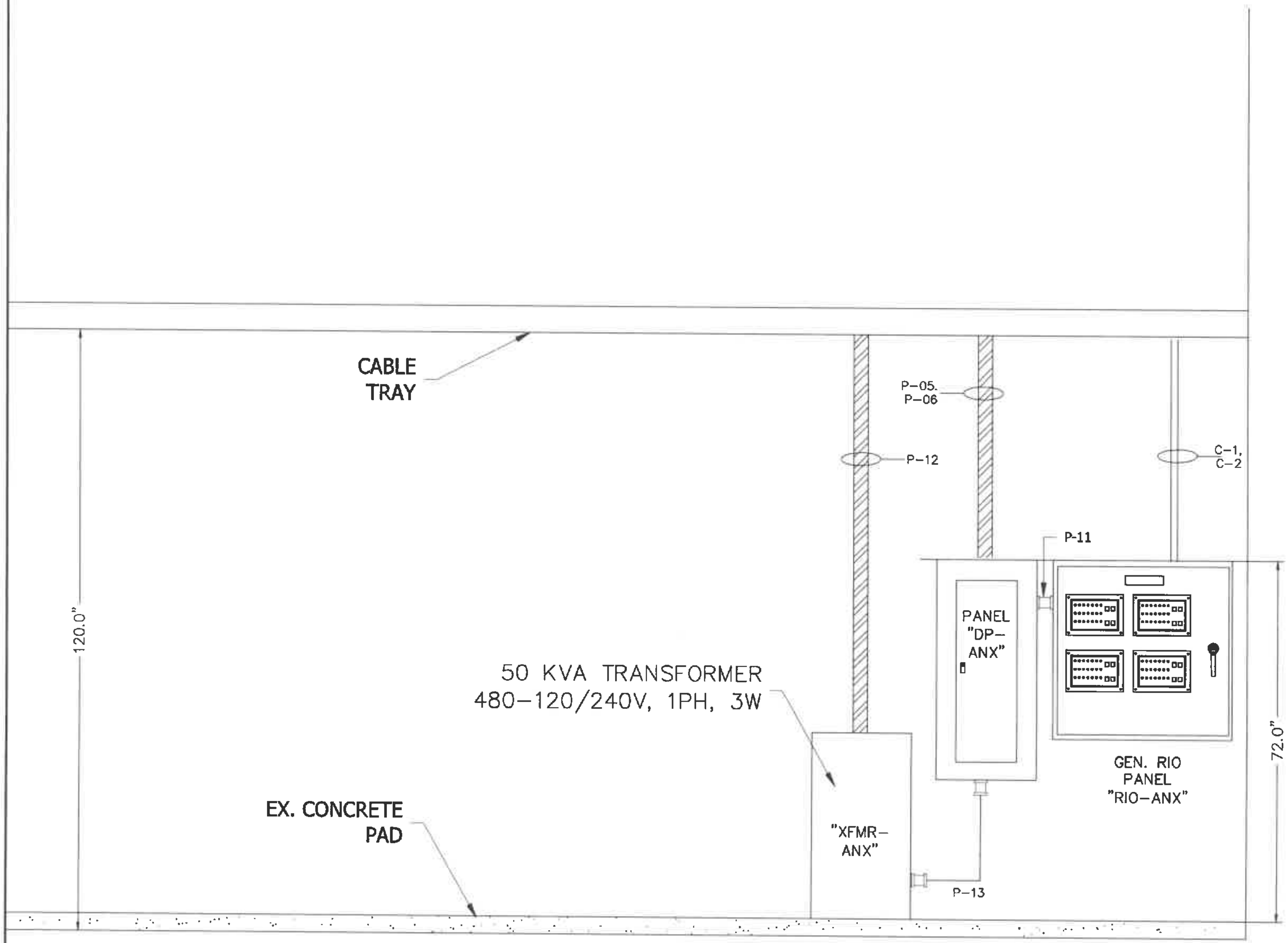
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE	NONE

PP. ELEC. RM. #1 ANNEX EAST WALL INTERIOR

SHEET NUMBER
E-21



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FOR CONSTRUCTION
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CITY OF NAPLES, FLORIDA

REVISIONS

NO.	DESCRIPTION	DATE

DATE: JANUARY
PROJECT NO. 202030
FILE NO. 03-50-25E
SCALE: 1" = 20'

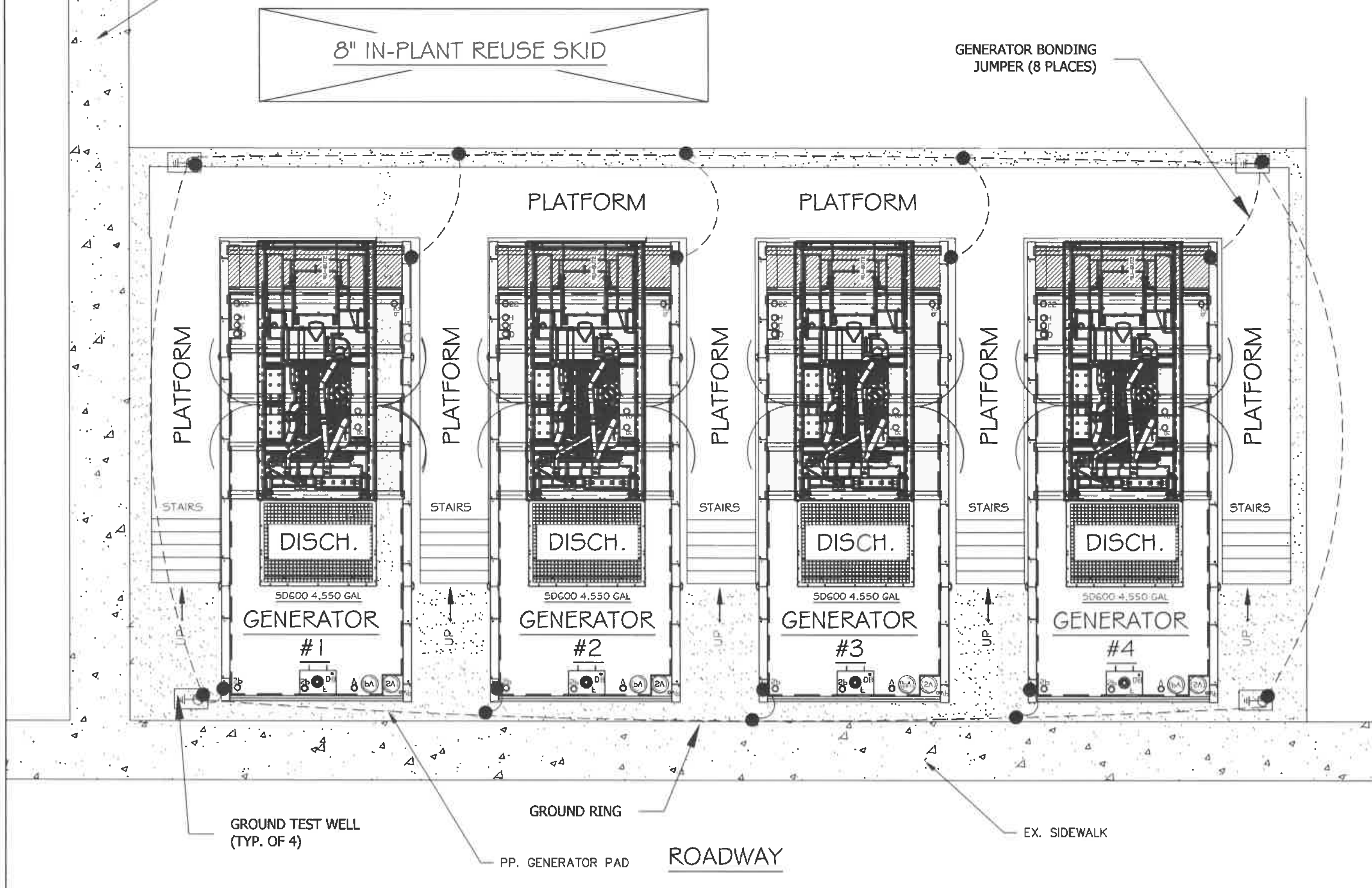
PP. ELEC. RM. #1 ANNEX NORTH WALL

SHEET NUMBER
E-22

O:\2020\20203070-008\ELEC RM ANNEX.dwg (NORTH) www Jun 30, 2023 - 4:57pm

NOTES:

1. DIMENSIONS ARE APPROXIMATE. REFER TO COASTLINE POWER SOLUTIONS DRAWINGS FOR ACTUALTANK AND PLATFORM DIMENSIONS.
2. GENERATOR PAD SHALL INCORPORATE GROUND TEST WELLS.



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City of Naples

FOR CONSTRUCTION
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WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

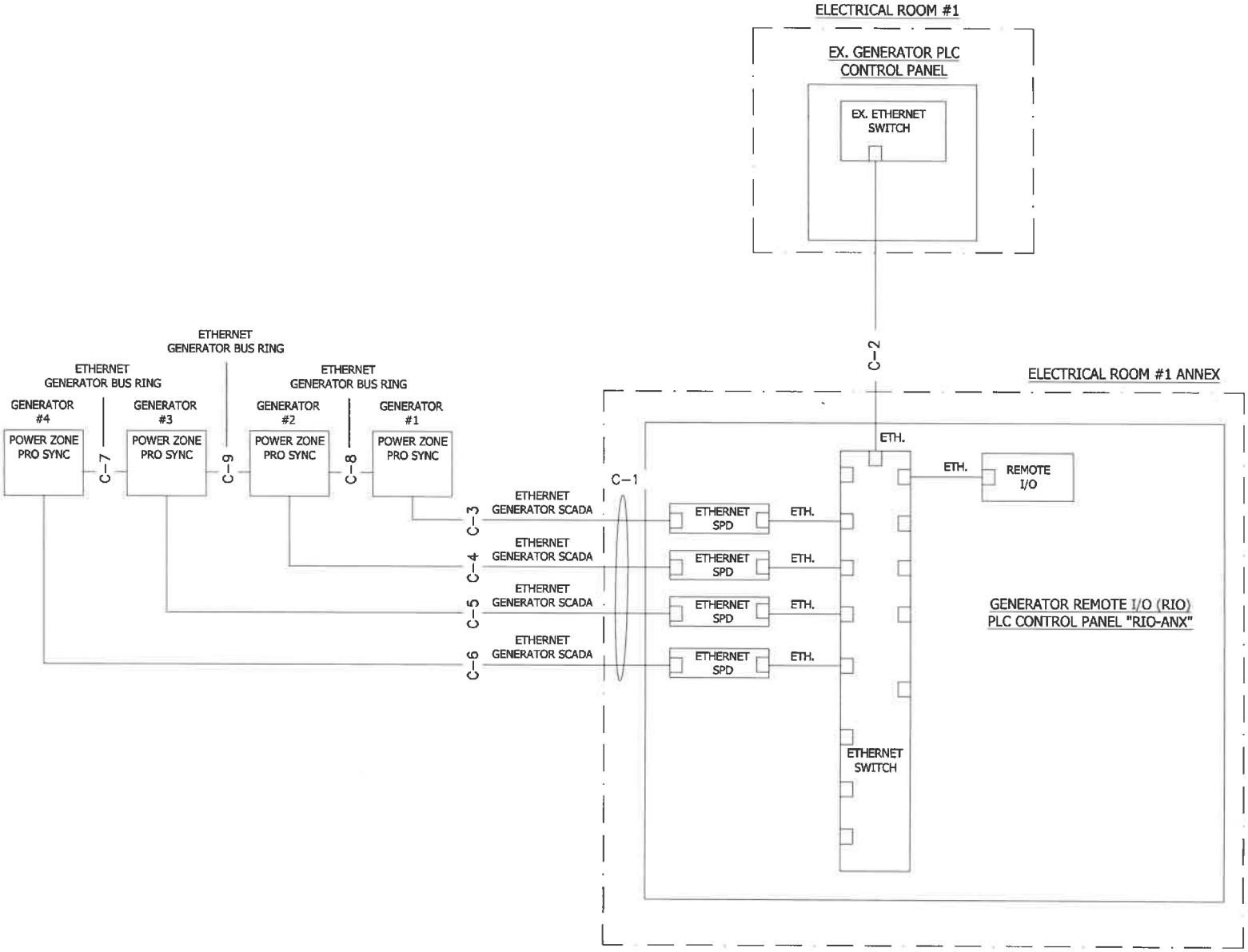
REVISIONS		
NO.	DESCRIPTION	DATE

DATE:	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	1" = 60'

PP. GENERATOR GROUNDING PLAN

SHEET NUMBER

E-23



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FL License No. 58220

City of Naples

FOR CONSTRUCTION
GENERATORS REPLACEMENT
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CITY OF NAPLES, FLORIDA

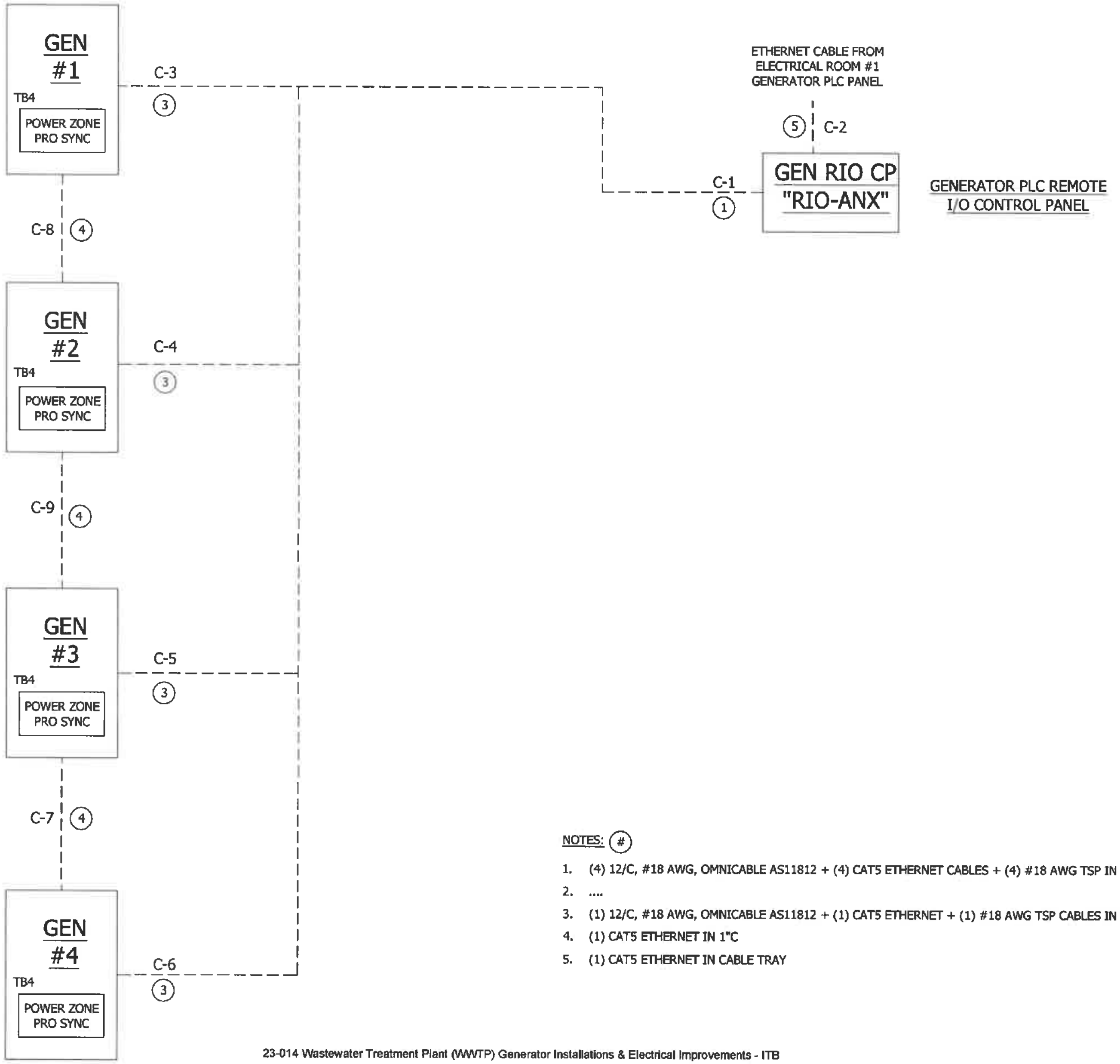
REVISIONS

NO.	DESCRIPTION	DATE

DATE:	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	NONE

PP. GENERATOR NETWORK

SHEET NUMBER
E-24



NOTES: (#)

1. (4) 12/C, #18 AWG, OMNICABLE AS11812 + (4) CAT5 ETHERNET CABLES + (4) #18 AWG TSP IN 4"C
2. ....
3. (1) 12/C, #18 AWG, OMNICABLE AS11812 + (1) CAT5 ETHERNET + (1) #18 AWG TSP CABLES IN 2"C
4. (1) CAT5 ETHERNET IN 1"C
5. (1) CAT5 ETHERNET IN CABLE TRAY

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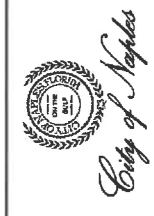


FOR CONSTRUCTION
GENERATORS REPLACEMENT
WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

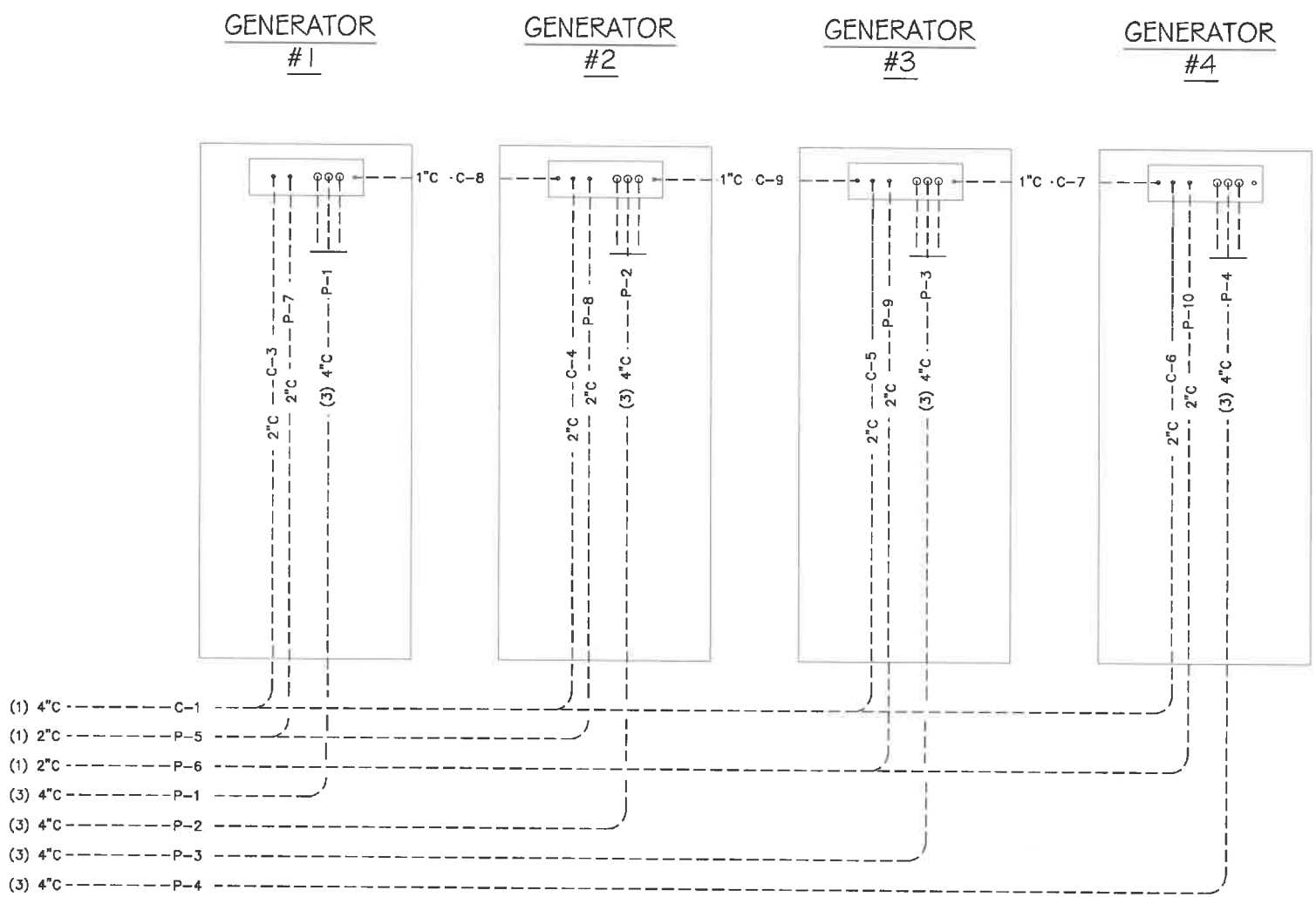
REVISIONS

NO.	DESCRIPTION	DATE

DATE: JANUARY 2023
PROJECT NO. 20203070-006
FILE NO. 03-50-25E
SCALE: NONE

PP. GENERATOR CONTROLS INTERCONNECTIONS

SHEET NUMBER
E-25



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City of Naples

FOR CONSTRUCTION
GENERATORS REPLACEMENT
WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

REVISIONS

NO.	DESCRIPTION	DATE

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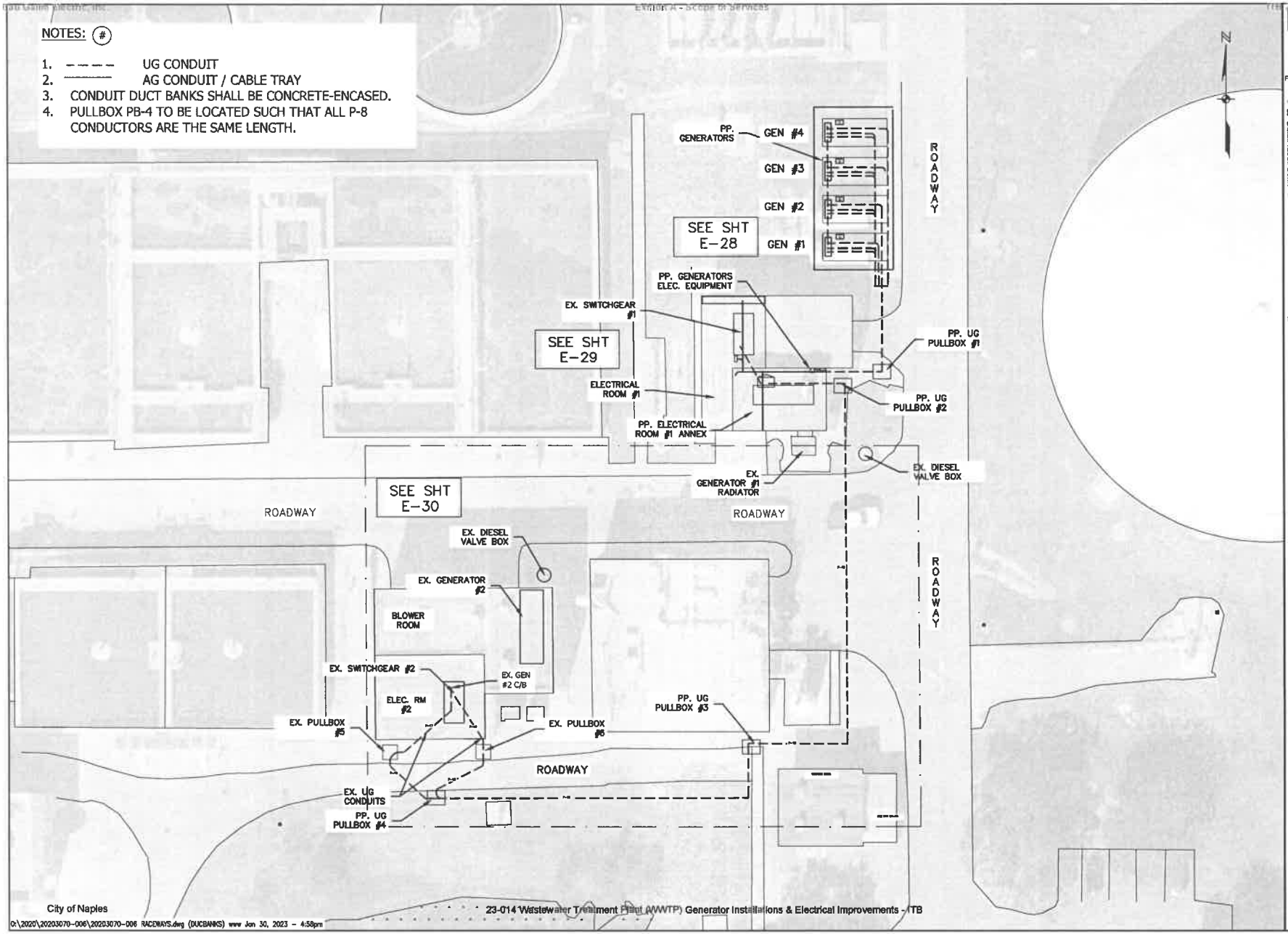
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	1" = 60'

PP.
GENERATORS
CONDUIT PAD
STUB-UPS

SHEET NUMBER
E-26

NOTES: (#)

1. – – – – UG CONDUIT
2. ———— AG CONDUIT / CABLE TRAY
3. CONDUIT DUCT BANKS SHALL BE CONCRETE-ENCASED.
4. PULLBOX PB-4 TO BE LOCATED SHALL THAT ALL P-8 CONDUCTORS ARE THE SAME LENGTH.



City of Naples

O:\2020\20203070-006\20203070-006 RACEWAYS.dwg (DUCBANKS) wed Jan 30, 2023 - 4:58pm

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City of Naples

FOR CONSTRUCTION
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CITY OF NAPLES, FLORIDA

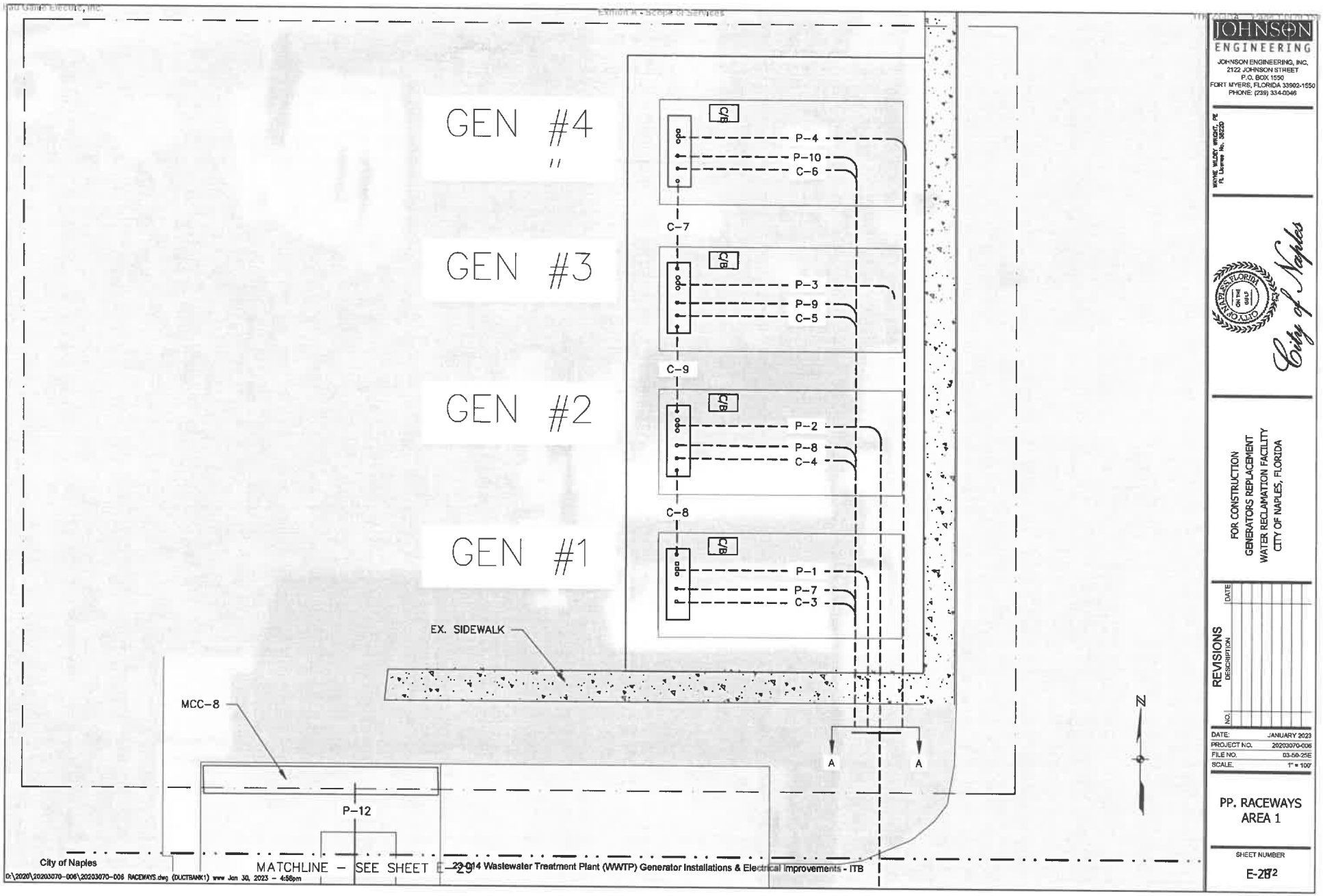
REVISIONS

NO.	DESCRIPTION	DATE

DATE:	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	1" = 400'

PP. RACEWAYS OVERVIEW

SHEET NUMBER
E-27



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FOR CONSTRUCTION
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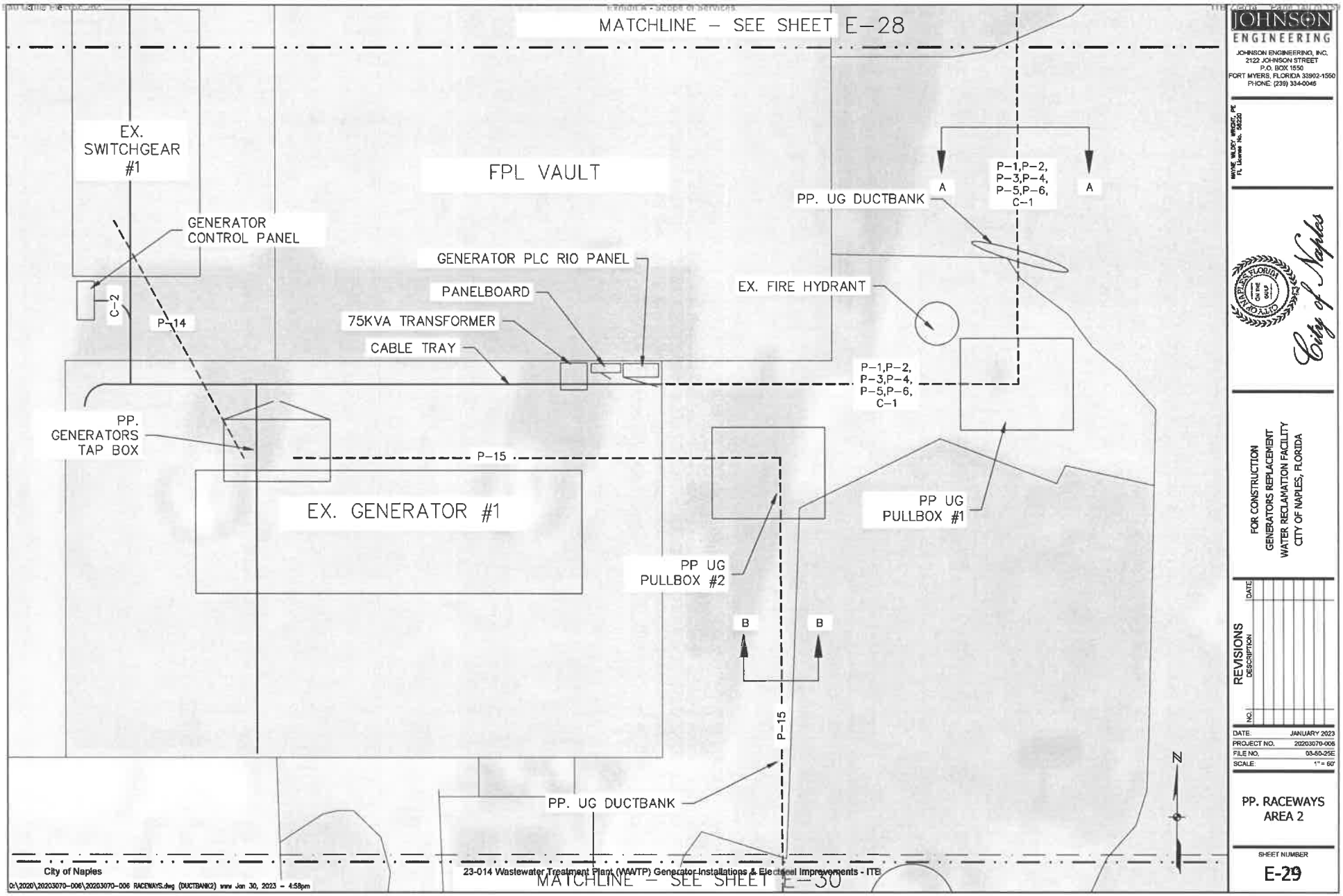
REVISIONS

NO.	DESCRIPTION	DATE

DATE:	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-56-25E
SCALE.	1" = 100'

PP. RACEWAYS
AREA 1

SHEET NUMBER
E-28



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City of Naples

FOR CONSTRUCTION
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CITY OF NAPLES, FLORIDA

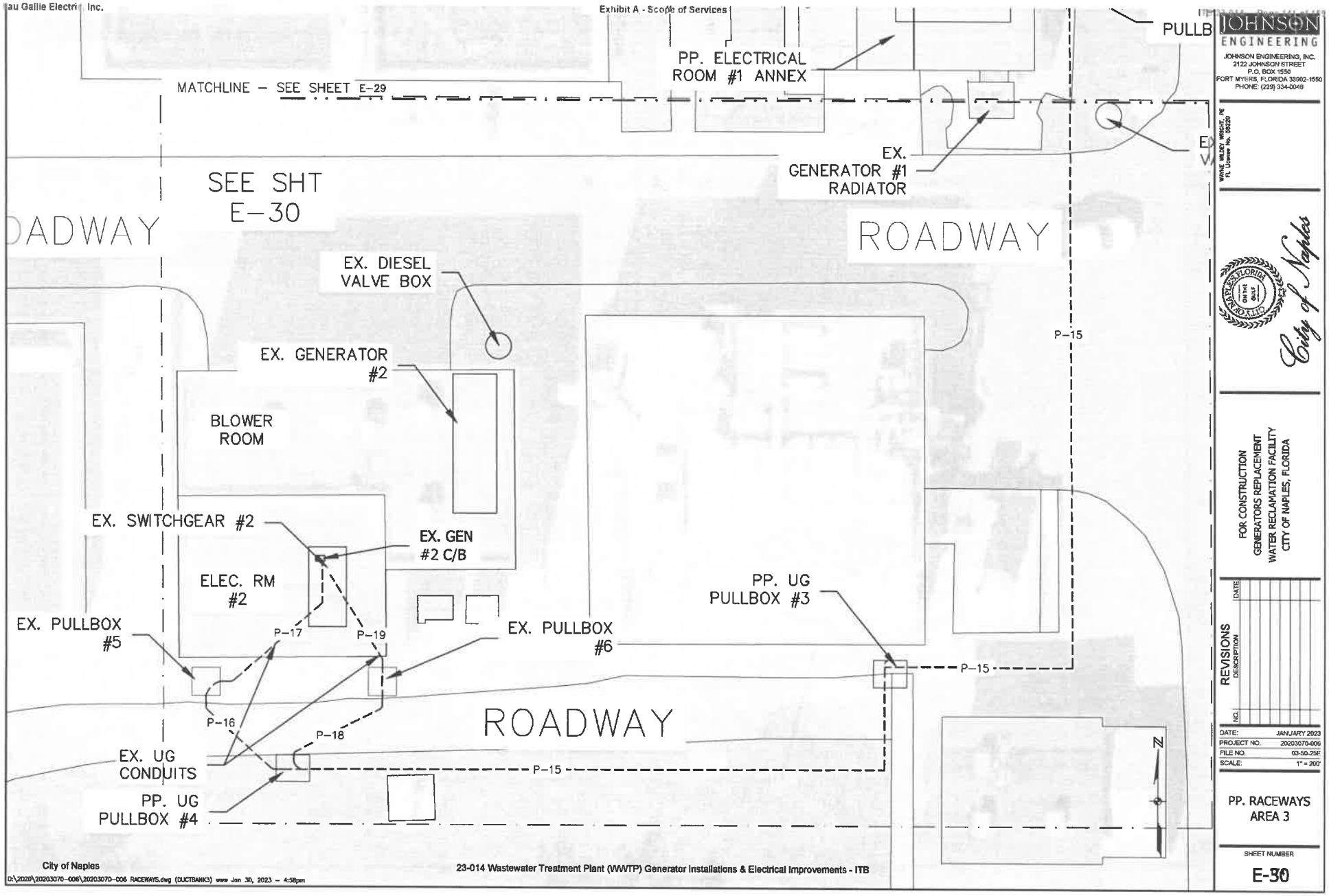
REVISIONS

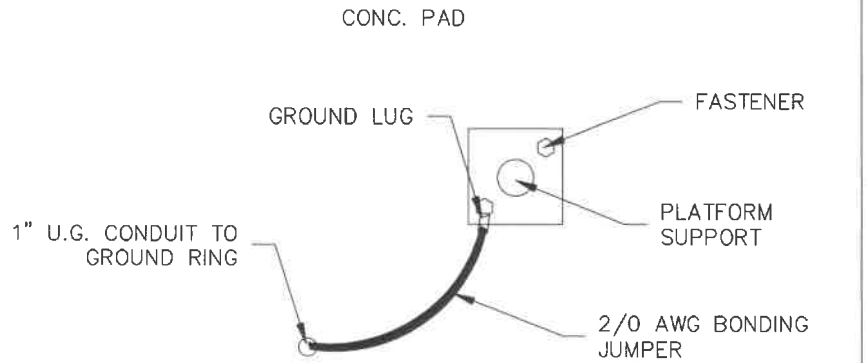
NO.	DESCRIPTION	DATE

DATE:	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	1" = 60'

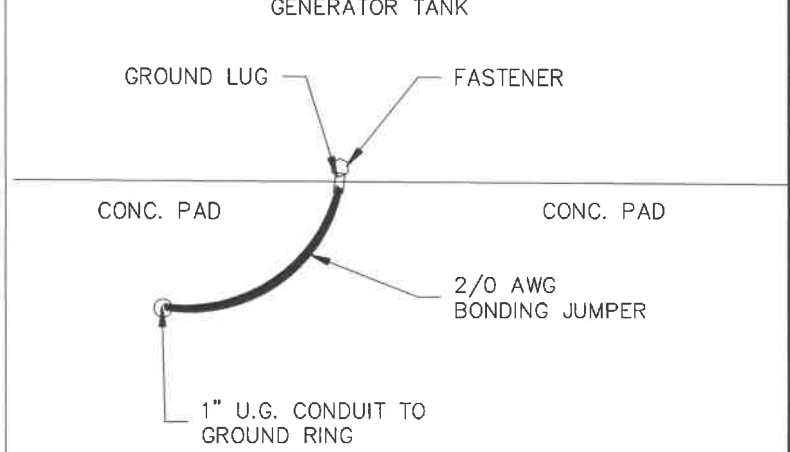
PP. RACEWAYS AREA 2

SHEET NUMBER
E-29


au Gallie Electri Inc.
Exhibit A - Scope of Services
PULLB
PP. ELECTRICAL ROOM #1 ANNEX
MATCHLINE – SEE SHEET E-29
EX. GENERATOR #1 RADIATOR
SEE SHT E-30
ADWAY
ROADWAY
EX. DIESEL VALVE BOX
P-15
EX. GENERATOR #2
BLOWER ROOM
EX. SWITCHGEAR #2
EX. GEN #2 C/B
ELEC. RM #2
PP. UG PULLBOX #3
EX. PULLBOX #5
P-17
P-19
EX. PULLBOX #6
P-15
P-16
P-18
ROADWAY
EX. UG CONDUITS
P-15
PP. UG PULLBOX #4
N
City of Naples
D:\2020\20203070-006\20203070-006 RACEWAYS.dwg (DUCTBANK3) wed Jan 30, 2023 - 4:58pm
23-014 Wastewater Treatment Plant (WWTP) Generator Installations & Electrical Improvements - ITB
JOHNSON ENGINEERING
JOHNSON ENGINEERING, INC.
2122 JOHNSON STREET
P.O. BOX 1550
FORT MYERS, FLORIDA 33902-1550
PHONE: (239) 334-0046
WAYNE WILDEY WRIGHT, PE
FL License No. 66220
City of Naples
FOR CONSTRUCTION
GENERATORS REPLACEMENT
WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA
REVISIONS
NO.
DESCRIPTION
DATE
DATE: JANUARY 2023
PROJECT NO. 20203070-006
FILE NO. 03-50-25E
SCALE: 1" = 200'
PP. RACEWAYS AREA 3
SHEET NUMBER
E-30

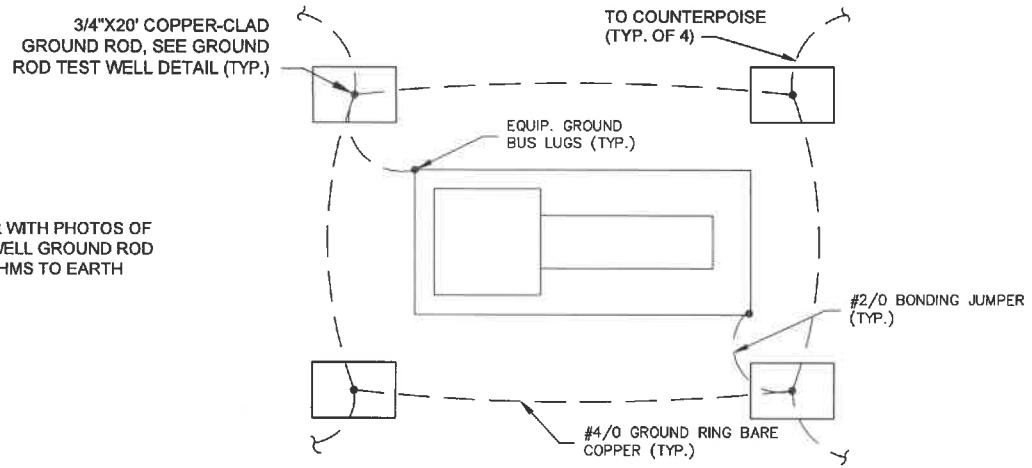


PLATFORM SUPPORT BONDING
(PLAN VIEW)
NTS



GENERATOR TANK BONDING
(PLAN VIEW)
NTS

NOTES:
1. CONTRACTOR TO PROVIDE ENGINEER WITH PHOTOS OF GROUNDING TESTER AT EACH TEST WELL GROUND ROD DEMONSTRATING RESISTANCE < 20 OHMS TO EARTH GROUND.



GROUND RING
NTS

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City of Naples

FOR CONSTRUCTION
GENERATORS REPLACEMENT
WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

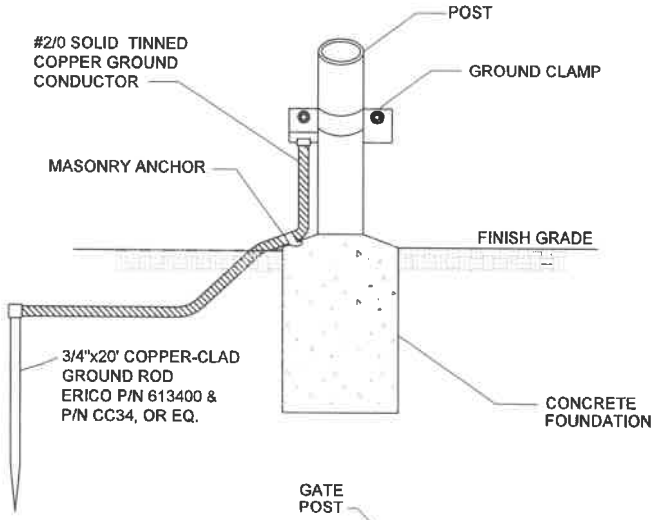
REVISIONS
NO. DESCRIPTION DATE

DATE: JANUARY 2023
PROJECT NO. 20203070-006
FILE NO. 03-59-25E
SCALE NONE

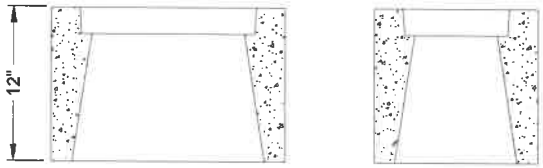
GROUNDING ELECTRICAL DETAILS

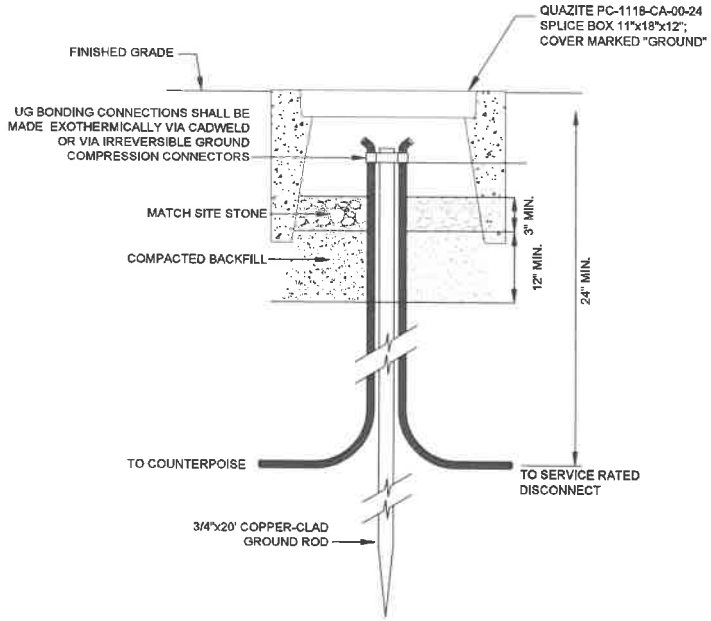
SHEET NUMBER
ED-01

0:\2020\20203070-006\20203070-006 DETAILS.dwg (t) wwe Jan 30, 2023 - 8:39am



PLATFORM POST BONDING
NTS





GROUND TEST WELL
NTS

JOHNSON ENGINEERING
JOHNSON ENGINEERING, INC.
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P.O. BOX 1550
FORT MYERS, FLORIDA 33902-1550
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FL License No. 38220

City of Naples

FOR CONSTRUCTION
GENERATORS REPLACEMENT
WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

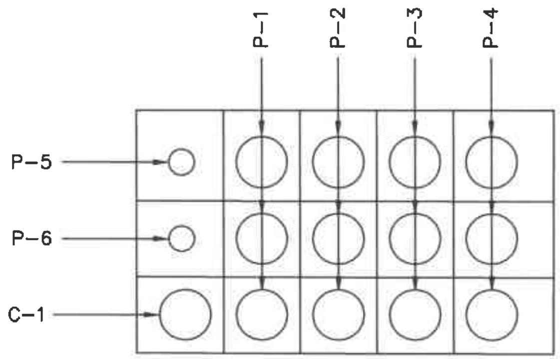
REVISIONS

NO.	DESCRIPTION	DATE

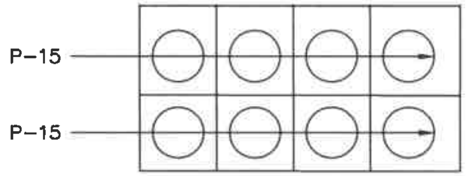
DATE:	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	NONE

GROUNDING ELECTRICAL DETAILS

SHEET NUMBER
ED-02



UG CONDUIT DUCT BANK
SECTION A-A



UG CONDUIT DUCT BANK
SECTION B-B

JOHNSON ENGINEERING
JOHNSON ENGINEERING, INC.
2122 JOHNSON STREET
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FORT MYERS, FLORIDA 33902-1550
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WAYNE WILDEY WRIGHT, PE
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City of Naples

FOR CONSTRUCTION
GENERATORS REPLACEMENT
WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

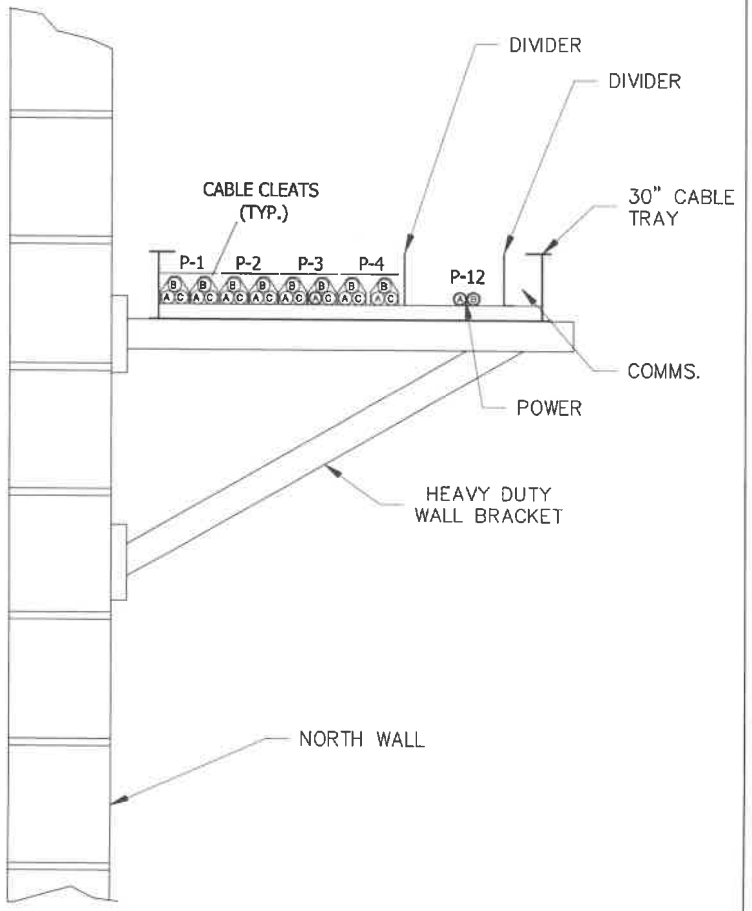
REVISIONS

NO.	DESCRIPTION	DATE

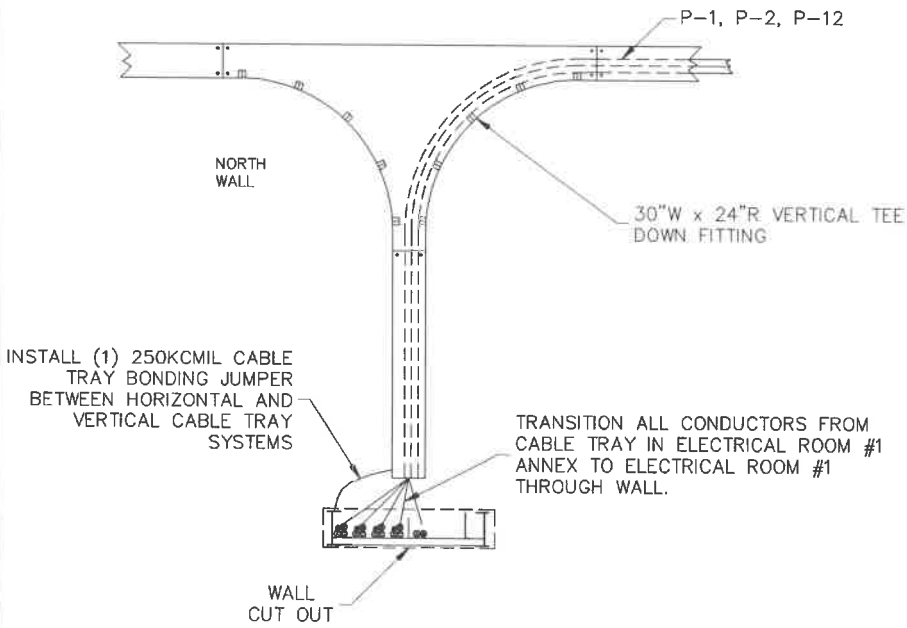
DATE:	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	NONE

SECTIONS A,B

SHEET NUMBER
ED-03



SECTION E-E



SECTION D-D

JOHNSON ENGINEERING
JOHNSON ENGINEERING, INC.
2122 JOHNSON STREET
P.O. BOX 1550
FORT MYERS, FLORIDA 33902-1550
PHONE: (239) 334-0046

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City of Naples

FOR CONSTRUCTION
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WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

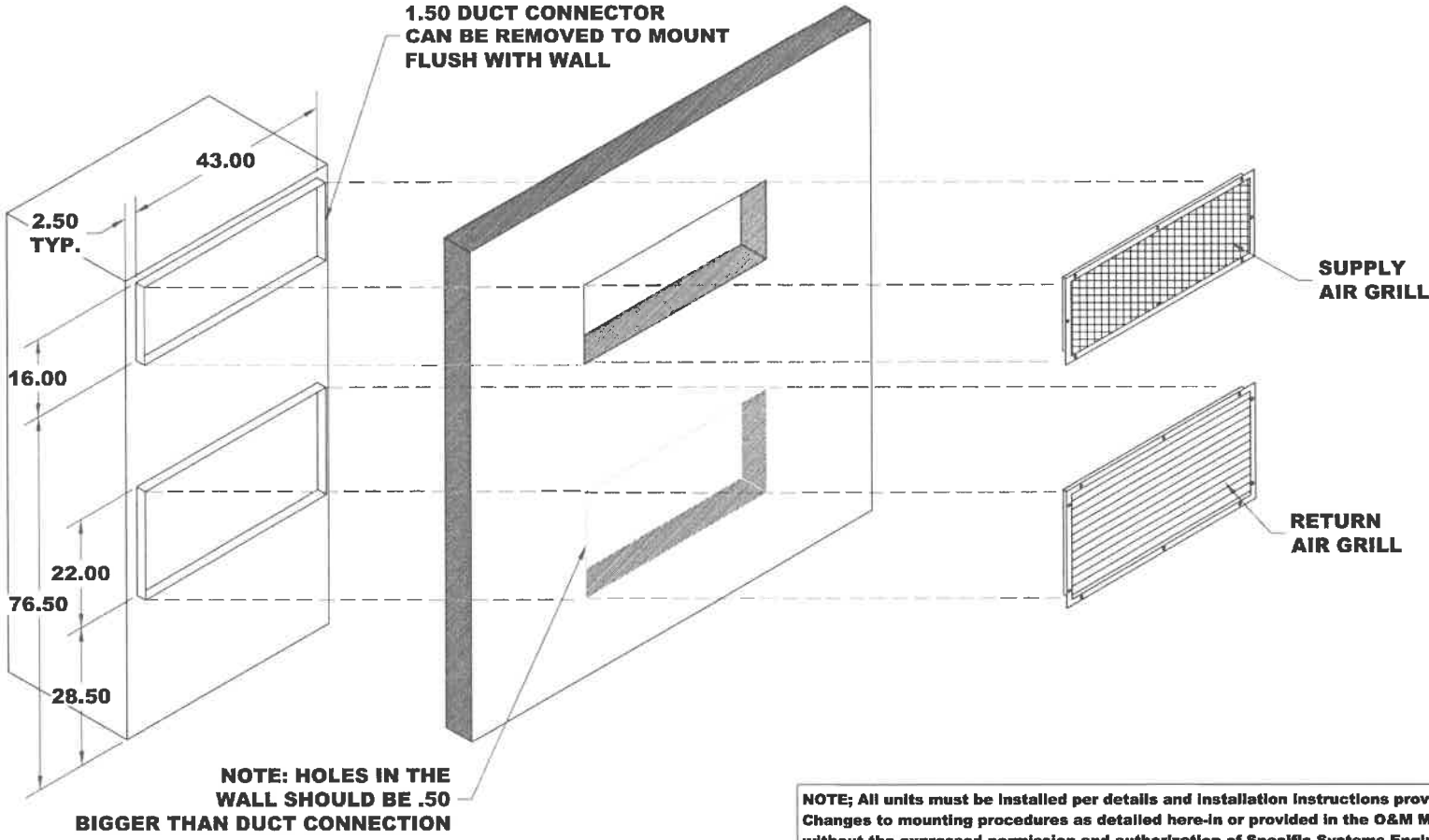
REVISIONS

NO.	DESCRIPTION	DATE

DATE:	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	NONE

SECTIONS D,E

SHEET NUMBER
ED-04



NOTE; All units must be installed per details and installation instructions provided. Changes to mounting procedures as detailed here-in or provided in the O&M Manuals without the expressed permission and authorization of Specific Systems Engineering Dept. may void the warranty and result in unit operational problems.

REVISIONS

REV.	DESCRIPTION	DATE	APPR.
A	INITIAL RELEASE	11/13/20	BC

DRAWING STATUS

ISSUED FOR APPROVAL [X] 11/13/20

AS BUILT [ ] _____

SPECIFIC SYSTEMS CUSTOMERS FIRST
WWW.SPECIFICSYSTEMS.COM
439 W 41st STREET TULSA OKLAHOMA
U.S.A (918) 663-9321

TITLE: HVAC WALL CUTOUT DETAIL
STANDARD AIRFLOW
APK 120

DRAWN BY: BC		P.O.#: 200023-002264
DATE: 11/12/20		JOB#: T20-000800
CHK'D: BC	CNTRL DWG: X	DWG#: T20-000800-02

ELECTRICAL ROOM #1 ANNEX
SOUTH WALL RESTORATION FUTURE A/C UNIT MOUNTING
NTS

City of Naples
23-014 Wastewater Treatment Plant (WWTP) Generator Installations & Electrical Improvements - ITB

O:\2020\20203070-006\20203070-006 DETAILS.dwg (50) www Jan 30, 2023 - 8:39am

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2122 JOHNSON STREET
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FORT MYERS, FLORIDA 33902-1550
PHONE: (239) 334-0046
WAYNE WILEY WRIGHT, PE
FL License No. 56220

City of Naples

FOR CONSTRUCTION
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WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

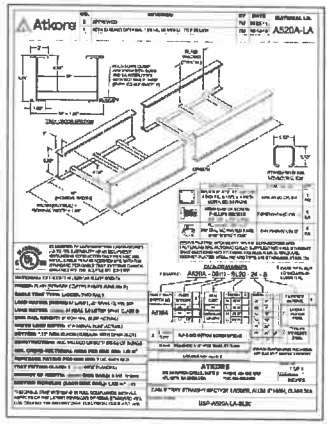
REVISIONS

NO.	DESCRIPTION	DATE

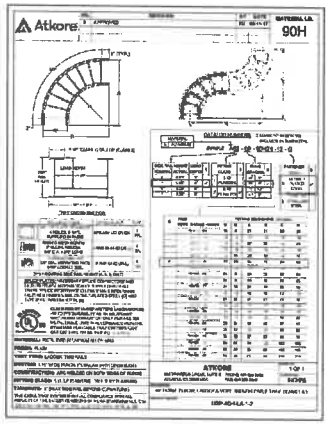
DATE:	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	NONE

FUTURE HVAC
DIMENSIONAL
DETAILS

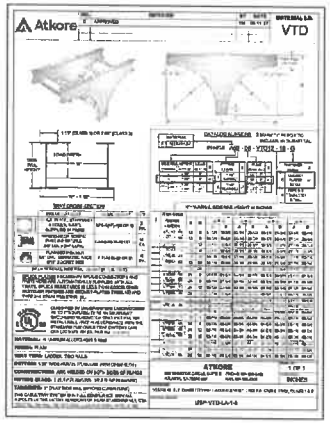
SHEET NUMBER
ED-05



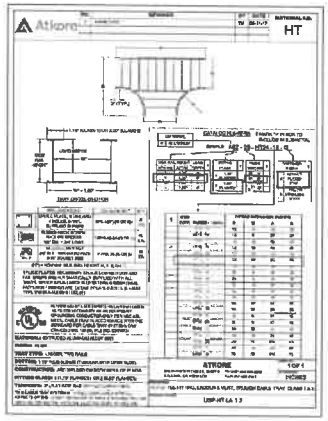
STRAIGHT SECTION



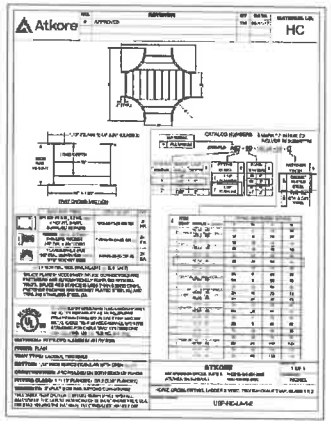
90 DEG HORIZ. ELBOW



VERTICAL TEE DOWN



HORIZONTAL TEE



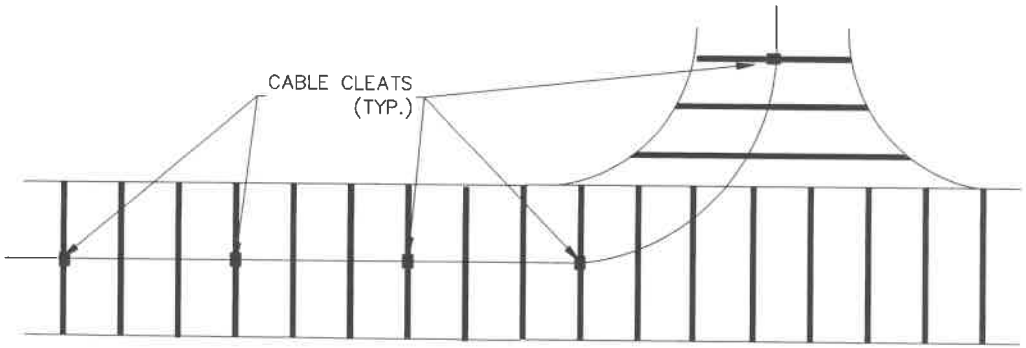
HORIZONTAL CROSS

NOTES:

1. LADDER TROUGH:

INSIDE WIDTH:	30"
MATERIAL:	ALUMINUM, PLAIN FINISH
RUNG SPACING:	9"
TROUGH TYPE:	LADDER
LOADING DEPTH:	4"
SIDE RAIL HEIGHT:	5"
FITTING CLASS:	2 (2" FLANGES)
LOAD CLASS:	20A
LOAD RATING:	57 LBS/FT @ 20-FT SPAN
AMP RATING:	1600 AMP
MFR:	ATKORE

2. INSTALL CABLE CLEATS AT MIN. 27" INTERVALS ON STRAIGHT LENGTHS OF TRAY SECTIONS.
3. INSTALL PANDUIT MODEL MS75 / MLT TYPE CABLE CLEATS AT THE BEGINNING AND ENDS OF ALL BENDS FOR TEE AND CROSS TRAY SECTIONS.



CABLE CLEAT INSTALLATION (TYP.)

NTS

JOHNSON ENGINEERING
JOHNSON ENGINEERING, INC.
2122 JOHNSON STREET
P.O. BOX 1550
FORT MYERS, FLORIDA 33902-1550
PHONE: (239) 334-0046

WAYNE WILDEY WRIGHT, PE
FL License No. 58220

City of Naples

FOR CONSTRUCTION
GENERATORS REPLACEMENT
WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

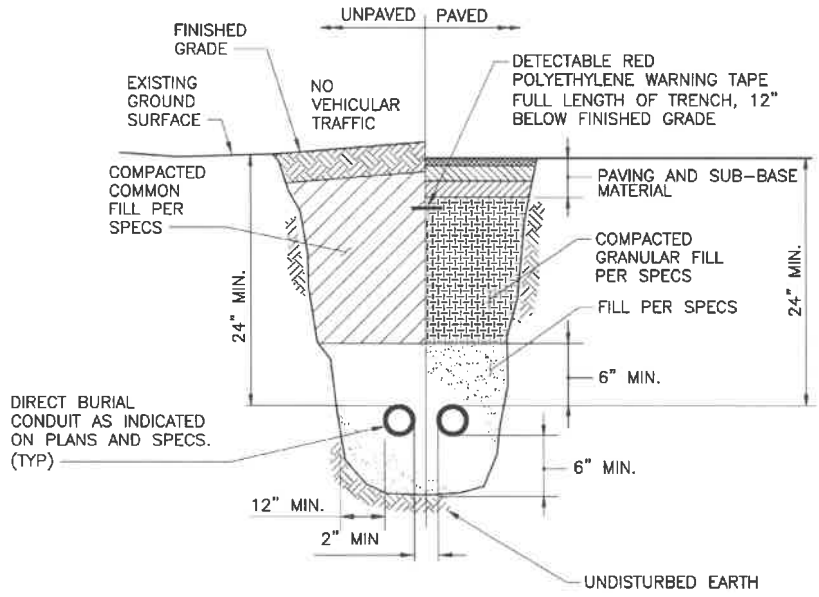
REVISIONS

NO.	DESCRIPTION	DATE

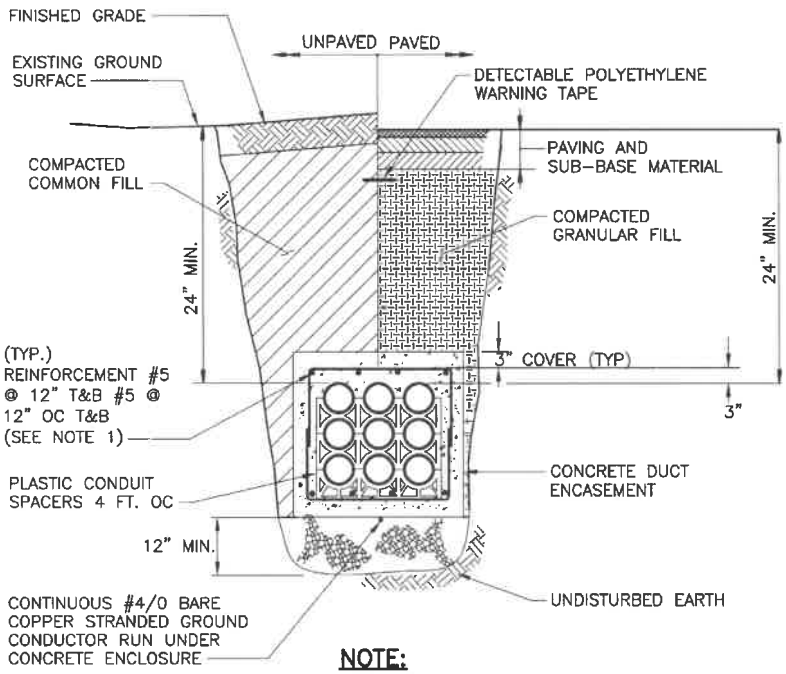
DATE:	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	NONE

CABLE TRAY DETAILS

SHEET NUMBER
ED-06



DIRECT-BURIED CONDUITS (TYP.)



NOTE:

1. REINFORCING REQUIRED WHEN DUCT BANK IS SUBJECT TO INCREASED STRESS SUCH AS VEHICULAR TRAFFIC (UNDER ROADWAYS OR DRIVEWAYS), UNDER STRUCTURES, OR OTHERWISE INDICATED. EXTEND REINFORCING FIVE (5) FT BEYOND AREA NEEDING PROTECTION.

CONCRETE ENCASED DUCT BANK (TYP.)

JOHNSON ENGINEERING
JOHNSON ENGINEERING, INC.
2122 JOHNSON STREET
P.O. BOX 1550
FORT MYERS, FLORIDA 33902-1550
PHONE: (239) 334-0046

WAYNE WILSEY WRIGHT, PE
FL License No. 58220

City of Naples

FOR CONSTRUCTION
GENERATORS REPLACEMENT
WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

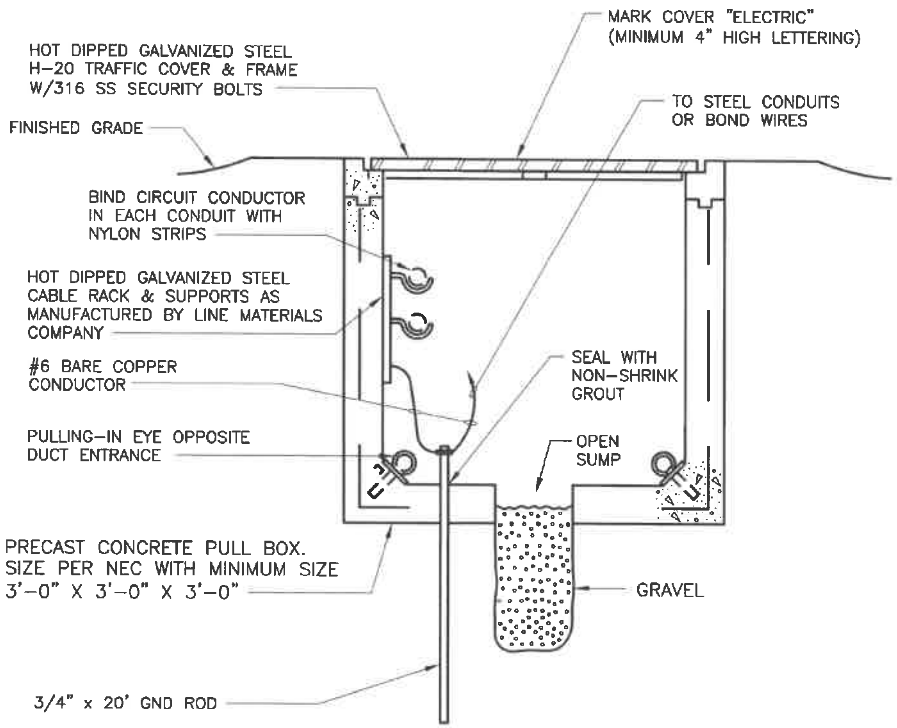
REVISIONS

NO.	DESCRIPTION	DATE

DATE:	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	NONE

DUCT BANK ELECTRICAL DETAILS

SHEET NUMBER
ED 07



PP. PULLBOXES
#1, #2, #3

NOTES:

1. DO NOT SPLICE CABLES.
2. ALL MOUNTING HARDWARE SHALL BE 316SS.
3. PLACE ON 6" BASE OF NO. 57 STONE.
4. ADD PULLBOX ID NAMEPLATE.

JOHNSON ENGINEERING
JOHNSON ENGINEERING, INC.
2122 JOHNSON STREET
P.O. BOX 1550
FORT MYERS, FLORIDA 33902-1550
PHONE: (239) 334-0046

City of Naples

FOR CONSTRUCTION
GENERATORS REPLACEMENT
WATER RECLAMATION FACILITY
CITY OF NAPLES, FLORIDA

REVISIONS

NO.	DESCRIPTION	DATE

DATE:	JANUARY 2023
PROJECT NO.	20203070-006
FILE NO.	03-50-25E
SCALE:	NONE

UG PULLBOX
ELECTRICAL
DETAILS

SHEET NUMBER
ED-08

CITY OF NAPLES
PURCHASING DIVISION
CITY HALL, 735 8TH STREET SOUTH
NAPLES, FLORIDA 34102
PH: 239-213-7100 FX: 239-213-7105

ADDENDUM NUMBER 1

NOTIFICATION DATE:	SOLICITATION TITLE:	SOLICITATION NUMBER:	BID OPENING DATE & TIME:
3/10/2023	Wastewater Treatment Plant (WWTP) Generator Installations and Electrical Improvements - ITB	23-014	3/23/2023 2:00PM

THE FOLLOWING INFORMATION IS HEREBY INCORPORATED INTO, AND MADE AN OFFICIAL PART OF THE ABOVE REFERENCED BID.

The following answers to written submitted questions:

1. Please clarify whether a one (1) year or two (2) year warranty is required for the workmanship and materials? See below. TSP – 1.3 Execution

   1.3.5 Warranty - "The work under this Division shall include a two-year warranty. This warranty shall be by the Contractor to the Owner for any defective workmanship or material that has been furnished under this Contract at no cost to the Owner for a period of two years from the date of final completion of the System."

   TSP - 1.13.16 Warranty
   If, within one (1) year after final completion, any Work is found to be defective or not in conformance with the Contract Documents, CONTRACTOR shall correct it promptly after receipt of written notice from the CITY.

   ANSWER: A two-year warranty will be required.

2. Please clarify if the retainage is five (5) percent or ten (10) percent. See below.
   ITB – Special Conditions - Terms of Contract – page 16 "As a method to assure completion of the total project for projects which are over a total amount of $100,000, retainage in the amount of five percent (5%) of all work completed will be withheld from the payment."

   TSP - 1.3 - Part 3 Execution Article 1.31. Measurement and Payment
   1.31.G. The City shall retain ten (10%) of the gross amount of each monthly payment request or ten percent (10%) of the portion thereof approved by the Engineer for payment, whichever is less. Such sum shall be accumulated and not released to the Contractor until final payment is due.

IMPORTANT MESSAGE

PLEASE ACKNOWLEDGE RECEIPT OF THIS ADDENDUM ON THE BID COVER SHEET.

ANSWER: Retainage will be FIVE (5) %.

3. At the prebid it was noted that the dates for delivery of the generators has changed. Is there a specific date the Contractor should use as NTP to prepare a bid schedule so that all bidders are evaluating the scheduled time frame?

   ANSWER: Generators are anticipated to arrive on site by August 1, 2023. The NTP will be contingent upon City Council approval, and coordinated with the awarded contractor. Tentatively, the contract is anticipated to be awarded in mid-April 2023.

4. Special Conditions – Terms of Contract pg. 16. Substantial completion must be reached for all aspects of the project no later than 120 calendar days from the issued Notice to Proceed and fully completed in 150 calendar days with a Project Close-out time frame of 30 days. Do these time frames still apply?

   ANSWER: Yes.

5. Can the manual and detailed drawings stipulated below be provided? Or are they available on the City's website?

   ANSWER: This information is located on our Website:

   https://www.naplesgov.com/utilities/page/utilities-specifications-and-standards-manual

   1.1.4 UTILITIES OPERATIONS MANUAL pg. 20 TSP
   A. The City of Naples Utilities Specifications and Standards Manual (latest revision) shall be considered part of the Contract Documents, including all applicable detail drawings.

6. Is it possible to gain access to the site to review the existing conditions now that we have the plans?

   ANSWER: Yes – please contact Barry Stein at telephone 239-213-4732.

7. Are the existing building plans available? In particular, the Generator Room #1 roof drawings?

   ANSWER: Yes – See attached "WWTP Roof Drawing" file. Exhibit H

8. Sheet MC-01 Project Electrical Note #8 states "replace entire roof of Generator room #1. And sheet E-09 note says to demo two exhaust fans and replace roof". Just to be clear once the exhaust fans are removed and openings are repaired the City wants the entire roof is to be replaced. Correct?

   ANSWER: That is correct – the upper section above the existing Generator No.1 Room will be replaced. See highlights within the "WWTP Roof Drawing" file. Exhibit H. (Note – the fans are to be removed and returned to the City for future use).

9. Sheet GN-03 Note at north side of pad area states "Plugged and abandoned wells (Typ) 12 location. Remove to 5' below grade". Please confirm the wells will be plugged and abandoned by <u>others</u> and the contractor is only required to "remove to 5' below grade" as discussed at the prebid with the City's environmental consultant.

IMPORTANT MESSAGE

PLEASE ACKNOWLEDGE RECEIPT OF THIS ADDENDUM ON THE BID COVER SHEET.

ANSWER: These services will be performed by ERMI.

10. Sheet GN-05 Note #2 references the Coastline Power Solution plans for generator platform details. Can the City please provide the CPS plans? ANSWER: Yes

11. Sheet GN-09 Note #2 states that "the size, number, type, location and thread projection of the anchor bolts will be determined by the equipment manufacturer". In the prebid meeting it was stated that the Contractor's engineer will need to design the anchor bolt system. Please clarify.

ANSWER: The contractor will be responsible for anchoring per the manufacturer's specifications.

12. Sheet E-08 Please confirm that the concrete base below generator #1 radiator, after removal, can remain in place.

ANSWER: Confirmed – concrete base shall remain in place.

13. STS-01010 – The Summary of Work in item 1.1.1.J states "The demolition of the existing outdoor diesel tanks, concrete pad under the existing diesel tanks, monitoring wells, around the existing diesel tanks, and soil remediation, as needed. In the prebid meeting the City stated that the soil remediation would be performed by the City's environmental consultant including dewatering (if required), removal and disposal of materials to -6 foot below grade, and replacement with acceptable fill material to -1 foot below the new slab. Please provide what responsibilities the Contractor will have, if any, in the soil remediation efforts and backfilling the site to the just below the new 12" subgrade and new concrete pad.

ANSWER: The contractor will not be responsible for soil remediation efforts or backfilling the site to the new 12" subgrade and new concrete pad. The contractor shall be responsible for the removal of the existing Aboveground Storage Tanks (ASTs) and demolition of the existing pad (AST containment area). For further clarification, please reference the attached scope of work letter from ERMI.

14. What is the overall weight of each 600 KW generator unit and is the contractor responsible to receive offload, rig and set onto the generator platform?

ANSWER: See attached specifications in Exhibit E & F. Yes - the contractor is responsible to receive, offload, rig and set onto the generator platform.

15. Will all four generators be delivered to the site as one unit and equipment with rigging hooks?

ANSWER: All units are anticipated to arrive in one shipment. See attached specifications in Exhibit E & F.

16. Will the GENERAC 600 kW Generators be supplied configured as a Complete Assembly Fuel Cell/Generator/Enclosure, to be rigged and set as a complete assembly?

ANSWER: See attached specifications in Exhibit E & F.

IMPORTANT MESSAGE

PLEASE ACKNOWLEDGE RECEIPT OF THIS ADDENDUM ON THE BID COVER SHEET.

17. Do you have the overall weight of the shipping splits for the generator platform? Are there any submittals for the contractor to review?

ANSWER: See attached specifications in Exhibit E & F.

18. Does the City of Naples have approved submittals for the four generators and housings? Can they be provided to the Contractor prior to the bid?

ANSWER: See attached specifications in Exhibit E & F.

19. Who is responsible to fill the four fuel tanks with diesel fuel and how many gallons are required to perform all of the required start up and testing?

ANSWER: The contractor shall be responsible for transferring fuel from the old (existing) storage tanks to the new generator units for start-up and testing purposes; the City will provide any additional fuel that may be required.

20. Is the contractor or the City responsible for the final fill of diesel fuel for each of the four tanks after substantial completion?

ANSWER: The City.

21. Please verify that the City will supply fuel for the temporary tank and startup in the new tanks.

ANSWER: Fuel will be provided from the existing on-site storage tanks for the temporary tank. For start-up, see question 18 above.

22. Will the City of Naples purchase the startup services and power system studies with the four generators from Generac from the manufacturer? What, if any, additional services we'll need to be provided by the Contractor?

ANSWER: Start-up service shall be provided by the City. At this time, the contractor will only be required to attend start-up activities in case issues should arise.

23. As per the Prebid meeting Please verify all new feeders are three phase three wire?

ANSWER: Confirmed.

24. What is the daily amount of the liquidated damages?

ANSWER: See page 16, Special Conditions, Section A in the bid document.

25. When we turn over the existing 1200 KW & 1500 KW generators to the Owner will they be rigged and placed on site at a determined location and in an air-conditioned space or are we responsible to deliver off site at a remote location? Please clarify what is required to turn over the existing units to the Owner?

IMPORTANT MESSAGE

PLEASE ACKNOWLEDGE RECEIPT OF THIS ADDENDUM ON THE BID COVER SHEET.

ANSWER: The existing units shall be delivered to a staging lot located at the south end of the Equipment Services facility located at 370 Riverside Circle (adjacent to the Wastewater Plant). All generator components, engines, and applicable electrical hardware shall be turned over to the City.

26. Will temporary power be required for the four new generators when set in place and not energized in order to prevent condensation withing the units or is the outdoor location sufficient?

ANSWER: Temporary power will not be required, as the outdoor location is sufficient.

27. 1.3.21 Tax Exemption - The CITY of Naples is exempt from the payment of sales or use tax. The tax exemption certificate number is: 85-8012621645C-0. Does this only apply to the permanent materials incorporated into the project? Or is to be applied to the overall bid price?

ANSWER: The City of Naples does not pay sales tax for any materials purchased by the City for this project.

28. Section N of the ITB states: QUALIFICATIONS - The Contractor must be licensed with a minimum of five (5) years of experience in tree and palm planting on similar projects. Is this applicable to this bid?

ANSWER: Not applicable.

29. See below. We were unable to find a detailed construction staging plan outlined in the plans. Or is the Contractor to provide the plan?

ANSWER: Please disregard Section 1.4; the contractor shall adhere to Section 1.1.5 of the specifications.

~~1.4 PART 4 - EQUIPMENT UNAVAILABILITY AND LIMITATIONS A. A detailed construction staging plan is outlined in the Plans to limit the duration of planned downtime events. The CONTRACTOR shall confirm the feasibility of the proposed Construction Staging Plan in the Bid.~~

1.1.5 Work Sequence - Prior to commencing construction that will impact any operations at the plant, the CONTRACTOR shall submit to the ENGINEER for review a Construction Staging Plan designed to ensure that existing plant operations are maintained to the maximum extent possible. This Construction Staging Plan must be approved by the ENGINEER before the CONTRACTOR begins construction.

30. For the bid bond, is an AIA Document A310 Bid Bond Form acceptable for this project? I don't see a bid bond form that we must use in the Invitation to Bid Documents.

ANSWER: Yes, this form is acceptable. Additionally, please reference the bid security/bid bond section of the ITB.

The following exhibits under a separate cover.

Exhibit A - Tap Box Proposal - Circuit Breaker Sales

Exhibit B - Roof Proposal - Both Levels

IMPORTANT MESSAGE

PLEASE ACKNOWLEDGE RECEIPT OF THIS ADDENDUM ON THE BID COVER SHEET.

Exhibit C - Roof Proposal - Completed Lower Level

Exhibit D - A15 - Generator Rm 1

Exhibit E - City Of Naples Generator Submittal

Exhibit F - Naples WRF Generator Tank and Platforms Submittal

Exhibit G - E1763N Summary of Planned Source Removal Activities

Exhibit H - Exhibit H - WWTP Roof Drawing - W ROOF REPLACEMENT SHOWN

###

IMPORTANT MESSAGE

PLEASE ACKNOWLEDGE RECEIPT OF THIS ADDENDUM ON THE BID COVER SHEET .

CITY OF NAPLES
PURCHASING DIVISION
CITY HALL, 735 8TH STREET SOUTH
NAPLES, FLORIDA 34102
PH: 239-213-7100 FX: 239-213-7105

ADDENDUM NUMBER 2

NOTIFICATION DATE:	SOLICITATION TITLE:	SOLICITATION NUMBER:	BID OPENING DATE & TIME:
3/16/2023	23-014 Wastewater Treatment Plant (WWTP) Generator Installations and Electrical Improvements - ITB	23-014	3/30/2023 2:00PM

THE FOLLOWING INFORMATION IS HEREBY INCORPORATED INTO, AND MADE AN OFFICIAL PART OF THE ABOVE REFERENCED BID.

The following clarifications are issued as an addendum identifying the following changes for the referenced solicitation.

Bid opening date and time have been changed to the following:

FROM: Thursday, March 23, 2023, @ 2:00 pm
TO: Thursday, March 30, 2023, @ 2:00 pm

Please find attached Exhibit A Revised Cover Sheet that replaces the original cover sheet.

Note: Only the pre-qualified vendors qualified in bid 23-006 Wastewater Treatment Plant (WWTP) Generator Installations and Electrical Improvements - RFQ can submit bids for this project.

Exhibit A - Revised Cover Sheet

###

IMPORTANT MESSAGE

PLEASE ACKNOWLEDGE RECEIPT OF THIS ADDENDUM ON THE BID COVER SHEET.

INVITATION TO BID

CITY OF NAPLES
PURCHASING DIVISION
CITY HALL, 735 8TH STREET SOUTH
NAPLES, FL 34102
PH: 239-213-7100 FX: 239-213-7105

COVER SHEET

NOTIFICATION DATE:	SOLICITATION TITLE	SOLICITATION NUMBER:	OPENING DATE & TIME:
03/16/2023	WASTEWATER TREATMENT PLANT(WWTP) GENERATOR INSTALLATIONS & ELECTRICAL - ITB	23-014	3/30/2023 2:00 PM

PRE-BID CONFERENCE DATE, TIME AND LOCATION:
A mandatory Pre-Bid conference will be held Friday, March 3, 2023 at 10:00 A.M. local time in the Utilities Department located at 380 Riverside Circle, Naples FL, 34102. It is the City's Intent to Only Invite the Awarded Firms from RFQ 23-006 to submit a Bid in response to this Invitation To Bid.

LEGAL NAME OF PARTNERSHIP, CORPORATION OR INDIVIDUAL:	
MAILING ADDRESS:	
CITY-STATE-ZIP:	
PH:	EMAIL:
FX:	WEB ADDRESS:
AUTHORIZED SIGNATURE DATE	PRINTED NAME/TITLE

I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, or person submitting a bid for the same materials, supplies, or equipment and is in all respects fair and without collusion or fraud. I agree to abide by all conditions of this bid and certify that I am authorized to sign this bid for the bidder. In submitting a bid to the City of Naples the bidder offers and agrees that if the bid is accepted, the bidder will convey, sell, assign or transfer to the City of Naples all rights, title, and interest in and to all causes of action it may now or hereafter acquire under the Anti-trust laws of the United States and the State of FL for price fixing relating to the particular commodities or services purchased or acquired by the City of Naples. At the City's discretion, such assignment shall be made and become effective at the time the City tenders final payment to the bidder.

FEI/EIN Number _____ DUNS Number _____

Please initial by all that apply
I acknowledge receipt/ review of the following addendum

_____Addendum #1	_____Addendum #2	_____Addendum #3	_____Addendum #4
_____Addendum #5	_____Addendum #6	_____Addendum #7	_____Addendum #8

PLEASE NOTE THE FOLLOWING

> **This page must be completed and returned with your bid.**
> **Bids must be submitted in a sealed envelope, marked with solicitation number & opening date.**
> **All submissions must be received, and date stamped by Purchasing staff prior to the above "OPENING DATE & TIME".**
> **Submission received after the above opening date and time will not be accepted.**
> **Bid tabulations will be available on the City of Naples web site https://www.naplesgov.com/rfps**

CITY OF NAPLES
PURCHASING DIVISION
CITY HALL, 735 8TH STREET SOUTH
NAPLES, FLORIDA 34102
PH: 239-213-7100 FX: 239-213-7105

ADDENDUM NUMBER 3

NOTIFICATION DATE:	SOLICITATION TITLE:	SOLICITATION NUMBER:	BID OPENING DATE & TIME:
3/16/2023	Wastewater Treatment Plant (WWTP) Generator Installations and Electrical Improvements - ITB	23-014	3/30/2023 2:00PM

THE FOLLOWING INFORMATION IS HEREBY INCORPORATED INTO, AND MADE AN OFFICIAL PART OF THE ABOVE REFERENCED BID.

The following answers to written submitted questions:

1. If you were one of the companies that were prequalified, do you still have to fill out the bid package again?
   ANSWER: YES
2. If you were not one of the prequalified companies, are you allowed to bid on this project?

   ANSWER: NO, This ITB is for Pre-Qualified Awarded Vendors from RFQ 23-006.

3. What is to be done with the existing fuel in the temporary tanks once the new generators go online?

   ANSWER: Once the temporary tanks are no longer needed, the CITY shall be responsible for transferring fuel from the temporary tanks to the new generators.

4. Are the new manholes of adequate size based on the number of conduits and size in a straight and angle pull?

   ANSWER: Drawing detail ED-08 for the Electrical Pull Box shows minimum size and requirements. Contractor shall size the proposed pullboxes per code, with a minimum size of 4' x 4' x 3', Oldcastle Model # 504-LA or eq.

5. Sheet GN-09 calls for 5000 PSI in generator notes. Below on sheet GN-09 calls for 3000 PSI. Please confirm PSI for generator slab.

   ANSWER: 5000 PSI for generator slab. 3000 PSI for sidewalk.

IMPORTANT MESSAGE

PLEASE ACKNOWLEDGE RECEIPT OF THIS ADDENDUM ON THE BID COVER SHEET.

6. The scales listed on ELECTRICAL DRAWING sheets E-27, E-28, E-29 and E-30 are incorrect. Please provide correct scale(s).

   ANSWER: See revised drawings for corrected drawing scales.

7. REF: Sheet ED-07 DUCT BANK ELECTRICAL DETAILS and SPECIFICATION STS-26 25 43.1.3.1 a. & b. .Both drawing detail and specification indicate ductbank to be encased in reinforced concrete when crossing under driveways and roadways. Is concrete encasement (non-reinforced) required for remaining ductbank?

   ANSWER: All ductbanks shall be encased in concrete.

8. Is the 59 foot by 29.5 foot concrete slab for the new generators to be considered and treated as mass concrete?

   ANSWER: Yes.

9. Can the bid date be extended by one week?

   ANSWER: See Addendum #2

The following exhibits under a separate cover.

Exhibit I - City of Naples WRF GENERATORS REPLACEMENT PLANS For Construction 230130

Exhibit J - City of Naples WRF GENERATORS REPLACEMENT PLANS For Construction 230315

Exhibit K - REVs 230315

###

IMPORTANT MESSAGE

PLEASE ACKNOWLEDGE RECEIPT OF THIS ADDENDUM ON THE BID COVER SHEET.

23-014 Wastewater Treatment Plant (WWTP) Generator Installations and Electrical Improvements - ITB					
SECTION 1: General					
ITEM NO.	**DESCRIPTION**	**QTY.**	**UNIT**	**UNIT PRICE**	**EXTENDED PRICE**
1	**Mobilization/De-mobilization**	1	LS	44,000.00	44,000.00
2	**Construction Staging**				
a.	Temporary diesel tank and conductors to pumps in Electrical Room #1 ERP-1 and ERP-2.	1	LS	43,000.00	43,000.00
				SECTION 1 SUBTOTAL:	87,000.00
SECTION 2: Installation and Demo Labor and Materials					
ITEM NO.	**DESCRIPTION**	**QTY.**	**UNIT**	**UNIT PRICE**	**EXTENDED PRICE**
3	**Electrical Room #1/Generator Room #1**				
a.	Provide all labor and material for modifications to Electrical Room #1 and Generator Room #1, including new roof, building modifications, trench extension, Generator #1 demo, cable trays, conduits, conductors and floor restoration.	1	LS	142,000.00	142,000.00
b.	Furnish and Install Transformer "XFMR-ANX", Distribution Panelboard "DP-ANX", Generator RIO Control Panel "RIO-ANX", and the Generators Tap Box.	1	LS	101,000.00	101,000.00
4	**Electrical Room #2/Generator Room #2**				
a.	Provide all labor and material for modifications to Electrical Room #2 and Generator Room #2, including Generator #2 demo, conduits, conductors and floor modifications.	1	LS	61,000.00	61,000.00
5	**Raceways**				
a.	Furnish and install UG Pullboxes #1, #2, #3, #4 and associated raceways and conductors. Demo diesel fuel valve boxes.	1	LS	719,000.00	719,000.00
6	**Generators and Pad**				
a.	Generators #1, #2, #3, and #4 including concrete pad and platforms.	1	LS	300,000.00	300,000.00
7	**Diesel System Demo**				
a.	Demo diesel tanks, diesel lines, and diesel valve boxes.	1	LS	91,000.00	91,000.00
				SECTION 2 SUBTOTAL:	1,414,000.00
SECTION 3: Close-Out					
ITEM NO.	**DESCRIPTION**	**QTY.**	**UNIT**	**UNIT PRICE**	**EXTENDED PRICE**
8	**Final Completion**				
a.	Provide all labor, materials and training per Final Completion requirements, per approval by the Engineer.	1	LS	15,000.00	15,000.00
				SECTION 3 SUBTOTAL:	
SUMMARY					
				SECTION 1: General	87,000.00
				SECTION 2: Installation and Demo Labor and Materials	1,414,000.00
				SECTION 3: Close-Out	15,000.00
				Project Total	1,516,000.00

This solicitation has potential for P-Card Payment. Does your company accept credit card payment? YES____NO_X__

If "yes" please indicate payment options on the below chart.

Payment Options	YES	NO	PERCENT AND/OR TERMS FOR EARLY PAYMENT
Is there a discount for a credit card payment?		X	
Is there an additional charge for credit card payment?		X	
Discount for early payment?		X	
Prompt payment terms:_____%_____Days; Net 30 Days		X	

Company Name: Eau Gallie Electric

EIN: 59-2694592

Email: chughes@eg-electric.com

Name and Title of individual completing this schedule:

Christopher Hughes — President

(Printed Name) **(Title)**

X [signature] 03-21-23

(Signature) **(Date)**

GENERAL INSURANCE REQUIREMENTS

The Contractor shall not commence work until he has obtained all the insurance required under this heading, and until such insurance has been approved by the Owner, nor shall the Contractor allow any subcontractor to commence work until all similar insurance required of the subcontractor has also been obtained and approved by the Owner.

Certificates of insurance must be issued by an authorized representative of the insurance company at the request and direction of the policyholder and must include sufficient information so as to identify the coverage and the contract for Owner's improvements for which they are issued. Certificates of insurance must be issued by a nationally recognized insurance company with a Best's Rating of no less than B+VII, satisfactory to the Owner, and duly licensed to do business in the state of said Contract.

The Contractor shall procure and maintain, during the life of this Contract, Workmen's Compensation Insurance for all of his employees to be engaged in work under this Contract, and he shall require any subcontractor similarly to provide Workmen's Compensation Insurance for all of the latter's employees to be engaged in such work, unless such employees are covered by the protection afforded by the Contractor's insurance. In case any employees are to be engaged in hazardous work under this Contract, and are not protected under this Workmen's Compensation statute, the Contractor shall provide, and shall cause each subcontractor to provide, adequate coverage for the protection of such employees. It is acceptable to use a State-approved Workmen's Compensation Self-Insurance fund.

The Contractor shall take out and maintain during the life of this Contract, Public Liability and Property Damage and shall include Contractual Liability, Personal Injury, Libel, Slander, False Arrest, Malicious Prosecution, Wrongful Entry or Eviction, Broad Form Property Damage, Products, Completed Operations and XCU Coverage to be included on an occurrence basis, and to the full extent of the Contract to protect him, the Owner, and any subcontractor performing work covered by this Contract from damages for personal injury, including accidental death, as well as from claims for property damage, which may arise from operations under this contract, whether such operations be by himself or by a subcontractor, or by anyone directly or indirectly employed by either of them. The Contractor shall also maintain automobile liability insurance including "non-owned and hired" coverage. The entire cost of this insurance shall be borne by the Contractor.

The amount of such insurance shall be no less than $1,000,000 annual aggregate for bodily injury and property damage combined per occurrence.

The City of Naples must be named as Additional Insured on the insurance certificate and the following must also be stated on the certificate. "These coverage's are primary to all other coverage's the City possesses for this contract only." The City of Naples shall be named as the Certificate Holder. The Certificate Holder shall read as follows:

The City of Naples
735 Eighth Street South
Naples, Florida 34102

No City Division, Department, or individual name should appear on the Certificate.
No other format will be acceptable.

The Certificate must state the bid number and title.

When using the ACORD 25 – Certificate of Insurance only the most current version will be accepted. The City of Naples requires a copy of a cancellation notice in the event the policy is cancelled. The City of Naples shall be expressly endorsed onto the policy as a cancellation notice recipient.

Note: Certificates of Insurance reflecting evidence of the required insurance shall be submitted with the response to the solicitation.

EAUGALL-02 ACHEVALLIER

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 3/23/2023

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME:	
Stahl Morse & Associates 1000 Wekiva Springs Road Longwood, FL 32779	PHONE (A/C, No, Ext): (407) 869-4200	FAX (A/C, No): (407) 862-7656
	E-MAIL ADDRESS: certs@stahlinsurance.com	

INSURED	INSURER(S) AFFORDING COVERAGE	NAIC #
Eau Gallie Electric, Inc 2012 Aurora Road Melbourne, FL 32935	INSURER A : Travelers Indemnity Company	25658
	INSURER B : Travelers Property Casualty Company of America	25674
	INSURER C : RetailFirst Insurance Company	10700
	INSURER D : XL Specialty Insurance Company	37885
	INSURER E : United National Ins Comp	
	INSURER F :	

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY [X] PRO-JECT [ ] LOC OTHER:	X	X	DT-CO-7T713218-TIA-22	10/1/2022	10/1/2023	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ 300,000 $ 5,000 $ 1,000,000 $ 2,000,000 $ 2,000,000
A	AUTOMOBILE LIABILITY X ANY AUTO OWNED AUTOS ONLY [ ] SCHEDULED AUTOS HIRED AUTOS ONLY [ ] NON-OWNED AUTOS ONLY			810-7T703772-22-26-G	10/1/2022	10/1/2023	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
B	X UMBRELLA LIAB X OCCUR EXCESS LIAB [ ] CLAIMS-MADE DED X RETENTION $ 0			CUP-7T715617-22-26	10/1/2022	10/1/2023	EACH OCCURRENCE AGGREGATE	$ 5,000,000 $ 5,000,000
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N [ ] N/A If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		052062384	1/1/2023	1/1/2024	X PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 1,000,000 $ 1,000,000 $ 1,000,000
D	Inland Marine			UM00145620MA22A	10/1/2022	10/1/2023	Leased/Rented Equip	100,000
E	Poll-Prof Liability			CON1522472	10/1/2022	10/1/2023	Aggregate	1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
Re: ITB No. 23-014, Wastewater Treatment Plant (WWTP) Generator Installations and Electrical Improvements - ITB

Additional Insured status including Products and Completed Operations is automatically provided for The City of Naples where required by written contract subject to the provisions of endorsement CGD604 0219 for General Liability coverage.

Additional Insured status including Waiver of Subrogation is automatically provided for The City of Naples where required by written contract subject to the provisions of endorsement CGD316 0219 for General Liability coverage.
SEE ATTACHED ACORD 101

CERTIFICATE HOLDER

The City of Naples
735 Eighth Street South
Naples, FL 34102

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

EAUGALL-02 JFIORVANTE

ACORD

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 12/21/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Stahl Morse & Associates 1000 Wekiva Springs Road Longwood, FL 32779	CONTACT NAME: PHONE (A/C, No, Ext): (407) 869-4200 FAX (A/C, No): (407) 862-7656 E-MAIL ADDRESS: certs@stahlinsurance.com
INSURED Eau Gallie Electric, Inc 2012 Aurora Road Melbourne, FL 32935	INSURER(S) AFFORDING COVERAGE — NAIC # INSURER A : Travelers Indemnity Company — 25658 INSURER B : Travelers Property Casualty Company of America — 25674 INSURER C : RetailFirst Insurance Company — 10700 INSURER D : XL Specialty Insurance Company — 37885 INSURER E : United National Ins Comp INSURER F :

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

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INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY X PRO-JECT LOC OTHER:			DT-CO-7T713218-TIA-22	10/1/2022	10/1/2023	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ 300,000 $ 5,000 $ 1,000,000 $ 2,000,000 $ 2,000,000
A	AUTOMOBILE LIABILITY X ANY AUTO OWNED AUTOS ONLY / SCHEDULED AUTOS HIRED AUTOS ONLY / NON-OWNED AUTOS ONLY			810-7T703772-22-26-G	10/1/2022	10/1/2023	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
B	X UMBRELLA LIAB X OCCUR EXCESS LIAB CLAIMS-MADE DED X RETENTION $ 0			CUP-7T715617-22-26	10/1/2022	10/1/2023	EACH OCCURRENCE AGGREGATE	$ 5,000,000 $ 5,000,000
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N N/A If yes, describe under DESCRIPTION OF OPERATIONS below			0520-62384	1/1/2023	1/1/2024	X PER STATUTE OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 1,000,000 $ 1,000,000 $ 1,000,000
D	Inland Marine			UM00145620MA22A	10/1/2022	10/1/2023	Leased/Rented Equip	100,000
E	Poll-Prof Liability			CON1522472	10/1/2022	10/1/2023	Aggregate	1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
FOR INFORMATIONAL PURPOSES ONLY

CERTIFICATE HOLDER

Eau Gallie Electric, Inc.
2012 Aurora Road
Melbourne, FL 32935

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Attachment: Immigration Law Affidavit Certification

This Affidavit is required and should be signed by an authorized principal of the firm, notarized and submitted with formal Invitations to Bid (ITB's) and Request for Proposals (RFP) submittals. Further, Vendors / Bidders are required to enroll in the E-Verify program, and provide acceptable evidence of their enrollment, at the time of the submission of the vendor's/bidder's proposal. Acceptable evidence consists of a copy of the properly completed E-Verify Company Profile page or a copy of the fully executed E-Verify Memorandum of Understanding for the company. **Failure to include this Affidavit and acceptable evidence of enrollment in the E-Verify program, may deem the (Vendor / Bidder) being a Contractor, Firm, Consultant, etc., and their Submittal of a Bid (ITB, RFP, RFQ, etc.) as non-responsive.**

City of Naples will not intentionally award CITY contracts to any vendor who knowingly employs unauthorized alien workers, constituting a violation of the employment provision contained in 8 U.S.C. Section 1324 a(e) Section 274A(e) of the Immigration and Nationality Act ("INA").

City of Naples may consider the employment by any vendor of unauthorized aliens a violation of Section 274A (e) of the INA. Such Violation by the recipient of the Employment Provisions contained in Section 274A (e) of the INA shall be grounds for unilateral termination of the contract by City of Naples.

Vendor attests that they are fully compliant with all applicable immigration laws (specifically to the 1986 Immigration Act and subsequent Amendment(s)) and agrees to comply with the provisions of the Memorandum of Understanding with E-Verify and to provide proof of enrollment in The Employment Eligibility Verification System (E-Verify), operated by the Department of Homeland Security in partnership with the Social Security Administration at the time of submission of the Vendor's / Bidder's proposal.

Company Name: Eau Gallie Electric

Print Name: Christopher Hughes Title: President

Signature: [signature] Date: 03-21-23

State of Florida

County of Brevard

The foregoing instrument was signed and acknowledged before me this 21 day of March, 2023, by Christopher Hughes (Print or Type Name) who has produced Ø (Type of Identification and Number) as identification.

[signature]
Notary Public Signature

Sarah Robinson
Printed Name of Notary Public

8-11-26
Notary Commission Number/Expiration

SARAH ROBINSON
Comm.: # HH 299875
Expires: August 11, 2026
Notary Public - State of Florida

The signee of these Affidavit guarantees, as evidenced by the sworn affidavit required herein, the truth and accuracy of this affidavit to interrogatories hereinafter made.