

RFQ 25-C-00032 Howard F. Curren AWTP Main Switchgear Replacement and Standby Power Facility Improvements Design-Build

Public Announcement in Compliance With Requirements of Section 287.055 Florida Statutes (Consultants' Competitive Negotiation Act) Applicable Law, Executive Orders, Rules, Regulations, and The City's Standard Procedures. Notice of Intent to Award Shall be posted, if at all, on the City's Website accessible by utilizing the website link: www.tampagov.net/contract-administration/programs/architectural-engineering-construction-and-related-rfqs .

The City of Tampa Wastewater Department desires to obtain Design-Build Services for the replacement of the Main Switchgear Facility and improvements/upgrades to the existing Standby Power Facility to provide reliable, redundant, and fully integrated power distribution for the Howard F. Curren AWTP (HFC AWTP).

Services will be provided under a contract with negotiated fixed fees for replacement of the main switchgear facility, evaluation and selection of the improvements needed at the standby power facility, final design, permitting, project management, overhead, profit, and a guaranteed maximum price with appropriate surety bonds. Services will also include, but are not limited to, engineering investigations, site planning, cost estimating, advertising and administration of subcontracts, start-up, O&M manuals, training, and all related work required for a complete project.

Background: Howard F. Curren AWTP is permitted to treat 96-MGD with a Type I two-stage, high rate (pure oxygen and fine bubble aeration) activated sludge biological nitrification/denitrification domestic wastewater treatment plant. This plant is operated to discharge advanced wastewater treated, high-level disinfected and de-chlorinated effluent to Hillsborough Bay. Currently annual average daily flows are 60 MGD and peak flows of 200 MGD.

The existing Main Switchgear Facility (Building 044), constructed in 1973, distributes 13.2 kV power supplied by Tampa Electric Company (TECO) to the HFC AWTP through two (2) individual switchgear lineups and associated 13.2 kV feeders. Each lineup is supported by the plant's Standby Power Facility (Building 078) that contains five (5) 2-MW 13.2 kV diesel generators. The facility was constructed in 1996 and originally contained four (4) generators; a fifth generator was added in 2024.

CITY OF TAMPA, FLORIDA – RFQ

Due to age and condition, the Main Switchgear Facility requires replacement. Additionally, the Standby Power Facility requires upgrades to the existing control systems and other improvements to ensure reliable and redundant power distribution across the plant.

The scope of the design-build contract will include:

1. Assessment of the Standby Power Facility to identify, evaluate alternatives, and provide recommendations of needed improvements and upgrades
2. Complete design of recommended improvements and upgrades for the Standby Power Facility
3. Complete design for the replacement of the Main Switchgear Facility
4. Develop maintenance of plant operations (MOPO) plans for ensuring uninterrupted power supply and full redundancy during construction
5. Equipment Procurement, Construction, and Installation
6. Testing, Start up and Commissioning

Estimated fee is \$35,000,000-\$45,000,000.

Additional material may be found at: www.tampagov.net/contract-administration/programs/architectural-engineering-construction-and-related-rfqs

Questions may be directed to Jim Greiner, P.E., Contract Administration, City of Tampa, (813) 274-8598, or E-Mail jim.greiner@tampagov.net.

A pre-submittal conference will be held at 1 P.M. March 9, 2026, in the Howard F. Curren AWTP Maintenance Training Room, 2700 Maritime Blvd, Tampa, FL 33605.. The only site visit/walk-through will follow the meeting. Firms must email names, cell phone numbers and companies represented for all attendees a minimum 24 hours in advance to Deann.Wheeler@tampagov.net and Jeremy.Beck@tampagov.net to obtain security clearance and to be registered in the treatment plant emergency notification software.

CITY OF TAMPA, FLORIDA – RFQ

Attendance is not mandatory.

In accordance with the Americans with Disabilities Act (“ADA”) and Section 286.26, Florida Statutes, persons with disabilities needing a reasonable accommodation to participate in this public hearing or meeting should contact the City of Tampa’s ADA Coordinator at least 48 hours prior to the proceeding. The ADA Coordinator may be contacted via phone at 813-274-3964, email at TampaADA@tampagov.net, or by submitting an ADA - Accommodations Request form available online at tampagov.net/ADARequest.

An individual or entity (“Firm”) responding to this RFQ must provide evidence of any required licenses, certificates, or registrations with its submission or within 10 days thereof in order to be considered. The City shall own all ideas, documents, plans, and materials developed as a result of this solicitation and Firm is informed same shall be subject to reuse in accordance with Section 287.055(10), Florida Statutes. Firm (i) confirms it has read and is familiar with Section 119.071(3), Florida Statutes regarding certain building plans, blueprints, schematic drawings, which depict the internal layout and structural elements of a building, facility, or other structure owned or operated by the City or other agency that are per said section exempt from Section 119.07(1), Florida Statutes and Section 24(a), Art. I of the Florida Constitution (“Exempt Plans”) and (ii) agrees Firm shall remain in compliance with same, including maintaining the exempt status of such Exempt Plans for so long as they are held by Firm or otherwise in its possession. Pursuant to Section 2-282, City of Tampa Code, during the solicitation period, including any protest or appeal,

NO CONTACT with City officers or employees is permitted from any proposer, other than as specifically stated in this solicitation. The City may cancel, withdraw, or modify this RFQ at any time and reserves the right to reject any or all responses and to waive irregularities, formalities, and informalities as it determines in the City’s best interest. The City of Tampa will not request documentation of or consider a bidder’s (proposer’s) social, political, or ideological interests when determining if the bidder (proposer) is a responsible vendor and will not give preference to a proposer based on the proposer’s social, political, or ideological interests.

Firms should consider applicable concepts in the City’s Climate Action And Equity Plan as posted at <https://www.tampa.gov/document/climate-action-and-equity-plan-122846> .

CITY OF TAMPA, FLORIDA – RFQ

In order to apply for 5 “Ban-The-Box” bonus points, a firm must provide the documentation required pursuant to the “Ban-The-Box” ordinance listed at

https://library.municode.com/fl/tampa/ordinances/code_of_ordinances?nodeId=1171018,

Firms desiring to provide these services to the City must submit a single electronic file in searchable PDF format, Smaller than 10MB, that includes the attached RFQ Transmittal Memorandum completed as appropriate, a Letter of Interest addressed to Brad L, Baird, P.E., Chairman, and referring to this RFQ by number, together with a Statement of Qualifications and any supplemental material allowing evaluation for further consideration (short-listing) based upon the following criteria/point system: Successful Comparable Project Experience, (65 pts); Workload and Availability, (5 pts); Past Performance/Low amount of City Work, (5 pts); Standard Form A305, (5 pts); “Ban-The-Box”, (5pts); Planned SLBE Solicitation & Utilization, Form DMI 10, 20, & 50, (15 pts).

The PDF file must be **E-Mailed to ContractAdministration@tampagov.net BEFORE 2 P.M., March 26, 2026.**

As a courtesy, the City will endeavor to provide an email acknowledgement usually sent within a few days after submission receipt (submissions received on the day of the deadline may not be acknowledged before the deadline or at all). It is Firm’s responsibility to confirm its submission (PDF file) has been received.



**RFQ: 25-C-00032 DESIGN-BUILD SERVICES
FOR THE
Howard F. Curren AWTP Main Switchgear Facility
Replacement and Standby Power Facility Improvements**



PREPARED BY:

Jacinto Ferras, P.E. – PROJECT COORDINATOR
WASTEWATER DEPARTMENT

CITY OF TAMPA
February 2026



Digitally signed
by Jacinto Ferras
Date: 2026.02.13
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DESIGN CRITERIA PACKAGE

1. Purpose

The City of Tampa has prepared the Design Criteria Package for RFQ: 25-C-00032 Design-Build Services related to Howard F. Curren AWTP Main Switchgear Facility Replacement and Standby Power Facility Improvements. It is the City's intent that the rehabilitation and improvements be accomplished through a progressive design-build approach and be completed through the development and execution of a Guaranteed Maximum Price (GMP) proposal. The City may, at its option, directly purchase certain products for use on this contract.

1.1 The scope shall include, but not be limited to the following:

- Preliminary design services that will include:
 - Evaluation and selection of equipment and manufacturers
 - Preliminary Equipment layout and site requirements
 - Preliminary requirements for geotechnical, structural, mechanical, HVAC, and electrical and control system improvements
 - Complete an assessment of the Standby Power Facility to identify, evaluate alternatives, and provide recommendations of needed improvements and upgrades
- Comprehensive design services of selected improvements
- Site planning
- Regulatory permitting
- Preconstruction Services with Development of Guaranteed Maximum Price (GMP) for Construction
- Construction of improvements, including the need for any demolition and rehabilitation of existing facilities
- Logistic sequencing for constructing improvements while maintaining plant operations
- Start-up and testing
- Operation and Maintenance manuals
- Training in the operation of the selected improvements
- Scheduling of all logistics
- Construction Management and Oversight
- Estimated Project Cost: \$35,000,000.00-\$45,000,000.00

1.2 This document provides the criteria for the design and construction of the replacement of the Main Switchgear Facility Replacement and Standby Power Facility Improvements. The intent is to list the minimum design-build criteria necessary for completing this project.

1.3 This package is not a specification or prescriptive checklist and is not intended to replace the professional judgment by a competent licensed professional engineer after coordination with the end-user and stakeholders of the City of Tampa.

Howard F. Curren AWTP Main Switchgear Facility Replacement and Standby Power Facility Improvements Design Criteria Package

1.4 Additionally, nothing in this document should preclude consideration and use of emerging technologies and commercially available products if they can be proven to result in a successful and satisfactory design for the replacement of the Main Switchgear and the improvements to the Standby Power Facility.

2. Design Criteria

2.1 The design is based on providing facilities and improvements that will meet the needs of the Wastewater Department to effectively and efficiently operate the Main Switchgear Facility, Standby Power Facility, and related treatment plant facilities. These needs are based on mission and operation requirements. The design should consider existing conditions and the current and future needs of the Department. It is imperative that the final designer and preparer of construction documents fully understand the operational requirements, permitting, site logistics and all related requirements to design the facility and improvements accordingly.

2.2 The existing Main Switchgear Facility for the Howard F. Curren AWTP is located in a walk-in enclosure. This enclosure houses two (2) individual switchgear line ups. Both of these line ups are rated for 2,000 Amperes at 13.2 KV, 3-phase, 3-wire and are currently designated as “Switchgear No. 1 West line up – ‘A’ Section” and “Switchgear No. 1 East line up – ‘B’ Section”.

Each switchgear line is provided with an individual 13.2 KV utility feeder from Tampa Electric Company (TECO). Each switchgear lineup is provided with standby power from the 13.2 KV generators located in the Standby Power Facility. The standby power is provided by two (2) 13.2 KV feeds, with each switchgear lineup being provided with an individual standby feeder protective relay. Each feeder is normally closed and there are twenty-two (22) protective relays for the utility service feeders and feeder circuits in Switchgear No. 1. In 2022, the protective relays were replaced.

The Switchgear No.1 west lineup also contains a circuit breaker that is tied directly to the Bus of the Switchgear No. 1 east lineup. While this circuit breaker is not capable of automatic operation, this configuration allows an operator to manually tie the switchgear if the need arises.

Upon the loss of a single utility power feeder, the undervoltage relay for the affected TECO circuit breaker will open the breaker and signal the Programmable Logic Controller (PLC) located in the Standby Power Facility. The PLC will then close the associated Switchgear No. 3 (Standby Power Facility) tie circuit breaker (3-52-Tie).

Upon the loss of both utility power feeders, the undervoltage relays for the TECO circuit breakers will open the breakers and signal the PLC located in the Standby Power Facility. The PLC will then call the generators to come online, close the standby feeder circuit breaker(s) in Switchgear No. 3.

On the east side of the Main Switchgear enclosure is a transformer structure which protects two (2) 13.2KV-4.16KV transformers which provide power to the Oxygen Generation Facility. These transformers are designated as “T-1A-1” and “T-1B-1”. Each of these transformers is rated as 3,000/3,360/4,200 KVA. Both transformers are provided with a 15KV rated disconnect switch on

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their primary side and a 4.16KV circuit on their secondary side. These transformers are planned to be replaced with the Oxygen Generation Facility replacement project.

The Standby Power Facility contains four (4) 2-megawatt Caterpillar diesel generators that are housed in an enclosed building. This facility was constructed in 1996. In 2024, a fifth diesel generator was added that is housed in a separate enclosure. A switchgear lineup, the generator controls and a PLC system are also housed in the Standby Power Facility. The 13.2 KV switchgear is designated as “SG-3” and is a ten section, 3-wire system with a 1,200 ampere bus. SG-3 contains each generator circuit breaker, a tie breaker, redundant feeds to the outdoor switchgear unit, redundant feeds to Switchgear “SG-3A” and a single emergency feeder to service the main sewage pumps. Adjacent to SG-3 are ten generator control sections which house the individual control sections for each generator and the associated circuit breaker controls. There is also a separate PLC control panel for controlling and monitoring the generator system. Apart from the replacement of an obsolete PLC system in 2017, the remaining controls are from the 1996 construction with only replacement of miscellaneous components over time.

- 2.3 The City recently completed a study to determine the preliminary requirements for replacing the Main Switchgear Facility and to evaluate alternatives for the location of the new facility. The results of this evaluation provided a recommended location for the new facility along with a conceptual switchgear lineup and a preliminary one-line diagram. The study also provided a preliminary maintenance of operations and construction sequencing plan. This study is provided in Attachment A. Design Build services shall include re-evaluating this study to determine final requirements for the project.
- 2.4 Design Build services shall include the design and construction of all mechanical, structural, civil, HVAC, architectural, and electrical and control system improvements for the new facility. The facility shall be designed to meet all building code and all other related code requirements. It is anticipated that the switchgear equipment will be housed within a concrete structure to protect the equipment.
- 2.5 The Design Build services shall include an arc flash assessment for selected electrical equipment and implementation of the safety measures needed to protect personnel from the potential Arc Flash Risks.
- 2.6 The Design Build team shall prepare and submit detailed construction plans and specifications at 60%, 90% and 100% phases. All drawings shall be produced in 3D (i.e. AutoCAD Civil 3D or Rivet as compatible for rendering) and shall be accurately georeferenced. Drawings shall meet the current Wastewater Department Drafting Standards.
- 2.7 The Design Build team will provide a GMP estimate at the 60% design phase and a final GMP after substantial completion of the design plans and specifications. The 60% GMP will be used to determine subcontracting opportunities.

3 Site Development Criteria

The Howard F. Curren AWTP is located at 2700 Maritime Blvd. The new Main Switchgear Facility will be located on the treatment plant site near the existing Main Switchgear Facility. The Design Build team shall be responsible for developing the final location and site requirements for the facility and for coordinating the location of the facility and related improvements with existing and planned facilities at the treatment plant.

4 Facilities Development Criteria

4.1 Conduct preliminary design services that will include the following:

- Evaluate options for the location and preliminary site layout for the new Main Switchgear Facility.
- Coordinate facility location with future transformer replacements, replacement of 13.2 KV feeders, and construction of the new Oxygen Generation Facility.
- Determine requirements and construction coordination to replace the 13.2 KV feeders.
- Provide conceptual physical size for the proposed 15KV Switchgear lineup.
- Provide a preliminary electrical one-line diagram.
- Determine requirements, size, location, preliminary routing of underground duct banks.
- Develop and evaluate options for construction sequencing needed to transfer the 13.2 KV power distribution circuits from the old switchgear to the new switchgear while maintaining continuous power to the treatment plant.
- Provide recommendations and descriptions of new equipment.
- Provide sizing, layout, and requirements for a new building to house the electrical equipment including geotechnical, site, structural, mechanical, HVAC, and architectural improvements.
- Complete an assessment of the Standby Power Facility to identify, evaluate alternatives, and provide recommendations of needed improvements and upgrades including coordinating these improvements with the replacement of the Main Switchgear Facility.
- Descriptions of the detailed design efforts by discipline.
- Permitting requirements.
- Preliminary cost estimate for selected improvements.

The City will evaluate the preliminary engineering information and will make a final selection of the required improvements that will be used for the final design.

4.2 Create final plans and specifications for the selected improvements that will include: Finalized Auto CAD and pdf drawings, technical specifications and pricing proposals developed to a GMP document with all associated exhibits (scope, pricing, qualifications). Present final design; site

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plan, site preparation, construction schedule, equipment purchases and placement, building permits and all required approvals from regulatory agencies and local authorities.

5 Environmental Criteria/Permitting

The Design Build team will be responsible for all required environmental testing and permitting needed to complete the project. The scope of these requirements will be determined by the Design Build team based on the selected improvements and construction requirements. At a minimum it is anticipated that the following tasks shall be completed:

- Determining needs and requirements for Environmental Resource Permitting and preparation of design, plan sets, permitting submittal, and responding to request for information (RFI's) to obtain permits for construction of the new facility.
- Performance of an Asbestos and Lead Paint survey. If the survey indicates any asbestos or lead paint that is designated to be removed, these items must be removed and disposed by a licensed contractor in accordance with Environmental Protection Commission (EPC) Standards.
- Preparation of plan sets, submittal, and responses to RFI's to obtain building permits for the construction of the new facility.

6 Project Management and Oversight

The Design Build team will be responsible for project management activities and oversight of the Main Switchgear Facility replacement and Standby Power Facility improvements with consistent coordination with the City during the design and construction portions. The contractors utilized for the project shall have the suitable personnel and equipment, resources, financial stability and experience to accomplish the Project requirements and objectives.

7 Start-up/Operations/Training

7.1 The Design Build team shall provide start-up of the new Main Switchgear Facility and Standby Power Facility improvements. The City will continue to operate the existing facilities during the construction of the new facility and improvements. The Design Build team will be completely responsible to ensure the construction of new facility and improvements do not interfere or interrupt the operation the treatment plant. The City will not take over operation and maintenance of the new facility or improvements until the project is substantially complete as determined by the City.

7.2 The Design Build team shall provide detailed Operation and Maintenance (O&M) Manuals to the City for review and approval. Upon approval, an electronic copy and a specific number of hard copies of the O&M manuals will be required. The actual quantity and specific format of the O&M manuals will be clearly defined during the design phase of the project. Specific equipment information will also need to be compiled through the City's Asset Tracking form and conveyed

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to the City so that the equipment's asset data can be entered in the City's Maintenance Management System.

7.3 The Design Build team shall provide AutoCAD as-builts drawings accurately depicting the as-built conditions of the facility and other improvements constructed during the project. Hard copies of the as-built drawings will also be required as will be determined during the design phase.

7.4 The Design Build team shall provide all Training on the equipment necessary for the proper maintenance and operation of the facility. The specific training requirements and equipment requiring training will be provided during the final design phase of the project.



Instructions for completing The Sub- (Contractor's/Consultants/ Suppliers) Solicited Form
(DMI 10 Form)

This form must be submitted with all bids or proposals. All subcontractors (regardless of ownership or size) solicited and subcontractors from whom unsolicited quotations were received must be included in this form. The instructions that follow correspond to the headings on the form required to be completed. **Note:** Ability or desire to perform all work shall not exempt the prime from Good Faith Efforts to achieve participation.

Contract No. This is the number assigned by the City of Tampa for the proposal.

- **Contract Name.** This is the name of the contract assigned by the City of Tampa for the bid or proposal.
- **Contractor Name.** The name of your business and/or doing business as (dba), if applicable.
- **Address.** The physical address of your business.
- **Federal ID.** FIN. A number assigned to your business for tax reporting purposes.
- **Phone.** Telephone number to contact the business.
- **Fax.** Fax number for business.
- **Email.** Provide email address for electronic correspondence.
- **No Firms were contacted or solicited for this contract.** Checking the box indicates that a pre-determined Subcontract Goal or Participation Plan Requirement was not set by the city, resulting in your business not using subcontractors and will self-perform all work. If, during the performance of the contract, you employ subcontractors, the City must pre-approve subcontractors. Use of the “Sub-(Contractors/Consultants/Suppliers) Payments” form (DMI 30 Form) must be submitted with every pay application and invoice. **Note:** Certified SLBE firms bidding as Primes are not exempt from outreach and solicitation of subcontractors.
- **No Firms were contacted because.** Provide a brief explanation of why no firms were contacted or solicited.
- **See attached documents.** Check the box if, after you have completed the DMI Form in its entirety, you need more space to list additional firms and/or if you have supplemental information/documentation relating to the form. All DMI data not submitted on the DMI 10 Form must be in the same format and include all the requested data from the DMI 10 Form.

The following instructions are for the information of all subcontractors solicited.

- **“S” = SLBE.** Enter “S” for firms Certified by the City as Small Local Business Enterprises; **“O” = non-certified others.**
- **Federal ID.** FIN. A number assigned to a business for tax reporting purposes. This information is critical in the proper identification and payment of the contractor/subcontractor.
- **Company Name, Address, Phone & Fax.** Provide company information for verification of payments.
- **Trade, Services, or Materials** indicate the trade, service, or materials provided by the subcontractor. NIGP codes, aka “National Institute of Governmental Purchasing,” are listed in the top section of the document.
- **Contact Method L=letter, F=fax, E=Email, P=Phone.** Indicate with a letter the method(s) of soliciting for bids.
- **Quote or Resp. (response) Rec’d (received) Y/N.** Indicate “Y” Yes if you received a quotation or if you received a response to your solicitation. Indicate “N” No if you received no response to your solicitation from the subcontractor. Must keep records: log, ledger, documentation, etc. that can validate/verify.

If additional information is required or you have questions, please contact the Equal Business Opportunity Program - Office of Equal Business Opportunity at (813) 274-5522

Failure to Complete, Sign, and Submit Forms 10, 20, & 50 MAY render the Bid or Proposal Non-Responsive

**Page 1 of 2 – DMI Solicited/Utilized Schedules
 City of Tampa – Schedule of All To-Be-Utilized Sub-(Contractors/Consultants/Suppliers)
 (DMI 20 Form)**

Contract No.: _____ Contract Name: _____
 Company Name: _____ Address: _____
 Federal ID: _____ Phone: _____ Fax: _____ Email: _____

Check applicable box(es). Detailed Instructions for completing this form are on page 4 of 4.

[] See attached list of additional Firms Utilized and all supplemental information (List must comply with this form)

Note: Form DMI-20 must list ALL subcontractors To-Be-Utilized.

[] No Subcontracting/consulting (of any kind) will be performed on this contract.

[] No Firms are listed to be utilized because: _____

NIGP Code General Categories: Buildings = 909, General = 912, Heavy = 913, Trades = 914, Architects = 906, Engineers & Surveyors = 925, Supplier = 912-77

← Enter "S" for firms Certified as Small Local Business Enterprises: "O" for Other Non-Certified

S = SLBE O =Neither Federal ID	Company Name Address Phone, Fax, Email	Trade, Services or Materials NIGP Code Listed above	\$ Amount of Quote. Letter of Intent (LOI) if available	Percent of Scope or Contract %

Total ALL Subcontract / Supplier Utilization \$ _____

Total SLBE Utilization \$ _____

Percent SLBE Utilization of Total Bid/Proposal Amt. _____%

It is hereby certified that the following information is a true and accurate account of utilization for sub-contracting opportunities on this Contract.

Signed: _____ Name/Title: _____ Date: _____

**Failure to Complete, Sign and Submit Forms 10, 20, & 50 MAY render the Bid or Proposal Non-Responsive Forms
 must be included with Bid / Proposal**

Page 2 of 2 DMI – Solicited/**Utilized**

Instructions for completing The Sub- (Contractor's/Consultants/ Suppliers) to be Utilized Form
(DMI 20 Form)

This form must be submitted with all bids or proposals. All subcontractors (regardless of ownership or size) projected to be utilized must be included in this form.

- **Contract No.** This is the number assigned by the City of Tampa for the proposal.
- **Contract Name.** This is the name of the contract assigned by the City of Tampa for the bid or proposal.
- **Contractor Name.** The name of your business and/or doing business as (dba) if applicable.
- **Address.** The physical address of your business.
- **Federal ID.** FIN. A number assigned to your business for tax reporting purposes.
- **Phone.** Telephone number to contact the business.
- **Fax.** Fax number for business.
- **Email.** Provide email address for electronic correspondence.
- **No Subcontracting/consulting (of any kind) will be performed on this contract.** Checking the box indicates your business will not use subcontractors when no Subcontract Goal or Participation Plan Requirement was set by the city but will self-perform all work. When subcontractors are utilized during the performance of the contract, the "Sub-(Contractors/Consultants/Suppliers) Payments" form (DMI 30 Form) must be submitted with every pay application and invoice. Note: Certified **SLBE firms** bidding as Primes **are not exempt** from outreach and solicitation of subcontractors, including completion and submission of Form-10 and Form-20.
- **No Firms listed To-Be-Utilized.** Check box: provide a brief explanation why no firms were retained when a goal or participation plan requirement was set on the contract. **Note: Mandatory compliance with Good Faith Effort outreach (GFCEP) requirements applies (DMI 50 Form), and supporting documentation must accompany the bid.**
- **See attached documents.** Check the box if, after completing the DMI Form in its entirety, you need more space to list additional firms and/or if you have supplemental information/documentation relating to the scope/value/percent utilization of subcontractors. Reproduce copies of DMI-20 and attach. All data not submitted on duplicate forms must be in the same format and content as specified in these instructions.

The following instructions are for the information of all subcontractors To Be Utilized.

- **Federal ID.** FIN. A number assigned to a business for tax reporting purposes. This information is critical in the proper identification of the subcontractor.
- **"S" = SLBE,** enter "S" for firms Certified by the City as Small Local Business Enterprises; **"O" = non-certified others.**
- **Company Name, Address, Phone & Fax.** Provide company information for verification of payments.
- **Trade, Services, or Materials (NIGP code if known).** Indicate the trade, service, or material provided by the subcontractor. Abbreviated list of NIGP is available at <http://www.tampagov.net/DMI> "Information Resources".
- **Amount of Quote, Letters of Intent** (required for SLBEs).
- **Percent of Work/Contract.** Indicate the percentage of the total contract price the subcontract(s) represent. For CCNA only (i.e., Consultant A/E Services), you must indicate subcontracts as a percentage of the total scope/contract.
- **Total Subcontract/Supplier Utilization.** – Provide the total dollar amount of all subcontractors/suppliers projected to be used for the contract. (Dollar amounts may be optional in CCNA depending on solicitation format).

- **Total SLBE Utilization.** Provide the total dollar amount for all projected SLBE subcontractors/Suppliers used for this contract. (Dollar amounts may be optional in CCNA proposals depending on the solicitation format).
- **Percent SLBE Utilization.** Total amount allocated to SLBEs divided by the total bid/proposal amount.

If additional information is required or you have questions, please contact the Equal Business Opportunity Program - Office of Equal Business Opportunity at (813) 274-5522.

Good Faith Effort Compliance Plan (GFECF) Guidelines

for Small Local Business Enterprise Participation
City of Tampa - Equal Business Opportunity Program
(DMI 50 Form – See detailed instructions on page 3 of 3)

Contract Name _____ Bid Date _____
Bidder/Proposer _____
Signature _____ Date _____
Name _____ Title _____

The Compliance Plan with attachments is a true account of Good Faith Efforts (GFE) made to achieve the participation goals as specified for Small Local Business Enterprises (SLBE) on the referenced contract:

- SLBE participation **Goal is Not Specified for this Solicitation** however participation is aspirational and GFECF is required.
- SLBE participation **Goal is Met or Exceeded** (refer to Goal-Set DMI-90 Form).
- SLBE participation Goal is **Not Fully Achieved** (refer to Goal-Set DMI-90 Form).

For each checkbox above Bidders/Proposers shall submit DMI Forms 10 and 20 which accurately report all subcontractors solicited and all subcontractors to-be-utilized. The following list is an overview of the required baseline GFECF action steps for all bids/proposals. Furthermore, it is understood that these GFECF requirements are weighted in the compliance evaluation based on the veracity and demonstrable degree of documentation provided with the bid/proposal:

(Check applicable boxes below - Must enclose supporting documents accordingly with Qualifying Remarks)

- (1) Solicited through reasonable and available means the interest of SLBEs that have the capability to perform the work of the contract. The Bidder or Proposer must solicit this interest within enough time to allow the SLBEs to respond. The Bidder or Proposer must take appropriate steps to follow up initial solicitations with interested SLBEs. **See DMI report forms for subcontractors solicited.** **See enclosed supplemental data on solicitation efforts.**
 - Qualifying Remarks**
- (2) Provided interested SLBEs with adequate, specific scope information about the plans, specifications, and requirements of the contract, including addenda, in a timely manner to assist them in responding to the requested scope identified by bidder/proposer for the solicitation. **See enclosed actual solicitations used.**
 - Qualifying Remarks**
- (3) Negotiated in good faith with interested SLBEs that have submitted bids (e.g. adjusted quantities or scale). Documentation of negotiation must include the names, addresses, and telephone numbers of SLBEs that were solicited; the date of each such solicitation; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why agreements could not be reached with SLBEs to perform the work. Additional costs involved in soliciting and using subcontractors is not a sufficient reason for a bidder/proposer's failure to meet goals or achieve participation, as long as such costs are reasonable. Bidders are not required to accept excessive quotes in order to meet the goal.
 - DMI Utilized Forms for sub-(contractor/consultant) reflect genuine negotiations** **This project is an RFQ/RFP in nature and negotiations are limited to clarifications of scope/percentages, specifications, qualifications and subs fee schedules.**
 - See enclosed documentation.**
 - Qualifying Remarks**
- (4) Not rejecting SLBEs as being unqualified without justification based on a thorough investigation of their capabilities. The SLBEs standing within its industry, membership in specific groups, organizations / associations and political or social affiliations are not legitimate causes for rejecting or not soliciting bids to meet the goals.
 - Not applicable.** **See attached justification for rejection of a subcontractor's bid or proposal.** **Qualifying Remarks**
- (5) Made scope(s) of work available to SLBE subcontractors and suppliers; and, segmented portions of the work or material consistent with the available SLBE subcontractors and suppliers, to facilitate meeting the goal. **In addition, Sub-Contractors could bid on their own choice of work or trade without restriction to a pre-determined portion.** **See enclosed comments.** **Qualifying Remarks**
- (6) Made good faith efforts, despite the ability or desire of Bidder/Proposer to perform the sub-tasks of a contract with its

own forces/organization. A Bidder/Proposer who desires to self-perform the sub-tasks of a contract must demonstrate good faith efforts if the goal has not been met. **Sub-Contractors were not prohibited from submitting bids/proposals and were solicited on work typically self-performed by the prime.** **Qualifying Remarks w/Documents**

- (7) Segmented the portions of the work to be performed by SLBEs in order to increase the likelihood that the goals will be met. This includes, where appropriate, breaking out contract work items into economically feasible units (quantities/scale) to facilitate SLBE participation, even when the Bidder/Proposer might otherwise prefer to perform these work items with its own forces. **Sub-Contractors could bid on their own choice of work or trade without restriction to a pre-determined portion.** **Sub-Contractors were not prohibited from submitting bids/proposals and were solicited on work typically self-performed by the prime.** **See enclosed comments.** **Qualifying Remarks**
- (8) Made efforts to assist interested SLBEs in obtaining bonding, lines of credit, or insurance as required by the City or contractor. **See enclosed documentation on initiatives undertaken and methods to accomplish.** **Qualifying Remarks**
- (9) Made efforts to assist interested SLBEs in obtaining necessary equipment, supplies, materials, or related assistance or services, including participation in an acceptable mentor-protégé program. **See enclosed documentation of initiatives and/or agreements.** **Qualifying Remarks**
- (10) Effectively used the services of the City and other organizations that provide assistance in the recruitment and placement of SLBEs. **See enclosed documentation of services engaged.** **Overview (attached) of tactical actions and resources employed toward recruitment**

Note: Any unsolicited information in support of your Bid/RFP Compliance must accompany your submittal. **Identify Information Submitted**



Participation Plan: Guidance for Complying with Good Faith Efforts Outreach (page 3 of 3)

- (1) All firms on the SLBE Goal Setting List must be solicited and documentation provided for email, fax, letters, phone calls, and other methods of outreach/communication with the listed firms. The DMI Solicited and DMI-Utilized forms must be completed for all firms solicited and all firms utilized. Other opportunities for subcontracting should be explored to attain participation. May consult Tampa EBO Office and/or research the online Data Management Business System Directory for Tampa certified SLBE firms.
- (2) Solicitation of SLBEs, via written or electronic notification, should provide specific information on the services needed, where plans can be reviewed and assistance offered in obtaining these, if required. Solicitations should be sent a minimum of a week (i.e. 5 city business days or more) before the bid/proposal date. Actual copies of the bidder's solicitation containing their scope-specific instructions should be provided.
- (3) With any quotes received, a follow-up should be made when needed to confirm detail scope of work. For any SLBE low quotes rejected, an explanation shall be provided detailing negotiation efforts.
- (4) If a low bid SLBE is rejected or deemed unqualified the contractor must provide an explanation and supporting documentation for this decision.
- (5) Prime shall break down portions of work into economical feasible opportunities for subcontracting. The SLBE directory may be useful in identifying additional subcontracting opportunities and certified firms not listed in the "SLBE Goal Setting Firms Contact List."
- (6) Contractor shall not preclude SLBEs from bidding on any part of work, even if the Contractor may desire to self-perform aspects of the work.
- (7) Contractor shall avoid relying solely on subcontracting those scopes of work where SLBE availability is not sufficient to attain pre-determined goals; including RFP/RFQ solicitations, all of which require GFECF compliance to achieve sub-consultant participation.
- (8) In its solicitations, the Bidder should offer assistance to SLBEs in obtaining bonding, insurance, et cetera, if required of subcontractors by the City or Prime Contractor.
- (9) In its solicitation, the Bidder should offer assistance in obtaining equipment for a specific job to SLBEs, if needed. This includes mobilization where applicable.
- (10) Contractor should use the services offered by such agencies as the Small Business Development Center (SBDC) @ University South Fla.; SBDC @ Hillsborough County Entrepreneur Collaborative Center; Hillsborough NAACP Empowerment Center; Hillsborough County Economic Development Department DM/DWBE/SBE Program and Prospera-Hispanic Business Assoc. to name a few for the recruitment and placement of available SLBEs.

RFQ TRANSMITTAL MEMORANDUM FOR A SUBMITTAL TO THE CITY OF TAMPA

TRANSMITTAL DATE: _____

RFQ NO. & TITLE: 25-C-00032 HFCAWTP Main Switchgear Replacement Design-Build

TO: Brad L. Baird, P. E., Chairman Selection & Certification Committee (CCNA) c/o Contract Administration Department via ContractAdministration@tampagov.net 306 East Jackson Street, 4th Floor North, Tampa, Florida 33602

SUBMITTER ("Firm") NAME:

FEDERAL TAX ID#: _____

FIRM TYPE: Corporation Limited Liability Company Individual/Sole Proprietor
Joint Venture (JV) Partnership (PN) Other:

FIRM CONTACT NAME:

EMAIL:

PHONE:

CERTIFICATIONS:

Firm is licensed, permitted, and certified as required to do business in Florida: Yes No

License/registration/certification number(s):

Per §287.133, Fla. Stat., individuals or entities (including those meeting the §287.133, Fla. Stat. definition of "affiliate") placed on the convicted vendor list ("List") following a conviction for public entity crimes may not submit a bid, proposal, or reply ("Response") on a contract to provide any goods or services to a public entity, may not submit a Response on a contract with a public entity for the repair or construction of a public building or public work, may not submit a Response for leases of real property to a public entity, and may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity; and may not transact business with any public entity in excess of the threshold amount provided in

§287.017, Fla. Stat. for CATEGORY TWO for a period of 36 months from the date of placement on the List. Neither Firm nor its affiliates have been placed on the List: Yes No

Pursuant to Tampa Code Section 2-284; Bidder's Criminal History Screening Practices("Ban-The-Box"), the Firm hereby;

declines incentive points and attaches no documentation applies for incentive points and attaches all the required documentation.

Firm shall comply with all applicable governmental rules & regulations, including the City's Ethics Code (Sec. 2- 522, Tampa Code). The City's Charter & Ethics Code prohibit any City employee from receiving any substantial benefit or profit out of any award or obligation entered into with the City, or from having any direct or indirect financial interest in effecting any such award or obligation. If Firm is successful, it shall ensure no City employee receives any such benefit or interest as a result of such award (See Sec.2-514(d), Tampa Code): Yes No

Firm is not in arrears and is not in default upon any obligation to the City of Tampa: Yes No

Firm does not use coercion for labor or services as defined in Section 787.06, F.S.

Firm agrees that if the City of Tampa determines Firm has participated in any collusive, deceptive, or fraudulent practices with regard to this submittal, in addition to any other remedy it may exercise, the City will have the right to debar Firm and deem invalid any contract let under such circumstances: Yes No

Data or material Firm asserts to be exempted from public disclosure under Chapter 119, Fla. Stat., is submitted in a separate, single electronic searchable PDF file labeled with the above RFQ number and the phrase "Confidential Material", which identifies the data/material to be protected, states the reasons the data/material is exempt from public disclosure, and the specific Florida statute allowing such exemption (if "No" or otherwise, then Firm waives any possible or claimed exemption upon submission, effective at opening): Yes No

FAILURE TO COMPLETE THE ABOVE MAY RESULT IN FIRM'S SUBMITTAL BEING DECLARED NON-RESPONSIVE

Authorized Signature :

Printed Name:

Title:

(attach proof of authority)

ATTACHMENT A



Howard F. Curren AWTP – Master Plan Improvements: Main Switchgear Facility Replacement

Final Technical Memorandum

City Project No. 20-C-00001

Reliable Tampa Partner Project No. 22-500

Hazen and Sawyer Project No. 41077-013 Task 251

September 6, 2023



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Figure 1: Main Switchgear Building and Transformer Structure Location Site Plan

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- Appendix B: Switchgear Elevations
- Appendix C: Preliminary One Line Diagram
- Appendix D: Main Switchgear Building Layout
- Appendix E: Future Transformer Structure Layout
- Appendix F: Proposed Manhole Modifications and Ductbank Additions
- Appendix G: Proposed Feeder Installation
- Appendix H: Record Drawings of Items to be Replaced
- Appendix I: Site Visit Summary
- Appendix J: Cost Estimate

1. Introduction

The Howard F. Curren Advanced Wastewater Treatment Plant (HFC AWTP) is permitted to treat 96 mgd of raw sewage with a Type I two-stage, high rate (pure oxygen and conventional fine bubble aeration) activated sludge biological process. This plant is operated to reduce the Total Nitrogen (TN) in the effluent to advanced standards, using biological treatment for nitrification and filtration for denitrification, and to discharge high-level disinfected and dechlorinated effluent to Tampa Bay. Residuals generated by this facility are anaerobically digested and dewatered for land application as a Class B residual. Currently, annual average daily flows are approximately 60 mgd and peak flows are approximately 200 mgd.

The rehabilitation to the HFC AWTP will consist of the implementation of improvements identified in the Facility Master Plan Capital Improvement Project List for Fiscal Years 0-5 to maintain system reliability, increase operating efficiency, and meet current and future regulatory requirements.

This TM details the improvements associated with the Main Switchgear Facility Replacement at the HFC AWTP identified under Task 251.

1.1 Background

High voltage 13.2KV power is provided to the Howard F. Curren Advanced Wastewater Treatment Plant (HFC AWTP) by Tampa Electric Company (TECO). TECO delivers the 13.2KV power directly to the HFC AWTP Main Switchgear Building (Building 044). The Main Switchgear then distributes the power throughout the HFC AWTP via 13.2KV feeders.

On the East side of the Main Switchgear Building is a Transformer Structure that houses transformers, disconnects and circuit breakers which provide 4.16KV power to the Oxygen Generation Facility.

Both of these structures were constructed in 1973 (division 4H-4 and at City Datum elevation of 11.0 (NAVD 88 = 9.97).

Other items that should be noted include:

- There is an ongoing project for replacing the protective relays in the Switchgear Building.
- The Main Switchgear replacement will be required to be coordinated with the replacement of the medium voltage cables.
- The Transformer Structure needs to be coordinated with the replacement of the Oxygen Generation Facility.

A location plan for the Main Switchgear Building and Transformer Structure is presented as Figure 1 on the following page.

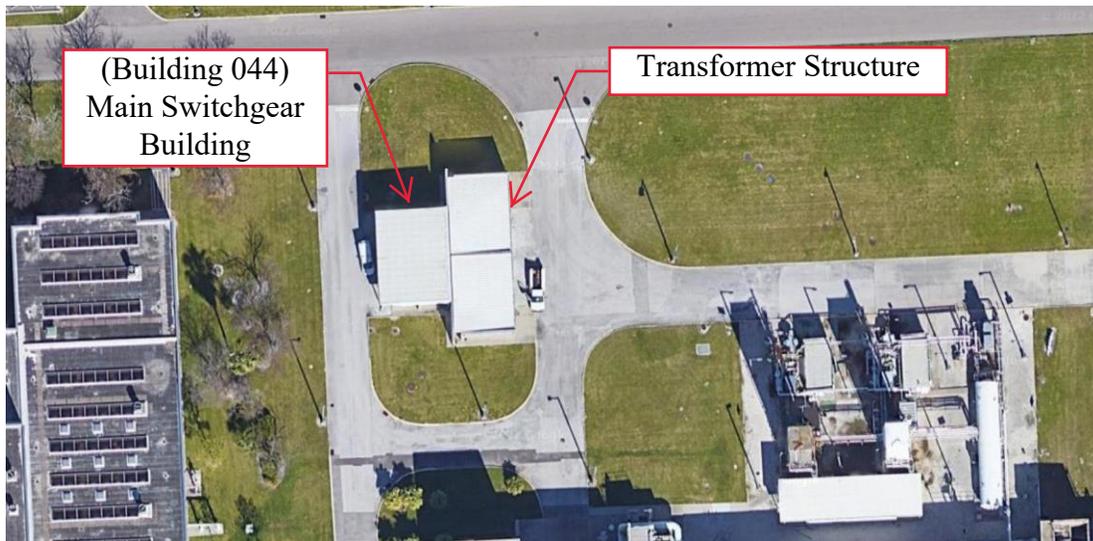


Figure 1: Main Switchgear Building and Transformer Structure Location Site Plan

1.2 Project Objectives

This TM evaluates the requirements for replacement of the Main Switchgear Building, which includes:

- Providing proposed options for the location and preliminary site layout for the new Main Switchgear Building.
- Providing proposed options for the location and preliminary site layout for a future Transformer Structure. The Transformer Structure layout and location will be reevaluated during the design of the HPO generation system.
- Providing a conceptual physical size for the proposed 15KV Switchgear Lineup.
- Providing a preliminary electrical one-line diagram.
- Determining the size, location and preliminary routing of new underground ductbank.
- Consideration of the construction sequencing that will be required to transfer the 13.2KV power distribution circuits from the old Switchgear to the new Switchgear.
- A recommendation and description of new equipment.
- Descriptions of the detailed design efforts by discipline.
- Preliminary construction cost estimate.

2. Existing Structures and Equipment Summary

2.1 Overview

The existing Main Switchgear Building for the Howard F. Curren Advanced Wastewater Treatment Plant (HFC AWTP) is located in a walk-in enclosure designated as Building 044. This enclosure houses two (2) individual switchgear line ups. Both of these line ups are rated for 2,000 Amperes at 13.2KV, 3-phase, 3-wire and are currently designated as “Switchgear No. 1 West line up – ‘A’ Section” and “Switchgear No. 1 East line up – ‘B’ Section”.

Each switchgear line up is provided with an individual 13.2KV utility feeder from Tampa Electric Company (TECO). Each switchgear line up is provided with standby power via the 13.2 KV generators located in the Standby Power Facility (Building 078). The standby power is provided via two (2) 13.2 KV feeders, with each switchgear line up being provided with an individual standby feeder. Each feeder circuit breaker is Normally Closed (N.C.)

The Switchgear No. 1 West line up also contains a circuit breaker that is tied directly to the Bus of the Switchgear No. 1 East line up. While this circuit breaker is not capable of automatic operation, this configuration allows an operator to manually tie the two switchgear line ups together if the need arises.

Upon a loss of a single utility power feeder, the undervoltage relay for the affected TECO circuit breaker will open the breaker and signal the Programmable Logic Controller (PLC) located in the Standby Power Facility. The PLC will then, in turn, close the associated Switchgear No. 3 (Standby Power Facility) tie circuit breaker (3-52-Tie).

Upon a loss of both utility power feeders, the undervoltage relays for the TECO circuit breakers will open the breakers and signal the Programmable Logic Controller (PLC) located in the Standby Power Facility. The PLC will then, in turn, call generator(s) to come on-line, close the standby feeder circuit breaker(s) in Switchgear No. 3 (Standby Power Facility).

On the East side of the Main Switchgear enclosure is a Transformer Structure which protects two (2) 13.2KV-4.16KV transformers which provide power to the Oxygen Generation Facility. These transformers are designated as 'T-1A-1' and T-1B-1'. Each of these transformers is rated as 3,000/3,360/4,200KVA. Both transformers are provided with a 15KV rated disconnect switch on their primary side and a 4.16KV circuit breaker on their secondary side.

2.1.1 On Site Equipment Evaluation

During the electrical site visit on March 25, 2022 City of Tampa staff noted that the Main Switchgear showed signs of corrosion and aging. It was also noted that due to the vintage of the Switchgear, replacement parts were difficult to obtain and/or were extremely expensive. As the Main Switchgear was part of the original HFC AWTP construction, it was determined that the Main Switchgear should be replaced.

2.2 General Design Requirements

In determining a proposed location and preliminary site layout for the new Main Switchgear Building, the following requirements were considered:

- The physical space required for the new Main Switchgear Building.
- The exterior area required for the future Transformer Structure and the associated equipment that will be required to serve the Oxygen Generation Facility.
- Provisions for the access that will be required to the structures, as they will be elevated to meet flood plain requirements.
- Consideration of the construction sequencing that will be required to transfer the 13.2KV power distribution circuits from the old Switchgear to the new Switchgear.
- Avoiding conflicts with existing utilities, existing electrical ductbank, existing electrical manholes and existing TECO feeders.

2.3 Siting Options

2.3.1 Existing Site Constraints

The existing utilities are represented on all proposed site locations. These existing utilities were avoided to the greatest extent possible.

The plans developed in this TM are from the best record drawings and utility information available. Before actual construction documents are developed, the areas should be surveyed and all underground utilities should be located.

The area located between the existing Switchgear Building (044) and the Standby Power Facility (078) contains existing electrical manholes, electrical ductbank and utilities. Attempting to construct the proposed facilities in the area already occupied by the existing manholes and existing electrical ductbank would increase cost and system downtime exponentially. The options presented avoid all existing manholes and ductbank while avoiding the existing utilities were possible.

The TECO distribution feeders should also be avoided. The sequence of construction for these facilities is based on having the existing TECO feeders providing power to the existing Main Switchgear Building for a period of time during construction. Any proposed construction involving the existing TECO feeders would also require coordination with TECO. As all details for the Main Switchgear Building have not been fully developed, it was decided that coordination with TECO at this juncture would be premature.

2.3.2 Option 1

Option 1 was developed with all the aforementioned requirements considered.

The preliminary drawing for Option 1 is presented in Appendix A - Main Switchgear Building Site Layout Option 1.

Under this option, the new Main Switchgear Building would be located just to the northeast side of the existing Main Switchgear Building. The future Transformer Structure would be located east of the existing Switchgear Building, on the south side of the access road. The Transformer Structure layout and location will be reevaluated during the design of the HPO generation system.

Once the preliminary size of both the Main Switchgear Building and the future Transformer Structure were developed, it was determined that the locations noted above would avoid:

- The existing TECO 13.2KV distribution feeders (the new Main Switchgear Building would be east of these lines).
- The existing ductbank and manholes that are north of the access road (the new Main Switchgear Building location would be southwest of these structures and would not conflict with these structures).
- The existing ductbank and manholes that are east of the existing Main Switchgear Building and west of the Standby Power Facility (the future Transformer Structure would be between these obstacles).

2.3.3 Option 2

In an effort to develop any other reasonable site options, the concept of locating the new Main Switchgear Building on the north side of the access road was developed.

A proposed site plan for Option 2 is presented in Appendix A - Main Switchgear Building Site Layout Option 2.

Under this option, it was envisioned that the new Main Switchgear Building would be located on the north side of the northernmost access road. The future Transformer Structure would be proposed to remain as located under Option 1.

The City has determined that construction on the north side of the access road is not desirable. Option 2 therefore is not a valid option and will be disregarded.

2.3.4 Recommendations

Option 1 represents the best solution regarding the location of the proposed structures. The proposed location:

- Can accommodate the required structure sizes.
- Confines new construction to the south side of the north access road.
- Avoids all the existing underground electrical ductbanks and manholes.
- Avoids the existing TECO distribution feeders.
- Allows for proper access to the structures.
- Simplifies the sequencing required for construction of structures.
- Simplifies the sequencing that will be required to transfer the 13.2KV power distribution circuits from the old Switchgear to the new Switchgear.

3. Discipline Design Criteria

3.1 General (non-Electrical disciplines)

The following items will require design efforts from other disciplines:

- Civil Design
- Architectural Design
- Structural Design
- HVAC Design
- Controls and SCADA Design

Redundant HVAC equipment has been provided to ensure a single HVAC equipment failure will not cause elevated temperatures within the building. It is not anticipated that the heat load of the new 15KV switchgear lineups will be excessive. The preliminary estimation for the switchgear would not exceed 12,000 Watts, with the remaining equipment producing no more than 4,000 Watts of rejected heat.

3.2 Electrical

The proposed Main Switchgear Building layout is provided in Appendix D. This layout provides sufficient room for switchgear maintenance and safe working distances. The layout also provides separate space for non-switchgear related activities, as well as, physical protection for remote operation of any circuit breaker. The layout also reflects the required access stairs, as the proposed building will be elevated to meet flood plain requirements.

An individual 125V DC control power system has been provided for each switchgear lineup. These units will incorporate AGM battery technology and be equipped with battery chargers and 125V DC distribution equipment.

An individual Remote Breaker Control Panel (RBCP) has also been provided for each switchgear unit to allow for manual operation of the circuit breakers.

Each switchgear unit will also be provided with a step-down transformer in order to allow for redundant 480V power to be utilized by the building's ancillary equipment.

3.2.1 Conceptual Physical Size for the Proposed Switchgear Lineup

The physical size of both the switchgear lineups (South Lineup – 'A' Section and North Lineup – 'B' Section) are provided in Appendix B (Switchgear Elevations). The individual cubicle sizes are a function of the proposed Schneider Electric 15KV switchgear product. Each cubicle is 36" wide and each section is 95-1/8" tall. The protection relays and controls will be mounted at a readily accessible height.

The width of each switchgear line up was derived from utilizing a tandem breaker line up, where each cubicle has two circuit breakers (one above and one below). The total number of cubicles was a function of providing an individual circuit breaker for each 15KV circuit while also allowing a cubicle for a step-down transformer (a 13.2KV delta-480V wye, 3-phase), auxiliary cubicles, as well as, spare spaces for future expansion. The total width of each switchgear lineup is 288".

3.2.2 Preliminary One Line Diagram

A preliminary one line diagram is provided as Appendix C. This one line diagram reflects the requirement for providing an individual circuit breaker for each distribution feeder and the redundant 480V transformers to be utilized by the building.

3.2.3 Future Transformer Structure Layout

The proposed future Transformer Structure layout is provided in Appendix E. This layout essentially mimics the current layout, as it was determined that the current structure provides sufficient room for the required equipment. The 'T-1A-1' transformer and associated equipment will be surrounded on 3 sides by concrete walls, with transformer 'T-1B-1' and associated equipment mirrored on the other side. The Transformer Structure layout and location will be reevaluated during the design of the HPO generation system.

The layout may be amended to eliminate the concrete walls, but this determination shall occur at a time when the Transformer Structure is actually designed.

Due to the weight of the transformers and ancillary equipment, a driveway will be provided to accommodate a boom truck that would be necessary to remove or install equipment. The layout also reflects the required access stairs, as the proposed building will be elevated to meet flood plain requirements.

3.2.4 Description of New Equipment

3.2.4.1 *Main Switchgear Building Equipment*

- Each proposed switchgear lineup will consist of a 15KV rated unit with 2,000 Ampere buses in NEMA 1 enclosures. The proposed gear will be MasterClad type as manufactured by Square –D. Each feeder circuit breaker will be provided with Schweitzer Engineering Laboratories (SEL) feeder protection relay. Each relay will be provided with an ABB FT1 switch assembly. The units will be provided with SEL RTAC Real Time Automation Controllers. Each switchgear lineup will be provided with a 13.2KV delta-480V wye, 3-phase, 4-wire transformer. These transformers will be used to provide redundant 480V power to be utilized for the Main Switchgear Building’s ancillary equipment.
- Each switchgear lineup will be provided with an individual 125V DC control power system. These units will be provided with Absorbent Gas Mat (AGM) batteries sized as required to provide adequate power for the switchgear controls. Each unit will be provided with a battery charger sized to provide adequate charging of the AGM batteries. The units will also be provided with a distribution panel to transfer the 125V DC power from the battery power system to the switchgear.
- A 480V, 3-pole voltage-seeking Automatic Transfer Switch (ATS) will be provided to transfer power from the redundant 480V power transformers to the low voltage power systems required to support the Main Switchgear Building’s ancillary equipment.
- In order to avoid any hazards during an arc flash event, a Remote Breaker Control Panel (RBCP) will be provided for each switchgear lineup. The RBCP’s will be provided with selector switches and pilot lights to allow the operators to safely open and close the circuit breakers from a remote location.
- A 480V-120/208V, 3-phase transformer will be installed to provide 120V power for the Main Switchgear Buildings 120V circuits.
- A 120/208V, 3-phase panelboard will be provided to distribute the required 120V power.
- SCADA monitoring and control equipment will be provided for monitoring of the 15KV system from the Main Switchgear Building.
- Interior and exterior lighting, emergency lighting and exit signs will be via LED fixtures.
- Redundant AC units will be provided to condition the interior space of the new Main Switchgear Building.

3.2.4.2 Future Transformer Structure Equipment

Note: The Transformer Structure layout and location will be reevaluated during the design of the HPO generation system.

- A new 13.2KV-4.16KV, 3,000/3,360/4,200KVA, 3-phase transformer designated ‘T-1A-1’ shall be installed to provide 4.16KV power to circuit ‘1H1A1’. Neutral grounding resistors will be provided as determined by the short circuit studies that will be required during design.
- A new 13.2KV-4.16KV, 3,000/3,360/4,200KVA, 3-phase transformer designated ‘T-1B-1’ shall be installed to provide 4.16KV power to circuit ‘1H1B1’.
- Each transformer will be provided with a 15KV, 3-pole disconnect switch. These switches shall be utilized to provide a means to disconnect 15KV power from the primary of the associated transformer.
- Each transformer will be provided with a 4.16KV, 3-pole circuit breaker. These circuit breakers shall be utilized to provide protection of the secondary of the associated transformer.

4. Preliminary Maintenance of Plant Operations Plan and Proposed Construction Sequencing

4.1 Main Switchgear Building and Future Transformer Structure

Option 1 will require modification to existing sanitary, irrigation and water lines. These conflicts are shown in Appendix A - Main Switchgear Building Site Layout Option 1.

If it is determined that these underground utilities could be made without any major efforts, the construction of both the Main Switchgear Building and the future Transformer Structure could be completed without a shutdown of any other system within the Howard F. Curren facility.

4.2 Proposed Ductbank and Manhole Modifications

The construction of the ductbank proposed in Appendix A – Option 1 could begin concurrently with the construction of the proposed structures. While the installation elevations of the proposed ductbank would need to be coordinated with the existing ductbank and other utilities, the initial installation of the ductbank would not require a shutdown of any Howard F. Curren system or operations.

The first construction modification that would require a system shutdown would be the core-drilling of the manholes required to install new ductbanks for the proposed 15KV distribution circuits. The proposed modifications to the affected manholes are presented in Appendix F, Proposed Manhole Modifications and Ductbank Additions.

Manholes MHE1 and MHE27 were constructed with a common wall which segregates the ‘A’ Bus and ‘B’ Bus circuits. This would aid in reducing the downtime required to core-drill these manholes, as the City could simply run the system off the ‘A’ Bus while the ‘B’ Bus manholes are being core-drilled (‘B’ Bus off-line).

Manholes MHE9 and MHE30 do not have a common wall segregating the 'A' Bus and 'B' Bus circuits. However, the new ductbank for Transformer 'T-1A-1' and 'T-1B-1' can be installed independently without any system shutdowns. The City of Tampa has stated that the Oxygen Generation Facility is required to run 24 hours a day, 7 days a week. The City suggested that the oxygen tank be utilized during the installation of the new ductbank required to be installed to MHE9. It was noted that a generator may be needed to run the LOX tank during the ductbank installation.

The new ductbank required for MHE30 could be installed at the City's discretion, most likely during the dry season. The ductbank installation would only require that the standby power system be inhibited during the installation.

Finally, installation of the required TECO conduit could commence along with the construction of the Main Switchgear Building. This construction/installation would need to be finalized prior to the new switchgear startup, but would be independent of all other construction. As previously noted, coordination with TECO was not included in the efforts of this TM.

Refer to Appendix F – Proposed Manhole Modifications and Ductbank Additions for details regarding the new ductbank required.

4.3 Proposed Feeder Installation

Once the Main Switchgear Building, Transformer Structure, manhole modifications and proposed ductbank construction is complete, conductor installation and terminations could begin.

The drawings referenced in Appendix G provide the sizes, location and routing of all the associated ductbanks (existing and proposed), as well as, the 15KV distribution feeder sizes and approximated lengths.

4.3.1 TECO 15KV Feeder Installation

As the new Main Switchgear Building will be physically located away from the existing switchgear building, new TECO ductbank and feeders will be required to be installed to the new Main Switchgear Building. Per Section 2.3.1, the exact location of this new TECO ductbank will be determined at a later date.

As noted in the manhole and ductbank discussion, the TECO feeder installation would only be a function of the Main Switchgear Building construction and would be independent of all the other construction. The completion of the TECO feeder installation and termination would, however, be a prerequisite for energizing the new switchgear.

The suggested sequencing of the individual 15KV feeder circuits should be a function of providing redundancy throughout construction. As noted, the new TECO 15KV feeders should be installed, tested and accepted by the City prior to moving feeders from the old switchgear to the new switchgear.

4.3.2 1H7A-1H7B 15KV Feeder Installation

As many of the manhole and ductbank systems are segregated into 'A' Bus and 'B' Bus, it is suggested that the feeders of one bus are all moved prior to the other. A preferred selection between the 'A' Bus and the 'B' Bus could not be determined, therefore, for convenience, this TM will assume that the 'A' Bus feeders will be moved first.

One of the goals of the Maintenance of Plant Operations (MOPO) plan would be to provide full redundancy of TECO power and standby power concurrently during the transfer of the 15KV feeders. Redundancy of the TECO feeders will be straightforward as the old TECO feeders will remain in operation while the new TECO feeders are feeding the new Main Switchgear Building.

One option for providing redundant standby power would involve moving a standby feeder to the new Switchgear. For discussion purposes it is assumed the 'A' Bus circuits will be moved first. Moving the standby power circuit '1H7A' to the new switchgear would provide standby power to the relocated 'A' Bus circuits. However, if during the time that circuits are being transferred, the plant were to lose both the new and existing TECO feeders simultaneously, the 'A' Bus feeders that have not yet been transferred (still on the existing 'A' Bus) would be without power. In order to provide standby power to the circuits that have not yet been transferred, the normally open tie breaker located in the old switchgear would need to be closed. The existing '1H7B' feeder would then provide standby power to the 'B' Bus circuits and the 'A' Bus circuits that have not yet been transferred to the new switchgear.

In order to verify that this proposed operational scenario is feasible, the existing and proposed loads would need to be examined during the design phase of the project. It would also be extremely beneficial if the transferring of the circuits would be done with the plant running off the oxygen tank as described in Section 4.2.

Another option under the scenario of a loss of all TECO power would be to postpone moving the 'A' Bus standby feeder until all the 'A' Bus feeder circuits are moved from the old switchgear to the new switchgear. Under this scenario, all the circuits being fed from the old switchgear would operate off standby power. Any 'A' Bus circuits that have been moved to the new switchgear would be without power. The plant operators would have to close the tie breakers on the applicable 480V distribution equipment on the 'B' Bus (fed by existing switchgear on standby power) and the 480V distribution equipment on the 'A' Bus (already transferred to the new switchgear and without power).

When the 15KV distribution feeder '1H7A' is moved, the manhole (MHE30) associated with the standby contains both feeders, while the ductbanks from the Standby Power Facility to MHE30 separate the feeders. Refer to Appendix G 1H7A-1H7B for details.

The standby power system would only need to be inhibited while any work is performed in MHE30. Once all work within MHE30 is complete, the remaining work required could be performed with just the feeder circuit breaker (located in Switchgear No. 3 in the Standby Power Facility) for the 1H7A circuit feeder locked out.

4.3.3 1H1A1-1H1B1 15KV Feeder Installation

New ductbank and a new manhole will be required to be constructed from the new Main Switchgear Building to the existing Transformer Structure. Per existing record drawings, there are spare conduits stubbed out from the existing Transformer Structure that can be utilized to install the new 1H1A1 and 1H1B1 feeders. This work is independent of all other feeder installations.

Refer to Appendix G for the 1H1A1-1H1B1 feeder details.

4.3.4 1H9A1-1H9B1 15KV Feeder Installation

As manhole MHE27 was constructed with a common wall which segregates the 'A' Bus and 'B' Bus circuits, the existing and new 1-52-9A circuit breakers could be locked out, the existing conductors could be removed and the new '1H9A1' conductors could be spliced in MHE28A. The only downtime would involve the '1H9A1' circuit. It was noted that the existing ductbank between MHE27 and MHE28 contains 4" spare conduits. With spare conduits available, it may be possible to decrease the circuit downtime by installing the new conductors in the spare conduit prior to removing the existing conductors.

Refer to Appendix G 1H9A1-1H9B1 for details.

4.3.5 1H10A1-1H10B1 15KV Feeder Installation

With the proposed ductbank routing scheme, all the 15KV distribution circuits that travel west from the new Main Switchgear Building must pass through the existing manhole MHE1. While MHE1 does segregate the 'A' Bus and 'B' Bus circuits, installation of each of these circuits will require multiple circuits to be off-line concurrently.

Utilizing the 'A' Bus installation first methodology, circuits '1H10A1', '1H2A1', '1H3A1', '1H4A1', '1H5A1' and '1H8A1' will need to be offline whenever work is being performed in manhole MHE1. These circuits shall be designated as the 'west' circuits for this discussion.

For the installation of the new '1H10A1' circuit, it is proposed that the existing conductors be removed first. Once the existing circuit is removed the new conductors could be installed. The '1H6A1' and '1H10A1' circuits would need to be off-line while the new circuit is installed from transformer 'T-2A-1A' to manhole MHE2. Then the 'west' circuits would need to be off-line while the new '1H10A1' conductors are installed from MHE2, through MHE1, to the new South lineup 'A' Section of the new switchgear.

Refer to Appendix G 1H10A1-1H10B1 for details.

If there will be an extended period of time between the installation of the new Junction Chamber No. 1 feeders (1H2A1-1H2B1) and the new 1H10A1-1H10B1 feeders, the City would want the breakers feeding 1H10A1-1H10B1 to be re-energized.

4.3.6 1H2A1-1H2B1 15KV Feeder Installation

For the installation of the new '1H2A1' circuit, it is proposed that the existing conductors be removed first. Once the existing circuit is removed, the new conductors could be installed. The '1H6A1' and '1H2A1' circuits would need to be off-line while the new circuit is installed from transformer 'T-2A-4' to manhole MHE13 and from MHE13 to MHE11. When working in MHE11 and MHE29 only the circuit breaker for '1H2A1' would need to be locked out. Then the 'west' circuits would need to be off-line while the new '1H2A1' conductors are installed from MHE29, through MHE1, to the new South lineup 'A' Section of the new switchgear.

Refer to Appendix G 1H2A1-1H2B1 for details.

4.3.7 1H6A1-1H6B1 15KV Feeder Installation

For the installation of the new '1H6A1' circuit, it is proposed that the existing conductors be removed first. Once the existing circuit is removed, the new conductors could be installed. The '1H6A1' circuit would need to be off-line while the new circuit is installed from transformer 'T-6A-1' to manhole MHE21. The '1H6A1' and '1H2A1' circuits would need to be off-line while work is performed in MHE13 and MHE11. The '1H6A1', '1H10A1' and '1H2A1' circuits would be required to be offline while work is performed in MHE2. Then the 'west' circuits would need to be off-line while the new '1H2A1' conductors are installed from MHE2, through MHE1, to the new South lineup 'A' Section of the new switchgear.

Refer to Appendix G 1H6A1-1H6B1 for details.

4.3.8 1H3A1-1H3B1 15KV Feeder Installation

The installation of the new '1H3A1' circuit would require that the existing conductors be removed first. Once the existing circuit is removed, the new conductors could be installed. The 'west' circuits would need to be off-line while the new '1H3A1' conductors are installed from transformer 'T-3A-1' through MHE1, to the new South lineup 'A' Section of the new switchgear.

Refer to Appendix G 1H3A1-1H3B1 for details.

4.3.9 1H4A1-1H4B1 15KV Feeder Installation

The installation of the new '1H4A1' circuit would require that the existing conductors be removed first. Once the existing circuit is removed, the new conductors could be installed. The '1H4A1' circuit would need to be off-line while the new circuit is installed from transformer 'T-4A-1' to manhole MHE4. While working in manhole MHE3 circuits '1H4A1', '1H5A1' and '1H8A1' would need to be off-line. The 'west' circuits would need to be off-line while the new '1H4A1' conductors are installed from MHE3, through MHE1, to the new South lineup 'A' Section of the new switchgear.

Refer to Appendix G 1H4A1-1H4B1 for details.

4.3.10 1H5A1-1H5B1 15KV Feeder Installation

The installation of the new '1H5A1' circuit would require that the existing conductors be removed first. Once the existing circuit is removed, the new conductors could be installed. The '1H5A1' circuit would need to be off-line while the new circuit is installed from transformer 'T-5A-1' to manhole MHE14. While working in manhole MHE3 circuits '1H4A1', '1H5A1' and '1H8A1' would need to be off-line. The 'west' circuits would need to be off-line while the new '1H5A1' conductors are installed from MHE3, through MHE1, to the new South lineup 'A' Section of the new switchgear.

Refer to Appendix G 1H5A1-1H5B1 for details.

4.3.11 1H8A1-1H8B1 15KV Feeder Installation

The installation of the new '1H8A1' circuit would require that the existing conductors be removed first. Once the existing circuit is removed, the new conductors could be installed. The '1H8A1' circuit would need to be off-line while the new circuit is spliced in manhole MHE15A. While working in manhole MHE14 circuits '1H5A1' and '1H8A1' would need to be off-line. While working in manhole MHE3 circuits '1H4A1', '1H5A1' and '1H8A1' would need to be off-line. The 'west' circuits would need to be off-line while the new '1H8A1' conductors are installed from MHE3, through MHE1, to the new South lineup 'A' Section of the new switchgear.

Refer to Appendix G 1H8A1-1H8B1 for details.

Finally, it should be noted that, conservatively, this TM calls for the removal of the existing conductors prior to the installation of new conductors. It is assumed that downtime could be reduced if removal and installation of conductors occurred concurrently. However, this would require that spare conduit would have to be available. The information presented in Appendix G is derived from as-built drawings. It would be beneficial if this information were to be field verified prior to going into design to ensure any spare conduit to be utilized is existing and is in a suitable condition to be used.

It is proposed that the 'B' Bus circuits be moved using the same methods once all the 'A' Bus circuits have been installed and tested.

4.4 Items to be Replaced

The structure to be replaced includes the entirety of the existing Main Switchgear Building. The location of the structure is provided on the existing record drawing shown in Appendix H.

5. Summary and Recommendations

5.1 Siting

The layout presented in Option 1 is recommended for the Main Switchgear Building Replacement. In Option 1:

- The new Main Switchgear Building is located on the northeast side of the existing Main Switchgear Building
- The future Transformer Structure will be located east of the existing Switchgear Building south of the access road. The Transformer Structure layout and location will be reevaluated during the design of the HPO generation system.

Option 1 provides the physical space required for the new Main Switchgear Building and future Transformer Structure. It also avoids the TECO feeders, existing ductbank, existing manholes and the majority of the existing utilities. This option also provides for the access that will be required to the structures and provides the simplest option for the construction sequencing.

Under Option 1, the following detail design efforts are recommended.

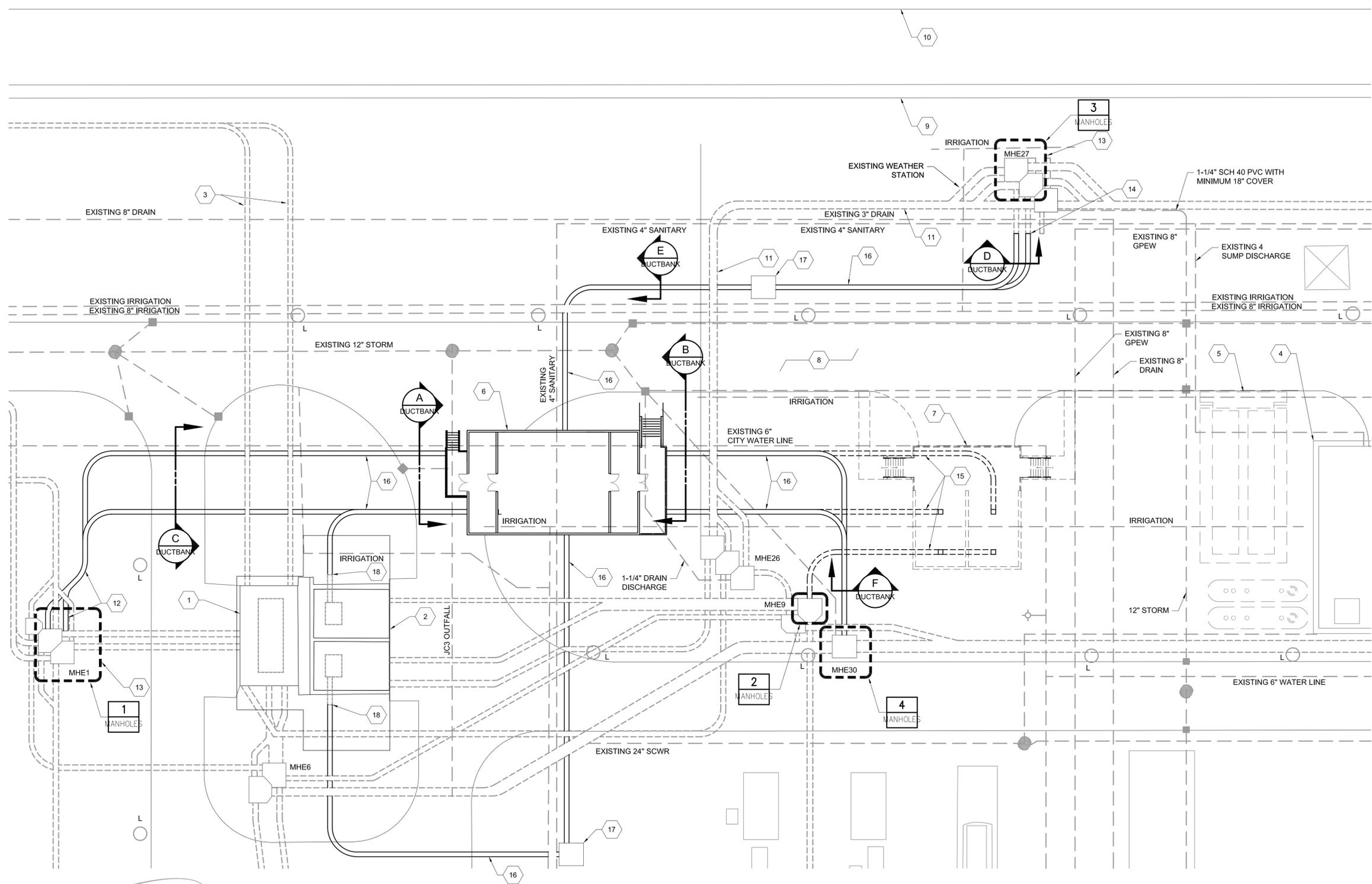
5.2 Detailed Design Efforts

5.2.1 Main Switchgear Building

- The ampacity of each switchgear lineup will need to be verified based on both the existing loads and any new loads to be added during the Howard F. Curren Master Plan Improvements.
- The trip setting of each 15KV circuit breaker will need to be evaluated. This evaluation will be a function of both the existing loads and any load added during the Master Plan Improvements.
- A short circuit study will need to be provided in order to ensure the proposed circuit breakers can interrupt the available short circuit current.
- A coordination study will need to be provided in order to ensure coordination of the tripping of the main circuit breaker and feeder circuit breakers.
- The conductor size of each 15KV feeder will need to be verified. The new conductor sizes shall accommodate the existing load, any additional loads added during the Master Plan Improvements and allow for future capacity.
- The proposed ductbanks will be required to be designed in order to accommodate the required circuits.
- The manhole modifications will need to be detailed in a design to ensure the proposed connections are viable.
- The existing circuit breaker operation scheme required during automatic switchover on TECO power failure will need to be replicated. Currently, control is via a Programmable Logic Controller (PLC) located in the Standby Power Facility.
- The 13.2KV-480V transformers to be provided in the switchgear lineups will need to be sized in order to accommodate the ancillary loads.
- The proposed ATS will need to be sized in order to accommodate the ancillary loads.
- The proposed 480V-120/208V transformer will need to be sized to accommodate the ancillary loads.
- The proposed 120/208V panelboard will need to be sized to accommodate the ancillary loads.
- The proposed Remote Breaker Control Panels will need to be designed based on the number of circuit breakers and the City's preferred method of circuit breaker operation.
- A photometric model will need to be developed to ensure that the proper amount of light is provided for operation and maintenance of the switchgear.
- The HVAC system will need to be sized in order to maintain proper temperatures within the Main Switchgear Building.



Appendix A: Main Switchgear Building Site Layouts



- KEYED NOTES:**
- 1 EXISTING MAIN SWITCHGEAR BUILDING (044).
 - 2 EXISTING STRUCTURE HOUSING TRANSFORMERS 'T-1A-1', 'T-1B-1' AND ASSOCIATED 15KV SWITCHES AND 4.16KV CIRCUIT BREAKERS.
 - 3 EXISTING TAMPA ELECTRIC (TECO) 15KV FEEDERS (APPROXIMATED).
 - 4 EDGE OF EXISTING STANDBY POWER FACILITY (078).
 - 5 PROPOSED 30,000 GALLON DIESEL FUEL STORAGE TANKS CURRENTLY UNDER CONSTRUCTION.
 - 6 PROPOSED LOCATION OF NEW MAIN SWITCHGEAR BUILDING. REFER TO APPENDIX D FOR DETAILS.
 - 7 PROPOSED LOCATION OF FUTURE STRUCTURE TO HOUSE TRANSFORMERS 'T-1A-1', 'T-1B-1' AND ASSOCIATED 15KV SWITCHES AND 4.16KV CIRCUIT BREAKERS.
 - 8 EXISTING ROADWAY.
 - 9 EXISTING SIDEWALK.
 - 10 EXISTING DITCH.
 - 11 EXISTING DUCTBANK.
 - 12 PROPOSED DUCTBANK. REFER TO APPENDIX F FOR DETAILS.
 - 13 REFER TO APPENDIX F FOR REQUIRED MANHOLE MODIFICATIONS.
 - 14 PROPOSED DUCTBANK TO CONNECT TO EXISTING DUCTBANK STUBBED OUT OF MHE27.
 - 15 FUTURE DUCT BANK REQUIRED WHEN TRANSFORMER STRUCTION IS CONSTRUCTED.
 - 16 PROPOSED DUCTBANK.
 - 17 PROPOSED MANHOLE.
 - 18 EXISTING STUB OUT OF 2 - 4" CONDUITS TO 15KV SWITCH PER RECORD DRAWINGS 4H-4, SHEET E20.

PROPOSED MAIN SWITCHGEAR BUILDING SITE LAYOUT
1" = 20'-0"



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DRAWN BY:	J. THOMAS		
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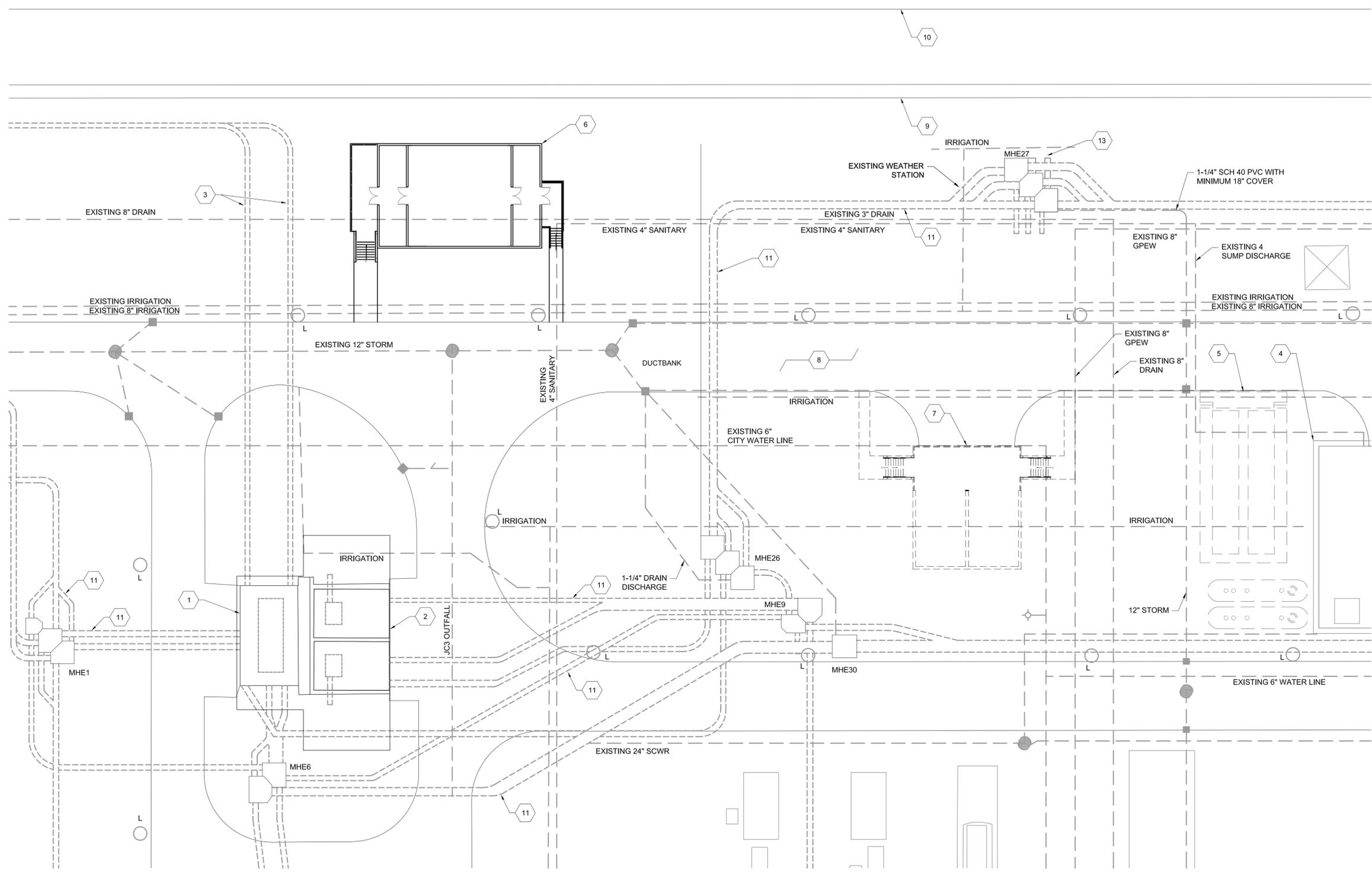
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APPENDIX A
MAIN SWITCHGEAR
BUILDING SITE LAYOUT
OPTION 1

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CONTRACT NO.:	20-C-00001
DRAWING NUMBER:	OPTION 1



- KEYED NOTES:**
- 1 EXISTING MAIN SWITCHGEAR BUILDING (044).
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 - 4 EDGE OF EXISTING STANDBY POWER FACILITY (078).
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 - 7 PROPOSED LOCATION OF FUTURE STRUCTURE TO HOUSE TRANSFORMERS 'T-1A-1', 'T-1B-1' AND ASSOCIATED 15KV SWITCHES AND 4.16KV CIRCUIT BREAKERS.
 - 8 EXISTING ROADWAY.
 - 9 EXISTING SIDEWALK.
 - 10 EXISTING DITCH.
 - 11 EXISTING DUCTBANK.

PROPOSED MAIN SWITCHGEAR BUILDING SITE LAYOUT
1" = 20'-0"

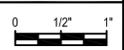


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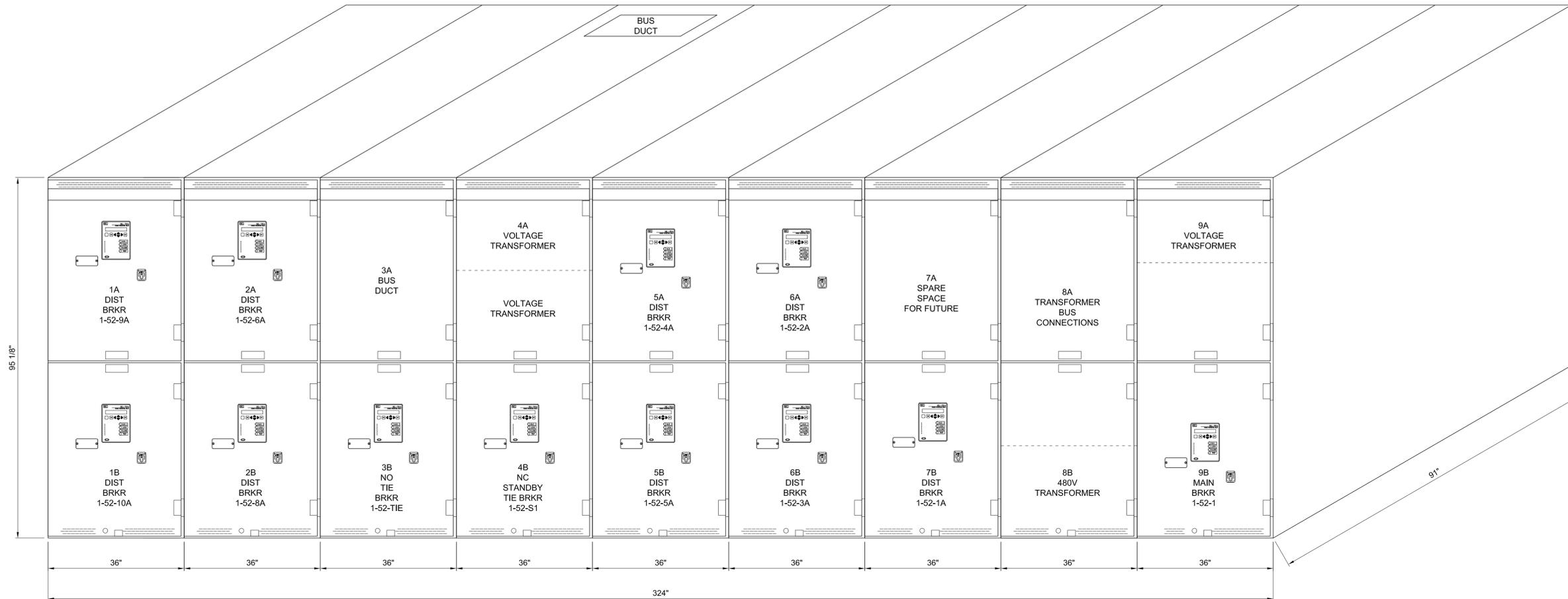
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APPENDIX A
MAIN SWITCHGEAR
BUILDING SITE LAYOUT
OPTION 2

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Appendix B: Switchgear Elevations



PROPOSED SWITCHGEAR NO. 1 - SOUTH LINEUP 'A' SECTION FRONT ELEVATION
N.T.S.



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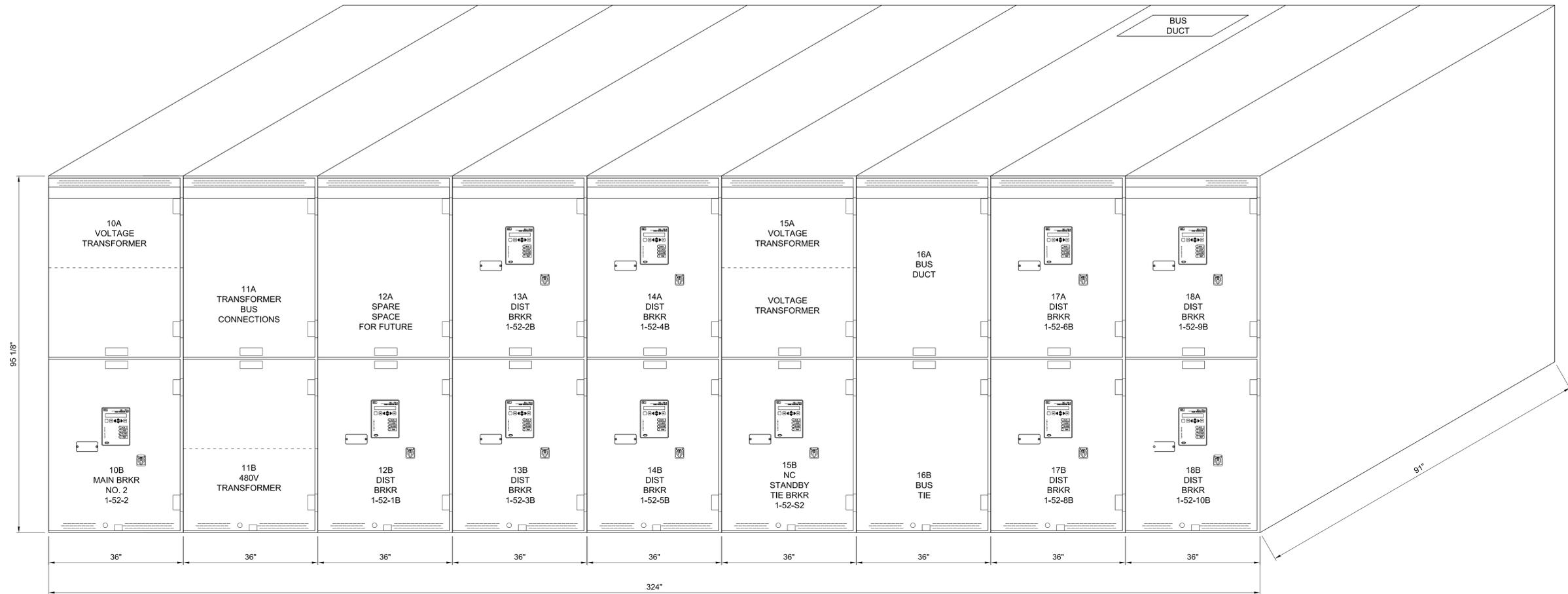
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APPENDIX B
MAIN SWITCHGEAR
SOUTH LINEUP 'A'
FRONT ELEVATION

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DRAWING NUMBER:	SOUTH A ELEV



PROPOSED SWITCHGEAR NO. 1 - NORTH LINEUP 'B' SECTION FRONT ELEVATION
N.T.S.



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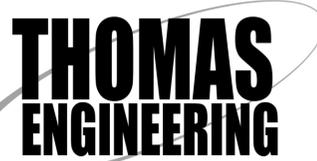
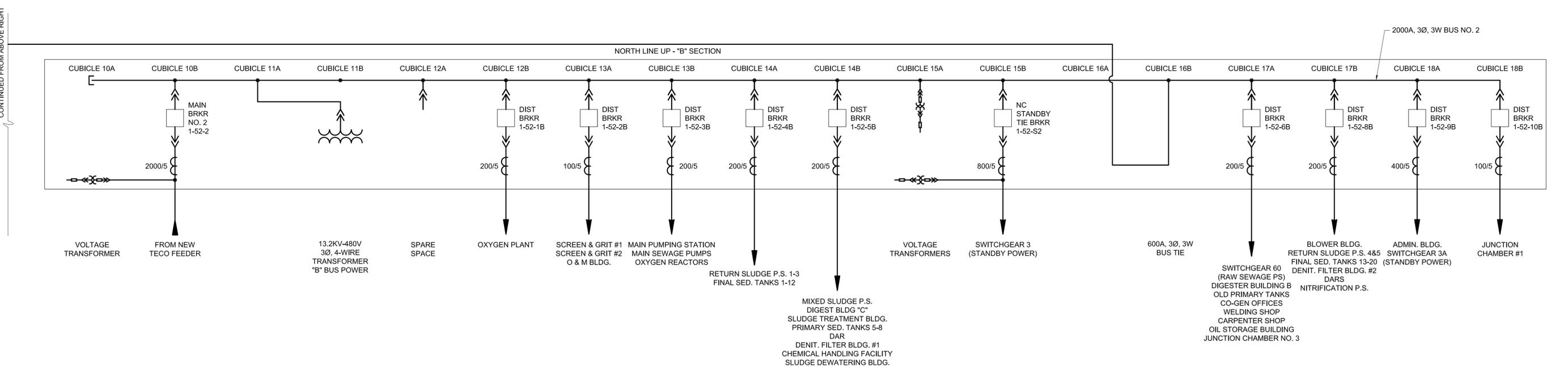
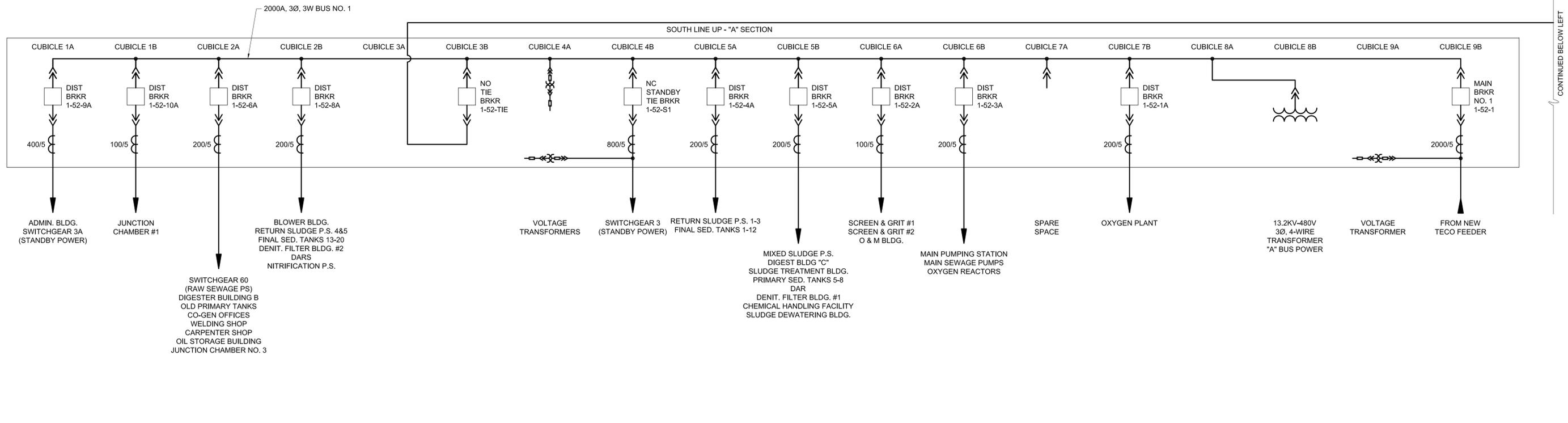
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APPENDIX B
MAIN SWITCHGEAR
NORTH LINEUP 'B'
FRONT ELEVATION

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CONTRACT NO.:	20-C-00001
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Appendix C: Preliminary One Line Diagram



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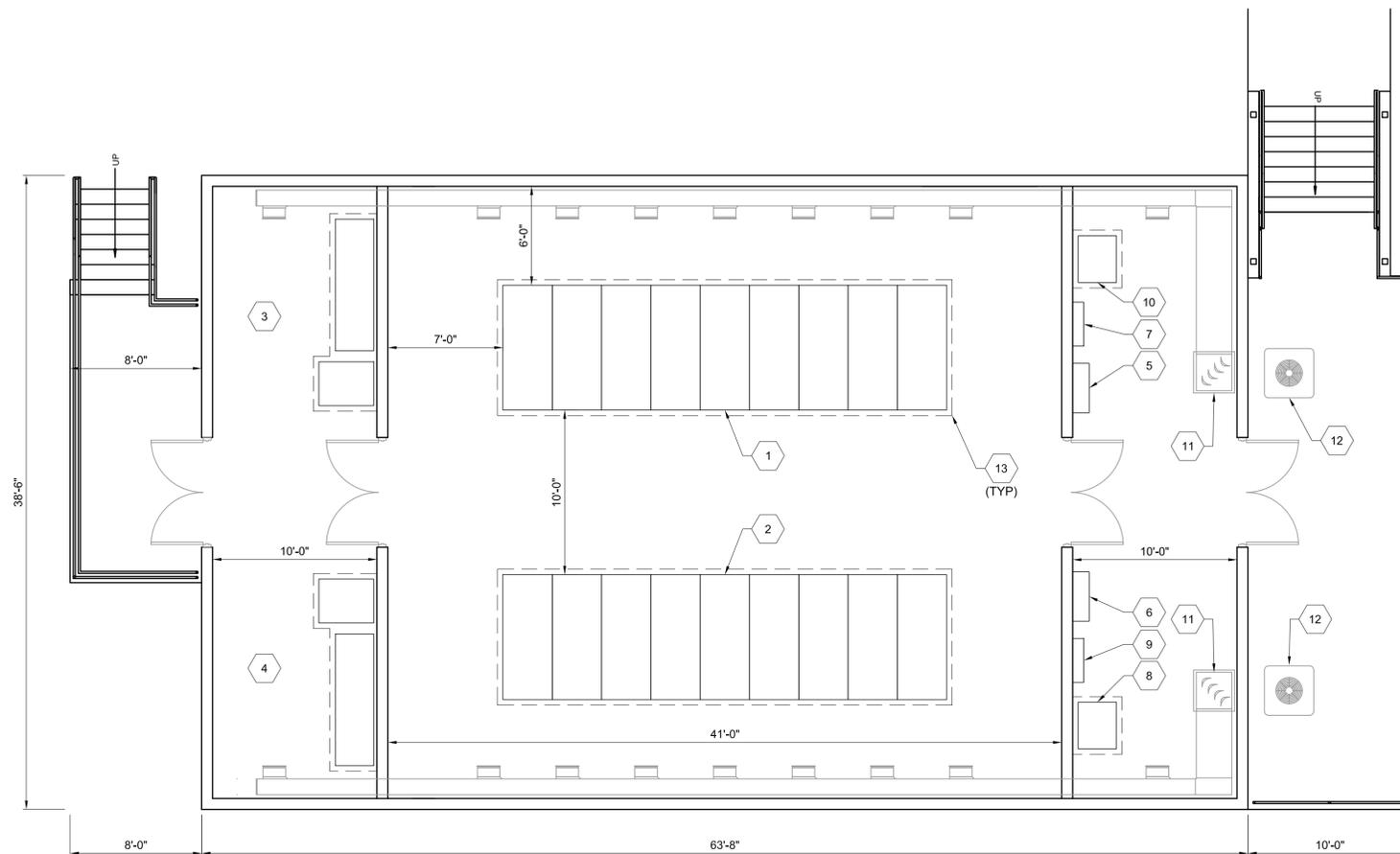
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APPENDIX C
MAIN SWITCHGEAR
ONE LINE DIAGRAM

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DRAWING NUMBER:	ONE LINE



Appendix D: Main Switchgear Building Layout



KEYED NOTES:

- 1 PROPOSED 15KV SWITCHGEAR NORTH LINEUP - 'B' SECTION.
- 2 PROPOSED 15KV SWITCHGEAR SOUTH LINEUP - 'A' SECTION.
- 3 PROPOSED AGM BATTERY RACKS, CHARGER AND 125V DISTRIBUTION PANELBOARD FOR NORTH SWITCHGEAR LINEUP.
- 4 PROPOSED AGM BATTERY RACKS, CHARGER AND 125V DISTRIBUTION PANELBOARD FOR SOUTH SWITCHGEAR LINEUP.
- 5 PROPOSED REMOTE BREAKER CONTROL PANEL (RBCP) FOR NORTH 15KV SWITCHGEAR LINEUP.
- 6 PROPOSED REMOTE BREAKER CONTROL PANEL (RBCP) FOR SOUTH 15KV SWITCHGEAR LINEUP.
- 7 PROPOSED 480V, 200 AMPERE, 3-POLE AUTOMATIC TRANSFER SWITCH (ATS).
- 8 PROPOSED 480V, 200 AMPERE, 3Ø, 3W, PANELBOARD 'HP-1'.
- 9 PROPOSED 45 KVA 480-120/208V, 3Ø, 4W, TRANSFORMER 'T1'.
- 10 PROPOSED 120/208V, 200 AMPERE, 3Ø, 4W, PANELBOARD 'LP-1'.
- 11 PROPOSED AIR HANDLING UNIT (AHU).
- 12 PROPOSED CONDENSING UNIT (CU).
- 13 PROVIDE 4" HIGH CONCRETE HOUSEKEEPING PAD. HOUSEKEEPING PAD TO EXTEND OUT 2" FROM FROM OF ASSOCIATED PIECE OF EQUIPMENT.

MAIN SWITCHGEAR BUILDING OPTION 1 FLOOR PLAN

3/16" = 1'-0"



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 PLOT DATE: 4/20/2023 3:20 PM BY: #11111111

PROJECT ENGINEER:	J. PORTER		
DESIGNED BY:	T. THOMAS		
DRAWN BY:	J. THOMAS		
CHECKED BY:	G. WALKER		
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MAIN SWITCHGEAR
FACILITY REPLACEMENTS

APPENDIX D
MAIN SWITCHGEAR
BUILDING LAYOUT
OPTION 1

DATE:	APRIL 2023
HAZEN NO.:	41077-013A
CONTRACT NO.:	20-C-00001
DRAWING NUMBER:	SWGR BLDG

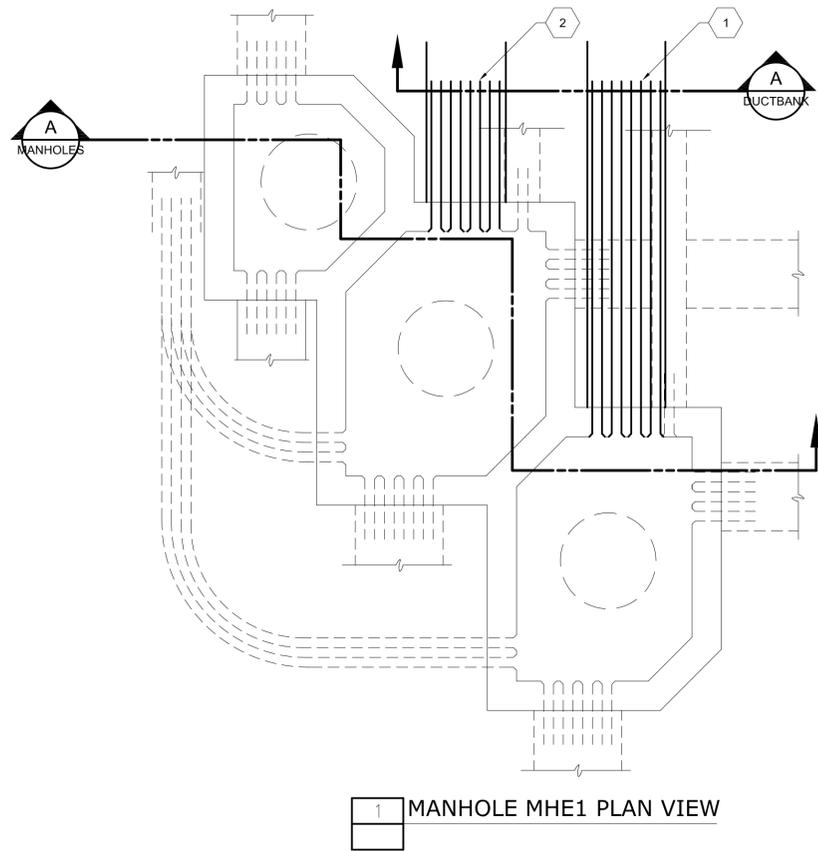


Appendix E: Future Transformer Structure Layout

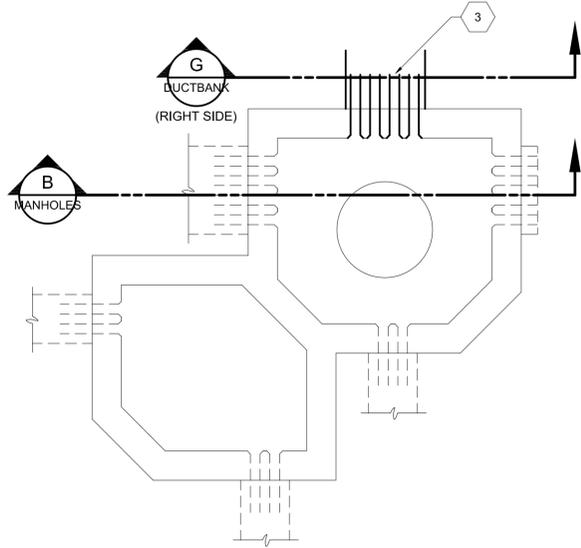
Note: The Transformer Structure layout and location will be reevaluated during the design of the HPO generation system.



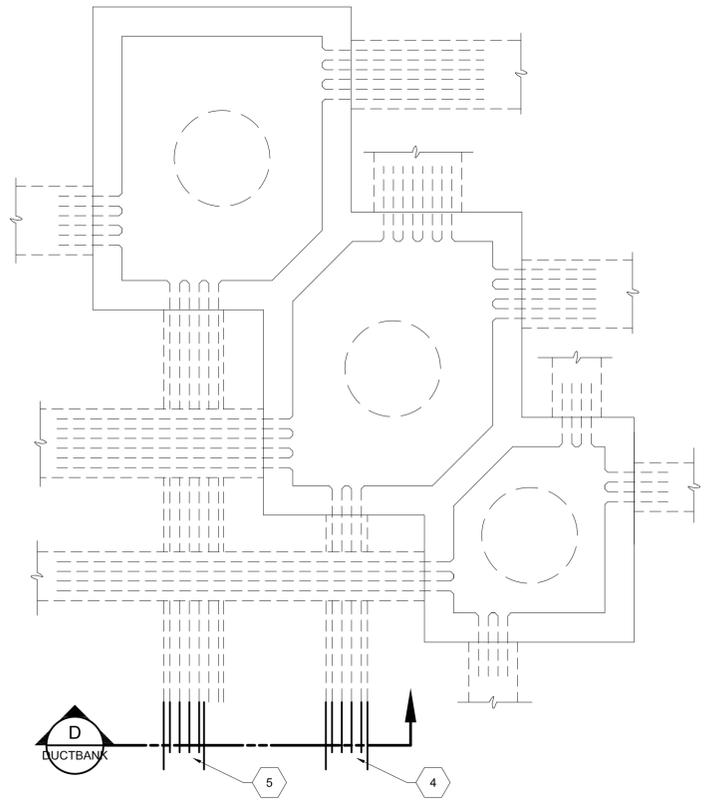
Appendix F: Proposed Manhole and Ductbank Additions



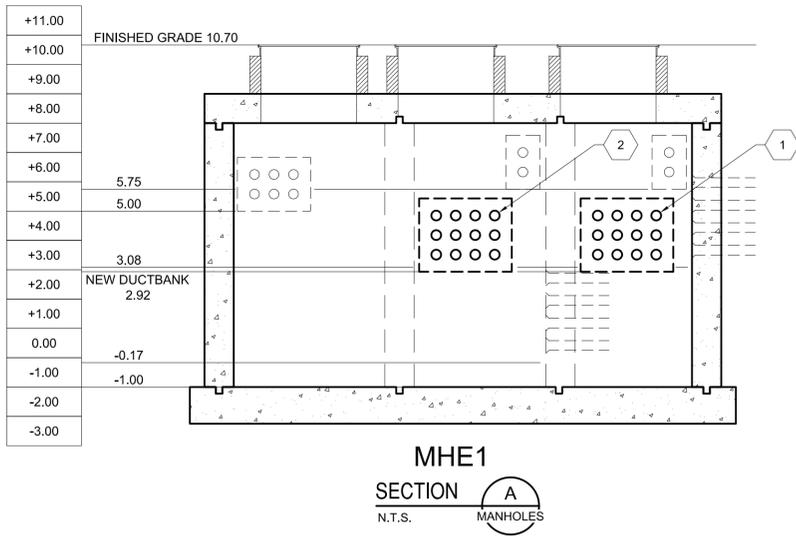
1 MANHOLE MHE1 PLAN VIEW



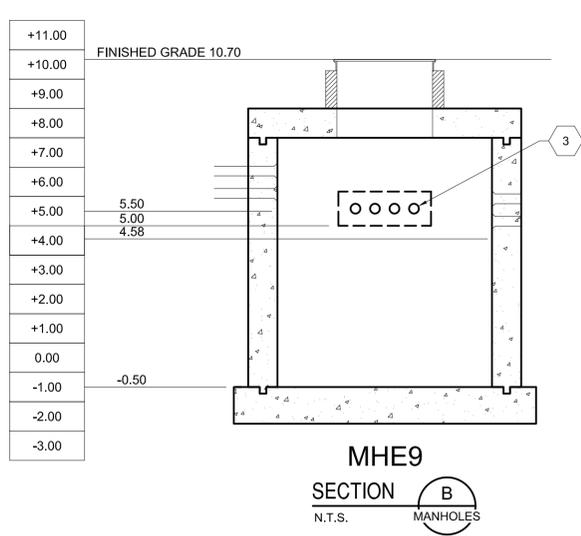
2 MANHOLE MHE9 PLAN VIEW



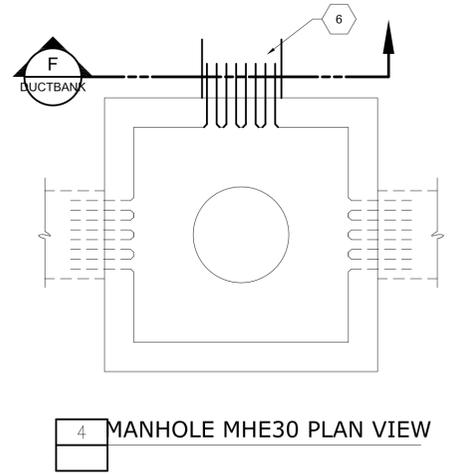
3 MANHOLE MHE27 PLAN VIEW



MHE1
SECTION A
N.T.S. MANHOLES



MHE9
SECTION B
N.T.S. MANHOLES



4 MANHOLE MHE30 PLAN VIEW

- KEYED NOTES:**
- 1 PROPOSED CONDUITS AND 15KV FEEDERS '1H2A1', '1H2A4', '1H3A1', '1H4A1', '1H5A1', '1H6A1' AND '1H8A1'.
 - 2 PROPOSED CONDUITS AND 15KV FEEDERS '1H2B1', '1H2B4', '1H3B1', '1H4B1', '1H5B1', '1H6B1' AND '1H8B1'.
 - 3 PROPOSED CONDUITS AND 5KV FEEDERS '1T1A1' AND '1T1B1'.
 - 4 PROPOSED CONDUITS AND 15KV FEEDER '1H9A1'.
 - 5 PROPOSED CONDUITS AND 15KV FEEDER '1H9B1'.
 - 6 PROPOSED CONDUITS AND 15KV FEEDERS '1H1A1' AND '1H1B1'.

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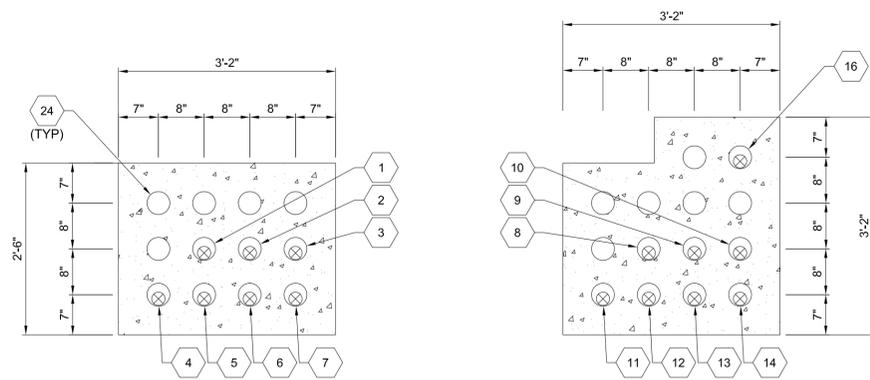
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FACILITY REPLACEMENTS

APPENDIX F
PROPOSED MANHOLE
MODIFICATIONS

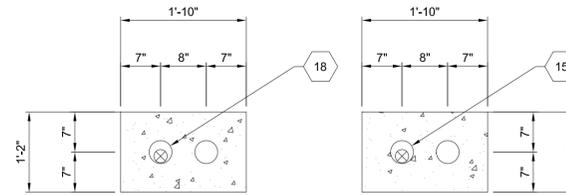
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HAZEN NO.: 41077-013A
CONTRACT NO.: 20-C-00001
DRAWING NUMBER:
MANHOLES

KEYED NOTES:

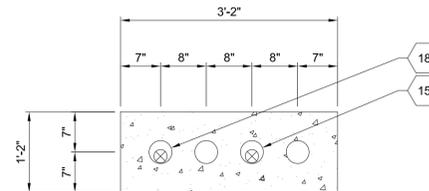
- 1 PROPOSED 15KV FEEDER '1H10B1'.
- 2 PROPOSED 15KV FEEDER '1H2B1'.
- 3 PROPOSED 15KV FEEDER '1H3B1'.
- 4 PROPOSED 15KV FEEDER '1H4B1'.
- 5 PROPOSED 15KV FEEDER '1H5B1'.
- 6 PROPOSED 15KV FEEDER '1H6B1'.
- 7 PROPOSED 15KV FEEDER '1H8B1'.
- 8 PROPOSED 15KV FEEDER '1H10A1'.
- 9 PROPOSED 15KV FEEDER '1H2A1'.
- 10 PROPOSED 15KV FEEDER '1H3A1'.
- 11 PROPOSED 15KV FEEDER '1H4A1'.
- 12 PROPOSED 15KV FEEDER '1H5A1'.
- 13 PROPOSED 15KV FEEDER '1H6A1'.
- 14 PROPOSED 15KV FEEDER '1H8A1'.
- 15 PROPOSED 15KV FEEDER '1H9A1'.
- 16 PROPOSED 15KV FEEDER '1H1A1'.
- 17 PROPOSED 15KV FEEDER '1H7A' (PARALLEL CONDUCTORS).
- 18 PROPOSED 15KV FEEDER '1H9B1'.
- 19 PROPOSED 15KV FEEDER '1H1B1'.
- 20 PROPOSED 15KV FEEDER '1H7B' (PARALLEL CONDUCTORS).
- 21 #5 @ 12" MINIMUM.
- 22 OPEN CIRCLE INDICATES 4" SPARE CONDUIT. NOTE: ALL CONDUIT TO BE SCHEDULE 80 PVC.



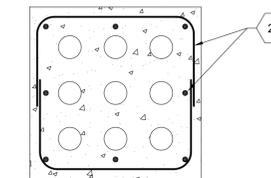
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DUCTBANK
N.T.S. APPROXIMATE DUCTBANK LENGTH - 50'



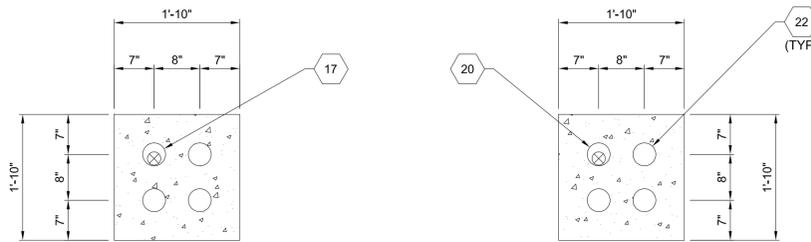
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DUCTBANK
N.T.S. APPROXIMATE DUCTBANK LENGTH - 110'



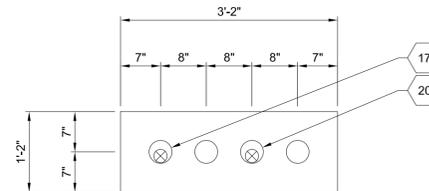
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DUCTBANK
N.T.S. APPROXIMATE DUCTBANK LENGTH - 100'



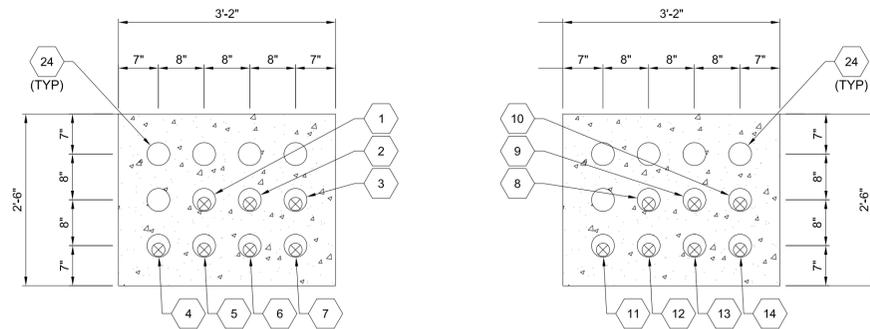
TYPICAL DUCTBANK REINFORCING DETAIL
N.T.S.



SECTION **B**
DUCTBANK
N.T.S. APPROXIMATE DUCTBANK LENGTH - 180'



SECTION **F**
DUCTBANK
N.T.S. APPROXIMATE DUCTBANK LENGTH - 75'



SECTION **C**
DUCTBANK
N.T.S. APPROXIMATE DUCTBANK LENGTH - 350'

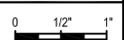


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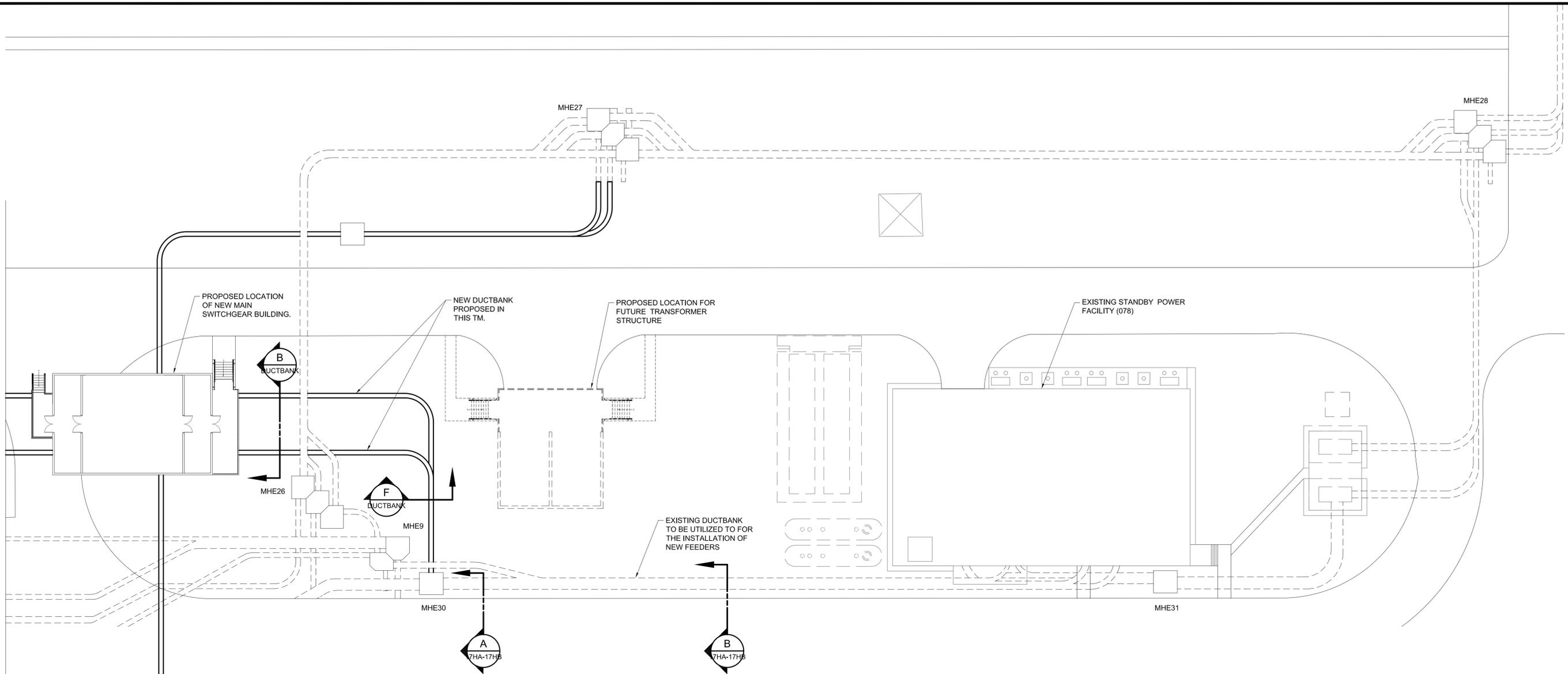
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MAIN SWITCHGEAR
FACILITY REPLACEMENTS

APPENDIX F
PROPOSED DUCTBANK
ADDITIONS

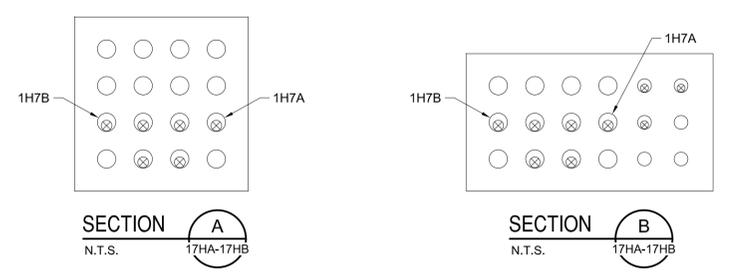
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HAZEN NO.:	41077-013A
CONTRACT NO.:	20-C-00001
DRAWING NUMBER:	DUCTBANK



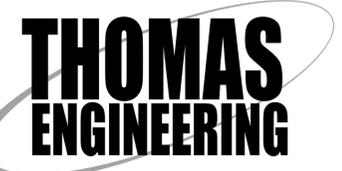
Appendix G: Proposed Feeder Installation



15KV FEEDERS 1H7A AND 1H7B ROUTING
1" - 20'-0"



- GENERAL NOTES:**
1. CIRCUIT 1H7A TO CONSIST OF 3-#500 MCM + 1-#1/0 600V GND. LENGTH IS APPROXIMATED AT 650 FEET.
 2. CIRCUIT 1H7B TO CONSIST OF 3-#500 MCM + 1-#1/0 600V GND. LENGTH IS APPROXIMATED AT 675 FEET.
 3. CIRCUIT ROUTING, MANHOLE LOCATIONS AND DUCTBANK SECTIONS ARE DERIVED FROM THIS TECHNICAL MEMORANDUM AND AS-BUILT INFORMATION INCLUDED IN 4H-4 AND 5H-3B.
 4. LOW VOLTAGE DUCTBANKS ARE NOT SHOWN FOR CLARITY.
 5. THE TRANSFORMER STRUCTURE LAYOUT AND LOCATION WILL BE REEVALUATED DURING THE DESIGN OF THE HPO GENERATION SYSTEM.



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DESIGNED BY:	T. THOMAS		
DRAWN BY:	J. THOMAS		
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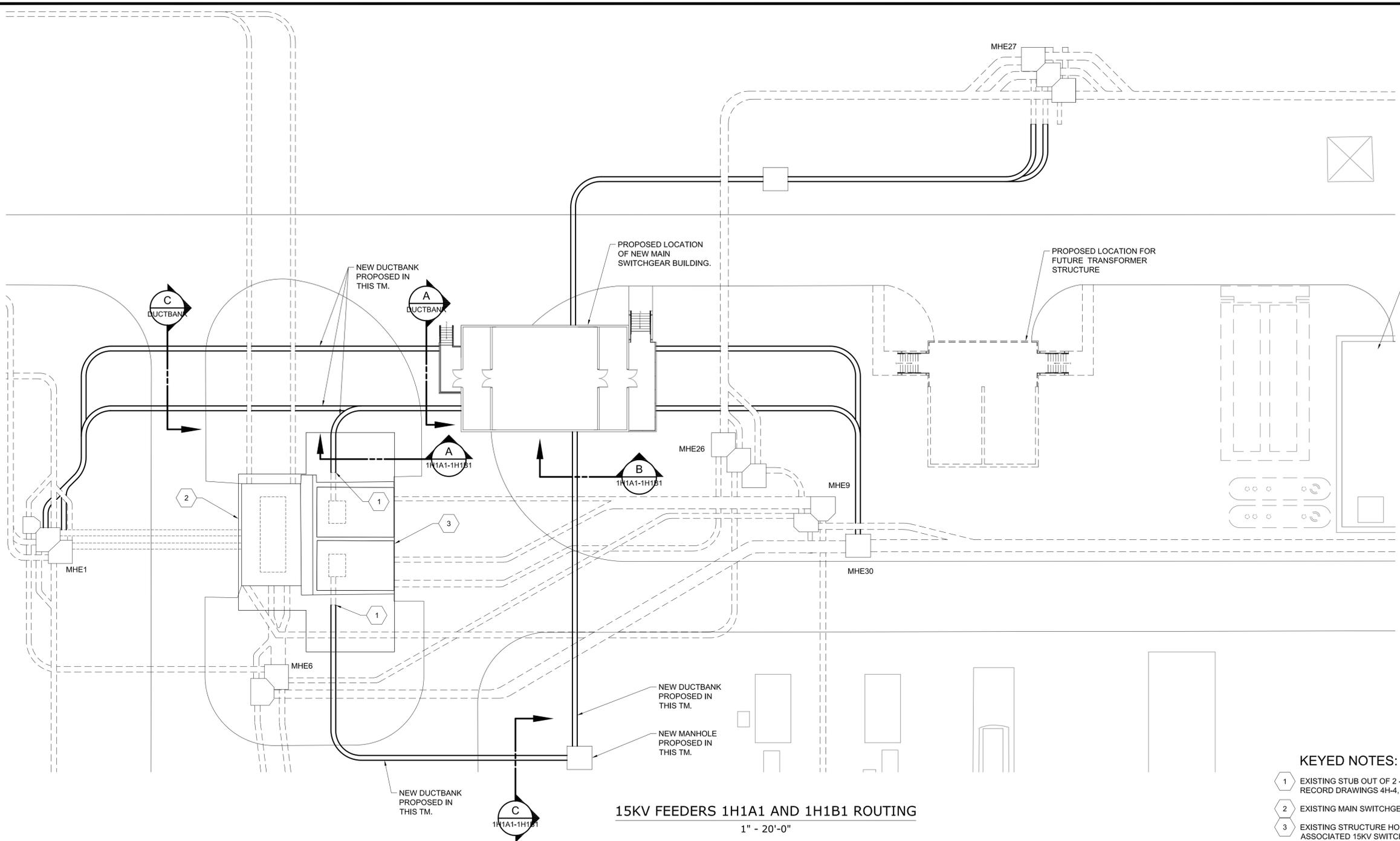
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APPENDIX G
FEEDER INSTALLATION
1H7A-1H7B

DATE:	SEPTEMBER 2023
HAZEN NO.:	41077-013A
CONTRACT NO.:	20-C-00001
DRAWING NUMBER:	1H7A-1H7B



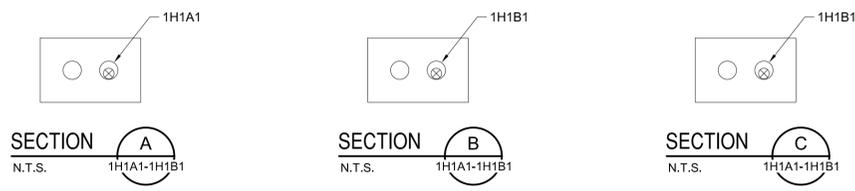
15KV FEEDERS 1H1A1 AND 1H1B1 ROUTING
1" = 20'-0"

KEYED NOTES:

- 1 EXISTING STUB OUT OF 2 - 4" CONDUITS TO 15KV SWITCH PER RECORD DRAWINGS 4H-4, SHEET E20.
- 2 EXISTING MAIN SWITCHGEAR BUILDING (044).
- 3 EXISTING STRUCTURE HOUSING TRANSFORMERS 'T-1A-1', 'T-1B-1' AND ASSOCIATED 15KV SWITCHES AND 4.16KV CIRCUIT BREAKERS.

GENERAL NOTES:

1. CIRCUIT 1H1A1 TO CONSIST OF 3-#350 MCM + 1-#4/0 600V GND. LENGTH IS APPROXIMATED AT 350 FEET.
2. CIRCUIT 1H1B1 TO CONSIST OF 3-#350 MCM + 1-#4/0 600V GND. LENGTH IS APPROXIMATED AT 375 FEET.
3. CIRCUIT ROUTING, MANHOLE LOCATIONS AND DUCTBANK SECTIONS ARE DERIVED FROM THIS TECHNICAL MEMORANDUM AND AS-BUILT INFORMATION INCLUDED IN 4H-4 AND 5H-2B.
4. LOW VOLTAGE DUCTBANKS ARE NOT SHOWN FOR CLARITY.
5. THE TRANSFORMER STRUCTURE LAYOUT AND LOCATION WILL BE REEVALUATED DURING THE DESIGN OF THE HPO GENERATION SYSTEM.



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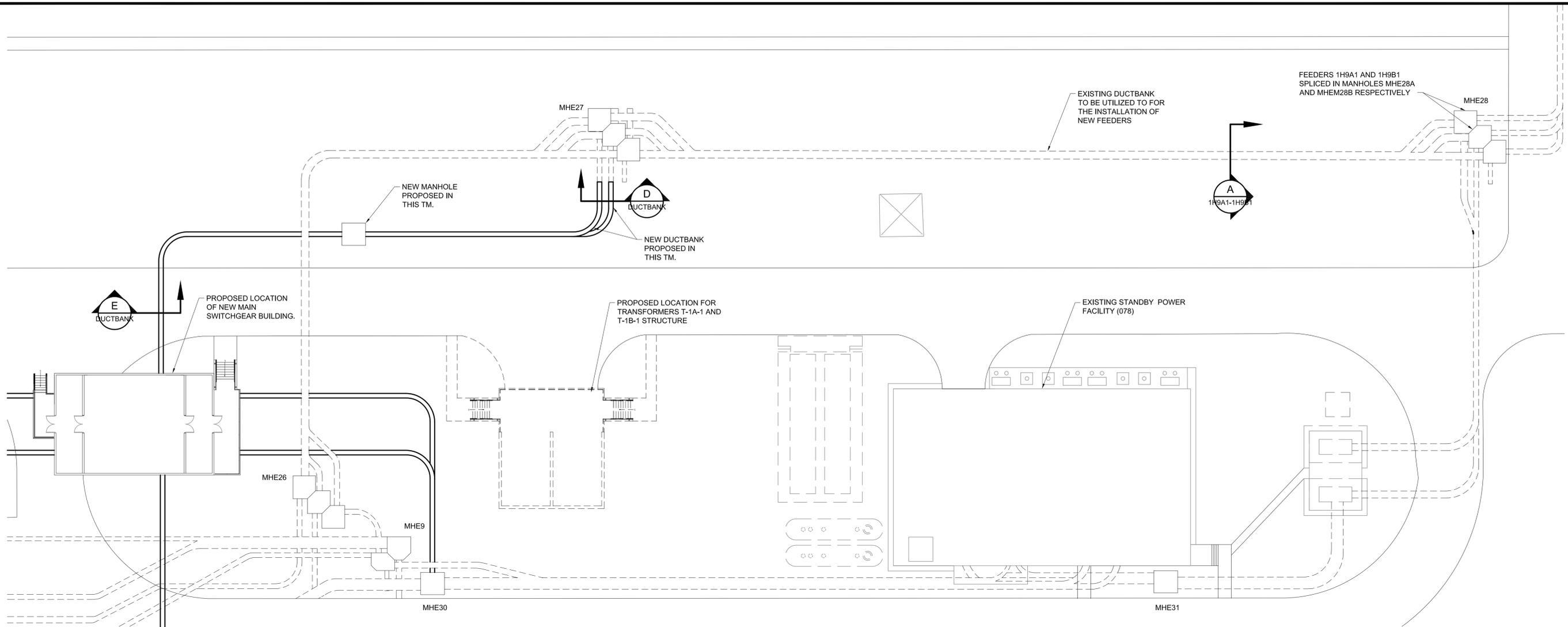


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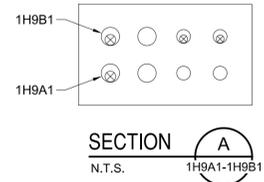
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APPENDIX G
FEEDER INSTALLATION
1H1A1-1H1B1

DATE:	SEPTEMBER 2023
HAZEN NO.:	41077-013A
CONTRACT NO.:	20-C-00001
DRAWING NUMBER:	1H1A1-1H1B1



15KV FEEDERS 1H9A1 AND 1H9B1 ROUTING
1" - 20'-0"



GENERAL NOTES:

1. CIRCUIT 1H9A1 TO CONSIST OF 3-#350 MCM + 1-#2 600V GND. LENGTH IS APPROXIMATED AT 750 FEET.
2. CIRCUIT 1H9B1 TO CONSIST OF 3-#350 MCM + 1-#2 600V GND. LENGTH IS APPROXIMATED AT 775 FEET.
3. CIRCUIT ROUTING, MANHOLE LOCATIONS AND DUCTBANK SECTIONS ARE DERIVED FROM THIS TECHNICAL MEMORANDUM AND AS-BUILT INFORMATION INCLUDED IN 4H-4 AND 5H-2B.
4. LOW VOLTAGE DUCTBANKS ARE NOT SHOWN FOR CLARITY.
5. THE TRANSFORMER STRUCTURE LAYOUT AND LOCATION WILL BE REEVALUATED DURING THE DESIGN OF THE HPO GENERATION SYSTEM.



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DRAWN BY:	J. THOMAS		
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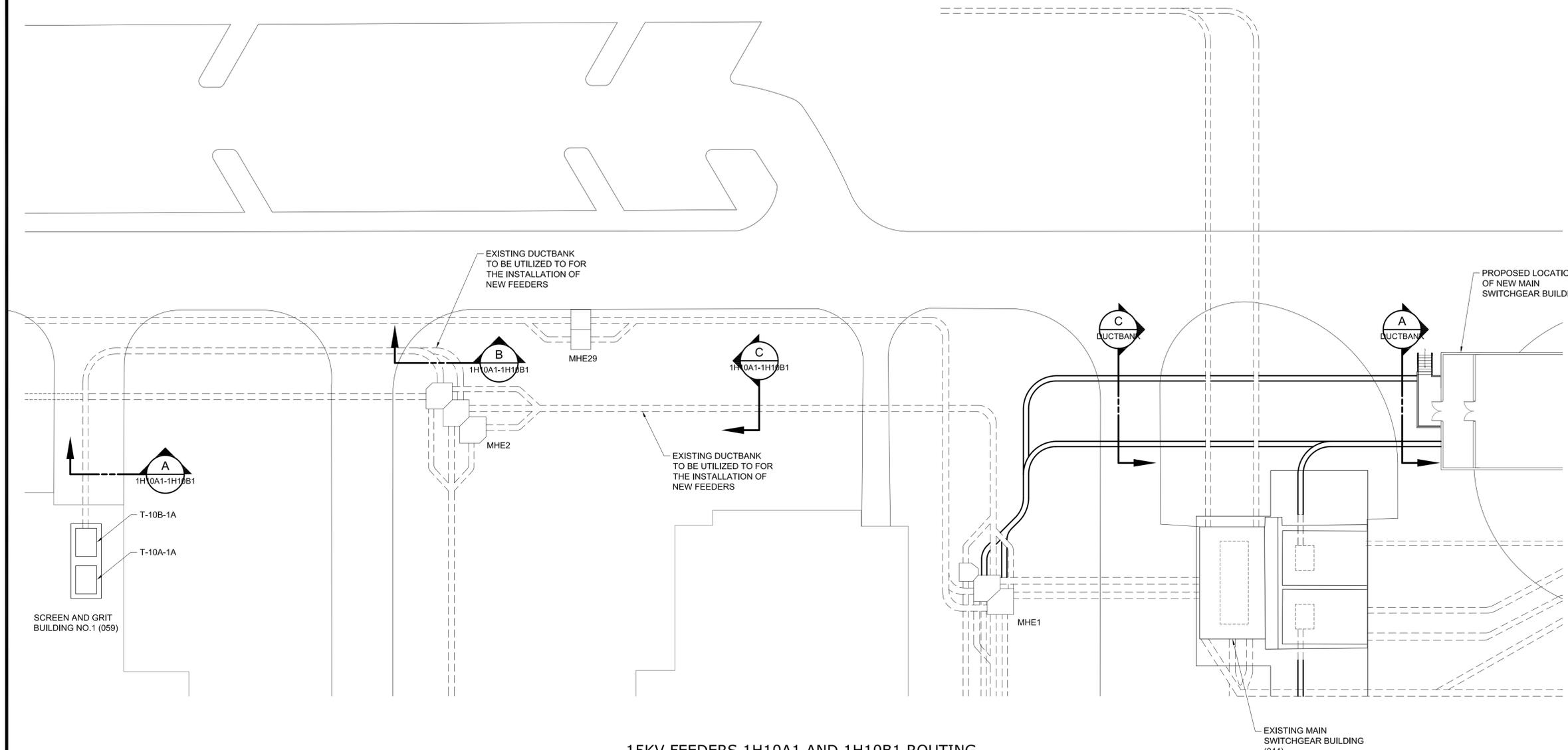
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APPENDIX G
FEEDER INSTALLATION
1H9A1-1H9B1

DATE:	SEPTEMBER 2023
HAZEN NO.:	41077-013A
CONTRACT NO.:	20-C-00001
DRAWING NUMBER:	1H9A1-1H9B1

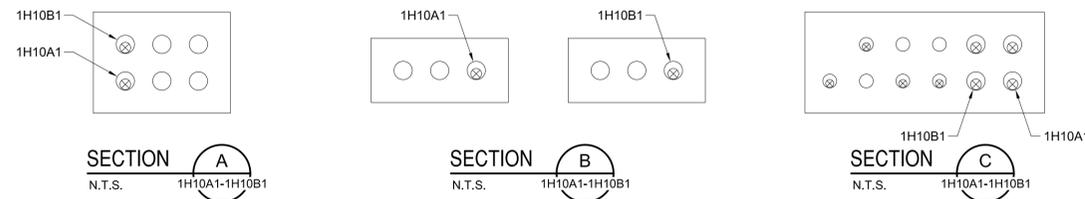
GENERAL NOTES:

1. CIRCUIT 1H10A1 TO CONSIST OF 3-#1/O + 1-#6 600V GND. LENGTH IS APPROXIMATED AT 975 FEET.
2. CIRCUIT 1H10B1 TO CONSIST OF 3-#1/O + 1-#6 600V GND. LENGTH IS APPROXIMATED AT 1,050 FEET.
3. CIRCUIT ROUTING, MANHOLE LOCATIONS AND DUCTBANK SECTIONS ARE DERIVED FROM AS-BUILT INFORMATION INCLUDED IN 4H-4 AND 5H-1.
5. LOW VOLTAGE DUCTBANKS ARE NOT SHOWN FOR CLARITY.



15KV FEEDERS 1H10A1 AND 1H10B1 ROUTING

1" - 20'-0"



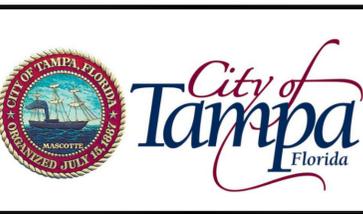
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CHECKED BY:	G. WALKER
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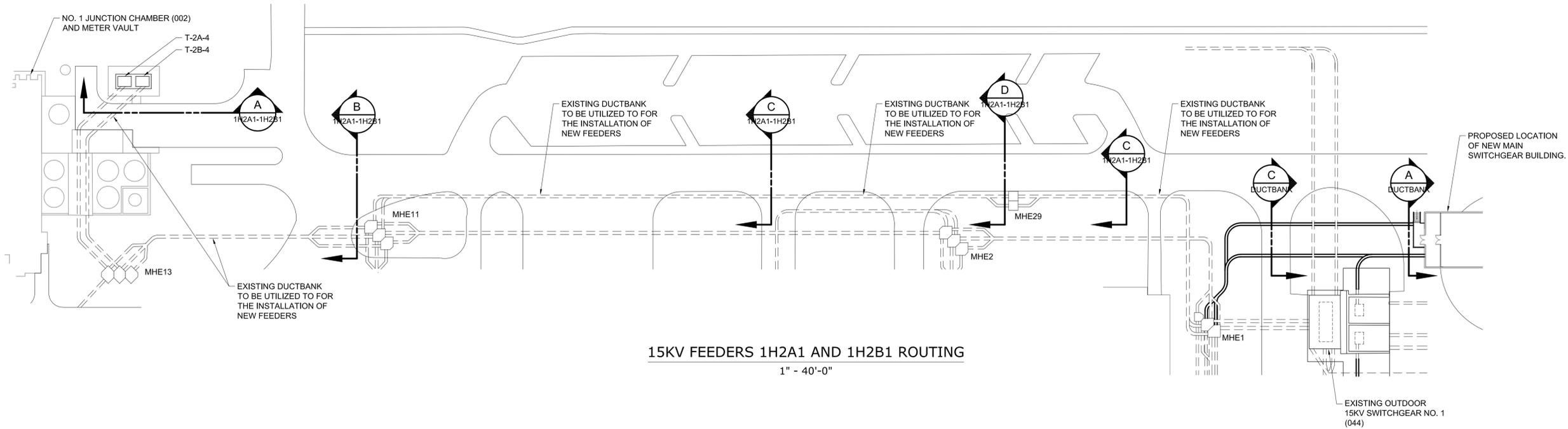
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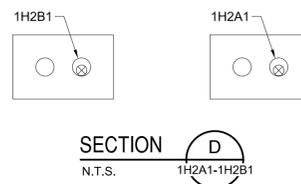
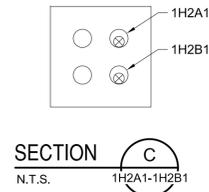
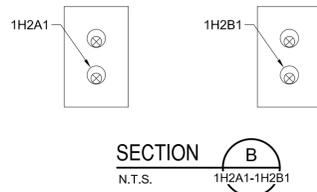
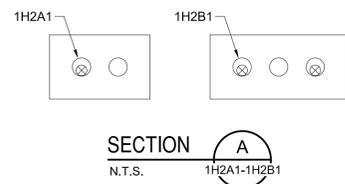
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APPENDIX G
FEEDER INSTALLATION
1H10A1-1H10B1

DATE:	APRIL 2023
HAZEN NO.:	41077-013A
CONTRACT NO.:	20-C-00001
DRAWING NUMBER:	1H10A1-1H10B1



15KV FEEDERS 1H2A1 AND 1H2B1 ROUTING
1" = 40'-0"



GENERAL NOTES:

1. CIRCUIT 1H2A1 TO CONSIST OF 3-#1/0 + 1-#6 600V GND. LENGTH IS APPROXIMATED AT 1,850 FEET.
2. CIRCUIT 1H2B1 TO CONSIST OF 3-#1/0 + 1-#6 600V GND. LENGTH IS APPROXIMATED AT 1,950 FEET.
3. CIRCUIT ROUTING, MANHOLE LOCATIONS AND DUCTBANK SECTIONS ARE DERIVED FROM AS-BUILT INFORMATION INCLUDED IN 4H-4, 4H-7 AND 5H-3A.
4. THE REFERENCED AS-BUILT DRAWINGS UTILIZE DIFFERENT REFERENCES FOR THE 1H2A1 AND 1H2B1 CIRCUITS. THE TECHNICAL MEMORANDUM REFERENCED THE ELECTRICAL ONE LINE AND DISTRIBUTION LOOP INFORMATION PROVIDED BY THE CITY TO LOGICALLY LABEL THE 1H2A1 AND 1H2B1 CIRCUITS.
5. LOW VOLTAGE DUCTBANKS ARE NOT SHOWN FOR CLARITY.



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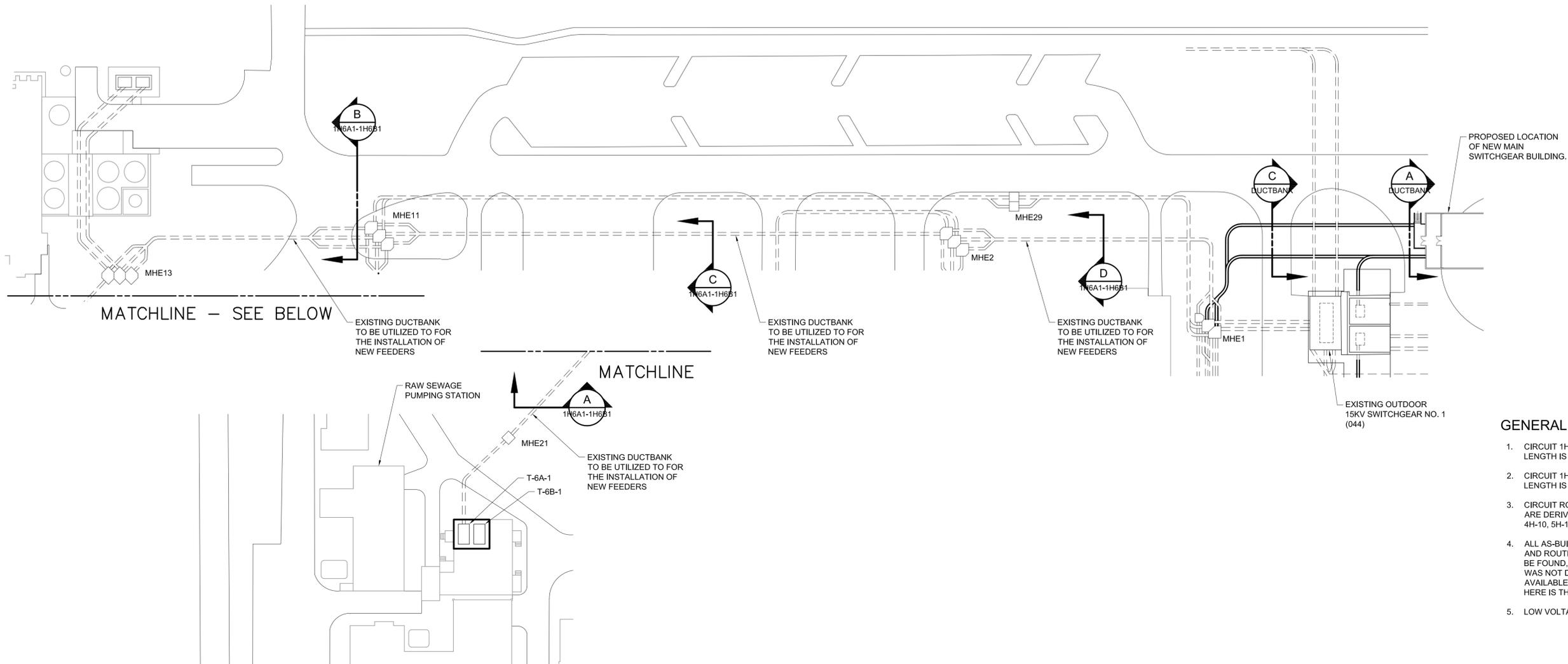
Hazen
HAZEN AND SAWYER
1000 NORTH ASHLEY DRIVE AVE, SUITE 1000
TAMPA, FLORIDA 33602
PHONE: (813) 630-4498 FAX: (813) 630-1967



CITY OF TAMPA
WASTEWATER DEPARTMENT
HOWARD F. CURREN AWTP
MASTER PLAN IMPROVEMENTS
MAIN SWITCHGEAR
FACILITY REPLACEMENTS

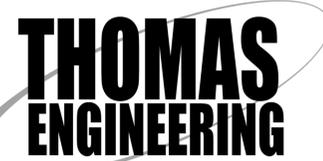
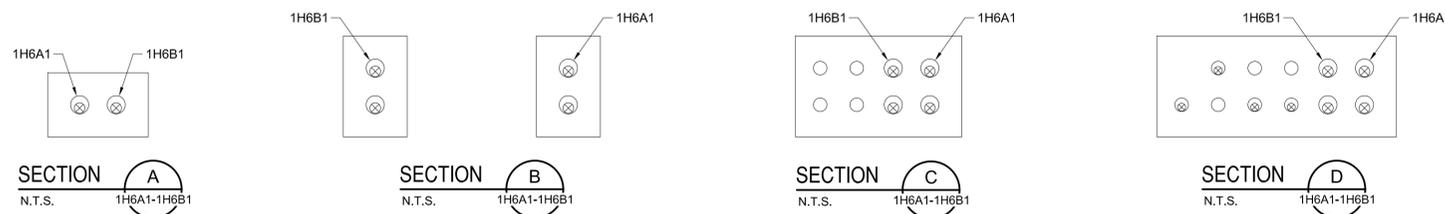
APPENDIX G
FEEDER INSTALLATION
1H2A1-1H2B1

DATE:	APRIL 2023
HAZEN NO.:	41077-013A
CONTRACT NO.:	20-C-00001
DRAWING NUMBER:	1H2A1-1H2B1



- GENERAL NOTES:**
1. CIRCUIT 1H6A1 TO CONSIST OF 3-#350 MCM + 1-#2/O 600V GND. LENGTH IS APPROXIMATED AT 1,975 FEET.
 2. CIRCUIT 1H6B1 TO CONSIST OF 3-#350 MCM + 1-#2/O 600V GND. LENGTH IS APPROXIMATED AT 2,050 FEET.
 3. CIRCUIT ROUTING, MANHOLE LOCATIONS AND DUCTBANK SECTIONS ARE DERIVED FROM AS-BUILT INFORMATION INCLUDED IN 4H-4, 4H-7, 4H-10, 5H-1, AND 5H-3A.
 4. ALL AS-BUILT DRAWINGS WERE REFERENCED IN ORDER TO LOCATE AND ROUTE THE EXISTING 1H6B1 FEEDER. NO INFORMATION COULD BE FOUND, AND IT IS ASSUMED THE INSTALLATION OF FEEDER 1H6B1 WAS NOT DOCUMENTED. HOWEVER, CONSIDERING THE CONDUITS AVAILABLE AND THE ROUTING REQUIRED, WHAT IS PRESENTED HERE IS THE MOST LOGICAL ROUTE FOR FEEDER 1H6B1.
 5. LOW VOLTAGE DUCTBANKS ARE NOT SHOWN FOR CLARITY.

15KV FEEDERS 1H6A1 AND 1H6B1 ROUTING
1" - 40'-0"



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PROJECT ENGINEER:	J. PORTER		
DESIGNED BY:	T. THOMAS		
DRAWN BY:	J. THOMAS		
CHECKED BY:	G. WALKER		
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE			
REV	ISSUED FOR	DATE	BY

PRELIMINARY DRAWING
DO NOT USE FOR
CONSTRUCTION



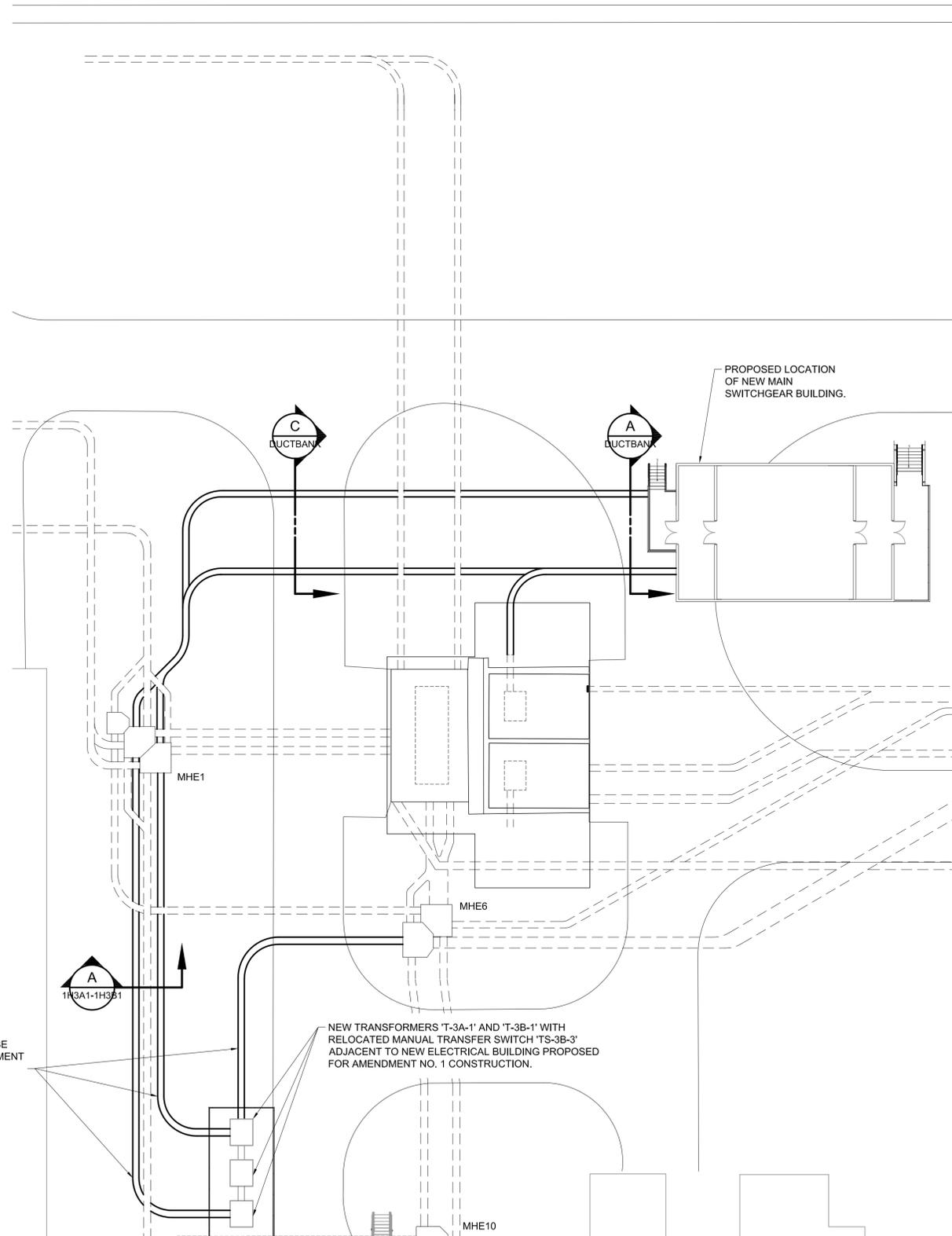
Hazen
HAZEN AND SAWYER
1000 NORTH ASHLEY DRIVE AVE, SUITE 1000
TAMPA, FLORIDA 33602
PHONE: (813) 630-4498 FAX: (813) 630-1967



CITY OF TAMPA
WASTEWATER DEPARTMENT
HOWARD F. CURREN AWTP
MASTER PLAN IMPROVEMENTS
MAIN SWITCHGEAR
FACILITY REPLACEMENTS

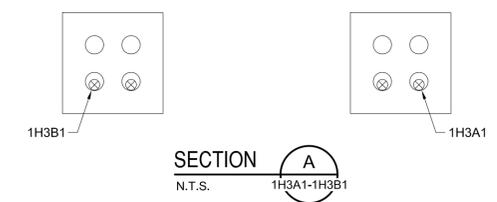
APPENDIX G
FEEDER INSTALLATION
1H6A1-1H6B1

DATE:	APRIL 2023
HAZEN NO.:	41077-013A
CONTRACT NO.:	20-C-00001
DRAWING NUMBER:	1H6A1-1H6B1



GENERAL NOTES:

1. CIRCUIT 1H3A1 TO CONSIST OF 3-#500 MCM + 1-#1/0 600V GND. LENGTH IS APPROXIMATED AT 675 FEET.
2. CIRCUIT 1H3B1 TO CONSIST OF 3-#500 MCM + 1-#1/0 600V GND. LENGTH IS APPROXIMATED AT 725 FEET.
3. CIRCUIT ROUTING, MANHOLE LOCATIONS AND DUCTBANK SECTIONS ARE DERIVED FROM PROPOSED AMENDMENT NO. 1 CONSTRUCTION PLANS.
4. LOW VOLTAGE DUCTBANKS ARE NOT SHOWN FOR CLARITY.



15KV FEEDERS 1H3A1 AND 1H3B1 ROUTING
1" - 20'-0"



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 PLOT DATE: 4/6/2023 10:55 AM

PROJECT ENGINEER:	J. PORTER
DESIGNED BY:	T. THOMAS
DRAWN BY:	J. THOMAS
CHECKED BY:	G. WALKER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	

PRELIMINARY DRAWING
DO NOT USE FOR
CONSTRUCTION



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HAZEN AND SAWYER
1000 NORTH ASHLEY DRIVE AVE, SUITE 1000
TAMPA, FLORIDA 33602
PHONE: (813) 630-4498 FAX: (813) 630-1967

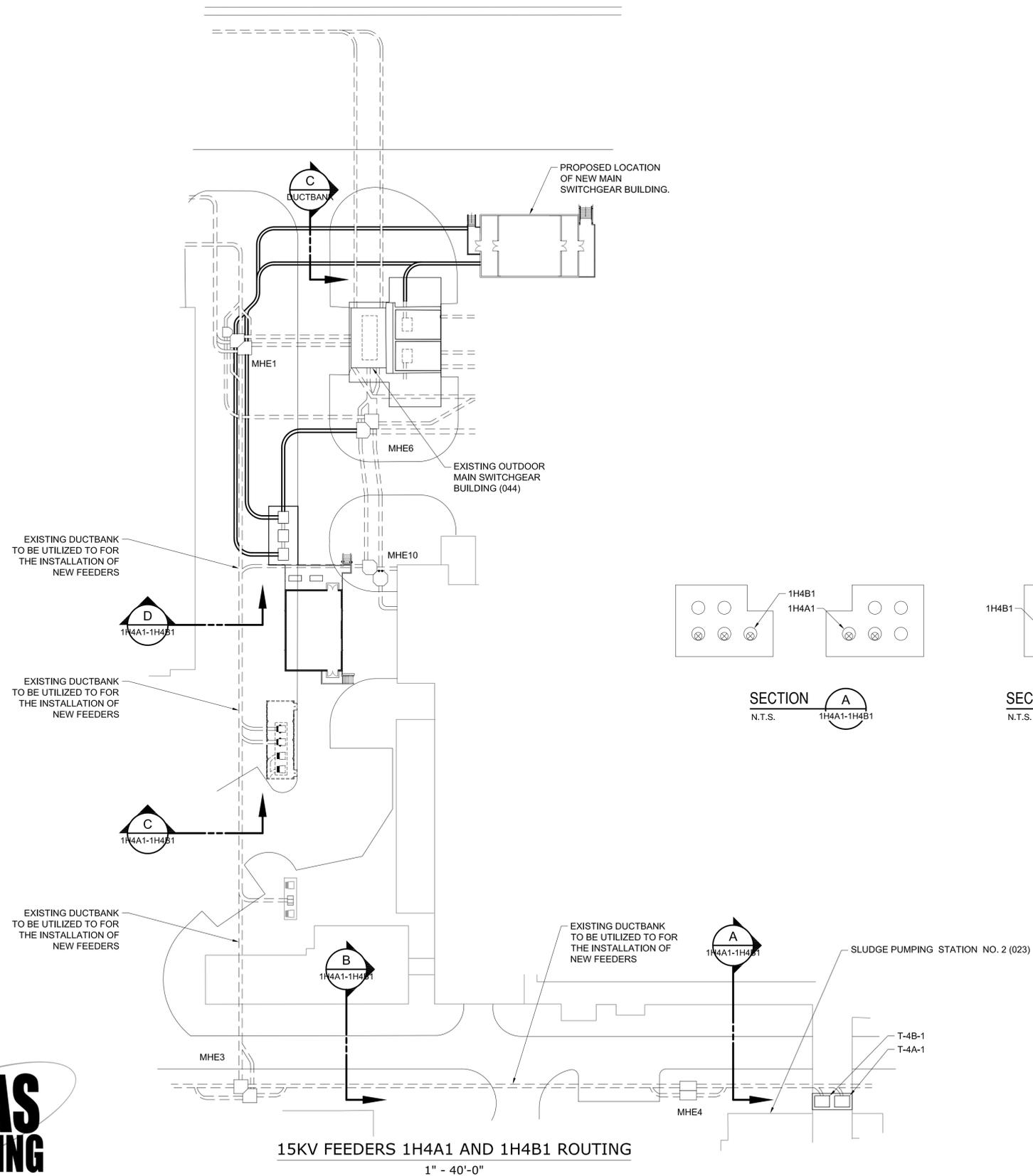


CITY OF TAMPA
WASTEWATER DEPARTMENT

HOWARD F. CURREN AWTP
MASTER PLAN IMPROVEMENTS
MAIN SWITCHGEAR
FACILITY REPLACEMENTS

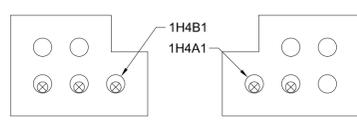
APPENDIX G
FEEDER INSTALLATION
1H3A1-1H3B1

DATE:	APRIL 2023
HAZEN NO.:	41077-013A
CONTRACT NO.:	20-C-00001
DRAWING NUMBER:	1H3A1-1H3B1

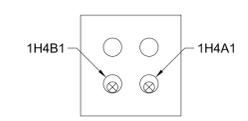


GENERAL NOTES:

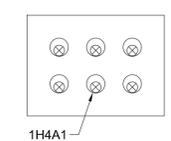
1. CIRCUIT 1H4A1 TO CONSIST OF 3-#500 MCM + 1-#4/0 600V GND. LENGTH IS APPROXIMATED AT 1,550 FEET.
2. CIRCUIT 1H4B1 TO CONSIST OF 3-#500 MCM + 1-#4/0 600V GND. LENGTH IS APPROXIMATED AT 1,600 FEET.
3. CIRCUIT ROUTING, MANHOLE LOCATIONS AND DUCTBANK SECTIONS ARE DERIVED FROM AS-BUILT INFORMATION INCLUDED IN 4H-4 AND 5H-1.
4. LOW VOLTAGE DUCTBANKS ARE NOT SHOWN FOR CLARITY.



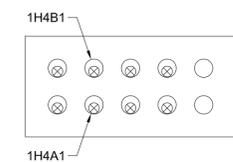
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SECTION B
N.T.S. 1H4A1-1H4B1

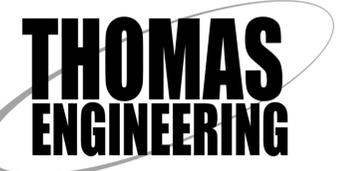


SECTION C
N.T.S. 1H4A1-1H4B1



SECTION D
N.T.S. 1H4A1-1H4B1

15KV FEEDERS 1H4A1 AND 1H4B1 ROUTING
1" = 40'-0"



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REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	J. PORTER
DESIGNED BY:	T. THOMAS
DRAWN BY:	J. THOMAS
CHECKED BY:	G. WALKER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	

PRELIMINARY DRAWING
DO NOT USE FOR
CONSTRUCTION



Hazen
HAZEN AND SAWYER
1000 NORTH ASHLEY DRIVE AVE, SUITE 1000
TAMPA, FLORIDA 33602
PHONE: (813) 630-4498 FAX: (813) 630-1967

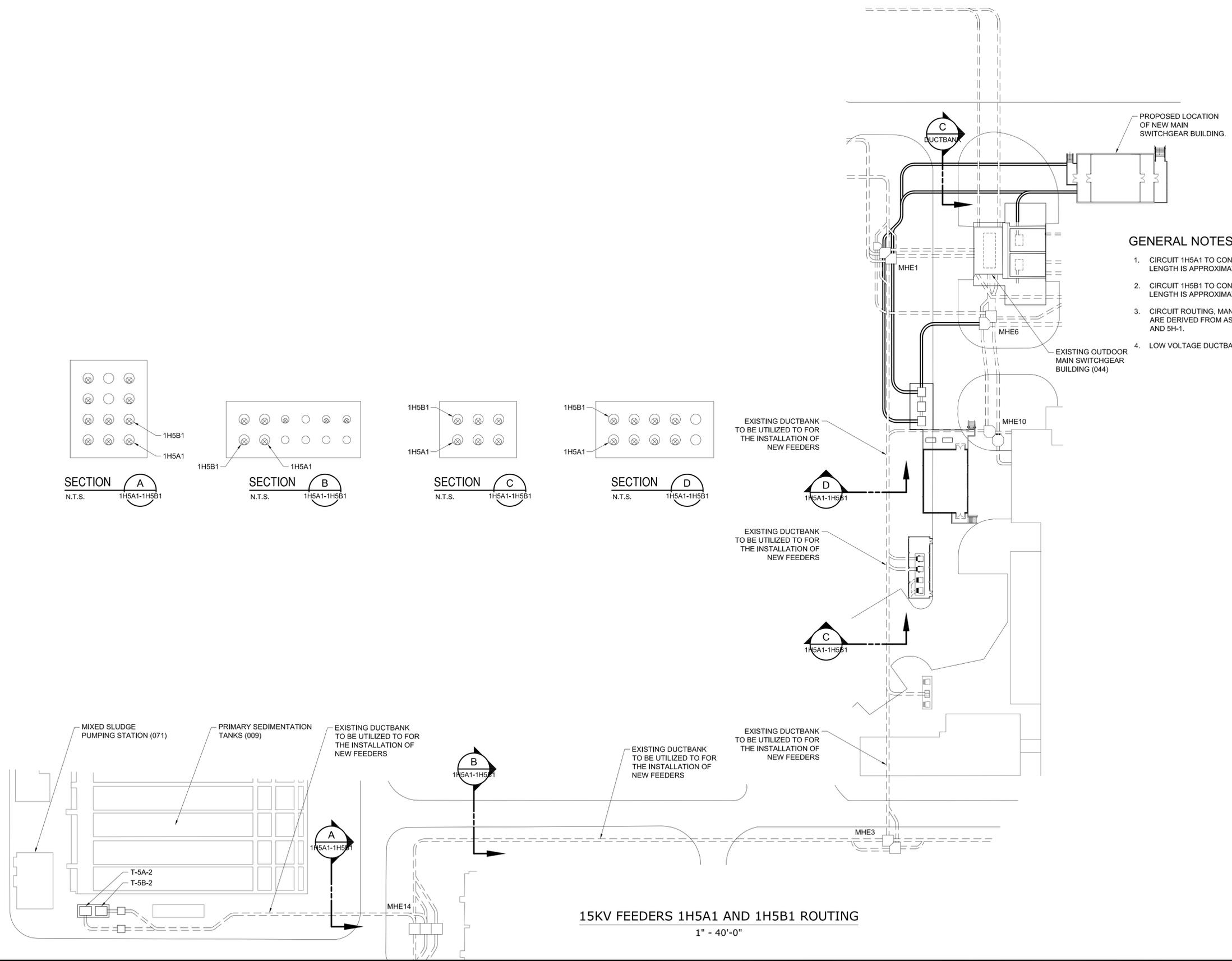


CITY OF TAMPA
WASTEWATER DEPARTMENT
HOWARD F. CURREN AWTP
MASTER PLAN IMPROVEMENTS
MAIN SWITCHGEAR
FACILITY REPLACEMENTS

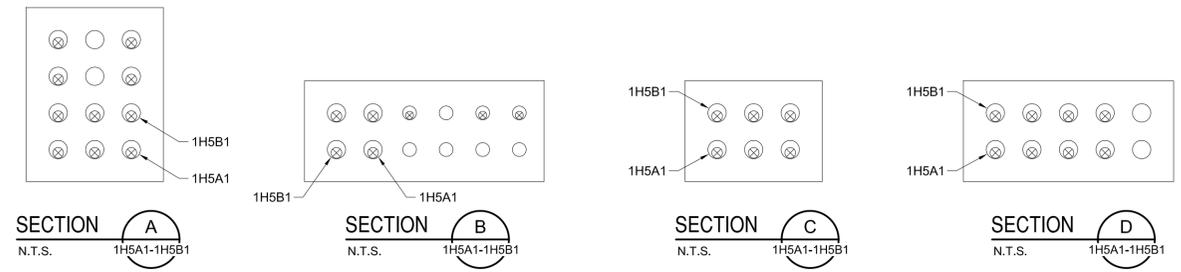
APPENDIX G
FEEDER INSTALLATION
1H4A1-1H4B1

DATE:	APRIL 2023
HAZEN NO.:	41077-013A
CONTRACT NO.:	20-C-00001
DRAWING NUMBER:	1H4A1-1H4B1

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- GENERAL NOTES:**
1. CIRCUIT 1H5A1 TO CONSIST OF 3-#500 MCM + 1-#4/O 600V GND. LENGTH IS APPROXIMATED AT 2,050 FEET.
 2. CIRCUIT 1H5B1 TO CONSIST OF 3-#500 MCM + 1-#4/O 600V GND. LENGTH IS APPROXIMATED AT 2,100 FEET.
 3. CIRCUIT ROUTING, MANHOLE LOCATIONS AND DUCTBANK SECTIONS ARE DERIVED FROM AS-BUILT INFORMATION INCLUDED IN 4H-4, 4H-12 AND 5H-1.
 4. LOW VOLTAGE DUCTBANKS ARE NOT SHOWN FOR CLARITY.



REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	J. PORTER
DESIGNED BY:	T. THOMAS
DRAWN BY:	J. THOMAS
CHECKED BY:	G. WALKER
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	

PRELIMINARY DRAWING
DO NOT USE FOR
CONSTRUCTION



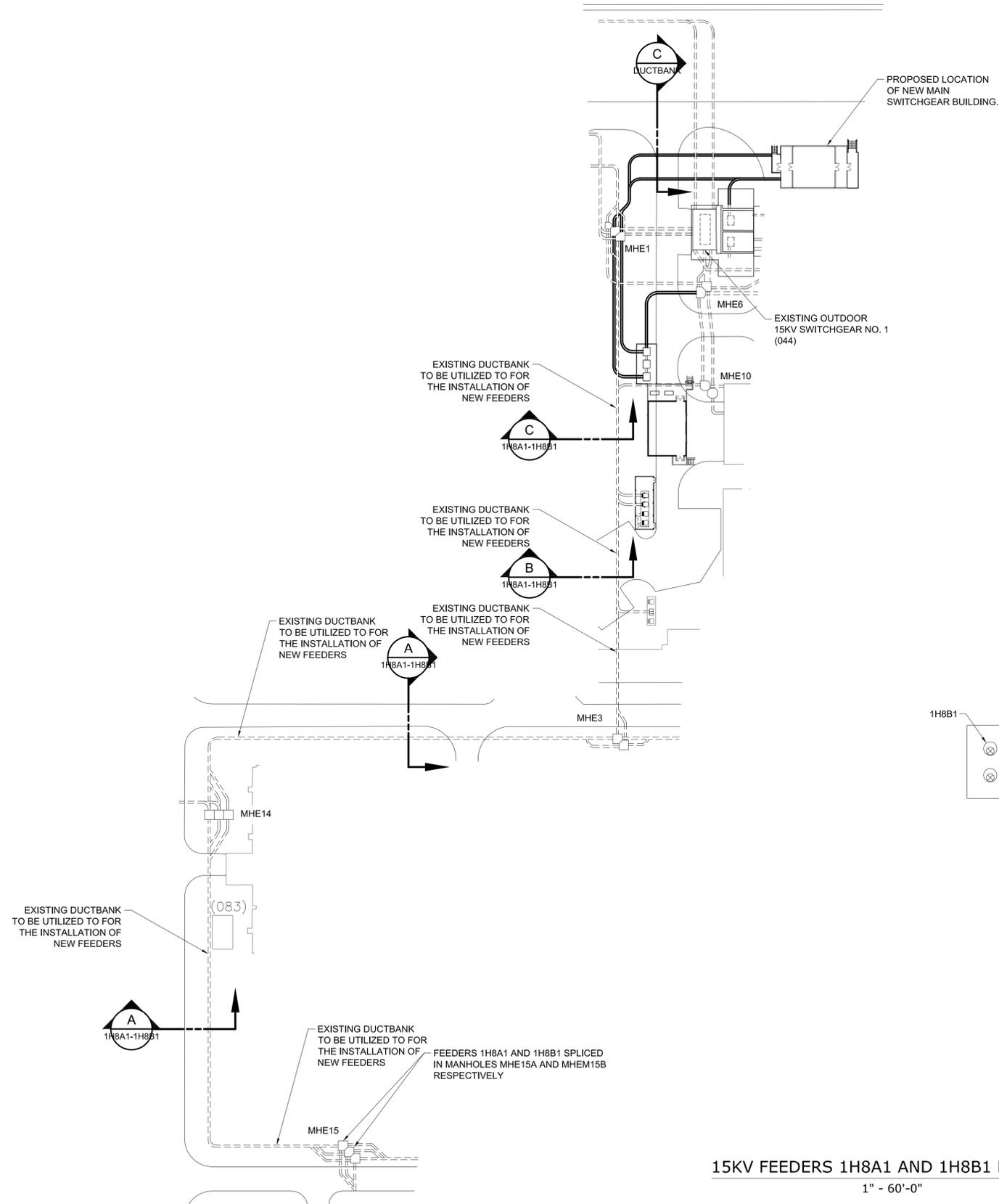
Hazen
HAZEN AND SAWYER
1000 NORTH ASHLEY DRIVE AVE, SUITE 1000
TAMPA, FLORIDA 33602
PHONE: (813) 630-4498 FAX: (813) 630-1967



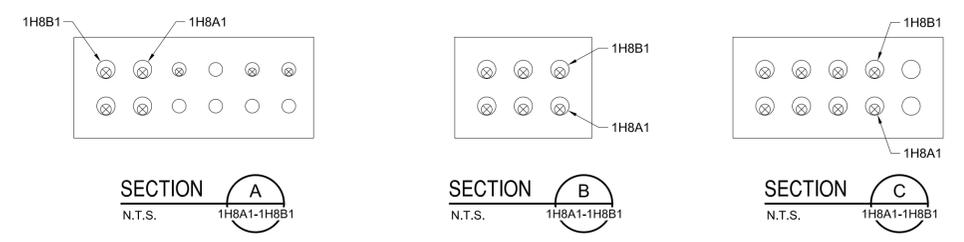
CITY OF TAMPA
WASTEWATER DEPARTMENT
HOWARD F. CURREN AWTP
MASTER PLAN IMPROVEMENTS
MAIN SWITCHGEAR
FACILITY REPLACEMENTS

APPENDIX G
FEEDER INSTALLATION
1H5A1-1H5B1

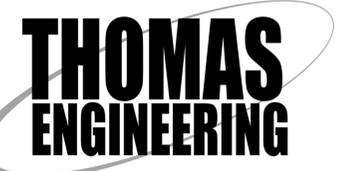
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HAZEN NO.:	41077-013A
CONTRACT NO.:	20-C-00001
DRAWING NUMBER:	1H5A1-1H5B1



- GENERAL NOTES:**
1. CIRCUIT 1H8A1 TO CONSIST OF 3-#350 MCM + 1-#2 600V GND. LENGTH IS APPROXIMATED AT 2,100 FEET.
 2. CIRCUIT 1H8B1 TO CONSIST OF 3-#350 MCM + 1-#2 600V GND. LENGTH IS APPROXIMATED AT 2,175 FEET.
 3. CIRCUIT ROUTING, MANHOLE LOCATIONS AND DUCTBANK SECTIONS ARE DERIVED FROM AS-BUILT INFORMATION INCLUDED IN 4H-4 AND 5H-1.
 4. LOW VOLTAGE DUCTBANKS ARE NOT SHOWN FOR CLARITY.



15KV FEEDERS 1H8A1 AND 1H8B1 ROUTING
1" - 60'-0"



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PROJECT ENGINEER:	J. PORTER		
DESIGNED BY:	T. THOMAS		
DRAWN BY:	J. THOMAS		
CHECKED BY:	G. WALKER		
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE			
REV	ISSUED FOR	DATE	BY

PRELIMINARY DRAWING
DO NOT USE FOR
CONSTRUCTION



Hazen
HAZEN AND SAWYER
1000 NORTH ASHLEY DRIVE AVE, SUITE 1000
TAMPA, FLORIDA 33602
PHONE: (813) 630-4498 FAX: (813) 630-1967



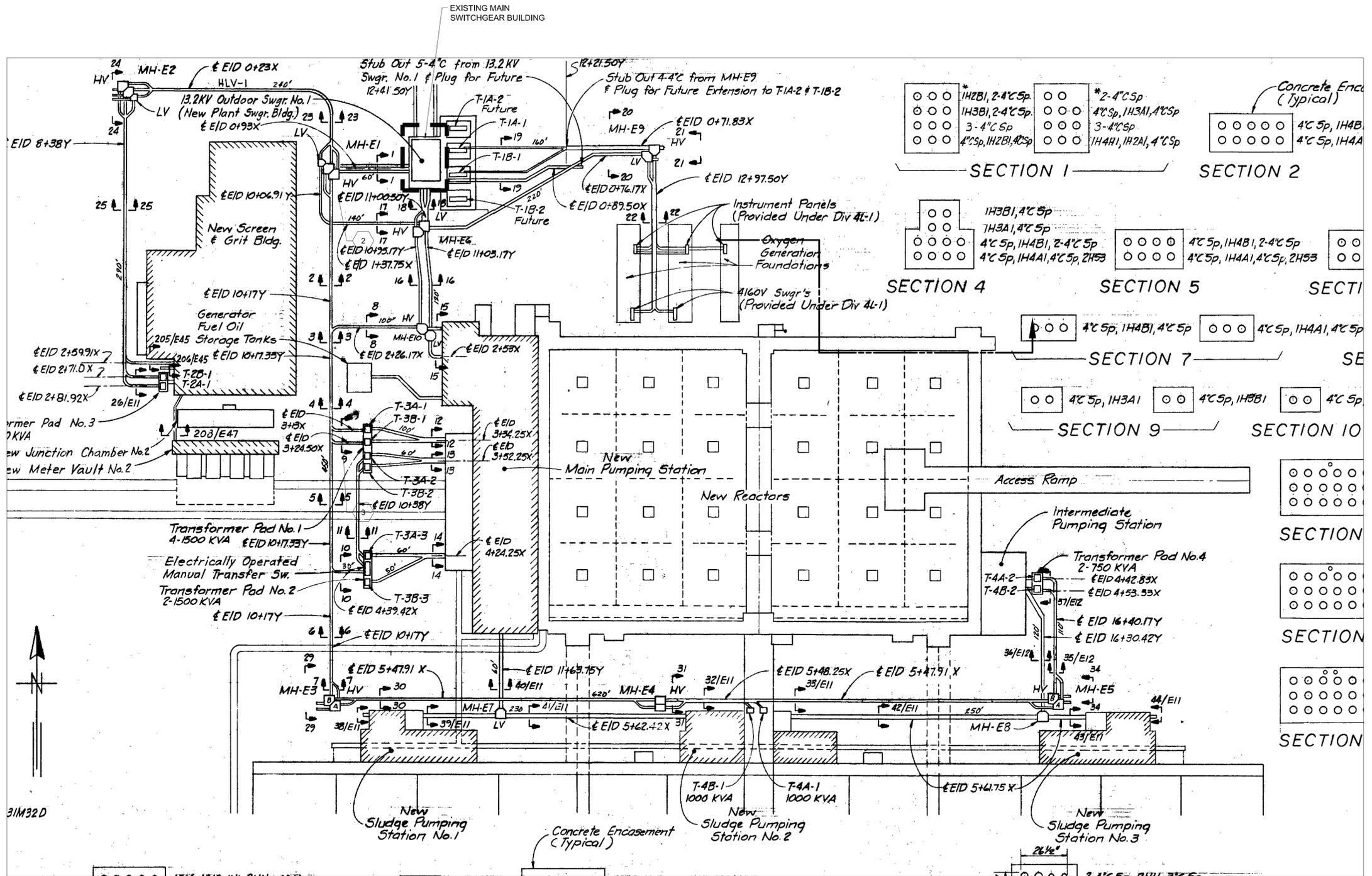
CITY OF TAMPA
WASTEWATER DEPARTMENT
HOWARD F. CURREN AWTP
MASTER PLAN IMPROVEMENTS
MAIN SWITCHGEAR
FACILITY REPLACEMENTS

APPENDIX G
FEEDER INSTALLATION
1H8A1-1H8B1

DATE:	APRIL 2023
HAZEN NO.:	41077-013A
CONTRACT NO.:	20-C-00001
DRAWING NUMBER:	1H8A1-1H8B1



Appendix H: Record Drawings of Items to be Replaced



RECORD DRAWING IDENTIFYING ITEMS TO BE REPLACED

NTS



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PROJECT ENGINEER:	J. PORTER		
DESIGNED BY:	T. THOMAS		
DRAWN BY:	J. THOMAS		
CHECKED BY:	G. WALKER		
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE			
REV	ISSUED FOR	DATE	BY

PRELIMINARY DRAWING
DO NOT USE FOR
CONSTRUCTION



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HAZEN AND SAWYER
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PHONE: (813) 630-4498 FAX: (813) 630-1967



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WASTEWATER DEPARTMENT
HOWARD F. CURREN AWTP
MASTER PLAN IMPROVEMENTS
MAIN SWITCHGEAR
FACILITY REPLACEMENTS

APPENDIX H
RECORD DRAWING OF
ITEMS TO BE REPLACED

DATE:	APRIL 2023
HAZEN NO.:	41077-013A
CONTRACT NO.:	20-C-00001
DRAWING NUMBER:	RECORD DWG



Appendix I: Site Visit Summary



Charlie Lynch, City of Tampa
Roman Korchak, City of Tampa
Kevin Schelb, City of Tampa
Lashonda Green, City of Tampa
Andres Aviles, City of Tampa
Anthony Baxley, Wharton-Smith
David Baar, Hazen and Sawyer
Caryssa Joustra, Hazen and Sawyer
Tim Thomas, Thomas Engineering

Replacements to the Main Switchgear Facility:

- Replacing the Main Switchgear Building
- Replacing the Transformer Structure

During the site visit for Task 251, discussions were held with the City of Tampa to view the existing installation. The City discussed potential sites for the new Plant Switchgear Building and expressed a desire for the TM to provide options regarding the proposed location.

The City provided information on the existing scheme for the automatic transfer of power upon loss of a TECO feed(s). It was clarified that these controls reside in the existing Standby Power Facility. It was confirmed that the TM would reflect the current configuration.

The City confirmed that the type and configuration of the proposed switchgear would be well suited for the application. The preliminary layout of the new switchgear building was discussed. The City agreed with the concept and will review the TM for further comment.



Appendix J: Cost Estimate

Howard F. Curren AWTP Master Plan Improvements

Task 251 – Bldg. 044

Main Switchgear Facility Replacement

Contract No. 20-C-00001



Cost Estimate & Schedule

Prepared by Reliable Tampa Partners

Issued September 6th, 2023



RELIABLE
TAMPA PARTNERS
THE HOMETOWN TEAM

SUMMARY

Presented herein is the preliminary estimate of construction cost for the Howard F. Curren AWTP Master Plan Improvements Main Switchgear Facility Replacement. This cost estimate was developed in accordance with the Technical Memorandum prepared by Hazen and Sawyer. The estimated cost for this project is \$26,848,365, based on the market conditions of this first quarter of 2023. This cost does not include any cost associated with the Future Transformer Structure. This estimate includes a Firm's Contingency of twenty-percent (20%) based on the limited information included in this preliminary design effort.

The following has been included herein:

- Preliminary Cost Estimate
- Clarifications
- Preliminary Construction Schedule

COST ESTIMATE

Estimate	
General Conditions	\$ 1,577,077
Project Management Team	\$ 1,155,904
Project Controls and Documentation	\$ 337,775
Safety and Quality	\$ 83,398
Cost of Construction	\$ 17,986,621
Field Management	\$ 1,412,191
Engineering Services	\$ 850,000
Scope of Work	\$ 14,097,570
Concrete	\$ 517,113
Masonry	\$ 229,600
Metals	\$ 124,177
Wood, Plastics, and Composites	\$ 18,460
Thermal and Moisture Protection	\$ 147,703
Openings	\$ 92,250
Finishes	\$ 191,675
Specialties	\$ 78,449
Heating Ventilating and Air Condition	\$ 461,250
Electrical	\$ 10,455,602
Earthwork	\$ 1,781,291
Major Equipment Purchases	\$ 1,626,860
Electrical	\$ 1,626,860
Firm's Contingency (20%)	\$ 3,912,740
Bonds & Insurance (2.5%)	\$ 774,371
Subtotal	\$ 24,250,808
Fee (7%)	\$ 1,697,557
Allowances	\$ 400,000
Owner's Contingency (10%)	\$ 500,000
TOTAL	\$ 26,848,365

COST ESTIMATE – GENERAL CONDITIONS

Description	Labor Subtotal	Equipment Subtotal	Material Subtotal	Subcontract Subtotal	Total
Project Management Team	\$ 1,155,904.47	\$ -	\$ -	\$ -	\$ 1,155,904.47
Senior Project Manager	\$ 182,448.59	\$ -	\$ -	\$ -	\$ 182,448.59
Project Manager	\$ 739,732.62	\$ -	\$ -	\$ -	\$ 739,732.62
Assistant Project Manager	\$ -	\$ -	\$ -	\$ -	\$ -
Project Engineer	\$ 233,723.26	\$ -	\$ -	\$ -	\$ 233,723.26
Project Controls and Documentation	\$ -	\$ -	\$ 35,475.00	\$ 302,300.00	\$ 337,775.00
Construction Management Software	\$ -	\$ -	\$ -	\$ 71,300.00	\$ 71,300.00
Computer Equipment	\$ -	\$ -	\$ 35,475.00	\$ -	\$ 35,475.00
Cost Accounting	\$ -	\$ -	\$ -	\$ 231,000.00	\$ 231,000.00
Safety and Quality	\$ 53,350.71	\$ -	\$ 15,047.00	\$ 15,000.00	\$ 83,397.71
Safety Meetings	\$ 8,015.90	\$ -	\$ -	\$ -	\$ 8,015.90
Safety Training	\$ 8,015.90	\$ -	\$ -	\$ -	\$ 8,015.90
Safety Training - Sub	\$ -	\$ -	\$ -	\$ 15,000.00	\$ 15,000.00
Quality Manager	\$ 19,413.48	\$ -	\$ -	\$ -	\$ 19,413.48
Safety Manager	\$ 17,905.44	\$ -	\$ -	\$ -	\$ 17,905.44
Safety Equipment	\$ -	\$ -	\$ 11,285.00	\$ -	\$ 11,285.00
Quality Control Equipment	\$ -	\$ -	\$ 3,762.00	\$ -	\$ 3,762.00
General Conditions Subtotal	\$ 1,209,255.18	\$ -	\$ 50,522.00	\$ 317,300.00	\$ 1,577,077.18

COST ESTIMATE – COST OF CONSTRUCTION

Description	Labor Subtotal	Equipment Subtotal	Material Subtotal	Subcontract Subtotal	Scope Subtotal
Field Management	\$ 722,718.82	\$ -	\$ 153,072.00	\$ 536,400.00	\$ 1,412,190.82
Field Management	\$ 722,718.82	\$ -	\$ 153,072.00	\$ 536,400.00	\$ 1,412,190.82
Engineering Services	\$ -	\$ -	\$ -	\$ 850,000.00	\$ 850,000.00
Engineering Services	\$ -	\$ -	\$ -	\$ 850,000.00	\$ 850,000.00
Scope of Work	\$ 371,779.70	\$ 96,045.00	\$ 874,566.00	\$ 12,953,179.00	\$ 14,097,569.70
Concrete	\$ -	\$ -	\$ -	\$ 517,113.00	\$ 517,113.00
Electrical Building - Concrete	\$ -	\$ -	\$ -	\$ 357,213.00	\$ 357,213.00
Electrical Building - Hollow Core Roof	\$ -	\$ -	\$ -	\$ 159,900.00	\$ 159,900.00
Masonry	\$ -	\$ -	\$ -	\$ 229,600.00	\$ 229,600.00
Electrical Building - Masonry Walls	\$ -	\$ -	\$ -	\$ 229,600.00	\$ 229,600.00
Metals	\$ 37,257.00	\$ -	\$ 86,920.00	\$ -	\$ 124,177.00
Electrical Building - Metals	\$ 37,257.00	\$ -	\$ 86,920.00	\$ -	\$ 124,177.00
Wood, Plastics, and Composites	\$ 11,854.50	\$ 5,250.00	\$ 1,355.00	\$ -	\$ 18,459.50
Electrical Building - Rough Carpentry	\$ 11,854.50	\$ 5,250.00	\$ 1,355.00	\$ -	\$ 18,459.50
Thermal and Moisture Protection	\$ -	\$ -	\$ -	\$ 147,703.00	\$ 147,703.00
Electrical Building - Thermal & Moisture Protection	\$ -	\$ -	\$ -	\$ 147,703.00	\$ 147,703.00
Openings	\$ -	\$ -	\$ -	\$ 92,250.00	\$ 92,250.00
Electrical Building - Openings	\$ -	\$ -	\$ -	\$ 92,250.00	\$ 92,250.00
Finishes	\$ -	\$ -	\$ -	\$ 191,675.00	\$ 191,675.00
Electrical Building - Finishes	\$ -	\$ -	\$ -	\$ 191,675.00	\$ 191,675.00
Specialties	\$ 6,774.00	\$ 1,800.00	\$ 69,875.00	\$ -	\$ 78,449.00
Electrical Building - Specialties	\$ 6,774.00	\$ 1,800.00	\$ 69,875.00	\$ -	\$ 78,449.00
Heating Ventilating and Air Condition	\$ -	\$ -	\$ -	\$ 461,250.00	\$ 461,250.00
Electrical Building HVAC	\$ -	\$ -	\$ -	\$ 461,250.00	\$ 461,250.00
Electrical	\$ -	\$ -	\$ -	\$ 10,455,602.00	\$ 10,455,602.00
Electrical	\$ -	\$ -	\$ -	\$ 10,455,602.00	\$ 10,455,602.00
Earthwork	\$ 315,894.20	\$ 88,995.00	\$ 716,416.00	\$ 857,986.00	\$ 1,781,291.20
Site Work	\$ 315,894.20	\$ 88,995.00	\$ 716,416.00	\$ 857,986.00	\$ 1,781,291.20
Major Equipment Purchases	\$ -	\$ -	\$ 1,626,860.00	\$ -	\$ 1,626,860.00
Electrical	\$ -	\$ -	\$ 1,626,860.00	\$ -	\$ 1,626,860.00
New Switchgear	\$ -	\$ -	\$ 1,626,860.00	\$ -	\$ 1,626,860.00
Cost of Construction Subtotal	\$ 1,094,498.52	\$ 96,045.00	\$ 2,654,498.00	\$ 14,339,579.00	\$ 17,986,620.52

COST ESTIMATE – FIELD MANAGEMENT

Description	Labor Subtotal	Equipment Subtotal	Material Subtotal	Subcontract Subtotal	Total
Field Management Team	\$ 699,461.42	\$ -	\$ 22,898.00	\$ 66,000.00	\$ 788,359.42
Superintendent	\$ 699,461.42	\$ -	\$ -	\$ -	\$ 699,461.42
Field Engineer	\$ -	\$ -	\$ -	\$ -	\$ -
Lodging & Meals	\$ -	\$ -	\$ -	\$ 66,000.00	\$ 66,000.00
Travel Expenses	\$ -	\$ -	\$ 22,898.00	\$ -	\$ 22,898.00
Temporary Management Facilities	\$ -	\$ -	\$ 40,797.00	\$ 182,350.00	\$ 223,147.00
Field Offices					
Field Office - Double Wide Trailer	\$ -	\$ -	\$ -		
<i>Rental</i>	\$ -	\$ -	\$ -	\$ 59,400.00	\$ 59,400.00
Storage Containers - 8' by 40' Connex					
<i>Rental</i>	\$ -	\$ -	\$ -	\$ 26,400.00	\$ 26,400.00
Temporary Utilities					
Potable Water	\$ -	\$ -	\$ -	\$ 11,550.00	\$ 11,550.00
Electric Service	\$ -	\$ -	\$ -	\$ 24,750.00	\$ 24,750.00
Internet Service	\$ -	\$ -	\$ -	\$ 6,600.00	\$ 6,600.00
Office Phone Systems	\$ -	\$ -	\$ -	\$ 3,300.00	\$ 3,300.00
Furnishings & Supplies					
Office Furnishings	\$ -	\$ -	\$ 8,869.00	\$ -	\$ 8,869.00
Printing / Copying	\$ -	\$ -	\$ 3,548.00	\$ -	\$ 3,548.00
Office Supplies	\$ -	\$ -	\$ 28,380.00	\$ -	\$ 28,380.00
Related Costs					
Solid Waste / Trash Service	\$ -	\$ -	\$ -	\$ 6,600.00	\$ 6,600.00
Janitorial	\$ -	\$ -	\$ -	\$ 35,500.00	\$ 35,500.00
Pest Control	\$ -	\$ -	\$ -	\$ 8,250.00	\$ 8,250.00
Construction Permitting	\$ -	\$ -	\$ -	\$ 1,500.00	\$ 1,500.00
Stormwater Management					
SWPPP NOI Fee	\$ -	\$ -	\$ -	\$ 1,500.00	\$ 1,500.00
Construction Operations	\$ 23,257.40	\$ -	\$ 89,377.00	\$ 286,550.00	\$ 399,184.40
Construction Access					
Port Access - Badging	\$ -	\$ -	\$ -	\$ 1,200.00	\$ 1,200.00
Access Control - Gate Attendant	\$ -	\$ -	\$ -	\$ 248,500.00	\$ 248,500.00
Access Control - Gate Attendant Office					
<i>Rental</i>	\$ -	\$ -	\$ -	\$ 16,500.00	\$ 16,500.00
Access Control - Security Monitoring Equipment	\$ -	\$ -	\$ 1,774.00	\$ -	\$ 1,774.00
Temporary Parking & Staging					
Construction Parking					
<i>Restoration</i>	\$ 11,290.00	\$ -	\$ 26,875.00	\$ -	\$ 38,165.00
Staging & Laydown					
<i>Maintenance</i>	\$ 7,451.40	\$ -	\$ 17,738.00	\$ -	\$ 25,189.40
Temporary Utilities					
<i>Utility Connections - Water</i>	\$ 2,258.00	\$ -	\$ 5,375.00	\$ 350.00	\$ 7,983.00
<i>Utility Connections - Electric</i>	\$ 2,258.00	\$ -	\$ -	\$ 20,000.00	\$ 22,258.00
Construction Operations					
Small Tools & Consumables	\$ -	\$ -	\$ 37,615.00	\$ -	\$ 37,615.00
General Requirements Subtotal	\$ 722,718.82	\$ -	\$ 153,072.00	\$ 536,400.00	\$ 1,412,190.82

COST ESTIMATE – ALLOWANCES

Description	Total
Allowances	
Permitting	
Permitting	\$ 25,000.00
Independent Testing	
Independent Testing	\$ 75,000.00
Existing Building Demolition	
Demolition	\$ 250,000.00
Restoration	\$ 50,000.00
Cost of Construction Subtotal	\$ 400,000.00

CLARIFICATIONS

RTP has prepared this estimate with the following clarifications:

1. This cost estimate is based on current market conditions and does not account for escalation.
2. No Davis-Bacon, other prevailing wage requirements, or American Iron and Steel (AIS) provisions are incorporated in the pricing.
3. It is assumed this scope of work will be included in a GMP with other master plan improvements and will occur concurrently with these other improvements.
4. No provisions for an Inspector's trailer are included.
5. The cost estimate does not include any temporary power or temporary backup power.
6. No below grade site investigation has been performed. The estimate is based on the layouts shown in the drawings. Further investigation is recommended during the final design efforts.
7. The estimate does not include any costs associated with future Transformer Structure.
8. The estimate does not include any costs associated with the power utility to install new feeders to the new Main Switchgear Facility.
9. The cost to construction the new Main Switchgear Building are based on the general design approach of the new MPS Electrical Building design being performed under Design Amendment No. 1.
10. No ground improvements, such as precast piles, have been included in the estimate.

PRELIMINARY SCHEDULE

Description	Duration By Task (weeks)	Total Duration (weeks)
Design Services		
60% Design Submittal	24	24
GMP Estimate and PTW	10	34
90% Design Submittal	14	38
GMP Proposal	12	50
IFC Documents	4	54
<i>Construction NTP</i>	8	58
Construction		
Electrical Gear Submittal Preparation Approval	16	74
Electrical Gear Fabrication & Delivery	86	160
Construction	148	206