

INDIAN RIVER COUNTY



BOARD OF COUNTY COMMISSIONERS

Department of Utility Services

**South Oslo Road WTP SCADA System
Improvements**

Indian River County Bid No: 2021046

INDIAN RIVER COUNTY

South Oslo Road WTP SCADA System Improvements

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**ADVERTISEMENT FOR BIDS
INDIAN RIVER COUNTY**

Sealed bids will be received by Indian River County until **2:00 P.M.** on **Thursday, July 22, 2021**. Each bid shall be submitted in a sealed envelope and shall bear the name and address of the bidder on the outside and the words "**Bid 2021046 - South Oslo Road WTP SCADA System Improvements**" Bids should be addressed to Purchasing Division, 1800 27th Street, Vero Beach, Florida 32960. All bids will be opened publicly and read aloud at 2:00 P.M. All bids received after 2:00 P.M., on the day specified above, will not be opened or considered.

All material and equipment furnished and all work performed shall be in strict accordance with the plans, specifications, and contract documents pertaining thereto. Copies of the documents are available at: www.demandstar.com or by selecting "Current Solicitations" at <http://www.ircgov.com/Departments/Budget/Purchasing>. All other communications concerning this bid shall be directed to IRC Purchasing Division at purchasing@ircgov.com.

All bidders shall submit one (1) original and one (1) copy of the Bid Proposal forms provided within the specifications. Please note that the questionnaire must be filled out completely including the financial statement. BID SECURITY must accompany each Bid, and must be in the form of an AIA Document A310 Bid Bond, properly executed by the Bidder and by a qualified surety, or a certified check or a cashier's check, drawn on any bank authorized to do business in the State of Florida. Bid Security must be in the sum of not less than **Five Percent (5%)** of the total amount of the bid, made payable to Indian River County Board of County Commissioners. In the event the Contract is awarded to the Bidder, Bidder will enter in a Contract with the County and furnish the required 100% Public Construction Bond and certificates of insurance within the timeframe set by the County. If Bidder fails to do so, the Bid Security shall be retained by the County as liquidated damages and not as penalty.

The County reserves the right to delay awarding of the Contract for a period of **ninety (90)** days after the bid opening, to waive informalities in any bid, or reject any or all bids in whole or in part with or without cause/or to accept the bid that, in its judgement, will serve the best interest of Indian River County, Florida. The County will not reimburse any Bidder for bid preparation costs.

A **NON-MANDATORY** Pre-Bid Conference will be held on **Friday, June 18, 2021** at **10:00 A.M.**, on site at 1550 9th St SW, Vero Beach, FL 32962. **ATTENDANCE AT THIS CONFERENCE IS ENCOURAGED.**

INDIAN RIVER COUNTY

By: Jennifer Hyde
Purchasing Manager

For Publication in the Indian River Press Journal (Bids and Proposals Section)

Date: Wednesday, June 9, 2021

Please furnish tear sheet and Affidavit of Publication to:

INDIAN RIVER COUNTY
PURCHASING DIVISION
1800 27th Street
Building "B"
Vero Beach, FL 32960

*** * END OF SECTION * ***

SECTION 00100
INSTRUCTIONS TO BIDDERS
(Based Upon EJCDC No. C-700, 2002 Edition)

1.01 DEFINED TERMS

Terms used in these Instructions to Bidders, that are defined in the Standard General Conditions of the Construction Contract (No.C-700, 2002 edition), as may be amended by the Supplementary Conditions, have the meanings assigned to them in the General Conditions. The term "Bidder" means one who submits a bid directly to Owner, as distinct from a sub-bidder, who submits a bid to a Bidder. The term "Successful Bidder" means the lowest, responsible, and responsive Bidder to whom Owner (on the basis of Owner's evaluation as hereinafter provided) makes an award. The term "Bidding Documents" includes the Advertisement for Bids, Instructions to Bidders, Bid Form, Sworn Statement Under the Florida Trench Safety Act, Statement Under Section 105.08 and Certification Regarding Scrutinized Companies, General Information Required of Bidders, and the proposed Agreement.

1.02 COPIES OF BIDDING DOCUMENTS

A. Copies of the Bid Documents and specifications containing the necessary contract documents are available at: www.demandstar.com or by selecting "current solicitations" at <http://www.ircgov.com/Departments/Budget/Purchasing/index.htm>.

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

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

1.03 QUALIFICATIONS OF BIDDERS

To demonstrate qualifications to perform the work, each Bidder must be prepared to submit, within 5 days of Owner's request, written evidence, such as financial data, previous experience, present commitments, and other such data as may be necessary to prove to the satisfaction of the Owner that the Bidder is qualified by experience to do the work and is prepared to complete the work within the stated time period.

- A. Bidder must have and demonstrate at least ten (10) years' experience in the construction of similar projects of this size and larger.
- B. Bidder must have successfully constructed, at least five (5) projects similar in scope to this project.
- C. Bidder must have good recommendations from at least three clients similar to the OWNER.
- D. The Bidder's superintendent and assistants must be qualified and experienced in similar projects in all categories.
- E. Bidder must be able to provide evidence of authority to conduct business in the jurisdiction in which the project is located.
- F. Bidder must be registered with and use, at their sole expense, the Department of Homeland Security's E-Verify system (www.e-verify.gov) to confirm the employment eligibility of all newly hired employees, as required by Section 448.095, F.S. Owner, contractor, and subcontractors may not enter into a contract unless each party to the contract registers with and uses the E-Verify system. Contractor is responsible for obtaining proof of E-Verify

registration for all subcontractors. This requirement applies to any provider of services or goods.

1.04 EXAMINATION OF CONTRACT DOCUMENTS AND SITE

- A. It is the responsibility of each Bidder, before submitting a bid, to (a) examine the Contract Documents thoroughly, (b) visit the site to become familiar with local conditions that may affect cost, progress, performance, or furnishing of the work, (c) consider federal, state, and local laws and regulations that may affect costs, progress, performance, or furnishing of the work, (d) study and carefully correlate Bidder's observations with the Contract Documents, and (e) notify Engineer of all conflicts, errors, or discrepancies in the Contract Documents.
- B. Any information or data reflected in the Contract Documents with respect to underground facilities at or contiguous to the site is based upon information or data furnished to Owner and Engineer by owners of such underground facilities or others, Owner does not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary Conditions.
- C. Before submitting a Bid, each Bidder will, at Bidder's own expense, make or obtain any examinations, investigations, explorations, tests, and studies, and obtain any additional information and data which pertain to the physical conditions (surface, subsurface and underground facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance, or furnishing of the work and which Bidder deems necessary to determine its Bid for performing and furnishing the work in accordance with the time, price and other terms and conditions of the Contract Documents.
- D. On request in advance, Owner will provide each Bidder access to the site to conduct such explorations and tests as each Bidder deems necessary for submission of a Bid. Bidder shall fill all holes, clean up, and restore the site to its former condition upon completion of such explorations.
- E. The lands upon which the work is to be performed, right-of-way and easements for access thereto and other lands designed for use by the Contractor in performing the work are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by and paid for by the Contractor. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by the Owner unless otherwise provided in the Contract Documents.
- F. The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of the Instructions to Bidders, that without exception the Bid is premised upon performing and furnishing the work required by the Contract Documents and such means, methods, techniques, sequences or procedures of construction as may be indicated in or required by the Contract Documents, and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance and furnishing of the work.

1.05 PRE-BID CONFERENCE

The date, time, and location for a Pre-Bid conference, if any, are specified in the Advertisement for Bids. Representatives of OWNER and ENGINEER will be present to discuss the Project. Bidders are strongly encouraged to attend and participate in the conference and highly recommended to attend the subsequent site visit. OWNER will transmit to all prospective Bidders of record such Addenda as ENGINEER considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

1.06 INTERPRETATIONS AND ADDENDA

- A. **All questions about the meanings or intent of the Contract Documents are to be directed in writing to the Purchasing Department** by email to purchasing@ircgov.com. Interpretation or clarifications considered necessary by Owner in response to such questions will be issued by Addenda uploaded to Demandstar. Questions received less than **ten (10) days** prior to the date for the opening of Bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will not be binding and will be without legal effect.
- B. Addenda may also be issued to modify the Bidding Documents as deemed advisable by Owner or Engineer. Only the interpretation or correction issued by Owner or Engineer by Addendum shall be binding. Prospective Bidders are advised that no other source is authorized to give information concerning the documents or to explain or interpret the documents.
- C. All Bidders will acknowledge in the space provided for in Section 00310 BID FORM, the receipt of all Addenda and will confirm that the Addenda have been considered in the preparations of their proposal.

1.07 BID SECURITY

- A. Each Bid must be accompanied by Bid Security made payable to Owner in an amount of not less than five percent of the Bidder's total bid price and in the form of a certified check; cashier's check drawn on any bank authorized to do business in the state of Florida; or an AIA Document A310 Bid Bond issued by a surety meeting the requirements of Paragraph 5.01B of the General Conditions as may be supplemented in the Supplementary Conditions.
- B. The Bid Security of the Successful Bidder will be retained until such Bidder has executed the Agreement and furnished the required Public Construction Bond, and Insurance Certificates whereupon the Bid Security will be returned. If the Successful Bidder fails to execute and deliver the Agreement and furnish the required Public Construction Bond and required insurance certificates within fifteen calendar days after the Notice of Award, Owner may annul the Notice of Award, and the Bid Security of that Bidder will be retained by the County.
- C. The Bid Security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by the Owner until the earlier of the seventh (7th) day after the effective date of the Agreement or the ninety-first (91st) day after the Bid opening, whereupon Bid security furnished by such Bidders will be returned. Bid

security with bids which are not competitive may be returned before the end of the ninety-day (90) period.

1.08 CONTRACT TIME

The number of days within which, or dates by which, the work is to be substantially completed and also complete and ready for final payment (the Contract Time) are set forth in the Agreement (Section 00530).

1.09 LIQUIDATED DAMAGES

Provisions for liquidated damages, if any, are set forth in the Agreement (Section 00530).

1.10 SUBSTITUTE OR "OR EQUAL" ITEMS

The Agreement, if awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute or "or equal" items. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "or equal" item of material or equipment may be furnished or used by Bidder if acceptable to Engineer, application for such acceptance will not be considered by Engineer until after the Effective Date of the Agreement. The procedure for submission of any such application by Bidder and consideration by Engineer is set forth in Paragraph 6.05 of the General Conditions as may be supplemented in the Supplementary Conditions.

1.11 BID FORM

- A. The Bid Form is included with the Bidding Documents. Only the bid form provided by OWNER is acceptable (Bidders are not to recreate the bid form. **Altered or recreated bid forms will result in rejection of the bid.**)
- B. All blanks on the Bid Form must be completed in ink or by typewriter. A Bid price shall be indicated for each section, Bid item, alternative, adjustment unit price item, and unit price item listed therein, or the words "No Bid," "No Change," or "Not Applicable" entered.
- C. Bids by corporations must be executed in the corporate name by the president or a vice president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation must be shown below the signature. All names must be typed or printed below the signature.
- D. The Bid shall contain an acknowledgment of receipt of all Addenda (the numbers of which must be filled in on the Bid Form).
- E. Bids by partnership must be executed in the partnership name and signed by a partner, whose title must appear under the signature, and official address of the partnership must be shown below the signature.
- F. All names must be typed or printed below the signature.
- G. The address and telephone number for communications regarding the Bid must be shown.

- H. The Bid shall contain evidence of Bidder's authority and qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the Contract. Bidder's state contractor license number or county registration number for the state or county of the Project, if any, shall also be shown on the Bid form.
- I. Additional forms to be submitted with Bid Form include: Section 00431 - Schedule of Subcontractors; Section 00432 – Certification Regarding Prohibition against Contracting with Scrutinized Companies; Section 00410 – “AIA Document A310 Bid Bond; Section 00452 – Disclosure of Relationships; and Section 00456 – “General Information Required of Bidders”.

1.12 SUBMISSION OF BIDS

- A. All Bids shall be submitted at the time and place indicated in the Advertisement for Bids and shall be enclosed in an opaque sealed envelope, clearly marked on the outside with the following information: **Project Name/Title; Bid Number; and the name and address of the Bidder.** If the Bid is sent through the mail, overnight delivery system, or courier, the sealed envelope, marked as set forth above, shall be enclosed in a separate outer envelope with the notation "BID ENCLOSED" on the outside.
- B. The Bidder shall submit the Bid in duplicate (one original and one copy) on the Bid Forms furnished herewith. The blank spaces on the Bid Form shall be filled in correctly for each Bid Item for which a Bid is submitted. Bid form shall not be recreated by Bidders. Any recreation or modification to the Bid Form will result in disqualification. All Bids shall be accompanied by the Bid Security and other required documents.

1.13 MODIFICATION AND WITHDRAWAL OF BIDS

- A. Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.
- B. If within 24 hours after Bids are opened any Bidder files a duly signed written notice with OWNER and promptly thereafter demonstrates to the reasonable satisfaction of OWNER that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, that Bidder will be disqualified from further bidding on the Work.

1.14 OPENING OF BIDS

Bids will be opened and (unless obviously non-responsive) read aloud publicly. An abstract of the amounts of base Bids and major alternates (if any) will be made available after the opening of Bids.

1.15 BIDS TO REMAIN SUBJECT OF ACCEPTANCE

The County reserves the right to delay awarding of the Contract for a period of Ninety (90) days after the bid opening, to waive informalities in any bid, or reject any or all bids in whole or in part with or without cause/or to accept the bid that, in its judgement, will serve the best interest of Indian River County, Florida. The County will not reimburse any Bidder for bid preparation costs.

1.16 AWARD OF CONTRACT

- A. Owner reserves the right: to reject any and all Bids in whole or in part with or without cause; to waive any and all technicalities and informalities not involving price, time, or changes in the work; to negotiate contract terms with the Successful Bidder; to disregard all non-conforming, non-responsive, unbalanced, or conditional Bids; and to accept the bid that, in its judgment, will serve the best interest of Indian River County. Discrepancies in the multiplication of units of work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Owner reserves the right to cancel the award of any Agreement at any time before the execution of such Agreement by all parties without any liability to the Owner. For and in consideration of the Owner considering Bids submitted, the Bidder, by submitting its Bid, expressly waives any claim to damages, of any kind whatsoever, in the event the Owner exercises its right to cancel the award in accordance herewith. The County will not reimburse any Bidder for bid preparation costs.
- B. In evaluating Bids, Owner will consider the qualifications of the Bidder, whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form prior to the Notice of Award.
- C. Owner may consider the qualifications and experience of subcontractors listed on the Schedule of Subcontractors (Section 00431), together with the qualifications and experience of other subcontractors, suppliers, and other persons and organizations proposed for the work that are required to be identified as provided in the Supplementary Conditions. Owner may consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the work when such data is required to be submitted prior to the Notice of Award.
- D. Owner may conduct such investigations as Owner deems necessary to assist in the evaluation of any Bid and establish the responsibility, qualifications, and financial ability of Bidders, proposed subcontractors, suppliers, and other persons and organizations to perform and furnish the work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.
- E. If the Agreement is to be awarded, it will be awarded to the lowest, responsive, responsible Bidder whose evaluation by Owner indicates to Owner that the award will be in the best interests of the Owner.
- F. If the Agreement is to be awarded, Owner will give the Successful Bidder a Notice of Award within ninety days after the day of the Bid opening.
- G. More than one Bid from an individual, firm, partnership, corporation, or association under the same or different names will not be considered. Reasonable grounds for believing that one Bidder is financially interested in more than one bid for the same work will cause the rejection of all Bids in which such Bidders are believed to be interested. Any or all Bids will be rejected if there is reason to believe that collusion exists among the Bidders, and no participants in such collusion will be considered in future Bids for the same work.

- H. Within fifteen (15) calendar days of the date of the Notice of Award of the Contract, the Bidder to whom the Contract is awarded shall execute and deliver two (2) original Contracts to the Owner and all required insurance certificates and public construction bond, before the Contract will be executed by the Owner.
- I. Failure upon the part of the Bidder to whom the Contract has been awarded to execute and deliver the required Public Construction Bond and insurance in the manner and within the time provided shall be just cause for cancellation of the award. It is understood and agreed by said Bidder, that if the award is cancelled for the above persons, the certified check, cashier's check or Bid Bond shall become the property of the Owner, not as a penalty, but as liquidated damages.

1.17 PUBLIC CONSTRUCTION BONDS

The successful Bidder as Contractor shall furnish the County immediately upon execution of the Contract a Public Construction Bond in an amount equal to 100-percent of the contract price. The Surety shall be authorized to issue surety bonds in Florida and be included in the most recent United States Department of Treasury List of Acceptable Sureties. The successful Bidder shall require the attorney-in-fact, who executed the Public Construction Bond, to affix to each a current certified copy of their Power of Attorney, reflecting such person's authority as Power of Attorney in the State of Florida. Further, at the time of execution of the Contract, the successful Bidder shall provide a copy of the Surety's current valid Certificate of Authority issued by the United States Department of the Treasury under 31 United States Code sections 9304-9308.

1.18 PUBLIC DISCLOSURE STATEMENT

Any entity entering into a contract with Indian River County as Owner shall disclose any relationship that may exist between the contracting entity and an Indian River County Commissioner or Indian River County employee. The relationship with either must be disclosed as follows: Father, mother, son, daughter, brother, sister, uncle, aunt, first cousin, nephew, niece, husband, wife, father-in-law, mother-in-law, daughter-in-law, son-in-law, brother-in-law, sister-in-law, stepfather, stepmother, stepson, stepdaughter, stepbrother, half brother, half sister, grandparent, or grandchild. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of the entity.

1.19 FLORIDA PRODUCED LUMBER

The selected Bidder as Contractor agrees to comply with the provisions of Section 255.20, Florida Statutes, as such statute may be amended from time to time, wherein Indian River County as Owner must specify lumber, timber and other forest products produced and manufactured in Florida whenever such products are available and their price, fitness and quality are equal.

1.20 TRENCH SAFETY

N/A

1.21 PUBLIC ENTITY CRIME STATEMENT

Pursuant to Florida Statutes Section 287.133(2)(a), all Bidders are hereby notified that a person or affiliate who has been placed on the convicted vendor list following a conviction for

a public entity crime may not submit a bid, proposal, or reply on a contract to provide any goods or services to a public entity (defined as the State of Florida, any of its departments or agencies, or any political subdivision); may not submit a bid, proposal, or reply on a contract with a public entity for the construction or repair of a public building or public work; may not submit bids, proposals, or replies on leases of real property to a public entity; 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 Florida Statutes Section 287.017 for CATEGORY TWO [currently \$35,000] for a period of 36 months from the date of being placed on the convicted vendor list. A "public entity crime" means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or with the United States, including, but not limited to, any bid, proposal, reply, or contract for goods or services, any lease for real property, or any contract for the construction or repair of a public building or public work, involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.

1.22 CERTIFICATION REGARDING SCRUTINIZED COMPANIES

Contractor certifies that it and those related entities of respondent as defined above by Florida law above are not on the Scrutinized Companies that Boycott Israel List, created pursuant to s. 215.4725 of the Florida Statutes, and are not engaged in a boycott of Israel. In addition, if this agreement is for goods or services of one million dollars or more, Contractor certifies that it and those related entities of respondent as defined above by Florida law are not on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, created pursuant to Section 215.473 of the Florida Statutes and are not engaged in business operations in Cuba or Syria.

County may terminate this Contract if Company is found to have submitted a false certification as provided under section 287.135(5), Florida Statutes, been placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or been engaged in business operations in Cuba or Syria, as defined by section 287.135, Florida Statutes.

County may terminate this Contract if Company, including all wholly owned subsidiaries, majority-owned subsidiaries, and parent companies, that exist for the purpose of making profit, is found to have been placed on the Scrutinized Companies that Boycott Israel List or is engaged in a boycott of Israel as set forth in section 215.4725, Florida Statutes.

Accordingly, firms responding to this solicitation shall return with their response an executed copy of the attached "Certification Regarding Prohibition Against Contracting with Scrutinized Companies." Failure to return this executed form with submitted bid/proposal/statement of qualifications will result in the response being deemed non-responsive and eliminated from consideration.

1.23 PERMITS, IMPACT, AND INSPECTION FEES.

In accordance with Florida Statutes Section 218.80, the "Public Bid Disclosure Act", Indian River County as OWNER is obligated to disclose all license, permit, impact, or inspection fees that are payable to Indian River County in connection with the construction of the Work by the accepted bidder. ALL PERMIT, IMPACT, OR INSPECTION FEES PAYABLE TO INDIAN RIVER COUNTY IN CONNECTION WITH THE WORK ON THIS COUNTY

PROJECT WILL BE PAID BY INDIAN RIVER COUNTY, WITH THE EXCEPTION OF RE-INSPECTION FEES AS SET FORTH IN THE CONTRACT. The Bidder shall not include ANY PERMIT, IMPACT, NOR INSPECTION FEES payable to Indian River County in the bid. No other permitting agencies are anticipated to be involved in this project.

1.24 NON-DISCRIMINATION

Indian River County will not knowingly do business with vendors or contractors who discriminate on the basis of race, color or national origin, sex, sexual orientation, gender identity, age and/or disability. Through the course of providing services to the County, Contractors shall affirmatively comply with all applicable provisions of Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987 and the Florida Civil Rights Act of 1992, as well as all other applicable regulations, guidelines and standards. Any person who believes their rights have been violated should report such discrimination to the County's Title VI/Nondiscrimination Coordinator through the office of the County Attorney.

1.25 LOCAL PREFERENCE

OWNER has no local ordinance or preferences, as set forth in FS 255.0991(2) in place, therefore no preference prohibited by that section will be considered in the acceptance, review or award of this bid.

1.26 PROTEST PROCEDURE

Any actual or prospective bidder who is aggrieved in connection with a competitive selection process may protest to the Purchasing Manager. The protest shall be submitted to the Purchasing Manager in writing within seven (7) calendar days after the bidder knows or should have known of the facts giving rise to the protest. If the protest is not resolved by mutual agreement, the Purchasing Manager shall promptly issue a decision in writing, after consulting the applicable Department and the Office of the County Attorney.

1.27 CONE OF SILENCE

Potential bidders/respondents and their agents must not communicate in any way with the Board of County Commissioners, County Administrator, Consultant/Engineer(s) or any County staff other than Purchasing personnel in reference or relation to this solicitation. This restriction is effective from the time of bid advertisement until the Board of County Commissioners meets to authorize award. Such communication may result in disqualification.

END OF SECTION

a false or sham Bid; Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.

4. Bidder will complete and include with the bid the Bid Proposal (Schedule of Bid Items) attached to this Bid Form. The quantities shown on the Bid Proposal Schedule of Bid Items) are approximate quantities. The actual quantities may vary.
5. The following documents are attached to and made a part of this Bid:
 - (a) Bid Form (Section 00310);
 - (b) Required Bid Security in the Form of _____.
 - (c) Schedule of Subcontractors (Section 00431);
 - (d) Certification Regarding Prohibition Against Contracting with Scrutinized Companies (Section 00432)
 - (e) Disclosure of Relationships (Section 00452);
 - (f) General Information Required of Bidders (Section 00456);
 - (g) A current certificate of insurance evidencing coverages and limits in the amounts required by the Contract Documents.

SCHEDULE A				
SCHEDULE OF BID ITEMS				
BID NUMBER 2021046		PROJECT IDENTIFICATION: South Oslo Road WTP SCADA System Improvements		
THIS BID IS SUBMITTED TO:		INDIAN RIVER COUNTY PURCHASING DIVISION 1800 27th STREET VERO BEACH, FLORIDA 32960		
BY:		Company Name		
Item No.	Item of Work	Unit of Measure	Quantity	Bid Item Total
1	Mobilization and Demobilization	LS	1	\$
2	Bonds and Insurance	LS	1	\$
3	New HSP PLC Control panel	LS	1	\$
4	Modify Main PLC Panel	LS	1	\$
5	Modifications to existing VFD equipment	LS	1	\$
6	Miscellaneous Electrical	LS	1	\$
7	Undefined Conditions Allowance	LS	1	\$50,000
Total Bid				\$

Total Bid Amount in words: _____

The undersigned hereby certifies that they have read and understand the contents of this solicitation and agrees to furnish at the prices shown any or all of the items above, subject to all instructions, conditions, specifications and attachments hereto. Failure to have read all the provisions of this solicitation shall not be cause to: 1) alter any resulting contract; or 2) request additional compensation.

SUBMITTED on _____, 20____.

Name of Firm

Address

Authorized Signature

City, State, Zip Code

Title

(_____)_____-_____
Phone

Date Signed

(Corporate Seal)

E-mail: _____

Business Tax Receipt No. _____

FEIN Number: _____

State Contractor License No. _____

SECTION 00410

AIA DOCUMENT A310 BID BOND

The Contractor shall use the document form entitled "AIA Document A310 Bid Bond".

END OF SECTION

SECTION 00432

**CERTIFICATION REGARDING PROHIBITION AGAINST CONTRACTING
WITH SCRUTINIZED COMPANIES**

This form must be submitted with each bid.

I hereby certify that neither the undersigned entity, nor any of its wholly owned subsidiaries, majority-owned subsidiaries, parent companies, or affiliates of such entities or business associations, that exists for the purpose of making profit have been placed on the Scrutinized Companies that Boycott Israel List created pursuant to s. 215.4725 of the Florida Statutes, or are engaged in a boycott of Israel.

In addition, if this solicitation is for a contract for goods or services of one million dollars or more, I hereby certify that neither the undersigned entity, nor any of its wholly owned subsidiaries, majority-owned subsidiaries, parent companies, or affiliates of such entities or business associations, that exists for the purpose of making profit are on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, created pursuant to s. 215.473 of the Florida Statutes, or are engaged in business operations in Cuba or Syria as defined in said statute.

I understand and agree that the County may immediately terminate any contract resulting from this solicitation upon written notice if the undersigned entity (or any of those related entities of respondent as defined above by Florida law) are found to have submitted a false certification or any of the following occur with respect to the company or a related entity: (i) it has been placed on the Scrutinized Companies that Boycott Israel List, or is engaged in a boycott of Israel, or (ii) for any contract for goods or services of one million dollars or more, it has been placed on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, or it is found to have been engaged in business operations in Cuba or Syria.

Name of Respondent: _____

By: _____
(Authorized Signature)

Title: _____

Date: _____

SECTION 00452

**SWORN STATEMENT UNDER SECTION 105.08, INDIAN RIVER COUNTY CODE, ON
DISCLOSURE OF RELATIONSHIPS**

THIS FORM MUST BE SIGNED IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICER AUTHORIZED TO ADMINISTER OATHS.

1. This sworn statement MUST be submitted with Bid No. 2021046 for South Oslo Road WTP SCADA System Improvements

2. This sworn statement is submitted by: _____

(Name of entity submitting Statement)

whose business address is:

3. My name is _____
(Please print name of individual signing)

and my relationship to the entity named above is _____

4. I understand that an "affiliate" as defined in Section 105.08, Indian River County Code, means:

The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of the entity.

5. I understand that the relationship with a County Commissioner or County employee that must be disclosed as follows:

Father, mother, son, daughter, brother, sister, uncle, aunt, first cousin, nephew, niece, husband, wife, father-in-law, mother-in-law, daughter-in-law, son-in-law, brother-in-law, sister-in-law, stepfather, stepmother, stepson, stepdaughter, stepbrother, stepsister, half brother, half sister, grandparent, or grandchild.

6. Based on information and belief, the statement, which I have marked below, is true in relation to the entity submitting this sworn statement. [Please indicate which statement applies.]

_____ Neither the entity submitting this sworn statement, nor any officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, have any relationships as defined in section 105.08, Indian River County Code, with any County Commissioner or County employee.

_____ The entity submitting this sworn statement, or one or more of the officers, directors, executives, partners, shareholders, employees, members, or agents, who are active in management of the entity have the following relationships with a County Commissioner or County employee:

Name of Affiliate or entity	Name of County Commissioner or employee	Relationship
_____	_____	_____
_____	_____	_____
_____	_____	_____

(Signature)

(Date)

STATE OF _____

COUNTY OF _____

Sworn to (or affirmed) and subscribed before me by means of physical presence or online notarization, this ____ day of _____ 20____, by _____
(name of person making statement).

(Signature of Notary Public - State of Florida)
(Print, Type, or Stamp Commissioned Name of Notary Public)

who is personally known to me or who has produced
_____ as identification.

END OF SECTION

SECTION 00456

GENERAL INFORMATION REQUIRED OF BIDDERS

The undersigned Bidder guarantees the truth and accuracy of all statements and answers herein contained. Failure to comply with these requirements may be considered sufficient justification to disqualify a Bidder. Additional sheets shall be attached as required.

Documentation Submitted with Indian River County Bid No: 2021046 for the **South Oslo Road WTP SCADA System Improvements**

1. How many years has your organization been in business as a General Contractor?

2. Describe and give the date and owner of the last project that you have completed similar in type, size, and nature as the one proposed?

3. Have you ever failed to complete work awarded to you? If so, where and why?

4. Provide the name, title, and contact information, including email address and phone numbers, of three individuals or corporations for which you have performed similar work that Indian River County may contact for a reference:

5. Name of person who inspected site or proposed work for your firm:

Name: _____ Date of Inspections: _____

Describe any anticipated problems with the site and your proposed solutions:

6. Will you Subcontract any part of this Work? If so, describe which portions:

7. What equipment do you own that is available for the work?

8. What equipment will you purchase for the work?

9. What equipment will you rent for the work?

10. Florida General Contractor's License No: _____

11. The following is given as a summary of the Financial Statement of the undersigned:
(List Assets and Liabilities and use insert sheet if necessary.)

12. List the names and titles of **ALL** officers of Contractor's firm:

_____	_____
_____	_____
_____	_____
_____	_____

13. State the true and exact, correct, and complete name under which you do business.
BIDDER is:

14. State your total bonding capacity:

15. State your bonding capacity per job.

16. Please provide name, address, telephone number, and contact person of your bonding company.

17. List all ligation cases during the past three (3) years in which the Contractor has been a named party. Use additional sheets, as necessary.

Year filed	Case number	Venue	Description

18. List five references from projects similar in size or larger.

Owner	Project Name	Contact name, phone and email	Description

END OF SECTION

SECTION 00530 – EJCDC STANDARD FORM OF AGREEMENT
BETWEEN OWNER AND CONTRACTOR ON THE BASIS OF A STIPULATED PRICE
South Oslo Road WTP SCADA System Improvements

THIS AGREEMENT (“Agreement” or “Contract”), dated the _____ day of _____ in the year 2021 by and between Indian River County, a political subdivision of the State of Florida (hereinafter called OWNER) and _____ (hereinafter called CONTRACTOR).

OWNER and CONTRACTOR, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1 WORK

CONTRACTOR as an independent contractor and not as an employee shall furnish and complete all of the necessary labor, material, and equipment to perform the work as specified or indicated in the Contract Documents and per Indian County Department of Utility Services (IRCDUS) standards. The work is generally described as follows:

Construct electrical and SCADA system improvements, including, but not limited to, installation of new high service pump PLC panel, hardware upgrades to existing Main PLC panel, conduit, wiring and any other items as depicted on the plans and in these specifications to provide a complete and functional system at Indian River County’s South Water Treatment Plant (Oslo).

ARTICLE 2 ENGINEER

The South Oslo Road WTP SCADA System Improvements project has been designed by Kimley-Horn and Associates, Inc., hereinafter called ENGINEER, and who is to act as OWNER’S representative, assume all duties and responsibilities and have the rights and authority assigned to ENGINEER in the Contract Documents in connection with completion of the work in accordance with the Contract Documents.

ARTICLE 3 CONTRACT TIME

3.1 The CONTRACTOR shall be substantially completed with the following timeframe

- (a) Within 30 calendar days from effective date of Notice to Proceed, Contractor shall complete the following tasks:
 - 1. Obtain all necessary permits.
 - 2. Submit shop drawings for all materials and equipment to be utilized on the job.
 - 3. Perform all photographic recording and documentation of conditions prior to construction.
 - 4. Locate all existing utilities in the area of work.
 - 5. Secure approval of shop drawings.
 - 6. Mobilize all labor, equipment, and materials and prepare the site.
 - 7. Notify all utilities and other affected parties prior to initiating construction.

- (b) From 31 calendar days to 150 calendar days from the effective date of Notice to Proceed, the CONTRACTOR shall complete the following tasks:
 - 1. Install all electrical equipment, panel, hardware, conduit, wiring, and appurtenant items.

2. Perform all equipment start-ups and field testing.
3. Restore all disturbed areas to their pre-construction condition.
4. Correct all deficiencies noted by Engineer.

Completion of all tasks outlined above (i.e., Subparagraphs a) and b) constitutes Substantial Completion.

(c) From 151 calendar days to 180 calendar days from the effective date of Notice to Proceed, the CONTRACTOR shall complete the following tasks:

1. Clean up project area.
2. Remove all equipment and material from project site.
3. Perform contract closeout procedures.
4. Demobilize.

3.2 Completion of all tasks outlined above (i.e., Subparagraphs a, b, and c) constitute Final Completion.

3.3 Liquidated Damages. OWNER and CONTRACTOR recognize that time is of the essence of this Agreement and that OWNER will suffer financial loss if the work is not completed within the times specified in Paragraph 3.1 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense and difficulties involved in proving in a legal proceeding the actual loss suffered by OWNER if the work is not completed on time. Accordingly, instead of requiring any such proof, OWNER and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty) CONTRACTOR shall pay OWNER four-hundred and fifty dollars (\$250.00) for each day that expires after the time specified in Paragraph 3.1 for Substantial Completion, if CONTRACTOR shall neglect, refuse or fail to complete the remaining work within the Contract Time or any proper extension thereof granted by OWNER, CONTRACTOR shall pay OWNER four-hundred and fifty dollars (\$250.00) for each day that expires after the time specified in Paragraphs 3.1 and 3.2 for completion and readiness for final payment.

3.3.1 The CONTRACTOR and OWNER agree that OWNER is authorized to deduct all or any portion of the above-stated liquidated damages due to the Owner from payments due to the Contractor; or, in the alternative, all or any portion of the above-stated liquidated damages may be collected from the Contractor or its Surety or Sureties. These provisions for liquidated damages shall not prevent the OWNER, in case of the CONTRACTOR's default, from terminating the Contractor's right to proceed as provided in this AGREEMENT.

3.3.2 In addition to the above-stated liquidated damages, the CONTRACTOR shall be responsible for reimbursing OWNER to third party consultants in administering the Project beyond the Final Completion date specified in this Agreement, or beyond an approved extension of time granted to CONTRACTOR, whichever date is later.

ARTICLE 4 CONTRACT PRICE

4.1 OWNER shall pay CONTRACTOR for completion of the work in accordance with the Contract Documents in current funds in the amount of \$_____.

ARTICLE 5 PAYMENT PROCEDURES

CONTRACTOR shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by ENGINEER as provided in the General Conditions and the Contract Documents.

- 5.1 The OWNER shall make progress payments to the CONTRACTOR on the basis of the approved partial payment request as recommended by ENGINEER in accordance with the provisions of the Local Government Prompt Payment Act, Florida Statutes section 218.70 et. seq. The OWNER shall retain five percent (5%) of the payment amount due to CONTRACTOR until final completion and acceptance of all work to be performed by CONTRACTOR under the Contract Documents.
- 5.2 Each request for a progress payment shall contain the CONTRACTOR'S certification. All progress payments will be on the basis of progress of the work measured by the schedule of values established, or in the case of unit price work based on the number of units completed.
- 5.3 Paragraphs 5.1 and 5.2 do not apply to construction services work purchased by the County as OWNER which are paid for, in whole or in part, with federal funds and are subject to federal grantor laws and regulations or requirements that are contrary to any provision of the Local Government Prompt Payment Act. In such event, payment and retainage provisions shall be governed by the applicable grant requirements and guidelines.
- 5.4 ACCEPTANCE AND FINAL PAYMENT: Upon receipt of written notice that the work is ready for final inspection and acceptance, the ENGINEER will promptly make such inspection and when the ENGINEER finds the work acceptable under the terms of the Contract and the Contract fully performed, the ENGINEER will promptly issue a final completion certificate stating that the work provided for in this Contract has been completed, and acceptance by the OWNER under the terms and the conditions thereof is recommended and the entire balance found to be due the CONTRACTOR, will be paid to the CONTRACTOR by the OWNER following County Commission approval of the final Contract payment.
- 5.5 Acceptance of Final Payment as Release. The acceptance by the CONTRACTOR of final payment shall be and shall operate as a release to the OWNER from all claims and all liability to the CONTRACTOR other than claims in stated amounts as may be specifically excepted by the CONTRACTOR for all things done or furnished in connection with the work under this Contract and for every act and neglect of the OWNER and others relating to or arising out of the work. Any payment, however, final or otherwise, shall not release the CONTRACTOR or its sureties from any obligations under the Contract Documents or the Payment and Performance Bonds.

ARTICLE 6 INTEREST

Not Applicable.

ARTICLE 7 CONTRACTOR'S REPRESENTATIONS

In order to induce OWNER to enter into this Agreement, CONTRACTOR makes the following representations:

- 7.1 CONTRACTOR has familiarized itself with the nature and extent of the Contract Documents, work, site, locality, and all local conditions and laws and regulations that in any manner may affect cost, progress, performance or furnishing of the work.
- 7.2 CONTRACTOR has studied carefully all reports of explorations and tests of subsurface conditions and drawings of physical conditions which are identified in the Supplementary Conditions as provided in Paragraph 4.02 of the General Conditions, and accepts the determination set forth in Paragraph SC-4.02 of the Supplementary Conditions of the extent of the technical data contained in such reports and drawings upon which CONTRACTOR is entitled to rely.
- 7.3 CONTRACTOR has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests, reports and studies (in addition to or to supplement those referred to in Paragraph 7.2 above) which pertain to the subsurface or physical conditions at or contiguous to the site or otherwise may affect the cost, progress, performance or furnishing of the work as CONTRACTOR considers necessary for the performance of furnishing of the work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of Paragraph 4.02 of the General Conditions; and no additional examinations, investigations, explorations, tests, reports, studies or similar information or data are or will be required by CONTRACTOR for such purposes.
- 7.4 CONTRACTOR has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing underground facilities at or contiguous to the site and assumes responsibility for the accurate location of said underground facilities. No additional examinations, investigations, explorations, tests, reports, studies or similar information or data in respect of said underground facilities are or will be required by CONTRACTOR in order to perform and furnish the work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of Paragraph 4.04 of the General Conditions.
- 7.5 CONTRACTOR has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.
- 7.6 CONTRACTOR has given ENGINEER written notice of all conflicts, errors or discrepancies that he has discovered in the Contract Documents and the written resolution thereof by ENGINEER is acceptable to CONTRACTOR.
- 7.7 Contractor is registered with and will use the Department of Homeland Security's E-Verify system (www.e-verify.gov) to confirm the employment eligibility of all newly hired employees for the duration of this agreement, as required by Section 448.095, F.S. Contractor is also responsible for obtaining proof of E-Verify registration and utilization for all subcontractors.

ARTICLE 8 CONTRACT DOCUMENTS.

The Contract Documents which comprise the entire agreement between OWNER and CONTRACTOR concerning the work consist of the following:

- 8.1 This Agreement (Section 00530)
- 8.2 General Conditions (Section 00700).

- 8.3 Supplementary Conditions (Section 00800).
- 8.4 Notice to Proceed (Sample Provided in Section 00800)
- 8.5 Public Construction Bond (Section 00600)
- 8.6 Certificate(s) of Liability Insurance (Section 00620)
- 8.7 Contractor's Application for Payment (Sample Provided in Section 00800)
- 8.8 Certificate of Substantial Completion (Sample Provided in Section 00800)
- 8.9 Final Release of Lien (Sample Provided in Section 00800)
- 8.10 Technical Specifications bearing the title "**South Oslo Road WTP SCADA System Improvements**"
- 8.11 Drawings Titled "South Oslo Road WTP SCADA System Improvements"
- 8.12 Addenda numbers _____ to _____, inclusive.
- 8.13 CONTRACTOR'S Bid (Section 00310).
- 8.14 Bid Bond (Section 00410)
- 8.15 Schedule of Subcontractors (Section 00431).
- 8.16 Certification Regarding Prohibition Against Contracting with Scrutinized Companies (Section 00432).
- 8.17 Disclosure of Relationships (Section 00452).
- 8.18 General Information Required of Bidders (Section 00456).
- 8.19 The following, which may be delivered or issued after the effective date of the Agreement and are not attached hereto: All written amendments and other documents amending, modifying, or supplementing the Contract Documents pursuant to Paragraphs 3.04 of the General Conditions (Samples provided in Section 00800).

There are no Contract Documents other than those listed above in this Article 8. The Contract Documents may only be amended, modified or supplemented as provided in Paragraphs 3.04 of the General Conditions.

ARTICLE 9 MISCELLANEOUS

- 9.1 Terms used in this Agreement which are defined in Article 1 of the General Conditions, as supplemented by the Supplementary Conditions, will have the meanings indicated in the General Conditions.
- 9.2 It is agreed that the CONTRACTOR shall not assign, transfer, convey, or otherwise dispose of the contract or its right, title, or interest in or to the same or any part thereof, or allow legal action to be brought in its name for the benefit of others, without previous consent of the OWNER and concurred to by the sureties. Any attempted assignment shall be void and may, at the option of the OWNER be deemed an event of default hereunder. Nothing herein shall be construed as creating any personal liability on the part of any officer or agent of the OWNER who may be a party hereto.
- 9.3 OWNER and CONTRACTOR each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect of all covenants, agreements and obligations contained in the Contract Documents.
- 9.4 The CONTRACTOR shall be properly licensed to practice its trade or trades which are involved in the completion of this Agreement and the work thereunder.
- 9.5 This Agreement shall be governed by the laws of the State of Florida. Venue for any lawsuit brought by either party against the other party or otherwise arising out of this agreement shall

be in Indian River County, Florida, or, in the event of federal jurisdiction, in the United States District Court for the Southern District of Florida.

- 9.6 The CONTRACTOR shall indemnify and hold harmless the County, and its officers and employees, from liabilities, damages, losses and costs, including, but not limited to, reasonable attorney's fees, to the extent caused by the negligence, recklessness, or intentional wrongful misconduct of the CONTRACTOR and persons employed or utilized by the CONTRACTOR in the performance of the construction contract.
- 9.7 Pledge of Credit. The CONTRACTOR shall not pledge the OWNER'S credit or make it a guarantor of payment or surety for any Agreement, debt, obligation, judgment, lien or any form of indebtedness. The CONTRACTOR further warrants and represents that it has no obligation of indebtedness that would impair its ability to fulfill the terms of this Agreement.
- 9.8. Counterparts. This Agreement may be executed in one or more counterparts, but all such counterparts, when duly executed, shall constitute one and the same Agreement.
- 9.9. Public Records. Indian River County is a public agency subject to Chapter 119, Florida Statutes. The Contractor shall comply with Florida's Public Records Law. Specifically, the Contractor shall:
- A. Keep and maintain public records required by the County to perform the service.
 - B. Upon request from the County's Custodian of Public Records, provide the County with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119 or as otherwise provided by law.
 - C. Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of the contract if the contractor does not transfer the records to the County.
 - D. Upon completion of the contract, transfer, at no cost, to the County all public records in possession of the Contractor or keep and maintain public records required by the County to perform the service. If the Contractor transfers all public records to the County upon completion of the contract, the Contractor shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the contractor keeps and maintains public records upon completion of the contract, the Contractor shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the County, upon request from the Custodian of Public Records, in a format that is compatible with the information technology systems of the County.
 - E. **IF THE CONTRACTOR HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE CONTRACTOR'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS CONTRACT, CONTACT THE CUSTODIAN OF PUBLIC RECORDS AT:
(772) 226-1424
publicrecords@ircgov.com
Indian River County Office of the County Attorney**

**1801 27th Street
Vero Beach, FL 32960**

F. Failure of the Contractor to comply with these requirements shall be a material breach of this Agreement.

This Agreement will be effective on _____, 2021 (the date the Contract is approved by the Indian River County Board of County Commissioners, which is the Effective Date of the Agreement).

OWNER:

INDIAN RIVER COUNTY

By: _____
Joseph E. Flescher, Chairman

By: _____
Jason E. Brown, County Administrator

APPROVED AS TO FORM AND LEGAL SUFFICIENCY:

By: _____
Dylan Reingold, County Attorney

Jeffrey R. Smith, Clerk of Court and Comptroller

Attest: _____
Clerk of Court and Comptroller
(SEAL)

Designated Representative:
Name: Terry Southard
Title: Utility Operations Manager
Contact Info: (772) 226-3404
terrysouthard@ircgov.com

CONTRACTOR:

By: _____
(Contractor)

(CORPORATE SEAL)

Attest _____

Address for giving notices:

License No. _____
(Where applicable)

Agent for service of process: _____

Designated Representative:
Name: _____
Title: _____
Address: _____

Phone: _____
Facsimile: _____
(If CONTRACTOR is a corporation or a partnership, attach evidence of authority to sign.)

SECTION 00600
PUBLIC CONSTRUCTION BOND

INSTRUCTION FOR PUBLIC CONSTRUCTION BOND

The front or cover page to the required public construction payment and performance bond shall contain the information required by Fla. Stat. 255.05(1)(a), and be substantially in the format shown on the first page following this instruction.

The Public Construction Bond shall be in the form suggested by Fla. Stat. 255.05(3) as shown on the second page following this instruction.

A Power of Attorney from a surety insurer authorized to do business in Florida, authorizing the signature of the Attorney in Fact who executes the Public Construction Bond shall accompany that Bond.

**Public Work
F.S. Chapter 255.05 (1)(a)
Cover Page**

THIS BOND IS GIVEN TO COMPLY WITH SECTION 255.05 OR SECTION 713.23 FLORIDA STATUTES, AND ANY ACTION INSTITUTED BY A CLAIMANT UNDER THIS BOND FOR PAYMENT MUST BE IN ACCORDANCE WITH THE NOTICE AND TIME LIMITATION PROVISIONS IN SECTION 255.05(2) OR SECTION 713.23 FLORIDA STATUTES.

BOND NO: _____

CONTRACTOR NAME: _____

CONTRACTOR ADDRESS: _____

CONTRACTOR PHONE NO: _____

SURETY COMPANY NAME: _____

**SURETY PRINCIPAL
BUSINESS ADDRESS:** _____

SURETY PHONE NO: _____

OWNER NAME: _____

OWNER ADDRESS: _____

OWNER PHONE NO: _____

OBLIGEE NAME: _____
(If contracting entity is different from
the owner, the contracting public entity)

OBLIGEE ADDRESS: _____

OBLIGEE PHONE NO: _____

BOND AMOUNT: _____

CONTRACT NO: _____
(If applicable)

DESCRIPTION OF WORK: _____

PROJECT LOCATION: _____

LEGAL DESCRIPTION: _____
(If applicable)

FRONT PAGE

All other bond page(s) are deemed subsequent to this page regardless of any page number(s) that may be printed thereon.

PUBLIC CONSTRUCTION BOND

Bond No. _____
(enter bond number)

BY THIS BOND, We _____, as Principal and _____, a corporation, as Surety, are bound to _____, herein called Owner, in the sum of \$_____, for payment of which we bind ourselves, our heirs, personal representatives, successors, and assigns, jointly and severally.

THE CONDITION OF THIS BOND is that if Principal:

1. Performs the contract dated _____, _____, between Principal and Owner for construction of _____, the contract being made a part of this bond by reference, at the times and in the manner prescribed in the contract; and
2. Promptly makes payments to all claimants, as defined in Section 255.05(1), Florida Statutes, supplying Principal with labor, materials, or supplies, used directly or indirectly by Principal in the prosecution of the work provided for in the contract; and
3. Pays Owner all losses, damages, expenses, costs, and attorney's fees, including appellate proceedings, that Owner sustains because of a default by Principal under the contract; and
4. Performs the guarantee of all work and materials furnished under the contract for the time specified in the contract, then this bond is void; otherwise it remains in full force.

Any action instituted by a claimant under this bond for payment must be in accordance with the notice and time limitation provisions in Section 255.05(2), Florida Statutes.

Any changes in or under the contract documents and compliance or noncompliance with any formalities connected with the contract or the changes does not affect Surety's obligation under this bond.

DATED ON _____,

(Name of Principal)

By _____
(As Attorney in Fact)

(Name of Surety)

SECTION 00620 - Sample Certificate of Liability Insurance

CERTIFICATE OF LIABILITY INSURANCE	
PRODUCER	THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.
	COMPANIES AFFORDING COVERAGE
INSURED	COMPANY A -
	COMPANY B -
	COMPANY C -
	COMPANY D -
	COMPANY E -

COVERAGES

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED NOTWITHSTANDING ANY REQUIREMENT TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN THE INSURANCE ACCORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/D/YY)	LIMITS	
A	GENERAL LIABILITY <input type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS MADE - <input type="checkbox"/> OCCUR <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>				EACH OCCURRENCE	\$ 1,000,000
					FIRE DAMAGE (Any One Fire)	\$ 50,000
					MED. EXP. (Any One Person)	\$ 5,000
					PERSONAL & ADV INJURY	\$ 1,000,000
					GENERAL AGGREGATE	\$ 1,000,000
					PRODUCTS – COMP/OP AGG.	\$ 1,000,000
						\$
A	AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO <input type="checkbox"/> ALL OWNED AUTOS <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> NON-OWNED AUTOS <input type="checkbox"/> <input type="checkbox"/>				COMBINED SINGLE LIMIT (Ea. Occurrence)	\$ 1,000,000
					BODILY INJURY (Per Person)	\$
					BODILY INJURY (Per Accident)	\$
					PROPERTY DAMAGE	\$
	GARAGE LIABILITY <input type="checkbox"/> <input type="checkbox"/>				AUTO ONLY – EA ACCIDENT	\$
					OTHER THAN	EA ACC \$
					AUTO ONLY	AGG \$
A	EXCESS LIABILITY <input type="checkbox"/> CLAIMS MADE <input type="checkbox"/> DEDUCTIBLE <input type="checkbox"/> RETENTION \$				EACH OCCURRENCE	
					AGGREGATE	\$
						\$
A	WORKER'S COMPENSATION AND EMPLOYER'S LIABILITY THE PROPRIETOR/PARTNERS/ EXECUTIVE OFFICERS ARE: <input type="checkbox"/> INCL <input type="checkbox"/> EXCL				<input type="checkbox"/> WC STATUTORY LIMITS	
					E.L. EACH ACCIDENT	\$ 100,000
					E.L. DISEASE – EA	\$ 500,000
					E.L. DISEASE-POLICY LIMIT	\$ 100,000
	OTHER: BUILDER'S RISK				FULL REPLACEMENT COST OF THE WORK	

DESCRIPTION OF OPERATIONS/LOCATIONS VEHICLES/SPECIAL ITEMS

CERTIFICATE HOLDER	ADDITIONAL INSURED; INSURER LETTER:	CANCELLATION
ADDITIONAL INSURED: INDIAN RIVER COUNTY 1801 27 TH STREET, VERO BEACH, FL 32960-3388		SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING COMPANY WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT. FAILURE TO MAIL SUCH NOTICE SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE COMPANY, ITS AGENTS OR REPRESENTATIVES.
		AUTHORIZED REPRESENTATIVE

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

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By



PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
a practice division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

AMERICAN COUNCIL OF ENGINEERING COMPANIES

AMERICAN SOCIETY OF CIVIL ENGINEERS

This document has been approved and endorsed by



The Associated General Contractors of America



Construction Specifications Institute

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1420 King Street, Alexandria, VA 22314

American Council of Engineering Companies
1015 15th Street, N.W., Washington, DC 20005

American Society of Civil Engineers
1801 Alexander Bell Drive, Reston, VA 20191-4400

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

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

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

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

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

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

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

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

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

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

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

9. *Change Order*--A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

30. *PCBs*--Polychlorinated biphenyls.

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

32. *Progress Schedule*--A schedule, prepared and maintained by Contractor, describing the sequence and

duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

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

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

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

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

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

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

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

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

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

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

43. *Specifications*--That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.

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

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

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

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

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

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

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

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

52. *Work Change Directive*--A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by

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

1.02 Terminology

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

B. Intent of Certain Terms or Adjectives

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

C. Day

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

D. Defective

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

a. does not conform to the Contract Documents, or

b. does not meet the requirements of any applicable inspection, reference standard, test, or

approval referred to in the Contract Documents, or

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

E. *Furnish, Install, Perform, Provide*

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

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

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

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

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

ARTICLE 2 - PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

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

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

Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

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

2.03 *Commencement of Contract Times; Notice to Proceed*

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

2.04 *Starting the Work*

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

2.05 *Before Starting Construction*

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

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

2. a preliminary Schedule of Submittals; and

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

2.06 *Preconstruction Conference*

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

submittals, processing Applications for Payment, and maintaining required records.

2.07 *Initial Acceptance of Schedules*

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

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

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

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

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

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

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

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

3.02 *Reference Standards*

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

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

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

3.03 *Reporting and Resolving Discrepancies*

A. Reporting Discrepancies

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

2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

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

B. Resolving Discrepancies

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

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

3.04 *Amending and Supplementing Contract Documents*

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

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

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

3.05 *Reuse of Documents*

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

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or Engineer's consultants, including electronic media editions; or

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

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

3.06 *Electronic Data*

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

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

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

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

4.01 *Availability of Lands*

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

may make a Claim therefor as provided in Paragraph 10.05.

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

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

4.02 *Subsurface and Physical Conditions*

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

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

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

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

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

1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
2. is of such a nature as to require a change in the Contract Documents; or
3. differs materially from that shown or indicated in the Contract Documents; or
4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

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

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

C. Possible Price and Times Adjustments

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

- a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
- b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

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

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

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

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

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

4.04 *Underground Facilities*

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

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

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

a. reviewing and checking all such information and data,

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

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

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

B. *Not Shown or Indicated*

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

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

4.05 *Reference Points*

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

4.06 Hazardous Environmental Condition at Site

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

B. Limited Reliance by Contractor on Technical Data

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

1. the completeness of such reports and drawings for Contractor’s purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
3. any Contractor interpretation of or conclusion drawn from any “technical data” or any such other data, interpretations, opinions or information.

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

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

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered to Contractor written notice:

(i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

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

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

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

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

ARTICLE 5 - BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

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

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

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

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

5.03 *Certificates of Insurance*

A. Contractor shall deliver to Owner, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence

of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.

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

5.04 *Contractor's Liability Insurance*

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

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:
 - a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
 - b. by any other person for any other reason;
5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

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

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insured (subject to any customary exclu-

sion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

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

3. include completed operations insurance;

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

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

6. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and

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

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

5.05 *Owner's Liability Insurance*

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

5.06 *Property Insurance*

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

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

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

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

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

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

6. include testing and startup; and

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

B. Owner shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and

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

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

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

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

5.07 *Waiver of Rights*

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and,

in addition, waive all such rights against Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insured or additional insured (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

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

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

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

5.08 *Receipt and Application of Insurance Proceeds*

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

B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make

settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

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

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

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

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques,

sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.

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

6.02 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

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

6.03 *Services, Materials, and Equipment*

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

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

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

6.04 *Progress Schedule*

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

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

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

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

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

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

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

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

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

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

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

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

2. Substitute Items

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

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

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

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

1) shall certify that the proposed substitute item will:

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

b) be similar in substance to that specified, and

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

2) will state:

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

- b) whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and
 - c) whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
- 3) will identify:
- a) all variations of the proposed substitute item from that specified, and
 - b) available engineering, sales, maintenance, repair, and replacement services;
- 4) and shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change,

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

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

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

E. Engineer's Cost Reimbursement: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute

item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

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

6.06 *Concerning Subcontractors, Suppliers, and Others*

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

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

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

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

2. shall anything in the Contract Documents create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

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

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

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

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

6.07 *Patent Fees and Royalties*

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

royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

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

6.08 *Permits*

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

6.09 *Laws and Regulations*

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

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

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

entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 Taxes

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

6.11 Use of Site and Other Areas

A. Limitation on Use of Site and Other Areas

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

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

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

B. Removal of Debris During Performance of the Work:

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

C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the

Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

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

6.12 Record Documents

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

6.13 Safety and Protection

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

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

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

C. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or

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

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

6.14 *Safety Representative*

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

6.15 *Hazard Communication Programs*

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

6.16 *Emergencies*

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

6.17 *Shop Drawings and Samples*

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

1. Shop Drawings

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

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

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

a. Submit number of Samples specified in the Specifications.

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

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

C. Submittal Procedures

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

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

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

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

d. shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the

requirements of the Work and the Contract Documents.

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

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

D. Engineer's Review

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

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

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. Resubmittal Procedures

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

revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

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

6.19 *Contractor's General Warranty and Guarantee*

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

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

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
2. normal wear and tear under normal usage.

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

1. observations by Engineer;
2. recommendation by Engineer or payment by Owner of any progress or final payment;
3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
4. use or occupancy of the Work or any part thereof by Owner;
5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;
6. any inspection, test, or approval by others; or
7. any correction of defective Work by Owner.

6.20 *Indemnification*

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

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

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

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

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

Contractor shall not be required to provide professional services in violation of applicable law.

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

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

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

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

ARTICLE 7 - OTHER WORK AT THE SITE

7.01 *Related Work at Site*

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

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

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

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

7.02 *Coordination*

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

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
2. the specific matters to be covered by such authority and responsibility will be itemized; and
3. the extent of such authority and responsibilities will be provided.

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

7.03 *Legal Relationships*

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

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and

disruption costs incurred by Contractor as a result of the other contractor's actions or inactions.

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

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

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

8.02 *Replacement of Engineer*

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

8.03 *Furnish Data*

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

8.04 *Pay When Due*

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

8.05 *Lands and Easements; Reports and Tests*

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

8.06 *Insurance*

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

8.07 *Change Orders*

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

8.08 *Inspections, Tests, and Approvals*

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

8.09 *Limitations on Owner's Responsibilities*

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

8.10 *Undisclosed Hazardous Environmental Condition*

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

8.11 *Evidence of Financial Arrangements*

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

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

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

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to

check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

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

9.03 *Project Representative*

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

9.04 *Authorized Variations in Work*

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

9.05 *Rejecting Defective Work*

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the

Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

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

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

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

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

9.07 *Determinations for Unit Price Work*

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

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

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

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

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

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

9.09 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

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

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

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

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

10.01 *Authorized Changes in the Work*

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

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

10.02 *Unauthorized Changes in the Work*

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

10.03 *Execution of Change Orders*

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

1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

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

10.05 *Claims*

A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

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

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

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

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

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

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

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

11.01 *Cost of the Work*

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

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

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All

cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

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

5. Supplemental costs including the following:

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

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

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

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

- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone

directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

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

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

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

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

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

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

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

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

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

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

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

11.02 Allowances

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

B. Cash Allowances

1. Contractor agrees that:

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

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

C. Contingency Allowance

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

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

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

11.03 *Unit Price Work*

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

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

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

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

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
2. there is no corresponding adjustment with respect any other item of Work; and
3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

12.01 *Change of Contract Price*

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

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

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

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

1. a mutually acceptable fixed fee; or
2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
 - b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;
 - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier

Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

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

e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

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

12.02 *Change of Contract Times*

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

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

12.03 *Delays*

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

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

C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

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

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

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

13.01 *Notice of Defects*

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

13.02 *Access to Work*

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

13.03 *Tests and Inspections*

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

B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections,

tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in said Paragraph 13.04.C; and
3. as otherwise specifically provided in the Contract Documents.

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

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

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

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

13.04 *Uncovering Work*

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

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

C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

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

13.05 *Owner May Stop the Work*

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

13.06 *Correction or Removal of Defective Work*

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

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

13.07 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

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

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

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

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

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

13.08 *Acceptance of Defective Work*

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

13.09 *Owner May Correct Defective Work*

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

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

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

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

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

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

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

14.02 *Progress Payments*

A. Applications for Payments

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

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

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

B. *Review of Applications*

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

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

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and to any other qualifications stated in the recommendation); and

c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

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

a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

b. that there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment,

including final payment, will impose responsibility on Engineer:

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

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

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

C. *Payment Becomes Due*

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

D. *Reduction in Payment*

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

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

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

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

14.03 *Contractor's Warranty of Title*

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

14.04 *Substantial Completion*

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

B. Promptly after Contractor's notification, , Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

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

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

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

14.05 *Partial Utilization*

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

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor will certify to Owner and Engineer that such part of the Work is substantially complete and request Engineer to issue

a certificate of Substantial Completion for that part of the Work.

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

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

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

14.06 *Final Inspection*

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

14.07 *Final Payment*

A. Application for Payment

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

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

- a. all documentation called for in the Contract Documents, including but not limited to the

evidence of insurance required by Paragraph 5.04.B.7;

- b. consent of the surety, if any, to final payment;
- c. a list of all Claims against Owner that Contractor believes are unsettled; and
- d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

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

B. Engineer's Review of Application and Acceptance

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

C. Payment Becomes Due

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and , will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

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

14.09 *Waiver of Claims*

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

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

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

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
3. Contractor's disregard of the authority of Engineer; or
4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

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

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion),
2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and
3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph Owner shall not be required to obtain the lowest price for the Work performed.

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

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

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

15.03 *Owner May Terminate For Convenience*

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

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
4. reasonable expenses directly attributable to termination.

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

15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment

within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

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

ARTICLE 16 - DISPUTE RESOLUTION

16.01 *Methods and Procedures*

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

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

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

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions, or
2. agrees with the other party to submit the Claim to another dispute resolution process, or

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

ARTICLE 17 - MISCELLANEOUS

17.01 *Giving Notice*

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

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or
2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

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

17.03 *Cumulative Remedies*

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

17.04 *Survival of Obligations*

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

17.05 *Controlling Law*

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

17.06 *Headings*

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

SECTION 00800

**SUPPLEMENTARY CONDITIONS
BID NO. 2021046**

South Oslo Road WTP SCADA System Improvements

**INDIAN RIVER COUNTY DEPARTMENT OF UTILITY SERVICES
BOARD OF COUNTY COMMISSIONERS
1801 27th Street, Vero Beach, Florida 32960**



**SUPPLEMENTARY CONDITIONS
TO THE
GENERAL CONDITIONS**

PART I - AMENDMENTS TO GENERAL CONDITIONS

PART II – FORMS TO BE USED DURING PROJECT CONSTRUCTION

NOTICE OF AWARD – (Sample)

NOTICE TO PROCEED (Sample)

FIELD ORDER

WORK CHANGE DIRECTIVE

CHANGE ORDER

APPLICATION FOR PAYMENT

CERTIFICATE OF SUBSTANTIAL COMPLETION

FINAL RELEASE OF LIEN

DUTIES RESPONSIBILITIES AND LIMITATIONS OF AUTHORITY OF
RESIDENT PROJECT REPRESENTATIVE

SUPPLEMENTARY CONDITIONS

PART I - AMENDMENTS TO GENERAL CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (EJCDC Document No. C-700, 2002 edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

SC 1.01 A.53 Defined Terms

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

53. Modification--A change, revision or deviation in the Work as originally planned or designed as a result of unknown or unexpected field conditions, laws or rules revisions, or discovery of a more efficient or logical method or completion of the Work after Notice to Proceed.

ARTICLE 2 - PRELIMINARY MATTERS

SC-2.01. Delete paragraphs 2.01A and B of the General Conditions in its entirety.

SC 2.03A. Delete paragraph 2.03A of the General Conditions in its entirety, and replace with the following:

The Contract Times will commence to run on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 60 days after the Effective Date of the Agreement.

SC 2.05A1. Add the following immediately at the end of subparagraph 2.05A1: using the Critical Path Method (CPM).

SC 2.05A.4 Add new subparagraph 4 after the existing text of 2.05 of the General Conditions:

4. If this Project is an addition to an existing working plant, then the Contractor shall coordinate with the Owner on tie-ins. The Owner shall have final say on plant shut down times and duration to make tie-ins.

ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

SC-3.01D. Add new paragraph D immediately after Paragraph 3.01C of the General Conditions:

D. Each and every provision of law and clause required by law to be inserted in these Contract Documents shall be deemed to be inserted herein, and they shall be read and enforced as though it were included herein.

SC3.03A.3. Delete existing subparagraph 3.03A.3 of the General Conditions in its entirety and replace with the following:

Contractor shall not be liable to Owner or Engineer for failure to report any such conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor knew or, in the exercise of ordinary care, reasonably should have recognized such conflict, error, ambiguity, or discrepancy and failed to report it in writing to the Owner and the Engineer.

SC 3.03B. Delete existing paragraph 3.03B of the General Conditions in its entirety and replace with the following

B. Resolving Discrepancies. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall be read together as a whole not in isolation so as to give meaning to each provision; however, to the extent there is a conflict or inconsistency between or among provisions, the strictest or most stringent standard shall apply.

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

SC 4.01A. Delete existing paragraph 4.01A of the General Conditions in its entirety and replace it with the following:

A. Owner shall furnish the Site.

SC 4.01B. Delete existing paragraph 4.01B of the General Conditions in its entirety.

SC 4.01D. Add the following after paragraph 4.01C of the General Conditions:

D. Contractor shall provide to the Owner written evidence of authorization to use any private land for staging or storage of material and equipment on the private land. Such written evidence of authorization must be provided to the Owner prior to use of the private land.

SC 4.02A. Delete paragraph 4.02 A. of the General Conditions in its entirety and replace it with the following:

Contractor shall have full responsibility for physical conditions, and Underground Facilities owned by Owner or others, shown or indicated in the Contract Documents.

SC-4.02B. Delete paragraph 4.02B in its entirety and replace with the following:

The information and data shown or indicated in the Contract Documents with respect to Underground Facilities owned by others or contiguous to the Site is based on information and data furnished to Owner or the Engineer by the owners of such Underground Facilities or by others. The Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data, and the Contractor shall have full responsibility for reviewing and checking all such information and data.

SC 4.02C, D, and E. Add new paragraphs C, D, and E immediately after Paragraph 4.02B of the General Conditions to read as follows:

C. Field Measurements: Before undertaking each part of the construction, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon

and all applicable field measurements. Contractor shall promptly report in writing to the Owner any conflict, error or discrepancy which Contractor or any of his Subcontractors or Suppliers may discover and shall obtain a written interpretation or clarification from Owner before proceeding with any aspect of the work affected thereby; provided, however, Contractor shall not be liable to the Owner for failure to report any conflict, error or discrepancy unless Contractor or any of his Subcontractors or Suppliers had actual knowledge thereof or should reasonably have known thereof.

D. Scheduling: Unless it prejudices Work already excavated and uncovered, Contractor shall schedule layout, excavating and uncovering of Work or Underground Facilities a sufficient time in advance to allow the Engineer's review, and the possible amending or supplementing of the Contract Documents via a Work Change Directive, Change Order, or Modification.

E. Utility Coordination.

1. Contractor's Responsibility: The Contractor shall be responsible for making all necessary arrangements with governmental departments, public utilities, public carriers, service companies and corporations owning or controlling roadways, railways, water, sewer, gas, electrical, cable television, telephone, and telegraph facilities such as pavements, tracks, piping, wires, cables, conduits, poles, guys, etc., including incidental structures connected therewith, that are encountered in the Work in order that such items may be properly shored, supported and protected, or the Contractor shall be solely responsible for coordinating their relocation. The Contractor shall give proper notices, shall comply with requirements of such parties in the performance of the Work, shall permit entrance of such parties on the Work controlled by the Contractor, and shall pay all charges and fees made by such parties for its Work. The Contractor's attention is called to the fact that there may be delays on the Project due to Work to be done by governmental departments, public utilities, and others in repairing poles, conduits, etc. The Contractor shall cooperate with the above parties, in every way possible, so that the construction can be completed in the least possible time.

2. Connection: At all points where the Work constructed by the Contractor connects to existing utilities and services, the actual Work of making the necessary connection to the existing service or utility shall be arranged for by Contractor at no additional expense to Owner (unless specifically indicated otherwise). Services and utilities included within (but not limited to) this responsibility are roads, ditches, electrical, sewer, mechanical, utilities, water, fencing, etc. Connections shall be made at a time that will result in the least possible interference with existing services.

SC 4.03A. Delete 4.03 A of the General Conditions in its entirety and replace with the following:

A. Notice. The Contractor shall promptly, and before conditions of an unusual nature or differing materially from those indicated in the Contract are disturbed, and in no event later than 10 days after first observance of the conditions, notify the Owner and Engineer in writing of: (1) subsurface or latent physical conditions at the Site differing materially from those indicated in this Contract Documents, or (2) unknown physical conditions at the site of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in Work of the character provided for in the Contract Documents. The Owner will promptly investigate the conditions, and if it finds that such conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performance of any part of the Work under the Contract Documents, unless the Contract is terminated a Change Order shall be issued accordingly based on the Schedule of Values and executed by the Owner and the Contractor. Contractor's failure to provide notice upon discovery of the unusual or differing site condition shall waive any entitlement to such an adjustment in the Contract Price or Contract Time. Further, no Claim of the Contractor under this paragraph 4.03A shall be allowed unless the Contractor has given the notice as required in this paragraph 4.03A.

SC 4.03B. Delete paragraph 4.03B of the General Conditions in its entirety.

SC 4.03C.1. Delete subparagraphs 4.03C1b. of the General Conditions in its entirety and replace with the following.

4.03.C. Possible Price and Times Adjustments

The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, such condition must meet any one or more of the categories described in Paragraph 4.03.A.

SC 4.03C3. Delete paragraph 4.03C3. of the General Conditions in its entirety.

SC-4.05B. Add the following new paragraph immediately after paragraph 4.05A of the General Conditions to read as follows:

The Contractor shall furnish all stakes, templates and other materials necessary for establishing and maintaining the lines and grades necessary for control and construction of the Work. Engineer may check the lines, elevations, reference marks, batter boards, etc., set by Contractor, and Contractor shall correct any errors disclosed by such check. Such a check shall not be considered as approval of Contractor's work and shall not relieve Contractor of the responsibility for accurate construction of the entire Work. Contractor shall furnish personnel to assist Engineer in checking lines and grades.

SC 4.06D. Delete the last sentence of paragraph 4.06D of the General Conditions in its entirety

SC 4.06G. Delete paragraph 4.06G of the General Conditions in its entirety.

SC 4.07. Add new paragraph 4.07 of the General Conditions to read as follows:

4.07. Archaeological or Historical Resources at Site. If Archaeological or Historical Resources are revealed, uncovered, or discovered at the Site, Contractor shall cease work immediately and promptly, and before such conditions are disturbed, and in no event later than 5 days after first observance of the conditions, notify the Owner and Engineer in writing of such conditions. Owner shall obtain the services of an Archaeologist registered with the State of Florida Register of Professional Archaeologists. Based on Archaeologist's determination, if Owner finds that such conditions cause an increase or decrease in the Contractor's cost of, or the time required for, performance of any part of the Work under this Contract, unless Contract is terminated a Change Order shall be entered accordingly. Contractor's failure to provide notice upon discovery of the Archaeological or Historical Resources shall waive any entitlement to Contractor for such an adjustment in the Contract Price or Contract Time.

ARTICLE 5 - BONDS AND INSURANCE

SC 5.01A. Delete existing paragraph 5.01A of the General Conditions in its entirety and replace with the following:

5.01A. Contractor shall furnish Public Construction Bond, in an amount equal to the Contract Price as security for the faithful performance and payment of all Contractor's obligations under the Contract Documents. The Bond shall remain in effect at least until one year after the date when final payment is made, except as provided otherwise by Laws and Regulations or by the Contract Documents. Pursuant to Florida Statutes section 255.05(1)(c), any claimant (as such term is defined

in Florida Statutes section 713.01) may apply to Indian River County as Owner for copies of the Agreement and the recorded payment and performance bonds and shall thereupon be furnished with certified copies of such documents.

SC 5.02A. Delete the words "Owner or" in line two.

SC 5.03B. Delete existing paragraph 5.03B of the General Conditions in its entirety.

SC 5.04B. Delete existing paragraph 5.04B of the General Conditions in its entirety and replace with the following:

B. The Contractor shall not commence Work under the Agreement until it has obtained all insurance required under the Contract Documents and the Indian River County Risk Manager has approved such insurance. The Contractor shall procure and maintain, as set forth herein, the minimum insurance coverage as set forth in the Contract Documents. The cost of such insurance shall be included in the Contract Price.

SC 5.04. Add Sections C, D, E, F and G

C. The insurance required by paragraph 5.04A of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

1. Workers' Compensation: To meet statutory limits in compliance with the Workers' Compensation Law of Florida. This policy must include employers' liability with a limit \$500,000 for each accident, \$500,000 disease policy limit and \$100,000 disease each employee. Such policy shall include a waiver of subrogation as against Owner on account of injury sustained by an employee(s) of the Contractor.
2. Commercial General Liability: A per occurrence form policy, including Premise Operations, Independent Contractors, Products and Completed Operations including X, C, U (Explosion, Collapse, Underground) Broad Form Property Damage, Broad Form Property Damage Endorsement, with a combined single limit of not less than \$1,000,000 general aggregate to include products/completed operations, personal injury/advertising liability, fire damage/legal liability, and medical payments. Limits can be layered with an Excess Liability Policy (Umbrella).
3. Business Auto Liability: Business Auto Liability: Coverage shall include Owned vehicles and Hired/Non-Owned vehicles, for a combined single limit (bodily injury and property damage) of not less than \$1,000,000/combined single limit (Bodily Injury/Property Damage); personal injury protection -- statutory limits; \$300,000 uninsured/underinsured motorist; \$300,000/hired/non-owned auto liability. Limits can be layered with Excess Liability Policy (Umbrella).
4. Contractor's Builders' Risk "All Risk" Insurance: – All risk coverage with limits equal to one hundred percent (100%) of the completed value of the Work. There shall be a waiver of occupancy endorsement to enable the Owner to occupy the facility under construction during such activity. The policy must be endorsed to provide machinery/equipment endorsement during transit and installation, and Owner direct purchase materials, if any. The maximum deductible under this coverage is \$10,000 per claim, except Wind Storm coverage which will have a maximum deductible equal to 2 percent of the completed value of the work.

D. Insurance Requirements – Fifteen (15) days prior to the commencement of any Work under the Contract Documents, a certificate of insurance shall be provided to the Indian River County Risk Manager for review and approval. The certificate shall provide that: (a) Indian River County as Owner

and Kimley-Horn and Associates as Engineer be named as an additional insured on the commercial general liability, auto liability, and Contractor's Builders' Risk "All Risk" insurance policies; (b) the Contractor's insurance coverage shall be primary; and (c) Indian River County as Owner and will be given thirty (30) days' notice prior to cancellation or modification of any required insurance and such notice shall be in writing by registered mail, return receipt requested and addressed to the Indian River County Risk Manager. The Contractor shall be responsible to ensure that all subcontractors comply with all insurance requirements of the Contract Documents.

E. All coverage shall be maintained without interruption from the date of commencement of the Work and remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07. In addition, with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, such insurance shall remain in effect for at least two years after final payment. Contractor shall furnish Owner and Engineer with evidence satisfactory to Owner of the continuation of such insurance at final payment and again one year thereafter, so that Owner is assured of such continuing coverage.

F. All insurers must be authorized to do business in Florida and have a Best Key Rating of A- VII.

G. The insurance companies selected shall send written verification to the Indian River County Risk Manager that they will provide 30 days prior written notice to the Indian River County Risk Manager of its intent to cancel or modify any required policies of insurance.

SC 5.05. Delete existing paragraph 5.05 of the General Conditions in its entirety.

SC-5.06. Delete existing paragraph 5.06 of the General Conditions in its entirety.

SC-5.07. Delete existing paragraph 5.07 of the General Conditions in its entirety and replace with the following.

5.07. All insurance policies provided by the Contractor shall contain provisions to the effect that the insurer waives all rights of subrogation against any of the insured, additional insured, (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) Owner and the Engineer.

SC-5.08. Delete existing paragraph 5.08 of the General Conditions in its entirety.

SC-5.09. Delete existing paragraph 5.09 of the General Conditions in its entirety.

SC-5.10. Delete existing paragraph 5.10 of the General Conditions in its entirety.

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

SC 6.01B. Delete paragraph 6.01B of the General Conditions in its entirety, and replace with the following:

6.01B. Contractor shall employ a competent superintendent and necessary assistants who shall be assigned to, and in attendance at, the Project Site during performance of the Work. So long as the superintendent remains employed by the Contractor or any related entity, the superintendent shall not be replaced without the Owner's prior written consent, except under extraordinary circumstances.

The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

SC-6.02C and D. Add the following new paragraphs immediately after paragraph 6.02B. of the General Conditions which are to read as follows:

C. Regular working hours are defined as 8 hours per day, Monday through Friday, excluding holidays, between the hours of 7:00 AM and 6:00 PM. Requests to work other than regular working hours shall be submitted to Engineer not less than 48 hours prior to any proposed weekend work or scheduled extended work weeks. Occasional unscheduled overtime on weekdays may be permitted provided two hours notice is given to Engineer.

D. Contractor shall reimburse the Owner for additional engineering and/or inspection costs incurred as a result of overtime work in excess of the regular working hours stipulated in SC-6.02C. At Owner's option, overtime costs may either be deducted from the Contractor's monthly payment request or deducted from the retainage prior to release of final payment. Overtime costs for the Owner's personnel shall be based on the individual's current overtime wage rate. Overtime costs for personnel employed by the Engineer or Owner's independent testing laboratory shall be calculated in accordance with the terms of their respective contracts with the Owner.

SC 6.04A.1 Add the following sentence immediately after the existing text in paragraph 6.04 A.1 of the General Conditions:

Additionally, any and all changes to the Project's critical path must be reflected in each Project schedule.

SC-6.04.A.3 Add the following paragraph immediately after paragraph GC-6.04.A.2 of the General Conditions:

6.04.A.3. Contractor shall give Owner full information in advance as to its plans for performing each part of the Work. If at any time during the progress of Work, Contractor's actual progress is inadequate to meet the requirements of the Contract Documents, Owner may, but is not obligated to, so notify Contractor. In such event, Contractor acknowledges and agrees that Contractor shall implement some or all of the following remedial actions at the sole cost and expense of Contractor: (a) Increase manpower in such quantities and crafts as necessary to eliminate the backlog of Work; (b) Increase the number of working hours per shift, shifts per working day, working days per week, the amount of construction equipment, or any combination of the foregoing to eliminate the backlog of Work; or (c) Reschedule the Work in conformance with the specifications. Neither such notice by Owner nor Owner's failure to issue such notice shall relieve Contractor of its obligation to achieve the quality of Work and rate of progress required by the Contract Documents. Failure of Contractor to implement some or all of the remedial actions may be grounds for determination by Owner that Contractor is not prosecuting its Work with such diligence as will assure completion within times specified. Upon such determination, Owner may terminate Contractor's right to proceed with the performance of the Contract Documents, or any separable part thereof, in accordance with the applicable provisions of this Contract Documents.

SC-6.06A. Delete Paragraph 6.06A of the General Conditions in its entirety and replace with the following:

A. Contractor shall not employ any Subcontractor, Supplier or other person or organization, (including those who are to furnish the principal items of materials or equipment), whether initially or as a substitute, against whom Owner may have reasonable objection. Acceptance of any Subcontractor, Supplier or other person or organization by Owner shall not constitute a waiver of any right of Owner

to reject defective Work. Contractor shall not be required to employ any Subcontractor, Supplier or other person or organization against whom Contractor has reasonable objection.

SC-6.06B. Delete Paragraph 6.06B of the General Conditions in its entirety.

SC-6.08. Delete Paragraph 6.08 of the General Conditions in its entirety and replace with the following:

ALL PERMIT, IMPACT, OR INSPECTION FEES APPLICABLE AT THE TIME OF OPENING OF BIDS THAT ARE PAYABLE TO INDIAN RIVER COUNTY IN CONNECTION WITH THE WORK ON THIS COUNTY PROJECT WILL BE PAID BY INDIAN RIVER COUNTY. Contractor acknowledges that the foregoing items are governed by the provisions of Florida Statutes section 218.80, Public Bid Disclosure Act. Further, Contractor shall pay the applicable business tax and obtain a business tax receipt from the Indian River County Tax Collector. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all applicable construction permits. Owner shall reimburse Contractor for the cost of such permits on the basis of actual cost. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Any permits issued after issuance of bid documents will be provided as an Addendum. Contractor acknowledges that the foregoing items are governed by the provisions of Florida Statutes section 218.80, Public Bid Disclosure Act.

SC 6.11 A.3. Delete the words: "arbitration or" in line 9 of paragraph 6.11 A.3 of the General Conditions.

SC-6.20A. Delete paragraph 6.20A of the General Conditions in its entirety and replace with the following:

To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the commissioners, officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all liability claims, costs, losses, and damages including but not limited to, reasonable attorney's fees, to the extent caused by the negligence, recklessness, or intentional wrongful misconduct of the Contractor and persons employed or utilized by the Contractor in the performance of the construction contract.

SC-6.21E. Delete paragraph 6.21E of the General Conditions in its entirety and replace with the following:

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

ARTICLE 7 OTHER WORK AT THE SITE

SC-7.01A. Delete paragraph 7.01A of the General Conditions in its entirety and replace with the following:

7.01A. Related Work at Site. Owner may perform other work related to the Project at the Site with Owner's employees, or pursuant to direct contracts with others. If such other work is not noted in the Contract Documents, then written notice thereof will be given by Owner to Contractor prior to Owner starting any such other work; and Contractor shall perform in accordance with Article 7 of the General Conditions.

ARTICLE 8 OWNER'S RESPONSIBILITIES

SC-8.02. Delete paragraph 8.02 of the General Conditions in its entirety and replace with the following:

A. If Owner terminates the employment of Engineer, Owner may appoint another engineer whose status under the Contract Documents shall be that of the former Engineer.

SC-8.04. Delete paragraph 8.04 of the General Conditions in its entirety and replace with the following:

A. Payments under this contract are governed by the Local Government Prompt Payment Act, Florida Statutes section 218.70 et. seq.

SC-8.06. Delete paragraph 8.06 of the General Conditions in its entirety.

SC-8.11. Delete paragraph 8.11 of the General Conditions in its entirety.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

SC 9.02. Delete the first sentence of paragraph 9.02A of the General Conditions in its entirety and replace with the following:

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified Engineer the progress that has been made and the quality of the various aspects of Contractor's executed Work.

SC-9.03B. Add the following new paragraph immediately after paragraph 9.03A of the General Conditions which is to read as follows:

B. Engineer will furnish a part-time Resident Project Representative. Contractor is responsible to give 24-hour notice on all required inspections so that the Resident Project Representative may be present.

SC 9.04 A. Delete the third sentence of paragraph 9.04A of the General Conditions in its entirety and replace with the following:

However, if Contractor claims entitlement to additional time or money as a result of the Field Order, such entitlement is conditioned upon obtaining a Change Order authorized and executed by Owner after timely making a Claim as provided in the Contract Documents.

SC 9.08 A. Delete the second sentence of 9.08A of the General Conditions in its entirety and replace with the following:

Except for: (a) Claims for differing subsurface or physical conditions governed by paragraph 4.03; and (b) claims for time extensions governed by paragraph 12.03, all matters in question and other matters between Owner and Contractor arising prior to the date final payment is due, relating to the acceptability of the Work and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 15 days after occurrence of the event giving rise to such Claim or within 15 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later; provided, however, the Owner shall make all final determinations of such matters.

SC 9.08 C. Delete paragraph 9.08C of the General Conditions in its entirety

SC 9.08 D. Delete paragraph 9.08D of the General Conditions in its entirety

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

SC 10.03.A.1 Add “and” at the end of this paragraph.

SC 10.03.A.2 Delete “and” at the end of this paragraph.

SC 10.03 A.3. Delete subparagraph 10.03.A.3 of the General Conditions in its entirety

SC 10.05.A. Delete paragraph 10.05.A of the General Conditions in its entirety and replace with the following:

A. All Claims shall initially be referred to the Engineer for decision.

SC 10.05.B. Delete paragraph 10.05.B of the General Conditions in its entirety and replace with the following:

Notice: Except for: (a) Claims for differing subsurface or physical conditions governed by paragraph 4.03; and (b) claims for time extensions governed by paragraph 12.03, Claims by either party shall be initiated within 15 days after occurrence of the event giving rise to such Claim or within 15 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later, by written notice of the amount or extent of the Claim, dispute, or other matter with supporting data to the Engineer and the other party by written notice stating the general nature of each Claim, dispute, or other matter delivered by the claimant to Engineer and the other party to the Contract. A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of paragraph 12.02.B. No claim by the Contractor for an equitable adjustment hereunder shall be allowed if asserted after final payment under the Contract Documents.

SC 10.05 C, D, and E. Delete paragraphs 10.05C, D, and E of the General Conditions in its entirety.

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

SC 11.01A. Delete paragraph 11.01.A of the General Conditions in its entirety.

SC 11.01B. Delete paragraph 11.01B of the General Conditions in its entirety.

SC 11.02A. Delete paragraph 11.02.A of the General Conditions in its entirety and replace with the following:

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

SC 11.02 B, C, and D. Delete paragraphs 11.02B, C, and D of the General Conditions in their entirety.

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

SC 12.01A. Delete paragraph 12.01A of the General Conditions in its entirety and replace with the following:

The Contract Price may only be changed by a Change Order or by a Work Change Directive. Any Claim for an adjustment in the Contract Price shall be based on written notice in accordance with the provisions of paragraph 10.05.

SC 12.01B2. Delete paragraph 12.01B2 of the General Conditions in its entirety and replace with the following:

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum.

SC 12.01B3. Delete paragraph 12.01B3 of the General Conditions in its entirety.

SC12.01C. Delete paragraph 12.01C of the General Conditions in its entirety.

SC 12.03A and B. Delete paragraphs 12.03.A and 12.03B of the General Conditions in their entirety and replace with the following:

A. Where Contractor is delayed or prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times (or Milestones) will be extended in an amount equal to the time lost due to such delay if (1) a Claim is made therefore as provided in paragraph 12.02.A and (2) Contractor provides evidence that the delay impacted the critical path of the Project. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, abnormal weather conditions or acts of God. The Contractor must request the extension of time in writing and must provide the following information within the time periods stated hereafter. Failure to submit such information and in compliance with the time requirements given in Section 00530 of the Contract Documents, shall constitute a waiver by the Contractor and a denial of the claim for extension of time:

1. Nature of the delay or change in the Work;
2. Dates of commencement and cessation of the delay or change in the Work;
3. Activities on the current progress schedule affected by the delay or change in the Work;
4. Identification and demonstration that the delay or change in Work affects the critical path;
5. Identification of the source of delay or change in the Work;
6. Anticipated extent of the delay or change in the Work; and
7. Recommended action to minimize the delay.

B. Contractor hereby affirms that the extension of time granted herein is the Contractor's sole and exclusive remedy. Apart from extension of time, no payment or claim for damages shall be made to the Contractor as compensation for damages for any delays or hindrances from any cause whatsoever in the progress of the Work whether such delay is avoidable or unavoidable.

SC 12.03C. Delete paragraph 12.03.C of the General Conditions in its entirety.

SC 12.03D. Delete paragraph 12.03D of the General Conditions in its entirety and replace with the following:

In no event shall Owner, Engineer, or the Related Entities of either of them be liable to Contractor, any Subcontractor, any Supplier, any other person or organization, or any surety for or employee or

agent of any of them, for any claim, cost, loss, or damages of any nature whatsoever arising out of or resulting from delays.

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

SC 13.04C. Delete paragraph 13.04.C of the General Conditions in its entirety and replace with the following:

If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price.

SC 13.04D. Delete paragraph 13.04.D of the General Conditions in its entirety and replace with the following:

If, the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction.

SC 13.06A. Delete the words: "arbitration or" in line 9 of paragraph 13.06.A of the General Conditions.

SC13.07A. Add the following sentence at the beginning of paragraph 13.07A of the General Conditions:

Owner and Contractor agree that a warranty inspection shall be scheduled no later than eleven (11) months after final payment under the Contract Documents so that Owner and Contractor may inspect and otherwise examine the Work prior to the expiration of the Performance Bond.

SC 13.07E. Delete paragraph 13.07E of the General Conditions in its entirety and replace with the following:

Contractor's obligations under this paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or any way to limit the Contractor's continued liability for defective Work, including but limited to latent defects.

SC 13.08A. TWO changes:

1. Delete the words: "arbitration or" in line 8 of paragraph 13.08.A of the General Conditions.
2. Delete the phrase "(such costs to be approved by Engineer as to reasonableness)" in lines 10 and 11 of paragraph 13.08.A of the General Conditions.

13.09C. Delete the words: "arbitration or" in line 4 of paragraph 13.09.C of the General Conditions.

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

SC 14.02A1. Delete the first sentence of paragraph 14.02.A.1 of the General Conditions in its entirety and replace with the following:

On or before the tenth (10th) day of each month, and not more often than once a month, the Contractor shall submit completed partial progress payment requests to the Engineer, as set forth herein. Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application for Payment and accompanied by such supporting documentation as is required by the Contract Documents. Such supporting documents shall include but not be limited to, the required Contractor's certification; retainage as set forth in the Contract Documents; and a monthly dated CPM schedule for the Project. The Contractor shall make the following certification (Affidavit) on each Application for Payment: "I hereby certify that the labor and materials listed on this Application for Payment have been used in the construction of this Work and payment received from the last request for payment has been used to make payments to all subcontractors, laborers, material, men and suppliers except as listed below: All payments by Indian River County as Owner shall be made in accordance with the Local Government Prompt Payment Act, Florida Statutes section 218.70 et. seq.

SC 14.02A4. Add a new paragraph immediately after paragraph 14.02A.3 of the General Conditions, which is to read as follows:

4. Contractor shall furnish satisfactory proof to Owner and Engineer that payment received from Owner for materials and equipment not incorporated into the Work and suitably stored, has in fact been paid to the respective supplier(s) within ten (10) days of Contractor's receipt of payment from Owner. Failure to provide such evidence of payment shall result in the withdrawal of previous approval(s) and removal of the cost of related materials and equipment from the next submitted Application for Payment, and shall be deemed a default under the Contract.

SC 14.02C1. Delete paragraph 14.02.C1 of the General Conditions in its entirety and replace with the following: All payments by Indian River County as Owner shall be made in accordance with the Local Government Prompt Payment Act, Florida Statutes section 218.70 et. seq.

SC 14.02D1d. Delete paragraph 14.02D1d of the General Conditions in its entirety and replace with the following:

d. Owner has actual knowledge of the occurrence or probable occurrence of any of the events enumerated in paragraphs 14.02.B.5.a through 14.02.B.5.c or paragraph 15.02.A.

SC 14.02D2. Delete paragraph 14.02D2 of the General Conditions in its entirety and replace with the following:

If Owner refuses to make payment of the full amount recommended by Engineer, Owner shall provide notice to Contractor in accordance with the provisions of the Local Government Prompt Payment Act, Florida Statutes section 218.70 et. seq. and pay Contractor any amount remaining after deduction of the amount so withheld in accordance with the provisions of the Local Government Prompt Payment Act, Florida Statutes section 218.70 et. seq. Owner shall pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, in accordance with the provisions of the Local Government Prompt Payment Act, Florida Statutes section 218.70 et. seq.

SC 14.02D3. Delete paragraph 14.02D3 of the General Conditions in its entirety

SC 14.03A. Add the following sentences to the end of the existing paragraph 14.03A of the General Conditions as follows:

No materials or supplies for the Work shall be purchased by Contractor or his Subcontractors subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller. Contractor warrants that Contractor has good title to all materials and supplies used by Contractor in the Work, free from all liens, claims or encumbrances.

SC 14.04C. Delete paragraph 14.04C of the General Conditions in its entirety and replace with the following:

If Engineer considers the Work substantially complete, Engineer will prepare and deliver to Owner a tentative certificate of Substantial Completion that shall fix the date of Substantial Completion. In accordance with the provisions of Florida Statutes section 218.735(7)(a), upon receipt of the tentative certificate of Substantial Completion from Engineer, the Owner, the Engineer, and the Contractor shall conduct a walk-through inspection of the Project to document a list of any items required to render the Work on the Project complete, satisfactory, and acceptable under the Contract Documents (herein the "Statutory List"). The Statutory List shall be reduced to writing and circulated among the Owner, the Engineer, and the Contractor by the Owner or the Engineer within 30 calendar days after Substantial Completion. The Owner and Contractor acknowledge and agree that: 1) the failure to include any corrective work, or pending items that are not yet completed, on the Statutory List does not alter the responsibility of the Contractor to complete all of the Work under the Contract Documents; 2) upon completion of all items on the Statutory List, the Contractor may submit a pay request for all remaining retainage except as otherwise set forth in the Contract Documents; and 3) any and all items that require correction under the Contract Documents and that are identified after the preparation of the Statutory List remain the obligation of the Contractor to complete to the Owner's satisfaction under this Agreement. After receipt of the Statutory List by the Contractor, the Contractor acknowledges and agrees that it will diligently proceed to complete all items on the Statutory List and schedule a final walk-through in anticipation of final completion on the Project.

SC 14.04D. Delete paragraph 14.04D of the General Conditions in its entirety and replace with the following:

At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, HVAC, utilities, insurance, and warranties and guarantees.

SC14.07A.3. Delete paragraph 14.07A.3 of the General Conditions in its entirety.

SC14.07B.1. Delete paragraph 14.07B.1 of the General Conditions in its entirety and replace with the following:

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

SC-14.07.C.1. Delete paragraph GC-14.07.C.1 in its entirety and replace with the following:

Payment shall be made by Owner to Contractor according to the Local Government Prompt Payment Act, Florida Statutes section 218.70. et.seq.

SC 14.08. Delete paragraph 14.08 of the General Conditions in its entirety.

SC 14.09. Delete paragraph 14.09 of the General Conditions in its entirety.

ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

SC-15.02.A.1. Delete subparagraph 15.02.A1 of the General Conditions in its entirety, and replace with the following:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents;

SC-15.02.A.4. Delete subparagraph 15.02.A 4 of the General Conditions in its entirety, and replace with the following:

4. Contractor's violation of any material provisions of the Contract Documents.

SC 15.02.A.5 and 6: Add the following new subparagraphs at the end of paragraph GC-15.02.A

5. Failure of Contractor to make proper payments to Subcontractors or others for labor, services, materials or equipment in connection with the Work;

6. If Contractor abandons the Work.

SC 15.02.C. Delete the words: "arbitration or" in line 7 of paragraph 15.02.C of the General Conditions.

SC 15.02.G. Add the following new paragraph immediately following paragraph 15.02.F of the General Conditions:

G. If, after termination of the Contract by the Owner for cause as set forth in paragraph 15.02, it is determined that the Contractor had not failed to fulfill its contractual obligations, the termination under paragraph 15.02 shall be deemed to have been for the convenience of the Owner. In such event, adjustment of the Contract Price shall be made as provided in paragraph 15.03

SC15.03.A.3 and 15.03 A 4. Delete subparagraphs 15.03.A3 and 15.03 A 4 of the General Conditions in its entirety.

ARTICLE 16 - DISPUTE RESOLUTION

SC16.01A. Delete paragraph 16.01A of the General Conditions in its entirety and replace with the following:

A. Prior to the filing of any suit or other legal proceedings, the parties shall endeavor to resolve claim disputes or other matters in question by mediation. Mediation shall be initiated by any party by serving a written request for same on the other party. The parties shall, by mutual agreement, select a circuit court mediator as certified by the Supreme Court of Florida within 15 days of the date of the request for mediation. If the parties cannot agree on the selection of a circuit court mediator as

certified by the Supreme Court of Florida, then the Owner shall select the mediator, who shall be a circuit court mediator as certified by the Supreme Court of Florida. The mediator's fee shall be paid in equal shares by Owner and Contractor.

SC 16.01C. Delete paragraph 16.01 C of the General Conditions in its entirety and replace with the following:

C. Contractor shall carry on the Work and maintain the Progress Schedule during the dispute resolution proceedings, unless otherwise agreed by Contractor and Owner in writing.

ARTICLE 17 - MISCELLANEOUS

SC 17.01A. Delete paragraph 17.01A of the General Conditions in its entirety and replace with the following

Notices: Any notice, request, demand, consent, approval, or other communication required or permitted by the Contract Documents shall be given or made in writing and shall be served, as elected by the party giving such notice, by any of the following methods: (a) Hand delivery to the other party; (b) Delivery by commercial overnight courier service; or (c) Mailed by registered or certified mail (postage prepaid), return receipt requested at the addresses of the parties shown in the Contract Documents. Notices shall be effective when received at the address as specified above. The original of the notice must additionally be mailed. Either party may change its address, for the purposes of this paragraph, by written notice to the other party given in accordance with the provisions of this paragraph.

SC 17.02 through and including 17.03. Replace Sections 17.02 and 17.03:

17.02. Utilities. The Contractor shall, at its expense, arrange for, develop and maintain all utilities in Work areas to meet the requirements of the Contract Documents. Such utilities shall be furnished by Contractor at no additional cost to the Owner, and shall include, but not be limited to the following: public telephone service for the Contractor's use; construction power as required at each point of construction; and water as required throughout the construction. Prior to final acceptance of the Work the Contractor shall, at its expense, satisfactorily remove and dispose of all temporary utilities developed to meet the requirements of the Contract.

17.03. Drainage. The Contractor shall so conduct its operations and maintain the Work in such condition that adequate drainage will be in effect at all times. Existing functioning storm sewers, gutters, ditches, and other run-off shall not be obstructed.

SC 17.07 through SC 17.12 Add the following paragraphs following SC 17.06.

17.07. Fire Hydrants. Fire hydrants on or adjacent to the highway shall be kept accessible to fire apparatus at all times and no material or obstruction shall be placed within fifteen feet (15') of any such hydrant.

17.08. Protection of Structures. Heavy equipment shall not be operated close enough to pipe headwalls or other structures to cause their displacement.

17.09. Fencing. On all Work which includes fencing and where the Engineer determines it to be necessary for maintaining the security of livestock or adjacent property, or for protection of pedestrians who are likely to gain access to the Site or Work area from adjacent property, the Contractor shall erect an appropriate temporary security fence as a first order of business.

Temporary fencing shall be installed at temporary construction easement areas on all commercial and residential properties appropriate to secure the Work area and protect persons and domestic animals. At all times, the Contractor shall conduct the Work under secure temporary fencing. Permanent fencing shall be addressed as required by the Plans and Specifications.

17.10. Record Drawings. The Contractor shall keep one record copy of all Specifications, Drawings, Addenda, Modifications, and Shop Drawings at the site in good order and annotated to show all changes made during the construction process. These items shall be available to the Engineer and shall be delivered to the Engineer for the Owner. Record Drawings shall be submitted with each pay request. Record Drawings shall be submitted with each pay request. Final acceptance of the Work will be withheld until the approval of such documents are made by the Owner.

17.11. Progress Videotapes. Contractor shall deliver to the Owner both prior to commencing the Project and before receipt of Final Payment, a DVD Type color videotape of the Project showing the Site before and after Work has been completed. Contractor shall audibly identify on the videotape the station numbers as those areas of the Project are taped. The cost of the videotaping is included in the bid submitted by the Contractor.

17.12. Commercial Activities. Contractor shall not establish any commercial activity or issue concessions or permits of any kind to third parties for establishing commercial activities on land owned or controlled by Owner. Contractor shall not allow its employees to engage in any commercial activities on the Project site.

PART II – FORMS TO BE USED DURING PROJECT CONSTRUCTION (Pages 20 through 32)

NOTICE OF AWARD – (Sample)
NOTICE TO PROCEED
FIELD ORDER
WORK CHANGE DIRECTIVE
CHANGE ORDER
APPLICATION FOR PAYMENT
CERTIFICATE OF SUBSTANTIAL COMPLETION
FINAL RELEASE OF LIEN
DUTIES RESPONSIBILITIES AND LIMITATIONS OF AUTHORITY OF
RESIDENT PROJECT REPRESENTATIVE

BOARD OF COUNTY COMMISSIONERS



Date

via Email

Company

Attn:

Address

Address

Email address

NOTICE OF AWARD

**Reference: Indian River County Bid No. 2021046
South Oslo Road WTP SCADA System Improvements**

Dear Mr./Ms. :

It is my pleasure to inform you that on [DATE] the Board of County Commissioners awarded the above-referenced project to your company. The following documents are required before the applicable County department can issue a "Notice to Proceed" letter.

1. Public Construction Bond (unrecorded) in the amount of **100%** of the award amount (**\$.....**).
2. Two Signed Copies of Enclosed Agreement.
3. Certificate of Insurance indicating coverage required by Article 5 of the General Conditions (section 00700 of the bid documents) and Supplemental Conditions (Section 00800 of the bid documents). Certificate(s) **must name Indian River County as additional insured** and must provide for a 30 day Notice of Cancellation.
4. W-9.

The Public Construction Bond must be executed in accordance with section 255.05(1)(a), Florida Statutes. Please submit the Bond, W-9, the Certificate(s) of Insurance and two fully-executed copies of the enclosed agreement to this office at the address provided below no later than [Due **DATE (15 days from award)**]. Failure to comply with the established deadline for submittal of required documents may be grounds for cancellation of award.

Thank you for your prompt attention and if you have any questions, please do not hesitate to contact our office.

Sincerely,

Jennifer Hyde
Purchasing Manager

cc: Department of Utility Services

NOTICE TO PROCEED

_____, 2021

CONTRACT FOR: **South Oslo Road WTP SCADA System Improvements**

CONTRACTOR: _____

Atn: _____

Gentlemen:

You are hereby notified to commence work on the subject contract on or before _____, 2021 and are to fully complete the work within _____ calendar days. In accordance with the contract documents, the Substantial Completion date is _____, 2021, (____ days) with the Final Completion date being _____, 2021 (____ days). Extension in time will be by written change order only.

The contract provides for assessment of liquidated damages for each consecutive calendar day that the work remains incomplete after the above established substantial completion date the sum of \$250.00 and for each consecutive calendar day that the work remains incomplete after the above established final completion date the sum of \$ 250.00.

Indian River County, Florida
(OWNER)

By: _____
(Authorized Signature)

Terry Southard, Operations Manager
(Printed Name & Title of Above Signer)

NOTE: Attach this notice to your contract making it a part thereof.

FIELD ORDER

PROJECT: South Oslo Road WTP SCADA System Improvements

FIELD ORDER NO.: _____

DATE: _____

CONTRACT: 2021046

OWNER: Indian River County

OWNER'S PROJECT NO.: _____

TO: _____

CONTRACT DATE: _____

This Field Order is issued to interpret/clarify the Contract Documents, order minor changes in the work and/or memorialize trade-off agreements. Both parties hereby agree that the work described by this Field Order is to be accomplished without change in Contract Sum, Contract Time, and/or claims for other costs.

DESCRIPTION: (Here insert a written description of the interpretation, change or agreement.)

FIELD ENGINEER: _____

CONTRACTOR: _____

BY: _____

BY: _____

DATES: _____

DATE: _____

WORK CHANGE DIRECTIVE

No. _____

PROJECT: South Oslo Road WTP SCADA System Improvements

DATE OF ISSUANCE:

OWNER: Indian River County Utilities 1801 27th Street, Vero Beach, FL 32960

(Name, Address)

CONTRACTOR:

OWNER's Project No.: 2021046

ENGINEER: Kimley-Horn and Associates, Inc.

CONTRACT FOR:

ENGINEER's Project No.:

You are directed to proceed with the following change(s):

Description: _____

Purpose of Work Directive Change: _____

Attachment(s) (list documents supporting change):

If a claim is made that the above change(s) have affected Contract Price or Contract Time, any claim for a Change Order based thereon will involve one of the following methods of determining the effect of the change(s).

Method of determining change in Contract Price:
Time:

Method of determining change in Contract

Time and Materials

Contractor's records

Unit Prices

Engineer's records

Cost plus fixed fee

Other _____

Estimated increase (decrease) in Contract Price
\$_____. If the
change involves an increase, the estimated
amount is not to be exceeded without further
authorization.

Estimated increase (decrease) in Contract Time
_____ days. If the change involves an
increase, the estimated time is not to be exceed
without further authorization.

Once the Work covered by the directive is completed or final cost and time determined, Contractor should submit documentation for inclusion in a change Order.

THIS IS A DIRECTIVE TO PROCEED WITH A CHANGE THAT MAY AFFECT THE CONTRACT PRICE OR THE CONTRACT TIME. A CHANGE ORDER, IF ANY, SHOULD BE CONSIDERED PROMPTLY.

RECOMMENDED:

APPROVED:

ACCEPTED:

By: _____
Engineer (Authorized Signature)

By: _____
Owner (Authorized Signature)

By: _____
Contractor (Authorized Signature)

Date: _____

Date: _____

Date: _____

CHANGE ORDER

No. _____

PROJECT: South Oslo Road WTP SCADA System Improvements

DATE OF ISSUANCE _____ EFFECTIVE DATE _____

OWNER Indian River County

OWNER's Contract No. 2021046

Project No. _____

CONTRACTOR _____ ENGINEER _____

You are directed to make the following changes in the Contract Documents:

Description: _____

Reason for change order: _____

Attachments: (List documents supporting change) _____

CHANGE IN CONTRACT PRICE	CHANGE IN CONTRACT TIME
Original Contract Price \$ _____	Original Contract Times Substantial Completion: _____ Ready for final payment: _____ Days or dates
Net changes from previous Change Orders No. ___ to No. _____ \$ _____	Net change from previous Change Orders No. ___ to No. _____ _____ days
Contract Price prior to this Change Order \$ _____	Contract Time prior to this Change Order Substantial Completion: _____ Ready for final payment: _____ Days or dates
Net Increase (decrease) in this Change Order \$ _____	Net Increase in this Change Order _____ days
Contract Price with all approved Change Orders \$ _____	Contract Time with all approved Change Orders Substantial Completion: _____ Ready for final payment: _____ Days or dates

RECOMMENDED:

APPROVED:

ACCEPTED:

By: _____
Engineer (Authorized Signature)

By: _____
Owner (Authorized Signature)

By: _____
Contractor (Authorized Signature)

Date: _____

Date: _____

Date: _____

EJCDC No. C-700 (2002 Edition)

Prepared by the Engineers Joint Contract Documents Committee and endorsed by The Associated General Contractors of America.

APPLICATION FOR PAYMENT NO. _____

To: Indian River County (OWNER)

From: _____ (CONTRACTOR)

Contract: _____

PROJECT: South Oslo Road WTP SCADA System Improvements

OWNER's Contract No. 2021046

ENGINEER's Project No. _____

For Work accomplished through the date of: _____.

1.	Original Contract Price:	\$ _____
2.	Net change by Change Orders and Written Amendments (+ or -):	\$ _____
3.	Current Contract Price (1 plus 2):	\$ _____
4.	Total completed and stored to date	\$ _____
5.	Retainage (per Agreement):	
	_____ % of completed Work: \$ _____	
	_____ % of retainage: _____	
	Total Retainage:	\$ _____
6.	Total completed and stored to date less retainage (4 minus 5):	\$ _____
7.	Less previous Application for Payments:	\$ _____
8.	DUE THIS APPLICATION (6 MINUS 7):	\$ _____

Accompanying Documentation:

CONTRACTOR'S Certification:

The undersigned CONTRACTOR certifies that (1) title to all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to OWNER at time of payment free and clear of all Liens, security interests and encumbrances; (2) all Work covered by this Application for Payment is in accordance with the Contract Documents and not defective; and (3) the labor and materials listed on this Application for Payment have been used in the construction of this Work and payment received from the last progress payment has been used to make payments to all subcontractors, laborers, materialmen and suppliers except as listed below: _____ "

Dated _____

CONTRACTOR
By: _____

State of _____
County of _____

Sworn to (or affirmed) and subscribed before me by means of physical presence or online notarization, this ____ day of 20____, by _____

(name of person making statement).

(Signature of Notary Public - State of Florida)
(Print, Type, or Stamp Commissioned Name of Notary Public)

who is personally known to me or who has produced _____ as identification.

Payment of the above AMOUNT DUE THIS APPLICATION is recommended.

Dated _____

ENGINEER

By: _____

EJCDC No. C-700-E (2002 Edition)

Prepared by the Engineers Joint Contract Documents Committee and endorsed by The Associated General Contractors of America and the Construction Specification Institute.

CERTIFICATE OF SUBSTANTIAL COMPLETION

PROJECT: South Oslo Road WTP SCADA System Improvements

DATE OF ISSUANCE

OWNER Indian River County Board of County Commissioners

OWNER's Contract No. 2021046 **ENGINEER's Project No.** _____

CONTRACTOR _____ **ENGINEER** Kimley-Horn and Associates, Inc.

This Certificate of Substantial Completion applies to all Work under the Contract Documents or to the following specified parts thereof:

To: Indian River County Department of Utilities Services
OWNER

And To _____
CONTRACTOR

The Work to which this Certificate applies has been inspected by authorized representatives of OWNER, CONTRACTOR and ENGINEER, and that Work is hereby declared to be substantially complete in accordance with the contract Documents on

DATE OF SUBSTANTIAL COMPLETION

A tentative list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include an item in it does not alter the responsibility of CONTRACTOR to complete all the Work in accordance with the contract Documents. The items in the tentative list shall be completed or corrected by CONTRACTOR within _____ Days of the above date of Substantial Completion.

EJCDC No. C-700 (2002 Edition)
Prepared by the Engineers Joint Contract Documents Committee and endorsed by The Associated General Contractors of America.

From the date of Substantial Completion, the responsibilities between OWNER and CONTRACTOR for security, operation, safety, maintenance, heat, utilities, insurance and warranties and guarantees shall be as follows:

RESPONSIBILITIES:

OWNER: _____

CONTRACTOR: _____

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

[For items to be attached see definition of Substantial Completion as supplemented and other specifically noted conditions precedent to achieving Substantial Completion as required by Contract Documents.]

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

Executed by ENGINEER on _____

ENGINEER

By: _____
(Authorized Signature)

CONTRACTOR accepts this Certificate of Substantial Completion on _____, 20__

CONTRACTOR

By: _____

OWNER accepts this Certificate of Substantial Completion on _____, 20__

INDIAN RIVER COUNTY DEPARTMENT OF UTILITIES SERVICES

OWNER

By: _____
(Authorized Signature)

FINAL RELEASE OF LIEN

KNOW ALL MEN BY THESE PRESENTS, that

(Company Name)

The acceptance by the CONTRACTOR of final payment shall be and shall operate as a release to the OWNER from all claims and all liability to the CONTRACTOR other than claims in stated amounts as may be specifically excepted by the CONTRACTOR for all things done or furnished in connection with the work under this Contract and for every act and neglect of the OWNER and others relating to or arising out of the work.

For all in consideration of

_____ dollars (\$_____)

(Total Amount of Contract)

paid to _____ by receipt of which is hereby acknowledged,

(Contractor)

do _____ hereby release and quit claim to the OWNER, its successors

(I/We)

or assigns, all liens, lien rights, claims or demands of any kind whatsoever

which _____ now have or might have against the property, building, and/ or

(I/We)

for any incidental expense for the construction of

(Project Number)

South Oslo Road WTP SCADA System Improvements

(Project Name)

IN WITNESS WHEREOF I have hereunto set my hand and seal this _____ day of _____, 20____.

_____ (SEAL)

By _____

WITNESS:

Title _____

DUTIES, RESPONSIBILITIES AND LIMITATIONS OF AUTHORITY
OF RESIDENT PROJECT REPRESENTATIVE

A. GENERAL

Resident Project Representative is ENGINEER'S Agent, will act as directed by and under the supervision of ENGINEER, and will confer with ENGINEER regarding his actions. Resident Project Representative's dealings in matters pertaining to the on-site Work shall in general be only with ENGINEER and CONTRACTOR, and dealings with Subcontractors shall only be through or with the full knowledge of CONTRACTOR. Written communication with OWNER will be only through or as directed by ENGINEER.

B. DUTIES AND RESPONSIBILITIES

Resident Project Representative will:

1. Schedules: Review the progress schedule, schedule of Shop Drawing submissions and schedule of values prepared by CONTRACTOR and consult with ENGINEER concerning their acceptability.
2. Conferences: Attend preconstruction conferences. Arrange a schedule of progress meetings and other job conferences as required in consultation with ENGINEER and notify those expected to attend in advance. Attend meetings, and maintain and circulate copies of minutes thereof.
3. Liaison:
4. Serve as ENGINEER'S liaison with CONTRACTOR, working principally through CONTRACTOR'S superintendent and assist him in understanding the intent of the Contract Documents. Assist ENGINEER in serving as OWNER'S liaison with CONTRACTOR when CONTRACTOR'S operations affect OWNER'S on-site operations.
5. As requested by ENGINEER, assist in obtaining from OWNER additional details or information, when required at the job site for proper execution of the Work.
6. Shop Drawings and Samples:
 - a. Receive and record date of receipt of Shop Drawings and samples, receive samples which are furnished at the site by CONTRACTOR, and notify ENGINEER of their availability for examination.
 - b. Advise ENGINEER and CONTRACTOR or his superintendent immediately of the commencement of any Work requiring a Shop Drawing or sample submission if the submission has not been approved by the ENGINEER.
7. Review of Work, Rejection of Defective Work, Inspections and Tests:
 - a. Conduct on-site observations of the Work in progress to assist ENGINEER in determining if the Work is proceeding in accordance with the Contract Documents and that completed Work will conform to the Contract Documents.
 - b. Report to ENGINEER whenever he believes that any Work is unsatisfactory, faulty or defective or does not conform to the Contract Documents, or does not meet the requirements of any inspections, tests or approval required to be made or has been damaged prior to final payment; and advise ENGINEER when he believes Work should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.

- c. Verify that tests, equipment and systems startups and operating and maintenance instructions are conducted as required by the Contract Documents and in presence of the required personnel, and that CONTRACTOR maintains adequate records thereof; observe, record and report to ENGINEER appropriate details relative to the test procedures and startups.
 - d. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the outcome of these inspections and report to ENGINEER.
- 8. Interpretation of Contract Documents: Transmit to CONTRACTOR engineer's clarifications and interpretations of the Contract Documents.
- 9. Modifications: Consider and evaluate CONTRACTOR'S suggestions for modifications in Drawings or Specifications and report them with recommendations to ENGINEER.
- 10. Records:
 - a. Maintain at the job site orderly files for correspondence, reports of job conferences, Shop Drawings and samples submissions, reproductions of original Contract Documents including all Addenda, change orders, field orders, additional Drawings issued subsequent to the execution of the Contract, ENGINEER'S clarifications and interpretations of the Contract Documents, progress reports, and other Project related documents.
 - b. Keep a diary or log book, recording hours on the job site, weather conditions, data relative to questions of extras or deductions, list of visiting officials and representatives of manufacturers, fabricators, suppliers and distributors, daily activities, decisions, observations in general and specific observations in more detail as the case of observing test procedures. Send copies to ENGINEER.
 - c. Record names, addresses and telephone numbers of all contractors, Subcontractors and major suppliers of materials and equipment.
- 11. Reports:
 - a. Furnish ENGINEER periodic reports as required of progress of the Work and CONTRACTOR'S compliance with the approved progress schedule and schedule of Shop Drawing submissions.
 - b. Consult with ENGINEER in advance of scheduled major tests, inspections or start of important phases of the Work.
 - c. Report immediately to ENGINEER upon the occurrence of any accident.
- 12. Payment Requisitions: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward them with recommendations to ENGINEER, noting particularly their relation to the schedule of values, Work completed and materials and equipment delivered at the site but not incorporated in the Work.
- 13. Certificates, Maintenance and Operation Manuals: During the course of the Work, verify that certificates, maintenance and operation manuals and other data required to be assembled and furnished by CONTRACTOR are applicable to the items actually installed; and deliver this material to ENGINEER for his review and forwarding to OWNER prior to final acceptance of the Work.
- 14. Completion:
 - a. Before ENGINEER issues a Certificate of Substantial Completion, submit to CONTRACTOR a list of observed items requiring completion or correction.
 - b. Conduct final inspection in the company of ENGINEER, OWNER and CONTRACTOR and prepare a final list of items to be completed or corrected.
 - c. Verify that all items on final list have been completed or corrected and make recommendations to ENGINEER concerning acceptance.

C. LIMITATIONS OF AUTHORITY

Except upon written instructions of ENGINEER, Resident Project Representative:

15. Shall not authorize any deviation from the Contract Documents or approve any substitute materials or equipment.
16. Shall not exceed limitations on ENGINEER'S authority as set forth in the Contract Documents.
17. Shall not undertake any of the responsibilities of CONTRACTOR, Subcontractors or CONTRACTOR'S superintendent, or expedite the Work.
18. Shall not advise on or issue directions relative to any aspect of the means, methods, techniques, sequences or procedures of construction unless such is specifically called for in the Contract Documents.
19. Shall not advise on or issue directions as to safety precautions and programs in connection with the Work.
20. Shall not authorize OWNER to occupy the Project in whole or in part.
21. Shall not participate in specialized field or laboratory tests.

END OF SECTION

■ *Technical Specifications*

South Oslo Road WTP SCADA System Improvements

*PREPARED FOR:
INDIAN RIVER UTILITIES*



*PREPARED BY:
KIMLEY-HORN AND ASSOCIATES, INC.
1920 WEKIVA WAY, SUITE 200
WEST PALM BEACH FL 33411
CA 00000696*

March 2021
PROJECT NO. 044572100

Kimley»»Horn

SECTION 01000

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NO SPECIFICATIONS ON THIS PAGE FOR FORMATTING PURPOSES

SECTION 01010
SUMMARY OF WORK

PART 1 - GENERAL

1.1 WORK COVERED BY THESE CONTRACT DOCUMENTS

- A. Furnish all labor, equipment and materials necessary to construct all improvement elements at the South Oslo Road Water Plant described in the plans and these specifications:
 - 1. Construct electrical and SCADA system improvements, including, but not limited to, installation of new high service pump PLC panel, hardware upgrades to existing Main PLC panel, conduit, wiring and any other items as depicted on the plans and in these specifications to provide a complete and functional system at Indian River County's South Water Treatment Plant (Oslo).
 - 2. Proposed sequence of installation and demolition of existing signals from HSP and FWP VFD equipment (inside the main electrical room) to PLC equipment via ethernet cables.
 - a. Contractor shall coordinate with engineer, CSD personnel and the owner to plan and schedule each existing VFD to be converted from hard wired signals to ethernet communication.
 - b. One HSP VFD or one FWP VFD shall be converted at a time; the process shall involve taking the VFD down and installing new ethernet module/card inside the existing VFD. This process shall include making sure VFD boots and new ethernet card is recognized and is operational.
 - c. Install raceway for new cat 7a ethernet cable between VFD equipment and PLC equipment, see drawings.
 - d. Plug cat 7a cable at both ends and test communications and coordinate with CSD personnel to make sure bits are received at PLC from one drive. Also, bits are sent from PLC (start/stop) signal and speed reference signal to drive.
 - e. Once everything is confirmed working, contractor may complete demolition of I/O hard wired signals and removal of existing raceways, coordinate with engineer and CSD.
 - 3. I&C contractor shall provide the equipment listed on BOM, for CSD to use in the plantwide PLC upgrade. Provide list during shop drawings review for approval.
 - 4. Except as specifically noted, provide and pay for:
 - a. Mobilization and demobilization.
 - b. Labor, materials, and equipment.
 - c. Tools, construction equipment, and fuel.
 - d. Electric, water and utilities required for construction.
 - e. Freight and sales tax.
 - f. Testing and laboratory services.
 - g. Record Information in electronic form (both AutoCAD and PDF) and a hardcopy. Information will be used by the Engineer for Record Drawing development.

1.2 CONTRACTS

- A. Construct the Work under a Lump Sum Price contract in accordance with the contract documents and with the Owner.
- B. Subcontractors (when used) shall work directly for the contractor.

1.3 WORK BY OTHERS AND FUTURE WORK

- A. The Owner reserves the right to add to the work in accordance with the Contract Documents.
- B. The Owner reserves the right to direct purchase significant pieces of equipment and/or materials included in this contract by means of a deductive Change Order to this Contract and issuance of a Purchase Order to the supplier or vendor of the equipment or materials for the purpose of the sales tax end use savings.
- C. The programming for the Programmable Logic Controller (PLC) and computer systems (HMI) will be provided by Mark Biehl with Control Systems Design and their services will be retained by the Owner.
 - 1. The bidder and their instrumentation and controls (I & C) supplier will coordinate as necessary with the programmer, and shall supply, install and test the complete instrumentation including 5-point calibration on all instruments with completed calibration sheets. This includes furnishing and installing the PLC, testing, including processors, discrete I/O devices, analog I/O devices, network routers, peripherals and software requirements.
 - 2. Contact information for Control Systems Design, Inc. is as follows; P: (941) 907-8815; e-mail: mb.csdinc@gmail.com.

1.4 CONTRACTOR-FURNISHED PRODUCTS AND RESPONSIBILITIES

- A. Products furnished to the site and paid for by Contractor: All products necessary to complete the work described herein these contract documents and specifications to provide a complete and functional system.
- B. Contractor's Responsibilities:
 - 1. Review and incorporate Owner-reviewed shop drawings, product data, and samples into the construction of the project.
 - 2. Schedule with the Owner and attend plant site safety training provided by water plant staff. All contractor and subcontractor staff that are working on site are required to attend the training.
 - 3. Provide any items determined by the Owner to be salvaged to the Owner's on-site staging area.
 - 4. Receive and unload products at site; inspect for completeness or damage jointly with Owner.
 - 5. Repair or replace items damaged after receipt.
 - 6. Arrange and pay for product delivery to site.
 - 7. Handle, store, protect and install all delivered products.
 - 8. Submit claims for transportation damage and replace damaged, defective, or deficient items.
 - 9. Arrange for manufacturers' warranties, inspections, and service.
 - 10. Provide the Owner with a one-year warranty on all equipment and workmanship from the date of substantial completion.
 - 11. Obtain any permits that may be required to execute the project. No building permit is expected to be required as part of this project.

1.5 CONTRACTOR'S USE OF THE PREMISES

- A. All work shall be within the limits of the County owned water treatment plant facility. Contractor shall be responsible for maintenance of traffic when working within the public rights of way.
- B. The Contractor shall coordinate with the County for material lay down and equipment storage areas on site. The contractor shall maintain access to County facilities at all times and not interfere with the operations of other contractors who may also be working within the facility. Any damage caused by the contractor within staging areas shall be completely restored by the contractor to the Owner's satisfaction at no additional cost to the Owner.
- C. All Contractor and subcontractor workers and laborers shall be required to wear clothing that identifies them with their respective contractors. All workers and laborers shall remain in their designated work areas and at no time shall be wandering the site.
- D. Time restrictions for performing work: All work shall be performed during daylight working hours, Monday through Friday, 7:00 AM to 5:00 PM. The Contractor may extend working hours only if approved in writing by the Owner.

1.6 PERMITS REQUIRED

Not used.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

- END OF SECTION -

SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Contractor shall submit to the Engineer, shop drawings, project data and samples required by specification sections.

1.2 SCHEDULES

- A. Prepare and submit a Construction Schedule.
- B. Prepare and submit a separate schedule listing dates for submission of shop drawings and projected return dates.
- C. Schedules shall be updated and re-submitted on a monthly basis throughout the duration of the project.
- D. Prepare and submit two-week look ahead schedules bi-weekly throughout duration of the project.
- E. Coordinate all work with OWNER operations staff. Construction activities that impact operations require 48 hours advance notice and approval from the OWNER. No WTP shutdowns will be permitted as part of this project.

PART 2 - PRODUCTS

2.1 SHOP DRAWINGS

- A. Original drawings, prepared by Contractor, Subcontractor, Supplier or Distributor, which illustrate portions of the Work; showing fabrication, layout, setting or erection details including, but not limited to the following:
 - 1. Construction phasing plan
 - 2. Electrical Panels
 - 3. Electrical conductors
 - 4. Electrical conduit
 - 5. Miscellaneous metals
- B. Prepare submittals by a qualified detailer.
- C. Identify details by reference to sheet numbers and detail shown on Contract Drawings.

2.2 PROJECT DATA

- A. Manufacturer's standard schematic drawings:
 - 1. Modify drawings to delete information which is not applicable to project.
 - 2. Supplement standard information to provide additional information applicable to project.
- B. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data.
 - 1. Clearly mark each copy to identify pertinent materials, products or models.
 - 2. Show dimensions and clearances required.
 - 3. Show performance characteristics and capacities.

4. Show wiring diagrams and controls.

2.3 SAMPLES

- A. Physical examples to illustrate materials, equipment or workmanship, and to establish standards by which completed work is judged.
- B. Office samples of sufficient size and quantity to clearly illustrate:
 1. Functional characteristics of product or material, with integrally related parts and attachment devices.
 2. Full range of color samples.

2.4 PAY REQUESTS

- A. Pay Requests shall be made in accordance with the requirements of the Agreement between Owner and Contractor. Payment requests shall include updated schedules as required in required 01300-1.2.

PART 3 - EXECUTION

3.1 SUBMISSION REQUIREMENTS

- A. Schedule submissions at least 14 days before dates reviewed submittals will be needed.
- B. Submit number of copies of Shop Drawings, Project Datum and Samples which Contractor requires for distribution plus 4 copies for the Owner and Engineer.
- C. Accompany submittals with transmittal letter, in duplicate, containing:
 1. Date.
 2. Project title and number.
 3. Contractor's name and address.
 4. Notification of deviations from Contract Documents.
 5. Other pertinent data.
- D. Submittals must include:
 1. Date of submittal and revision dates.
 2. Project title and number.
 3. The names of:
 - a. Engineer.
 - b. Contractor.
 - c. Subcontractor.
 - d. Supplier.
 - e. Manufacturer.
 - f. Separate detailer when pertinent.
 4. Identification of product or material.
 5. Relation to adjacent structure or materials.
 6. Field dimensions, clearly identified as such.
 7. Identification of deviations from Contract Documents.
 8. Contractor's stamp, initialed or signed, certifying to review of submittal, verification of field measurements and compliance with Contract Documents.

3.2 RESUBMISSION REQUIREMENTS

- A. Shop Drawings:
 - 1. Revise initial drawings as required and resubmit as specified for initial submittal.
 - 2. Clearly indicate on shop drawings all changes or revisions which have been made other than those requested by Engineer.
 - 3. Re-submittals without all comments from original review addressed will be returned to the contractor.
- B. Project Data and Samples:
 - 1. Submit new datum and samples as required for initial submittal.

3.3 DISTRIBUTION OF SUBMITTALS AFTER REVIEW

- A. Distribute copies of Shop Drawings and Project Datum which carry Engineer's stamp, to:
 - 1. Contractor's file.
 - 2. Job site file.
 - 3. Record Documents file.
 - 4. Other prime contractors.
 - 5. Subcontractors.
 - 6. Supplier.
 - 7. Fabricator.
- B. Distribute samples as directed.

- END OF SECTION -

NO SPECIFICATIONS ON THIS PAGE FOR FORMATTING PURPOSES.

SECTION 01700
PROJECT CLOSEOUT

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Comply with requirements stated in the Agreement between Owner and Contractor and in Specifications for administrative procedures in closing out the Work.

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Section 01720 - Project Record Drawings
- B. Section 01730 – Operating and Maintenance Manuals

1.3 SUBSTANTIAL COMPLETION

- A. Substantial completion shall be defined as beneficial use of all proposed equipment. Beneficial use will not occur until the PLC system units have been installed, tested, and accepted by the Owner and Engineer of record.
- B. The Contractor shall deliver to the Engineer the Record Drawings and a draft copy of the Operations and Maintenance manuals for review and deliver to the Owner a complete set of all spare parts.
- C. When Contractor considers the Work is substantially complete, Contractor shall submit to Engineer:
 - 1. A written notice that the Work or designated portion thereof, is substantially complete.
- D. Within a reasonable time after receipt of such notice, Engineer will perform a field investigation to determine the status of completion.
- E. Should Engineer determine that the Work is not substantially complete:
 - 1. Engineer will promptly notify the Contractor in writing, giving the reasons therefore.
 - 2. Contractor shall remedy the deficiencies in the Work, and send a second written notice of substantial completion to the Engineer.
 - 3. Engineer will reinvestigate the Work.
- F. When the Engineer finds that the Work is substantially complete, he will:
 - 1. Prepare and deliver to Owner a tentative Certificate of Substantial Completion, with a tentative list of items to be completed or corrected before final payment.
 - 2. After consideration of any objections made by the Owner and when Engineer considers the Work substantially complete, he will execute and deliver to the Owner and the Contractor a definite Certificate of Substantial Completion with a revised tentative list of items to be completed or corrected.

1.4 FINAL SITE REVIEWS

- A. When Contractor considers Work is complete, he shall submit written certification that:
 - 1. Contract Documents have been reviewed.
 - 2. Work has been investigated for compliance with Contract Documents.
 - 3. Work has been completed in accordance with Contract Documents.

4. Equipment and systems have been tested in the presence of the Owner's representative and are operational.
5. Work is completed and ready for Final Investigation.
- B. Engineer will perform a field investigation to verify the status of completion with reasonable promptness after receipt of such certification.
- C. Should Engineer consider that the Work is incomplete or defective:
 1. Engineer will promptly notify the Contractor in writing, listing the incomplete or defective work.
 2. Contractor shall take immediate steps to remedy the stated deficiencies and send a second written certification to Engineer that the Work is complete.
 3. Engineer will reinvestigate the Work.
- D. When the Engineer finds that the Work is acceptable under the Contract Documents, he shall request the Contractor to make closeout submittals.

1.5 CONTRACTOR'S CLOSEOUT SUBMITTALS TO ENGINEER

- A. Project Record Drawings to the requirements specified.
- B. Operating and Maintenance Manuals to the requirements specified.
- C. Contractor's affidavit of payment of debts and claims.
 1. Contractor's release or waiver of liens.
- D. Separate releases or waivers of liens for subcontractors, suppliers and others with lien rights against property of Owner, together with list of those parties.

1.6 FINAL ADJUSTMENTS OF ACCOUNTS

- A. Submit a final statement of accounting to Engineer.
- B. Statement shall reflect all adjustments to the Contract Sum:
 1. The original Contract Sum.
 2. Additions and deductions resulting from:
 - a. Previous Change Orders.
 - b. Allowances.
 - c. Unit Prices.
 - d. Deductions for uncorrected Work.
 - e. Deductions for liquidated damages.
 - f. Deductions for re-inspection payments.
 - g. Other adjustments.
 3. Total Contract Sum, as adjusted.
 4. Previous payments.
 5. Sum remaining due.
- C. Engineer will prepare a final Change Order reflecting approved adjustments to the Contract Sum which was not previously made by Change Orders.

1.7 FINAL APPLICATION FOR PAYMENT

- A. Contractor shall submit the final Application for Payment in accordance with procedures and requirements stated in the Condition of the Contract.

1.8 FINAL CERTIFICATE FOR PAYMENT

- A. Engineer will issue final certificate in accordance with provisions of the Contract Documents.

1.9 POST-CONSTRUCTION INSPECTION

- A. Prior to expiration of one year from Date of Substantial Completion, Engineer will make visual field investigation of Project in company with Owner and Contractor to determine whether correction of Work is required, in accordance with provisions of the Contract Documents.
- B. For Guarantees beyond one year, Engineer will make field investigations at request of Owner, after notification to Contractor.
- C. Engineer will promptly notify Contractor, in writing, of any observed deficiencies.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

- END OF SECTION -

NO SPECIFICATIONS ON THIS PAGE FOR FORMATTING PURPOSES.

SECTION 01720
PROJECT RECORD DRAWINGS

PART 1 - GENERAL

1.1 PROJECT RECORD DOCUMENTS

- A. Maintain at the site for the Owner one record copy of:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other Modifications to the Contract.
 - 5. Engineer Field Orders or written instructions.
 - 6. Reviewed Shop Drawings.
 - 7. Field test records.

1.2 RELATED REQUIREMENTS SPECIFIED ELSEWHERE

- A. Conditions of the Contracts
- B. Section 01700 – Project closeout

1.3 MAINTENANCE OF DOCUMENTS

- A. Store documents in approved location apart from documents used for construction.
- B. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.
- C. Make documents available at all times for inspection by Engineer and Owner. Record drawing information shall be maintained concurrently with Pay Requests and updated project schedules.

1.4 MARKING DEVICES

- A. Provide ink marking pens for recording information in a color code.

1.5 RECORDING

- A. Label each document "PROJECT RECORD" in neat large printed letters.
- B. Record information currently with construction progress.
 - 1. Do not conceal any work until required information is recorded.
- C. Drawings shall be drawn to record actual construction:
 - 1. Field changes of dimension and detail.
 - 2. Changes made by Field Order or by Change Order.
 - 3. Details not on original Contract Drawings.
- D. Specifications and Addenda; Legibly mark each Section to record:
 - 1. Manufacturer, trade name, catalog number, and supplier of each item actually installed.
 - 2. Changes made by Field Order or by Change Order.

1.6 SUBMITTAL

- A. At Contract Close-out, Record Documents shall be submitted to Engineer in the following formats for Owner:
 - 1. One set on 24" x 36".

- B. Accompany submittal with transmittal letter in duplicate, containing:
1. Date.
 2. Project title and number.
 3. Contractor's name and address.
 4. Title and number of each record document.
 5. Signature of Contractor or his authorized representative.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

- END OF SECTION -

SECTION 01730

OPERATION AND MAINTENANCE MANUALS

PART 1 - GENERAL

1.1 RELATED INFORMATION

- A. Compile product data and related information appropriate for Owner's maintenance and operation of products furnished under the Contract.
 - 1. Prepare operating and maintenance data as specified in this Section and as referenced in other pertinent sections of Specifications.
- B. Instruct Owner's personnel in the maintenance of products and in the operation of equipment and systems.
- C. Related Requirements Specified in Other Sections.
 - 1. Section 01300 - Submittals
 - 2. Section 01720 - Project Record Drawings
 - 3. Section 16900 – Control Systems

1.2 FORM OF SUBMITTALS

- A. Prepare data in the form of an instructional manual and electronic format for use by Owner's personnel.
- B. Hard-Copy Format:
 - 1. Size: 8-1/2 in. x 11 in.
 - 2. Text: Manufacturer's printed data, or neatly typewritten.
 - 3. Drawings:
 - a. Provide reinforced punch binder tab, bind in with text.
 - b. Fold larger drawings to the size of the text pages.
 - 4. Provide fly-leaf for each separate product, or each piece of operating equipment.
 - a. Provide typed description of product, and major component parts of equipment.
 - 5. Cover: Identify each volume with typed or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS". List:
 - a. Title of Project.
 - b. Identity of separate structure as applicable.
 - c. Identity of general subject matter covered in the manual.
- C. Binders:
 - 1. Commercial quality expandable catalog binders with durable and cleanable plastic covers.
 - 2. When multiple binders are used, correlate the data into related consistent groupings.
- D. Electronic format shall be in .pdf file format. Copies of specific manuals shall either be scanned or converted to .pdf format and submitted on CD disc to Owner. Submit after approval of hard copies from Engineer.

1.3 CONTENT OF MANUAL

- A. Neatly typewritten table of contents for each volume, arranged in a systematic order.
 - 1. Contractor, name of responsible principal, address and telephone number.
 - 2. A list of each product required to be included, indexed to the content of the volume.

3. List, with each product, the name, address and telephone number of:
 - a. Subcontractor or installer.
 - b. Maintenance contractor, as appropriate.
 - c. Identify the area of responsibility of each.
 - d. Local source of supply for parts and replacement.
4. Identify each product by product name and other identifying symbols as set forth in Contract Documents.
- B. Product Data:
 1. Include only those sheets which are pertinent to the specific product.
 2. Annotate each sheet to:
 - a. Clearly identify the specific product or part installed.
 - b. Clearly identify the data applicable to the installation.
 - c. Delete references to inapplicable information.
- C. Drawings:
 1. Supplement product data with drawings as necessary to clearly illustrate relations of component parts of equipment and systems.
 2. Coordinate drawings with information in Project Record Documents to assure correct illustration of completed installation.
 3. Do not use Project Record Documents as maintenance drawings.
- D. Written text, as required to supplement product data for the particular installation:
 1. Organize in a consistent format under separate headings for different procedures.
 2. Provide a logical sequence of instructions for each procedure.
- E. Copy of each warranty issued.
 1. Provide information sheet for Owner's personnel, give:
 - a. Proper procedures in the event of failure.
 - b. Instances which might affect the validity of warranties.

1.4 MANUAL FOR EQUIPMENT AND SYSTEMS

- A. Submit six (6) complete copies of manual in final form and two compact discs (CD) in PDF format. CD shall include bookmarks and chapters to closely duplicate that of the paper copy.
- B. Content, for each unit of equipment and system, as appropriate:
 1. Description of unit and component parts.
 - a. Function, normal operating characteristics, and limiting conditions.
 - b. Performance curves, engineering data and tests.
 - c. Complete nomenclature and commercial number of all replaceable parts.
 2. Operating procedures:
 - a. Start-up, break-in, routine and normal operating instructions.
 - b. Regulation, control, stopping, shut-down and emergency instructions.
 - c. Summer and winter operating instructions.
 - d. Alignment, adjusting and checking.
 3. Servicing and lubrication schedule:
 - a. List of lubricants required for each piece of equipment.
 - b. Schedule for manufacturer recommended maintenance.
 4. Manufacturer's printed operating and maintenance instructions.

5. Original manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance.
6. Other data as required under pertinent sections of specifications.

1.5 SUBMITTAL SCHEDULE

- A. Submit one copy of completed data in final form fifteen days prior to final inspection or acceptance. Electronic submittal for initial review is acceptable.
 1. Copy will be returned after final inspection or acceptance, with comments.
- B. Submit specified number of copies of approved data in final form 10 days after final inspection or acceptance.

1.6 INSTRUCTION OF OWNER'S PERSONNEL

- A. Prior to final inspection or acceptance, fully instruct Owner's designated operating and maintenance personnel in the operation, adjustment and maintenance of all products, equipment and systems.
- B. Operating and maintenance manual shall constitute the basis of instruction.
 1. Review contents of manual with personnel in full detail to explain all aspects of operations and maintenance.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

- END OF SECTION -

NO SPECIFICATIONS ON THIS PAGE FOR FORMATTING PURPOSES.

SECTION 16000

ELECTRICAL GENERAL REQUIREMENTS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. The general provisions of the Contract, including General Conditions, apply to all the Work specified in the Electrical 16000 Sections.

1.02 LAWS, PERMITS, FEES AND NOTICES

- A. Secure and pay all permits, fees and licenses necessary for the proper execution of the Work. Submit all notices and comply with all laws, ordinances, rules and regulations of any public agency bearing on the Work. CONTRACTOR shall be licensed electrical CONTRACTOR in the county of construction.

1.03 DEPARTURES

- A. If any departures from the Contract drawings or specifications are deemed necessary, details of such departures and the reasons therefore shall be submitted to the ENGINEER for advance written approval, prior to departure.

1.04 GUARANTEES

- A. Furnish written guarantee covering all materials, workmanship, labor and equipment for a period of one (1) year from the date of acceptance as described in the Contract General Conditions.
- B. The OWNER reserves the right to operate and use all materials and equipment failing to meet the requirements of the Contract documents until such unacceptable materials and equipment are replaced or repaired to the satisfaction of the ENGINEER.

1.05 AS-BUILT INFORMATION

- A. A set of "red-lined" electrical drawings shall be carefully maintained at the job site. Actual conditions are to be put on the drawings in red on a daily basis so the drawings will continuously show locations and routes of cable trays, conduits, pull-boxes, circuit numbers, and other information required by the ENGINEER.

1.06 JOB SITE VISIT

- A. Visit the project site before submitting a bid. Verify all dimensions shown and determine the characteristics of existing facilities which will affect performance of the Work, but which may not be shown on drawings or described within these specifications.

1.07 CLEANUP

- A. Maintain a continuous cleanup during the progress of the Work and use appointed storage areas for supplies. The premises shall be kept free from accumulations of waste materials and rubbish.

1.08 CUTTING AND PATCHING

- A. Cut and prepare all openings, chases and trenches required for the installation of equipment and materials. Repair, remodel and finish in strict conformance with the quality of workmanship and materials in the surroundings. Obtain written permission from the ENGINEER for any alterations to structural members before proceeding.

1.09 MAINTENANCE

- A. Render all necessary measures to ensure complete protection and maintenance of all systems, materials and equipment prior to final acceptance. Any materials or equipment not properly maintained or protected to assure a factory new condition at the time of final acceptance shall be replaced immediately at no additional cost to the OWNER.

1.10 WATERPROOFING

- A. Whenever any Work penetrates any waterproofing, seal and render the Work waterproof. All Work shall be accomplished so as not to void or diminish any waterproofing bond or guarantee.

1.11 TESTS

- A. Conduct an operating test of equipment prior to the ENGINEER's approval. The equipment shall be demonstrated to operate in accordance with the requirements of these specifications. The tests shall be performed in the presence of the ENGINEER or an authorized representative. The electrical CONTRACTOR shall furnish all instruments, electricity and personnel required for the tests.

1.12 SUMMARY OF ELECTRICAL WORK

- A. Provide all labor, materials, tools, supplies, equipment and temporary utilities to complete the Work shown on the drawings and specified herein. All systems are to be completely installed and fully operational. Specifically, the Work includes, but is not necessarily limited to:

1. Provide PLC and network equipment per the BOM list provided with the drawings for the PLC equipment improvements; this work shall be limited to the proposed HSP PLC panel, which includes relocating I/O from Main PLC. The work shall include for the Contractor to test and verify new PLC equipment and existing components are operating and working. CSD personnel will program new PLC and make it work properly with the VTScada HMI; refer to proposed network diagram and list of equipment in BOM to be supplied by I&C Contractor.
2. Provide close coordination with owner, CSD personnel and engineer for scheduled PLC system shutdowns and phasing of VFD equipment having existing communications being upgraded, and other major pieces of equipment.
3. Provide PLC equipment upgrades to the Main PLC control panel as indicated on the Network Diagram; see drawings and specifications. Proposed plan is to remove the right most PLC5, A/B switch interconnecting wiring to make PLC5A a stand along PLC and install new Control Logix PLC rack with two ENT2T modules, CLX, and network switch (hardware components provided by contractor).
4. Provide at existing HSP and Feed Water Pumps (booster pumps) VFD equipment modifications; provide Ethernet cards for Ethernet communications, include configuration and install of this equipment including Metallic Ethernet communication cables and raceway, see drawings.
5. Upgrade Components in existing CP-1 PLC panel as indicated on the drawings, including replacement Ethernet switch, and assist CSD personnel in the testing of this equipment.
6. Provide power and signal between panels as indicated on drawings.
7. Provide new raceway and Cat 7a cables between existing CP-1 panel and existing Ethernet switch at the eastern wall of electrical room, near ATS switch.
8. Coordinate and provide installation support to CSD personnel. Contractor is responsible for the installation, testing, of control panels, PLC and network components, cable installation and terminations.

1.13 CODES AND STANDARDS

- A. General Applicable provisions of the following codes and standards and other codes and standards required by the State of Florida and local jurisdictions are hereby imposed on a general basis for electrical

Work (in addition to specific applications specified by individual Work sections of these specifications):

1. U.L.: Electrical materials shall be approved by Underwriters' Laboratories, Inc. This applies to materials which are covered by U.L. standards. Factory applied labels are required.
2. National Electrical Code.
3. OSHA: Standards of the Occupational Safety and Health Administration are to be complied with.
4. NEMA: National Electrical Manufacturers Association Standards are to be met wherever standards have been established by that agency and proof is specifically required with material submittals for switchboards, motor control centers, panelboards, cable trays, motors, switches, circuit breakers and fuses.
5. ANSI: America National Standards Institute
6. NESC: National Electrical Safety Code
7. Any and all local codes.

1.14 ELECTRICAL TEMPORARY FACILITIES

- A. The electrical CONTRACTOR shall include in his bid the cost of furnishing, installing, maintaining and removing all materials and equipment required to provide temporary light and power to perform his Work during construction and until Work is completed.
- B. Safety
 1. All reasonable safety requirements shall be observed to protect workers and the public from shock and fire hazards. Ground fault interrupters shall be employed in accordance with codes.
 2. Ground wires are required in all circuits. Ground poles are required on all outlets. All metallic cases shall be grounded.
 3. Raintight cabinets shall be used for all equipment employed in wet areas.

1.15 EXCAVATING FOR ELECTRICAL WORK

- A. General – Not needed

1.16 ELECTRICAL SUBMITTALS

- A. Submittals for Approval

1. Refer to Contract General Conditions for additional instructions on the General Conditions and this section, the more stringent requirements shall apply.
2. Shop Drawings and Manufacturer's data sheets are required for all electrical materials.
3. Submittals will not be accepted for partial systems. Submit all materials for each specification section at one time. Submittals must be arranged, correlated, indexed and bound in orderly sets for ease of review.
4. Samples are to be supplied for any substitute as requested by the ENGINEER.
5. The following numbers of copies are required:

Shop drawings	6 sets
Samples	1 each
Manufacturer's data	6 sets
Certifications	6 sets
Test reports	6 sets
Warranties/Guarantees	6 sets

6. Submit shop drawings, Manufacturer's data and certifications on all items of electrical Work prior to the time such equipment and materials are to be ordered. Order no equipment or materials without approval from the ENGINEER. Submittals will not be accepted for partial system submittals; submit all data at one time. Submittals will be promptly returned, approved, approved as noted, or not approved. Items "approved as noted" must be changed to comply with the ENGINEER's comments and need not be resubmitted for "approved" status. Items "not approved" are not suitable, requiring complete new submittals.
7. Time delays caused by rejection of submittals are not cause for extra charges to OWNER or time extensions. CONTRACTOR shall be responsible for investigating existing systems or shop drawings in order to fully integrate the new equipment into the system. Adequate shop drawings may or may not exist for all existing systems.

B. Operation and Maintenance Manuals

1. Submit to the ENGINEER five (5) copies of all Manufacturer's service installation and operation manuals, instructions and bulletins. These manuals shall be subject to review of the ENGINEER. If acceptable they shall be forwarded to the OWNER. If not acceptable they shall be returned to the

CONTRACTOR for revision and resubmittal. Manuals shall contain, but not be limited to, the following:

- a. Brief description of system and basic features.
- b. Manufacturer's name and model number for all components in the system.
- c. List of local factory authorized service companies.
- d. Operating instructions.
- e. Maintenance instructions
- f. Trouble shooting instructions
- g. Manufacturer's literature describing each piece of equipment.
- h. Power and control wiring diagrams
- i. Parts lists

1.17 ELECTRICAL PRODUCTS

A. Standards Products

1. Unless otherwise indicated in writing by the ENGINEER, the products to be furnished under this specification shall be the Manufacturer's latest design. Units of equipment and components of the same purpose and rating shall be interchangeable throughout the project. All products shall be newly manufactured. Defective equipment or equipment damaged in the course of installation or test, shall be replaced or repaired in a manner meeting with the approval of the ENGINEER at no additional expense to the OWNER.

B. Delivery, Storage and Handling

1. Deliver products to project properly identified with names, model numbers, types, grades, compliance labels and similar information needed for distinct identification; adequately packaged or protected to prevent deterioration during shipment, storage and handling. Store in a dry, well ventilated, indoor space, except where prepared and protected by the Manufacturer specifically for exterior instructions for storage locations.

C. Substitutions

1. Comply with instructions in the Contract General Conditions and Special Conditions and obtain pre-approval of the ENGINEER regarding substitutions.

1.18 SKILLED ELECTRICAL CRAFTSMEN

- A. CONTRACTOR shall employ and staff the project with skilled Craftsmen experienced in the project requirements.
- B. As a minimum, a Licensed Journeyman Electrician shall be present on the project at all times.
- C. Other skilled persons shall be present as the project requirements dictate including Manufacturers representatives, start-up technicians, ENGINEERs, etc.

1.19 DRAWINGS AND SPECIFICATIONS

- A. Refer to the drawings for additional requirements. There are requirements indicated on the drawings which are not noted in the specification.
- B. Bidders, suppliers, equipment vendors, General CONTRACTOR, Sub Contractors and other similar entities are required to read all the Contract documents including drawings and specifications.

1.20 SCHEMATIC NATURE

- A. Plan views are schematic in nature and meant to show the schematic arrangement of equipment and conduit.
- B. CONTRACTOR shall provide the OWNER/ENGINEER with an 11 x 17 (min) drawing (to scale) of the final layout of the equipment and conduit routing for approval. This drawing shall include measurements for all NEC required clearances and separations for equipment and conduit. Refer to other spec sections for conduit routing requirements.

1.21 APPROVED SHOP DRAWINGS

- A. Use approved shop drawings for lay out of equipment. The Contract documents will vary from the shop drawings. Inform the ENGINEER immediately if there are lay out issues or inadequate space for equipment or clearances. Land conduits in openings of enclosures per the approved shop drawings, do not use the Contract drawings.
- B. Housekeeping pads, equipment racks and the like shall be based on the approved shop drawings.

1.22 CLEARANCES

- A. It shall be the CONTRACTOR's responsibility to meet N.E.C. clearances about equipment.

1.23 ROUTING

- A. Conduit routing is schematic in nature. Conduit routing is shown for clarity on the Contract drawings. See other spec sections for additional conduit routing requirements.

1.24 FUTURE FACILITIES

- A. Where future facilities are indicated, conduit routing shall account for such facilities.

1.25 DRAWINGS FURNISHED BY CONTRACTOR

- A. OWNER shall be provided all CONTRACTOR furnished drawings. Such drawings include, but are not limited to: Control panels, MCC.s, VFD.s, switch boards, instrumentation details, panelboards, redline mark-up of the Contract drawing and the like.
- B. Drawings shall be furnished for review and approval. No materials shall be provided without the ENGINEER's approval.
- C. Final drawings shall be furnished as field modified accounting for any changes made during start up.

1.26 HOMERUNS

- A. CONTRACTOR shall coordinate home runs between plan views. Where any conduit is shown in any plan view it shall be installed the entire length may be required.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

**SECTION 16001
ELECTRICAL DEMOLITION**

PART 1 GENERAL

1.01 GENERAL REQUIREMENTS

- A. Contractor shall take precautionary and safety measures to assure the safety of his personnel. All wires shall be identified and disconnected from power sources before removal.

- B. Contractor shall coordinate with the Owner, Engineer and Vendors.

- C. The general demolition scope shall also include the following minimum requirements whether indicated on drawings or not.
 - 1. Before demolition, Contractor shall verify that the equipment is no longer needed or that the demolition will not adversely effect plant operation.

 - 2. Removal of all exposed conduit. Removal of all wire within raceways, cabinets, outlet boxes, trenches and the like associated with equipment shown to be removed on plans.

 - 3. Removal of all hangers and support systems which are not needed as a result of the demolition.

 - 4. Contractor shall cover all openings as a result of demolition and removals including but not limited to the following:
 - a. Cabinets and enclosures

 - b. Wall and masonry openings.

 - c. Cut conduit, instrumentation line, etc. flush with slab, fill with concrete, patch and paint holes in walls.

- D. Operational Systems
 - 1. To the fullest extent possible, all required systems shall remain operational. Contractor shall replace and/or repair existing facilities which may be damaged due to equipment removals.

 - 2. Where required wiring passes through or uses enclosures or raceways shown for demolition. Contractor shall provide raceways and wire as required to keep those systems operational.

 - 3. Contractor shall remove existing equipment in an orderly, planned and coordinated fashion. All replacement equipment shall be on site and ready to install immediately after the removal of existing equipment.

4. Where indicated by drawings the Contractor may reuse portions of existing raceways as long as these are in good shape to be reused and provide same path to equipment.
 5. Where demolition interrupts the normal automatic control of the station, Contractor shall provide full time manual control until automatic control is restored unless otherwise directed by the Owner. Contractor shall obtain permission of the Owner before removing automatic control.
 6. Contractor shall be required to visit the site before bid to ascertain the magnitude of the Work. The drawings indicate the minimal effort. Any electrical raceway associated with any equipment shall be demolished. The drawings do not call out every item of work. All the building electrical equipment called out in the drawings to be installed or replaced shall be replaced with new, unless otherwise indicated by the drawings or noted elsewhere by the specifications.
- F. The Contractor shall provide to the Owner first choice of removed equipment in the event the Owner wants to salvage the equipment. In the event the Owner wants removed equipment, the Contractor shall provide this equipment to the Owner; all other equipment not wanted by the Owner shall become the responsibility of the Contractor to properly disposed of and pay all disposal costs and fees.
- G. Provide demolition in support of any civil or mechanical Work as may be required. See civil and mechanical documents.

1.02 INCLUDED WORK

- A. Demo raceways and wires from existing VFD equipment, from HSP 1, HSP2, and HSP3, and also two existing booster pump, or Feed Water Pumps VFD 4, and VFD 5.
- B. Demo and replace components inside CP-1 PLC panel and Main PLC panel as part of the demolition and upgrade of PLC and network components, as indicated on drawings.

1.03 DISPOSITION OF EQUIPMENT

- A. Provide materials to the Owner as the Owner may require.
- B. Except as otherwise indicated, all removed or demolished electrical equipment shall become the property of the Contractor. All rubble shall be disposed of by the Contractor.
- C. Contractor shall load, transport, and dispose of all or demolished equipment including all enclosed gear, cabinets, raceways, wire and cable, supports, MCC sections, starters, circuit breakers, buckets, panel covers, light fixtures, rigid galvanized steel conduit and the like.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 16050

BASIC MATERIALS AND METHODS

PART 1 GENERAL

1.01 SUBMITTALS

- A. Submit data sheets on all items per Section 16000.

1.02 CODES AND STANDARDS

- A. General applicable provisions of the following codes and standards and other codes and standards required by the State of Florida and local jurisdictions are hereby imposed on a general basis for electrical Work (in addition to specific applications specified by individual Work sections of these specifications):
 - 1. U.L.: Electrical materials shall be approved by the Underwriters' Laboratories, Inc. This applies to materials which are covered by U.L. standards. Factory applied labels are required.
 - 2. NEC: National Electrical Code
 - 3. OSHA: Standard of the Occupational Safety and Health Administration are to be complied with.
 - 4. NEMA: National Electrical Manufacturers Association Standards are to be met wherever standards have been established by that agency, and proof is specifically required with material submittals for switchboards, motor control centers, panelboards, cable trays, motors, switches, circuit breakers, and fuses.
 - 5. ANSI: American National Standards Institute
 - 6. NESC: National Electrical Safety Code

PART 2 PRODUCTS

2.01 GROUNDING MATERIALS

- A. All ground rods shall be 20-foot 5/8" copperclad, unless otherwise indicated.
- B. Ground wires shall be soft drawn copper sized per National Electrical Code, unless otherwise indicated.

2.02 CONDUIT

A. PVC Conduit

1. PVC conduit shall be Schedule 80 or Schedule 40 unless otherwise noted and shall be U.L. approved. Comply with Federal Spec WC-1094 and NEMA TC-1.

B. Flexible Conduit

1. All flexible conduits shall be liquidtight, made of corrosion resistant plated steel with extruded polyvinyl covering and watertight connectors.

C. Refer to schedule in drawing for location requirements.

2.03 CABLE, WIRE AND CONNECTORS

A. 600 Volt Power Wiring

1. Individual conductors shall be rated for 600 volts and shall meet the requirements below:
 - a. Conductors shall be stranded.
 - b. All wire shall be brought to the job in unbroken packages and shall bear the date of manufacturing; not older than 12 months.
 - c. Type of wire shall be THWN except where required otherwise by the Contract drawings.
 - d. No wire smaller than No. 12 gauge shall be used unless specifically indicated.
 - e. Conductor metal shall be copper.
 - f. All conductors shall be meggered after installation. Megger testing shall exceed 50 mega ohms.
2. Multi-conductor cables shall be type TC UL 1277 THWN, PVC jacketed 600V with conductor and quantities as indicated.

B. Instrumentation and Control Cable

1. Process instrumentation wire shall be 16 gauge, single twisted pair, 600V., aluminum tape shielded, polyvinyl chloride jacketed, as manufactured by Houston Wire and Cable HW 106 or an approved equal.

C. Control Cable

1. Multi-conductor control cable shall be stranded copper 14 gauge, 600V. THWN insulated overall shielded with PVC jacket, as manufactured by Houston Wire and Cable HW 153 or an approved equal.

2.04 TERMINATIONS AND SPLICES (600 VOLTS AND LESS)

- A. Terminations of power cable shall be by means of U.L. approved connectors. All connectors shall meet U.L. 486B and shall be compatible with the conductor material.
- B. Terminate all control and instrumentation cable with screw-clamp type terminal blocks.
- C. Splicing of power, control, or instrumentation wiring will not be allowed except by written approval of the ENGINEER. Where splicing is allowed, splices shall be made with approved compression connectors, and splices shall be made waterproof regardless of location.

2.05 BOXES

- A. Boxes for wiring devices, switches and receptacles installed outdoors shall be weatherproof fiberglass with polycarbonate cover plates.

2.06 PULL BOXES AND SPLICE BOXES

A. Location

1. Units used outdoor or in a damp or corrosive environment shall be 316 ss or fiberglass unless otherwise indicated on plans.
2. Units used indoors in dry and clean A/C environments shall be NEMA 1.

B. Size

1. Units shall be sized per NEC as minimum.

C. Required Units

1. Plans depict minimum requirements. Additional units shall be provided as may be required to complete raceway systems.

2.07 MOUNTING AND SUPPORTING ELECTRICAL EQUIPMENT

- A. Furnish and install all supports, hangers, and inserts required to mount fixtures, conduits, cables, pull boxes, and other equipment.

- B. Support system used indoors in clean, dry and air conditioned areas shall be galvanized steel. All other areas shall be 316 ss with ss fasteners.
- C. Perforated straps and wires are not permitted for supporting electrical devices. Anchors shall be of approved types.
- D. All supports, hangers, hardware, etc. used outdoors or in in non-air conditioned indoor areas or in hazardous areas shall be non-ferrous, corrosion resistant or 316 stainless steel. Supports shall be selected to avoid galvanic reactions. Support devices shall be submitted for approval.
- E. Provide trapeze, bridge systems or wall bracketed cantilevered system to support the raceway system.
- F. Spacing of support systems shall be per NEC. Provide spacing of conduits according to the NEC and the materials used. For PVC conduit, refer to NEC table 347-8.
- G. Plans depict minimum requirements. Provide additional units as required to complete raceway system.
- H. Pipe stands shall be 316 stainless steel.

2.08 DUCT SEAL

- A. Provide Garvin Industries' duct seal or an approved equal
- B. Provide and install duct seal at all conduit ends for all new conduit installations.
- C. Duct seal shall be used to seal around junction boxes, control panels and the like, It shall be a permanently soft, non toxic compound. It shall also not affect other plastic materials or corrode metals.

PART 3 EXECUTION

3.01 GROUNDING

- A. Provide ground system as indicated on the drawings and as required by the National Electrical Code.
- B. All raceways require grounding conductors. Metallic raceways are not adequate grounding paths. Bonding conductors through the raceway systems shall be continuous from main switch ground buses to panel ground bars of the panelboards, and from panel grounding bars of panelboards and motor control centers to branch circuit outlets, motors, lights, etc. **THESE GROUND CONDUCTORS ARE REQUIRED THROUGHOUT THE PROJECT REGARDLESS OF WHETHER THE**

CONDUIT RUNS, SHOW THE GROUND CONDUCTORS ON THE DRAWINGS.

- C. All connections made below grade shall be of the exothermic type.
- D. The grounding system test shall not exceed a 48 hour span dry resistance of 10 ohms. Additional grounding to meet this requirement shall be installed at no extra cost. Grounding and bonding connections shall not be painted.

3.02 CONDUIT

A. Locations:

Conduits shall be used as follows:

1. Refer to schedule on drawings.

B. Installation

1. Conduits subjected to rough handling or usage shall be removed from the premises.
2. Conduits must be kept dry and free of water or debris with approved pipe plugs or caps. Care shall be given that plugs or caps be installed before pouring of concrete.
3. Where conduits pass through exterior concrete walls or fittings below grade, the entrances shall be made watertight.
4. Infurred ceilings, conduit runs shall be supported from structure, not furring.
5. Conduits entering panelboards, pull boxes, or outlet boxes shall be secured in place by galvanized locknuts and bushings, one (1) locknut outside and one (1) locknut inside of box with bushing on conduit end. The locknuts shall be tightened against the box without deforming the box. Bushings shall be of the insulating type.
6. Field conduit bends shall be made with standard tools and equipment manufactured especially for conduit bending.
7. Where embedded conduits cross expansion joints, furnish and install offset expansion joints or sliding expansion joints. Sliding expansion joints shall be made with straps and clamps.
8. Exposed runs of conduits shall be installed with runs parallel or perpendicular to walls, structural members or intersections of vertical planes and ceilings, with right angle turns consisting of

symmetrical bends. No attempts are made in plans to show required pull boxes, gutters, etc. necessary for the construction of the raceway system but the CONTRACTOR shall provide these raceways as may be required.

9. Conduits in structural slabs shall be placed between the upper and the lower layers of reinforcing steel, requiring careful bending of conduits. Conduits embedded in concrete slabs shall be spaced not less than eight (8) inches on centers or as widely spaced as possible where they converge at panels or junction boxes. Conduits running parallel to slab supports, such as beams, columns and structural walls shall be installed not less than 12 inches from such supporting elements. To prevent displacement during concrete pour, saddle supports for conduit, outlet boxes, junction boxes, inserts, etc., shall be secured.
10. Conduit runs shall always be concealed except where indicated on plans.
11. Pull lines shall be installed in all empty conduits. All pull wires shall be identified with conduit number at each end.
12. Where conduits are run individually, they shall be supported by approved pipe straps secured by means of toggle bolts or tapcons on hollow masonry; tapcons on concrete or solid masonry; machine screws or bolts on metal surfaces and wood screws on wood construction. The use of perforated straps or wires will not be permitted.
13. Wire shall not be installed until all Work of any nature that may cause damage is completed, including pouring of concrete. Mechanical means shall not be used in pulling in wires No. 8 or smaller.
14. Underground conduits not under concrete slabs are to be buried at least two (2) feet below finished grade for circuits rated 600 volts or less, except under traffic areas where motor vehicles may cross. Under traffic areas, conduits are to be buried at least three (3) feet below finished grade.
15. All conduits shall be cleaned by pulling a brush swab through before installing cables.
16. All conduits shall be sealed at each end with electrical putty. Special care shall be taken at all equipment where entrance of moisture could be detrimental to equipment. Approved backing gauze is required prior to the installation of conduit putty.

17. A maximum of two (2) feet of flexible conduit shall be used at connections of all motors, transformers, motor operated valve and gates, instruments and other items of equipment where vibration is present. It shall be supported where required with stainless steel bands.
20. PVC conduit shall be supported to walls and slabs using carlon snap strap conduit wall hangers. Two-hole PVC conduit clamps shall not be permitted.

3.03 WIRES, CABLES AND CONNECTIONS

- A. Cables pulled into conduits shall be pulled using pulling eyes attached to conductors.
- B. Shields shall be grounded at only one termination point.

3.04 BOXES

- A. Installation of boxes shall be in accordance with the National Electrical Code requirements.
- B. Boxes shall be mounted plumb and level in accessible locations and mounting shall be secure, vibration resistant and galvanically compatible. Hardware shall be used that is specifically intended for the purpose. When mounted in corrosive, damp or wet locations, stainless steel hardware shall be utilized.

3.05 WIRING DEVICES

- A. Wiring devices shall be installed in device boxes approved for the application. All connections shall be made with screw terminals. Wiring devices shall be Leviton or approved equal.
- B. Wire devices on UPS systems shall be isolated ground, colored orange.
- C. Cover plates shall be provided as follows except as otherwise noted.
 1. Interior finished area – brushed aluminum
 2. Wet areas – gasketed plastic with flip cover.
- D. Receptacles installed outdoors, below grade, or in areas other than clean and dry environments shall be GFI and weatherproof. Receptacles shall be weatherproof with cords plugged in.
- E. All receptacles shall be GFI protected.

3.06 SUPPORTING DEVICES

- A. All items shall be supported from the structural portion of the building and studs, except standard ceiling mounted lighting fixtures and small devices may be supported from ceiling system where permitted by the ENGINEER. However, no sagging of the ceiling will be permitted. Supports and hangers shall be types approved by Underwriters' Laboratories.
- B. All floor-mounted devices (switchboards, motor control centers, transformers, etc.) shall be securely anchored to the floors. Where recommendations are made by Manufacturer, these recommendations shall be followed.

3.07 CLEANING

- A. All electrical equipment enclosures shall be thoroughly cleaned before acceptable by the OWNER. As a minimum, CONTRACTOR shall remove all debris including stripped wire insulation, dirt, and debris.

END OF SECTION

**SECTION 16901
I&C SYSTEMS**

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. The Contractor shall furnish all instrumentation, PLC and network and control equipment as outlined in the drawings and specifications.
- C. The equipment control panels shall be provided by the I&C system supplier.
- D. Provide PLC equipment for the proposed HSP PLC control panel, and PLC/network equipment for the existing Main PLC and CP4 panel modifications outlined in the Contract Documents.
- E. Provide VFD Ethernet cards and provide the upgrade from hard wired connections to Ethernet communications between the three existing HSP VFD equipment and the new HSP PLC control panel, see the drawings.
- F. Provide VFD Ethernet cards and provide the upgrade from hard wired connections to Ethernet communications between the two existing Feed Water Pumps (Booster pumps) VFD 4 and VFD 5 equipment and the existing CP-1 PLC control panel, see the drawings. Cards and upgrade work to be carried out by Howard Woodrow.
- E. Provide assistance in the hardware installation to CSD personnel as upgrades and modifications to the MCP PLC panel are implemented per the network diagram, refer to the drawings.
- G. Provide patch panel terminations, and Ethernet metallic wire terminations, as required. Land each fiber pair including spares; in the case of metallic Ethernet identify each switch location including spares.
- H. Identify all intermediate terminals in loop shop drawings (where it applies)

1.02 SINGLE INSTRUMENT SUPPLIER

- A. The Contractor shall assign to the Single Instrument and Control (I&C) supplier full responsibility for the functional operation of all new instrumentation systems. The Contractor shall have said supplier perform all engineering necessary to select, to furnish, to supervise installation, connection, to calibrate, to place into operation all sensors, instruments, alarm equipment, control panels, accessories and all other equipment as specified herein.
- B. The foregoing shall enable the Contractor and the Owner to be assured that the full responsibility for the requirements of this section will reside in an organization which is qualified and experienced in the water treatment field and its process technology on a functional system basis.

- C. Contractor shall review all specifications and plans. Contractor shall be sure all control panels are included in the bid. The following are suggested to be in the plant wide I&C Contractor's package. Major pieces of equipment include:
1. Provide and install HSP PLC CP
 2. Provide PLC and network equipment as required per the drawings.
 3. Provide interfacing of I/O signals at existing Main PLC equipment, and existing PLC panels per the drawings. Provide I/O cards where required at Main PLC panel, and existing CP-1 panels, existing ethernet switch by the ATS equipment (eastern wall) as indicated on the drawings.
 4. Provide Ethernet cards for VFD Ethernet communications upgrades per the drawings as required (equipment and upgrade work to be provided and carried out by Howard Woodrow)
 5. Ethernet Cat7a metallic wired systems as required.
 6. Conduits, conduits support, and the like

1.03 NAMED MANUFACTURER

- A. CC Control
- B. Curry Controls
- C. Revere Controls
- D. No equal

1.04 INSTALLATION WORK

- A. Nothing in this part of the specifications shall be construed as requiring the Contractor to utilize personnel supplied by his assigned instrument manufacturer's organization or any division thereof, to accomplish the physical installation of any elements, instruments, accessories or assemblies specified herein. However, the Contractor shall employ installers who are skilled and experienced in the installation and connection of all elements, instruments, accessories and assemblies; portions of their work shall be supervised or checked as specified herein.

1.05 PREPARATION OF SUBMITTAL OF DRAWINGS AND DATA

- A. It is incumbent upon the Contractor to coordinate the work specified in these Sections so that a complete instrumentation and control will be provided and will be supported by accurate shop and record drawings. As part of the responsibility as assigned by the Contractor, the Single I&C supplier shall prepare and submit through the Contractor, complete and organized shop drawings, as specified herein. Interface between instruments, motor starters, flow meters, and existing instruments shall be included in his shop drawing submittal.

- B. In order to provide a fully coordinated system, shop drawings by other equipment vendors associated with the I&C control panel systems shall be reviewed and approved by the Contractor before submittal to the Engineer for approval.
- C. During the period of preparation of this submittal, the Contractor shall authorize direct informal liaison between his single I&C Supplier and the Engineer for exchange of technical information. As a result of this liaison certain minor refinements and revisions in the systems as specified may be authorized informally by the Engineer, but these shall not alter the scope of the work or cause increase or decrease in the contract price. During this informal exchange no oral statement by the Engineer shall be construed to give formal approval of any component or method, nor shall any statement be construed to grant formal exception to, or variation from these specifications.
- D. Operation and Maintenance Manual
 - 1. Submit one preliminary O&M for review and comment by the Engineer. Provide five final O&M.s, bound in a three ring binder. O&M shall include the requirements of I&C materials and minimally include the following: approved submittal data, start-up corrected as built shop drawings. O&M shall be neatly and logically arranged with a contents page followed by tabbed sections.

1.06 ADDITIONAL TECHNICAL SERVICES

- A. At no additional cost to the Owner, the Contractor shall provide the services of qualified technical representatives of the Single I&C supplier:
 - 1. To supervise installation and connection of all instruments, elements and components of every system, including connection of instrument signals to primary measurement elements and to final control elements such as pumps;
 - 2. To make all necessary adjustments, calibrations and tests;
 - 3. To instruct plant operating and maintenance personnel on instrumentation. This time shall be in addition to whatever time is required for other facets of work at the site and shall be during the Owner's normal working days and hours.

1.07 GUARANTEE

- A. The Contractor shall guarantee all equipment and installation, as specified herein, for a period of one (1) year following the date of completion of the work. To fulfill this obligation, the Contractor shall utilize technical service personnel designated by the Single I&C supplier

to which the Contractor originally assigned project responsibility for instrumentation.

1.08 ADDITIONAL PROVISIONS

- A. The applicable provisions of the following sections under Electrical Work shall apply the work and equipment specified herein, the same as if stated in full herein:
 - 1. Codes and Standards
 - 2. Equipment Materials and Workmanship
 - 3. Testing
 - 4. Grounding
 - 5. Equipment Anchoring
 - 6. Conductor and Equipment Identification
 - 7. Terminal Cabinets and Control Compartments
 - 8. Process Control Devices

1.09 NEWEST MODEL COMPONENTS

- A. All meters, instruments and other components shall be the most recent field proven models marketed by their manufacturers at the time of the submittal of shop drawings unless otherwise specified to match existing equipment. All technical data publications included with the submittal shall be the most recent issue.

1.10 COORDINATION

- A. I&C supplier shall coordinate with his supplier and other Contractors on the project. Where large subsystems are provided, the I&C supplier shall coordinate before the bid to be certain all equipment, engineering and labor are provided. Coordination item minimally includes: equipment dimensions, heat rejection, power requirements, control and signal requirements, and interconnection requirements.

1.11 TEST PROCEDURE DEVELOPMENT AND DOCUMENTATION

- A. I&C subcontractor shall prepare and submit to the Engineer for review a detailed description of the test procedures that he proposed to perform to demonstrate conformance of the complete system of instrumentation and controls to this Specification.
- B. It is recommended that the I&C subcontractor develop the test procedures in two steps by first submitting general descriptions and

outlines of the tests and then, upon receipt of approval, submit the required detailed procedures and forms.

C. Operational Acceptance Tests

1. The I&C subcontractor shall prepare check-off sheet(s) for each loop and an instrument calibration sheet for each active I&C element (except simple hand switches, lights, etc.). These check-off and data sheets shall form the basis for these operational tests and this documentation.
2. Each loop check-off sheet shall cite the following information and shall provide spaces for sign-off on individual items and on the completed loop by the I&C subcontractor.
 - a. Project name
 - b. Loop number
 - c. For each elements: Tag number, description, manufacturer and model number, installation bulletin, and Specification sheet number.
 - d. Loop description
 - e. Installation check
 - f. Termination check
 - g. Calibration check
 - h. Adjustment check
 - i. Space for comments
 - j. Space for loop sign-off I&C subcontractor and date.
3. Each instrument calibration sheet shall provide the following information and a space for sign-off on individual items and on the completed unit by Owner Representative and the I&C subcontractor.
 - a. Project name
 - b. Loop number
 - c. Tag number
 - d. Manufacturer
 - e. Model number

- f. Serial number
- g. Calibration range
- h. Calibration data: Input, output and error at 0, 25, 50, 75, and 100% of span.
- i. Switch setting, contact action and dead band for discrete elements.
- j. Space for comments
- k. Space for sign-off by I&C subcontractor and date.

D. Functional Acceptance Tests

The I&C subcontractor shall prepare two types of test forms as follows:

1. For those functions that can be demonstrated on a loop-by-loop basis, the form shall include:
 - a. Project name
 - b. Loop number
 - c. Loop description
 - d. Test procedure description
 - e. For each component: Tag number, description, manufacturer and data sheet number.
 - f. Space for sign-off and date by both I&C subcontractor and Owner Representative.
2. For those functions that cannot be demonstrated on a loop-by-loop basis, the test form shall be a listing of the specific tests to be conducted. With each test description, the following information shall be included:
 - a. Spec page and paragraph of function demonstrated
 - b. Description of function
 - c. Space for sign-off and date by both I&C subcontractor and Engineer.

PART 2 PRODUCTS

2.01 TECHNICAL MANUALS

- A. One preliminary O&M manual shall be submitted to the Engineer for review and comment. Assuming a favorable review the I&C supplier shall incorporate comments and forward the five final copies to the Engineer. If the preliminary O&M is not acceptable, the I&C supplier shall resubmit.
- B. Five (5) final sets of technical manuals shall be supplied for the Owner as a condition for final acceptance of the project. Each set shall consist of one (1) or more volumes, each of which shall be bound in a standard size, 3-ring, loose leaf, vinyl plastic hard cover binder suitable for bookshelf storage. Binder ring size shall not exceed 3 inches.
- C. In addition to updated shop drawing information to reflect actual existing conditions, each set of technical manuals shall include installation, connection, operating, trouble-shooting, maintenance and overhaul instructions in complete detail. This shall provide the Owner with comprehensive information on all systems and components to enable operation, service, maintenance and repair. Exploded or other detailed views of all instruments, assemblies, and accessory components shall be included together with the complete parts lists and ordering instructions.
- D. Shop drawing files shall be provided in the latest version of Autocad with each O&M manual. Provide ACAD files on disk.

2.02 SPARE PARTS

- A. The Contractor shall include, as part of the bid package, a list of recommended spare parts covering items required under these specifications.
- B. Minimum spare parts shall be provided boxed and identified including the following:
 - 1. 6-control relays of each type used.
 - 2. 6-timing relays of each type used.
 - 3. 6-fuses of each size and type used.
 - 4. 6-pilot lights of each size and type use.
 - 5. 6-signal field surge arrester of each type used.
 - 6. 6-signal panel surge arrester of each type used.
 - 7. 6-incoming power lightning arrester of each type used.
 - 8. 6-surge capacitor of each type used.

Also provide other spares as noted by the particular sections and paragraphs of other- specifications.

2.03 CONTROL PANELS

A. General

1. I&C supplier shall construct the control panel to properly control internal and external equipment. No attempt is made to specify or indicate on plans, all required equipment but rather to set forth the minimum requirements.

B. Engineering

1. I&C supplier shall provide system engineering and produce detailed fully engineered, coordinated and completed drawings.

C. Construction

1. Control panel construction shall be per these specification and plans.

D. Signal and Control Circuit Wiring

1. Wire Type and Sizes: Conductors shall be flexible stranded copper wire; these shall be UL listed TFFN, THWN, THHN and shall be rated 600v. Wire for control signal circuits shall be #16 AWG unless otherwise noted. All instrumentation cables shall be shielded #18 AWG with a copper drain wire unless otherwise noted. All special instrumentation cable such as between sensor and transmitter shall be supplied by the I&C supplier. Contractor shall increase wire size per load or impedance requirements.

E. Wiring Instrumentation

1. All wires shall be run in plastic wireways except (1) field wiring, (2) wiring between mating blocks in adjacent sections, (3) wiring run from components on a swing-out panel to components on a part of the fixed structure, (4) wiring run to panel mounted components on the door and the like. Wiring run on a swing out panel to other components on a fixed panel shall be made up in nylon wire ties bundles and secured so that bundles are not strained at the terminals.
2. Wiring run to control devices on the front panels shall be tied together at short intervals with nylon ties and secured to the inside face of the panel using adhesive mounts and adhesive strips.
3. Wiring to rear terminals on panel mounted instruments shall be run in plastic wares secured to horizontal brackets run above or below the instruments in the same plane as the rear of the instruments.

4. Shields of instrument cable shall only be grounded on one side of each circuit. The side to be grounded shall be nearest the source of excitation.
5. Care shall be exercised to properly insulate the ungrounded side of the loop to prevent ground loops from occurring.
6. Conformance to the above wiring installation requirements shall be reflected by details shown on the shop drawings for the Engineer's review.

F. Wire Marking

1. Each signal, alarm, control, and indicating circuit conductor connected to a given electrical point shall be designated by a single unique number which shall be shown on all shop drawings. These numbers shall be marked on all conductors using white plastic heatshrink sleeves with typewritten characters. Instrument signal conductors shall be tagged with unique multiple digit numbers. Wires from the circuit breaker panelboard shall be tagged indicating the branch circuit breaker number.

G. Terminal Blocks

1. Compression type terminal blocks shall be molded plastic with barriers and box lug terminals, and shall be rated 15 amps at 600v and mounted securely to DIN rails. White marking strips fastened to the molded sections shall be provided and wire numbers and circuit identifications shall be marked thereon with machine printed marker on top. Terminal blocks shall be IEC style by Allen Bradley or an approved equal.
2. Provide field terminal boxed with each terminal identified. Provide Panduit. The field terminals shall be included with the loop drawings and be identified.

H. Wire Color

1. Wire color shall be, Line Power – Black; Neutral or common – White; AC Control – Red; DC Control – Blue; Equipment or Chassis Ground – Green; specified externally powered circuits – Orange.

I. Enclosures

1. Unless otherwise indicated, all enclosures shall be provided with the following.
 - a. Modified NEMA 3R, 316 stainless steel, gasketed, freestanding or wall mounted, bolted to concrete base.
 - b. Subplate for mounting equipment.

- c. Padlockable, pocketed exterior doors.
- d. Where required, provide stainless steel piano hinged dead fronts with quarter turn latches.

J. Identification

- 1. All components shall be identified using Lamicoid labels or an approved equal.

2.04 CONTROL PANEL EQUIPMENT

A. General Purpose Relays

- 1. General purpose relays in the control panel shall be the plug in type with contacts rated 10 amps at 120 vac as a minimum. The quantity and type of contacts shall be as required to accomplish the desired control task. Each relay shall be enclosed in a clear plastic heat and shock resistant dust cover. Relays shall be Potter and Brumfield or an approved equal. Differing mounting sockets shall be used to prohibit improper relay installations. Provide tube type base, 8 PIN or 11 PIN.

B. Time Delay Relays

- 1. Time delay relay shall be Diversified with digital settings or an approved equal. Timers shall be time delay on, interval on or time delay off relays, as required and shall be Diversified or an approved equal. Instantaneous contacts or auxiliary slave relays shall be provided as required. Provide tube type base, 8 PIN or 11 PIN.

C. Signal Isolators

- 1. Additional slave or interposing relays and signal isolators and signal converters shall be installed as required.

D. Circuit Breakers

- 1. Circuit breakers shall be single pole, 120vac, 15 amp rating or as required to protect wires and equipment; mounted on the inside of the enclosure or equipment remote from the enclosure.

E. Name Plates

- 1. Name plates shall be supplied for identification of control panels and all field mounted elements, including flowmeters and their transmitters. These name plates shall identify the instrument or meter, descriptively as to the function of the system. Nameplates shall be fabricated from black faced, white centered, laminated

engraving plastic. A nameplate shall be provided for each signal transducer, signal converter, signal isolator, each electronic trip, and the like, mounted inside the control panels. These shall uniquely identify each control component. Adhesives shall be acceptable for attaching nameplates. Painted surfaces must be prepared to allow permanent bonding of adhesives. Nameplates shall be provided for instruments, function titles for each group of instruments and other components mounted on the front of the control panels as shown. Proposed colors, styles, height and text shall be submitted for approval.

- F. LED panel Light
 - 1. Provide panel light. Provide sub plate mounted light switch. Provide receptacle.
- G. Vapor Guard
 - 1. Moisture absorbing vapor guard shall be provided in each control panel.
- H. Power Supplies
 - 1. Power supplies shall be provided as required for Ethernet and PLC equipment, media converters, and the like. Loop power or other requirements for special equipment. Loop power supplies shall be Square D or an approved equal.
- I. Circuit Breakers
 - 1. Square D
 - 2. Amperage ratings shall be indicated on drawings.
- J. Fuses
 - 1. Fuses and fuse holders 5 x 20mm, IEC style, with blown fuse indicating light.
- K. Ground Fault Interrupting Receptacle
 - 1. Leviton Duplex Receptacle or equal.
 - 2. AC receptacle box shall be Steel City 58351-1/2 or equal.
 - 3. Covers shall be Steel City 58-C-5, or equal.
- L. Selector Switches and Push Buttons (where applicable)
 - 1. Square D, Class 9001, Type K, or equal.

2. Operators shall be black knob type or key switch, 3-position or 2-position, push button or as noted.

3. Selector switches shall be spring return where noted.

4. Pushbuttons inserts

	<u>Label</u>	<u>Color</u>
a.	On	Green
b.	Off	White
c.	Start	Green
d.	Stop	White
e.	Reset	Black
f.	Acknowledge	Yellow

5. Selector Switch Operator

	<u>Label</u>	<u>Color</u>	<u>Text</u>
a.	All	Black	White

M. Indicator Lights

1. Square D, Class 9001, type K. Units shall be press to test, transformer type.

2. Lens color shall be as noted.

	<u>Label</u>	<u>Color</u>
a.	On	Green
b.	Off	White
c.	Open	Green
d.	Closed	White
e.	Hand	Yellow
f.	Auto	Green
g.	Local	White
h.	Remote	Green
i.	Alarm	Red
j.	Power available	White

N. Surge and Lightning Arrestors

1. All control panels shall be provided with surge and lightning arrestors as specified.

2. TVSS

a. Lightning surge suppressors shall be Innovative Technology PTX-160 Series, unless otherwise indicated.

3. Signal

- a. Panel surge arrestors shall be Joslyn, 1800 Series.
 - b. Field surge arrestors shall be Joslyn, 1660-06.
- 4. Ethernet Surge Protection
 - a. Atlantic Scientific, 240040P, plug in surge arrestor, via FB Suppressors, Inc., (305) 247-3477.
- P. PLC and Ethernet Switch, & Other Network Equipment
 - 1. I&C Vendor shall provide in HSP PLC control panel the PLC equipment, Ethernet, power supplies as outlined in the materials list, specifications and drawings. Refer to PLC specifications for PLC, Ethernet and Fiber based equipment and related equipment.
 - 2. The I&C Vendor shall provide equipment at existing PLC panels being modified as part of this project, refer to other drawings, specifications and the material list tables provided in the drawing set.

2.05 FIELD INSTRUMENTS

- A. There are no field instruments included with this project. At the existing VFD equipment the Contractor shall provide the Ethernet communications Boards and convert the VFDs called out on the drawings to Ethernet communication, see drawings or other specifications.

2.06 NAMEPLATES, NAME TAGS AND SERVICE LEGENDS

- A. All components provided under this section, both field and panel mounted, shall be provided with permanently mounted name tags bearing the entire IA tag number of the components. Panel mounted tags shall be plastic; field mounted tags shall be stamped stainless steel.
- B. The panel drawings refer to nameplates and service legends: nameplates are defined as inscribed laminated plastic plates mounted under or near a panel face mounted instrument. Service legends are defined as inscribed laminated plastic integrally mounted on a panel face mounted instrument.
- C. Service legends and nameplates shall be engraved, rigid, laminated plastic. Service legends and nameplates shall be fastened to the panel by screws or with a specially applied adhesive. Fastening shall not depend only on the adhesive.

2.07 UPS SYSTEM

- A. Provide best model APC, Allen Bradley, or Sola Heavy Duty UPS sized to run the PLC, I&C, operator interface (if equipped) and field I&C equipment.

PART 3 EXECUTION

3.01 INSTALLATION, CALIBRATION, TESTING, START UP AND INSTRUCTION

A. General

- 1. Under the supervision of a Single I&C supplier, all systems specified in this section shall be installed, connected, calibrated and tested and in coordination with the Owner and Engineer shall be started to place the process in operation. This shall include final calibration in concert with equipment specified elsewhere in these specifications as well as equipment provided by the Owner.

B. Installation and Connection

- 1. The Contractor shall install and connect all field mounted components and assemblies under the criteria imposed in 1.3, herein. The installation personnel shall be provided with a final reviewed copy of the shop drawings and data.
- 2. The instrument process lines (if applicable), impulse piping lines and air signal tubing shall, in general, be installed in a similar manner to the installation of conduit specified under Section 16000.
- 3. Bends shall be formed with the proper tools and to uniform radii and shall be made without deforming or thinning the walls of the tubing.
 - a. Unless otherwise indicated, all fittings, adapters, impulse piping, valves, etc. shall be 316 stainless. Valves shall be Whitey Series 40 or an approved equal.
- 4. The Contractor shall have a technical field representative of the I&C supplier to instruct these installation personnel on any and all installation requirements; thereafter the technical field representatives shall be readily available by telephone to answer questions and to provide clarification when needed by installation personnel.
 - a. Where primary elements (supplied by the I&C supplier) will be part of a mechanical system, the I&C supplier shall coordinate the installation of the primary elements with the mechanical system manufacturer.
- 5. After all installation and connection work has been completed, the technical field representatives shall check all for correctness,

verifying polarity of electric power and signal connections making sure all process connections are free of leaks and all such similar details. The technical field representative shall certify in writing to the Contractor that for each loop or system he has completed such check out and that any discrepancies have been corrected by the installation personnel.

6. The field representative of the I&C supplier shall coordinate all work required to interface the new equipment, including all required modifications to the existing equipment and related devices.

C. Calibration

1. All new instruments shall be calibrated.
 - a. All instruments and systems shall be calibrated after installation, in accordance with the component manufacturer's written instructions. This shall provide that those components having adjustable features are set carefully for the specific conditions and applications of this installation and that the components and/or systems are within the specified limits of accuracy. Defective elements which cannot achieve proper calibration or accuracy, either individually or within the system shall be replaced. This calibration work shall be accomplished by the I&C Supplier.
 - b. Proof of Conformance – The burden of proof of conformance to the specified accuracy and performance is on the Contractor using his designated I&C supplier. The Contractor shall supply necessary test equipment and technical personnel if called upon to prove accuracy and performance at no additional cost to the Owner, wherever reasonable doubt or evidence of malfunction or poor performance may appear within the guarantee period.

D. Testing

1. All systems shall be exercised through operational tests in the presence of the Engineer in order to demonstrate achievement of the specified performance. Operational tests depend upon completion of work specified elsewhere in these specifications. The scheduling of the test shall be coordinated by the Contractor among all parties involved so that the tests may proceed without delays or disruption by incomplete work.
2. All functional/loop tests shall be witnessed and signed off by the Owner's representative and the I&C subcontractor.

3. Contractor shall provide testing service in conjunction with the PLC/SCADA program developer (CSD). Contractor shall include a maximum of 16 man hours for this service. If problems are found as a result of I&C equipment additional time shall be provided as may be required. Reference Section 16910-Programmable Logic Controller.

E. Training

1. Plant operating personnel shall be provided with training prior to start-up.
2. Two 2 hour training sessions shall be provided. Training shall be at a time convenient to the Owner.
3. Operating and maintenance personnel shall be instructed in the functions and operation of each system and shall be shown the various adjustable and set point features which may require readjustment, resetting or checking, recalibration or maintenance by them from time to time. This instruction shall be scheduled at a time arranged with the Owner at least two (2) weeks in advance. Instruction shall be given by qualified persons employed by the I&C supplier.

F. Start Up

1. When all systems are assessed by the Contractor to have been successfully carried through complete operational tests with a minimum of simulation, and the Engineer concurs in his assessment, start up by the plant operating personnel can follow.

END OF SECTION

SECTION 16910

PROGRAMMABLE LOGIC CONTROLLER

PART 1 GENERAL

1.01 WORK INCLUDED

- A. The Contractor shall furnish, install and place into service the Programmable Logic Control (PLC) systems.
- B. Provide complete I/O system including all racks, power supplies, cables, connectors, terminals, interposing relays, signal conditioners, signal isolators and the like.
- C. Refer to the drawings and the proposed network diagram along with the tables listing existing PLC equipment and tables listing Bill of Material for new network, PLC equipment to be provided by the I&C Contractor.
- C. All hardware and cables shall be provided. All field debugging and testing shall be provided. Field testing of equipment, PLC, network related and cables and panels shall be provided concurrent with CSD Inc personnel performing the programming and network configurations.
- D. In order to establish sole source responsibility of the Instrumentation and Control (I&C) system, the I&C Contractor shall be responsible for all systems and subsystems required for the I&C vendor to be provided along with parts for network and PLC equipment, see drawings and parts lists.
- F. Like items of equipment provided hereunder shall be the end products of one manufacturer in order to achieve standardization for appearance operation and maintenance.
- G. See CONDITIONS OF THE CONTRACT and Division 1, GENERAL REQUIREMENTS, which contain information and requirements that apply to the Work specified herein and are mandatory for this project.
- H. Refer to the drawings. Provide all labor materials for a complete and functional system.
- J. PLC programming shall not be provided by Contractor. CSD Inc is providing all programming and configuration of PLC equipment and SCADA equipment.
- K. PLC systems, hardware and store-bought software shall be provided as part of the I&C system as required by specifications and drawings.
- L. Provide fiber system improvements where required.

- M. Provide the HSP PLC & network equipment for the new HSP PLC control panel, see drawings.
- N. Provide network equipment, and PLC equipment components as listed on the drawings; the new components and PLC and network equipment shall be used on existing PLC panel CP4 and Main Control Panel having limited modifications as indicated on the drawings as part of this project.
- O. Other PLC and network components listed in the drawings as part lists for existing plant wide PLC equipment is being shown for information purposes, but that equipment is not part of this contract and therefore is not being provided or modifications are not being done as part of this project, unless listed by the Contract Documents.

1.02 SUBMITTALS

- A. Submittals shall be made in accordance with the General Requirements.
 - 1. During the period of preparation of this submittal, the Contractor shall authorize direct informal liaison between his single I&C Supplier and the Engineer for exchange of technical information. As a result of this liaison certain minor refinements and revisions in the systems as specified may be authorized informally by the Engineer, but these shall not alter the scope of the work or cause increase or decrease in the Contract price. During this informal exchange no oral statement by the Engineer shall be construed to give formal approval of any component or method, nor shall any statement be construed to grant formal exception to, or variation from these specifications.
- B. Six complete sets of Operation and Maintenance Manuals shall be provided.
- C. Warranty information shall be submitted in accordance with general conditions.

1.03 QUALITY ASSURANCE

- A. All equipment furnished under this specification shall be new and unused, shall be the product of a manufacturer having a successful record of manufacturing and servicing the equipment specified herein for a minimum of five (5) years.

1.04 WARRANTY

- A. The Contractor shall warrant all equipment for a period of one (1) year from the date of Owner acceptance of the system.

1.05 PROGRAMMING

- A. None required.

PART 2 PRODUCTS

2.01 GENERAL

- A. The programmable logic controller and all related equipment including I/O cards shall be of the Allen Bradley family for all applications. See drawings.
- B. PLC systems manufactured into control panels and assemblies shall contain a minimum of 25% spare I/O connected and ready to use.

2.02 POWER SUPPLY

- A. Provide a battery backed power supply sized to power all PLC & network equipment within the control panel, see drawings..

2.03 UPS SYSTEM

- A. Provide a U.L. labeled UPS system with 30 min. runtime.
- B. 1000 va minimum.
- C. DOUBLE CONVERSION ONLINE UPS for the PLC, I/O, and communication related devices.
- D. Provide N1 Critical Technologies, no equal.

2.04 RACKS

- A. Provide racks as may be required.

2.05 PLC EQUIPMENT

- A. Processor
 - 1. Provide Allen Bradley control logix family, also see drawings.
 - 2. Coordinate during shop drawings with Engineer and CSD for the PLC equipment.
 - 2. No substitutions shall be accepted.
- B. MODULES
 - 1. Provide the following I/O modules as a minimum including all terminals, surge arrestors and other equipment wired and ready for immediate use.
 - a. 1-descrete input module
 - b. 1-descrete output module
 - c. 1-analog input module

- d. 1-analog output module
- 2. Discrete output modules. Provide slave relays for control of remote equipment as may be required.
- 3. Analog input modules shall be as a minimum, 24 vDC, 4-20 mADC, isolated.
- 4. Analog output modules shall be 24 vDC, 4-20 mADC, isolated, self powered.
- 5. Provide base rack or DIN rail.
- 6. Provide Ethernet/IP communications.
- 7. Provide the named materials and systems only.
- C. Miscellaneous PLC Equipment
 - 1. Provide all power supplies, cable and miscellaneous equipment for a complete and functional PLC system.
- D. PROGRAMMING SOFTWARE, not required
- E. PLC SPARES
 - 1. 1 – I/O modules of each type and point count used.
 - 2. 1 – Processor module of each type.
 - 3. Submit spares bill of material for review and approval.

2.06 ETHERNET SWITCHES

- A. Units shall NTRON or an approved equal. Units shall use ring topography and shall be fault tolerant.
- B. Provide fiber and metallic ports; 16 port E-switch as needed.
- C. Provide all cables and connectors.
- D. Provide Cat. 6 Ethernet cable for all uses on the project.
 - 1. Include cables and connectors.
 - 2. Include cables and connectors extending beyond the control panel to the VFD.s or other similar devices.
- E. Ethernet spares

1. Provide 1 unit as spare.
- 2.07 LOCAL HMI OR OPERATOR INTERFACE TERMINAL
- A. Shall not be provided.
- 2.08 ETHERNET FIBER OPTIC MEDIA CONVERSION MODULES
- A. Units shall be NTRON Fiber to Ethernet 10/100 base T fiber converters. Match existing units shall be compatible to the existing systems.
- 2.09 FIBER OPTIC CABLE (AS REQUIRED BY CONTRACT DOCUMENTS)
- A. Fiber optic systems and connectors shall be Optical Cable Corp. or an approved equal.
 - B. Type of fiber shall be selected by the control panel manufacturer and shall be based on the lengths of transmission losses, connector losses, ease of handling, terminating connectors, etc. The following shall be used as a basis for bid and minimum requirements.
 1. Fiber type shall be single mode.
 2. 12 strand, 6 pair fiber cable.
 3. Heavy duty, installed in duct.
 4. Connectors shall be field terminated by I&C Contractor.
 5. Contractor shall provide field testing and documentation to document all terminations light system work according to manufacturer's requirements.
 - C. Cable lengths shall be field measured and specified by the Installation Contractor with a minimum of 10% spare. Cable lengths shall not be scaled from drawings.
 - D. Provide fiber optic patch panel at each end of run.
 - E. Provide factory made fiber optic jumpers. Jumpers shall include units 10 feet or less.
 - F. Provide field splicing.
- 2.10 FIBER OPTIC CONNECTORS AND SPLICES
- A. Provide connectors and splices.
 - B. Provide and install all connectors for a complete and functional system.

C. Provide no spares.

2.11 ETHERNET EQUIPMENT

A. Provide Ethernet equipment as may be required for a complete and functional system including communication modules, fiber patch cords, metallic Ethernet cables, connectors and the like.

B. Identify Ethernet switch port connections by PLC or

2.12 PATCH PANELS AND FIBER BREAKOUT BOXES

A. Provide and install breakout boxes, fiber enclosures, compact design by Fiber Instrument Sales or an approved equal.

B. Identify panel connections.

2.13 FIBER OPTIC PATCH CORDS

A. Fiber optic patch cord shall be manufactured store bought unit with lengths as required by Fiber Instrument Sales or an approved equal.

PART 3 EXECUTION

3.01 PLC I/O SCHEDULE

A. Provide an I/O schedule identifying all I/O used and spares. Especially, after the VFD equipment is removed from discrete and analog I/O.

3.02 PROVIDE LOOP TESTING SPREADSHEET

A. Provide spreadsheet with separate rows to identify each I/O point.

B. Test each I/O point with the calibrated device.

3.03 START UP MODIFICATIONS

A. Modifications shall be required during start up per the Owner/Engineers requirements. Contractor shall coordinate with the Owner's programmer during start up.

3.04 GUARANTEE

A. Contractor shall guarantee the hardware through the service of his appointed I&C supplier for a period of one year.

END OF SECTION

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16910-6

SECTION 16913

PLC AND SCADA PROGRAMMING

PART 1 GENERAL

1.01 GENERAL REQUIREMENTS

A. Contractor Responsibilities

1. Install and configure all hardware.
2. Test and demonstrate all hardware.
3. Provide assistance during testing and demonstration of hardware, as may be required.
4. Provide no PLC and SCADA programming.

B. Owner's Responsibilities

1. All PLC and SCADA programming.
2. Unless otherwise noted or indicated, all PLC and SCADA programming shall be provided by Control Systems Design.

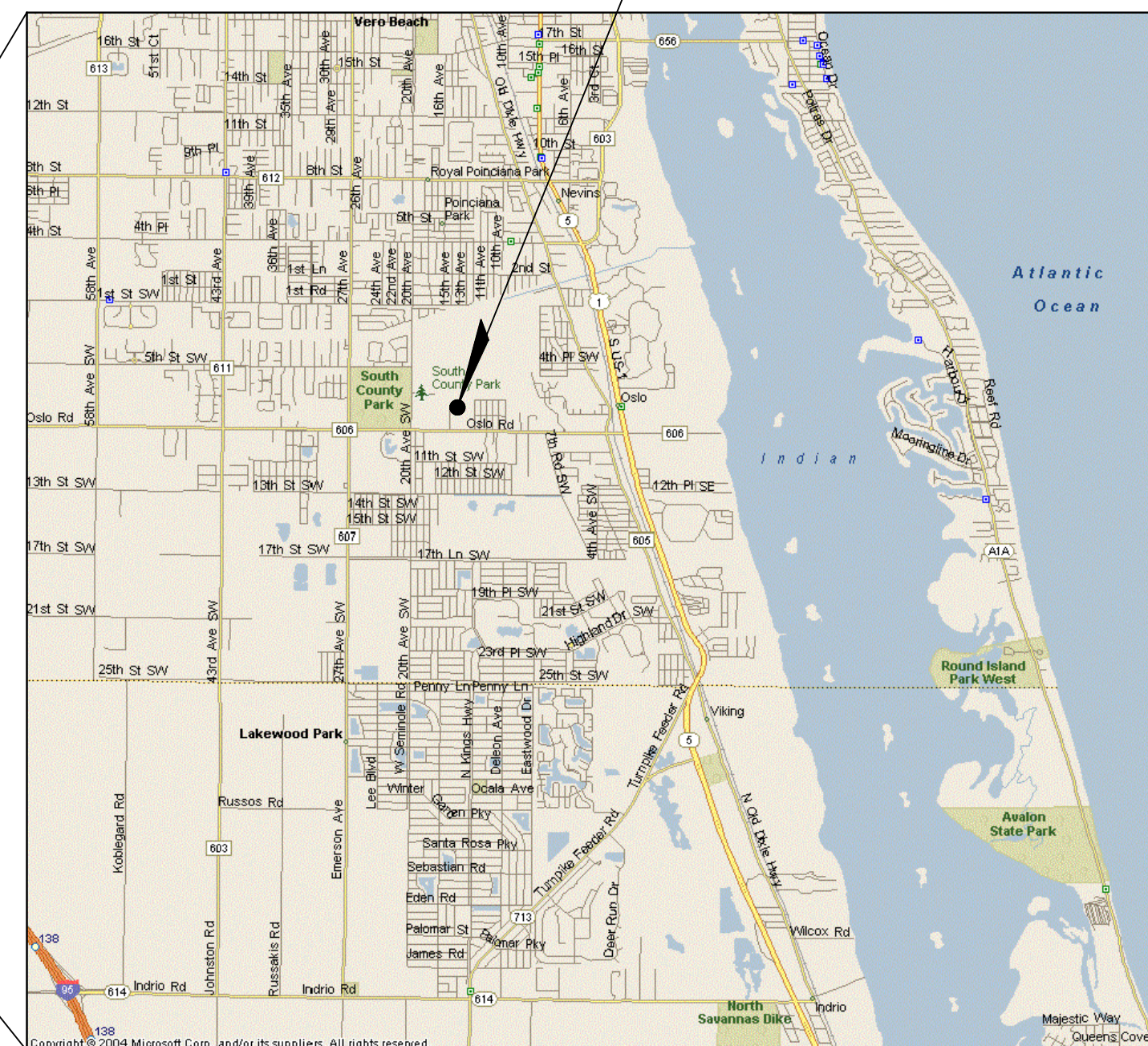
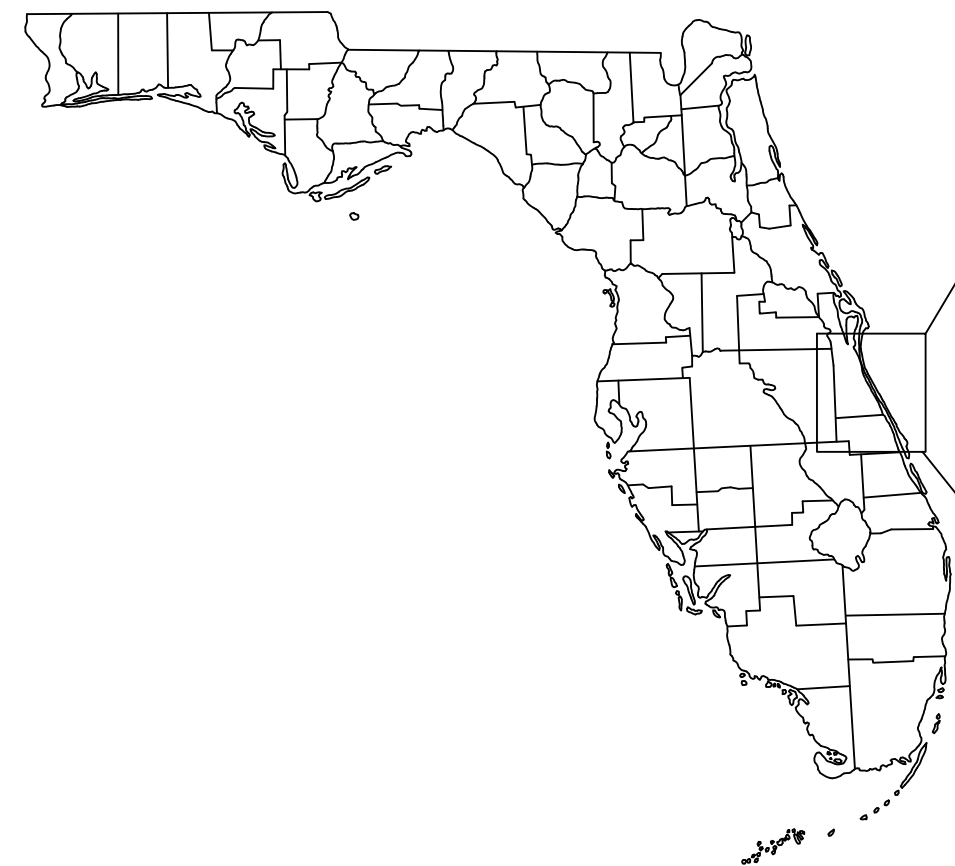
PART 2 PRODUCTS (not used)

PART 3 EXECUTION (not used)

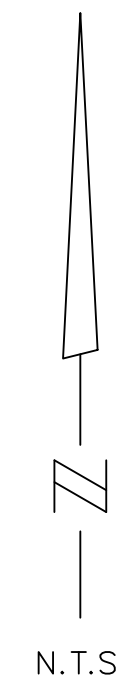
END OF SECTION

CONSTRUCTION PLANS FOR SOUTH OSLO ROAD WTP SCADA SYSTEM IMPROVEMENTS

PREPARED FOR
INDIAN RIVER COUNTY UTILITIES DEPARTMENT
MARCH 2021



PROJECT SITE
OSLO WTP
1550 SW 9TH STREET
VERO BEACH, FL 32962



LOCATION MAP
N.T.S.

Sheet List Table	
Sheet Number	Sheet Title
G-1	COVER SHEET
E-1	ELECTRICAL NOTES & LEGENDS
E-2	SOUTH R.O. WTP ELECTRICAL SITE PLAN
E-3	ELECTRICAL ROOM DEMO PLAN
E-4	ELECTRICAL ROOM INSTALL PLAN
E-5	EXISTING SCADA, AND MAIN PLC NETWORK
E-6	PROPOSED PLC NETWORK DIAGRAM
E-7	HSP PLC PANEL DETAILS
E-8	LOOP DIAGRAMS
E-9	ELECTRICAL DETAILS
E-10	BOM PLC UPGRADE EQUIPMENT LIST
E-11	HSP PLC CP I-O LIST

Plotted By: King, Bertrand Sheet Set: SOUTH R.O. WTP SCADA SYSTEM IMPROVEMENTS Layout: G-1 COVER SHEET March 01, 2021 12:09:12pm K:\WEB_Civil\044572100 - South R.O. WTP Design\CAD\PLC Improvements\Plansheets\G-1 COVER SHEET.dwg
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No.	REVISIONS	DATE	BY

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KHA PROJECT
044572100
DATE
MAR 2021
SCALE AS SHOWN
DESIGNED BY NPOB
DRAWN BY BSK
CHECKED BY MDM

**SOUTH OSLO ROAD WTP SCADA
SYSTEM IMPROVEMENTS**
PREPARED FOR
INDIAN RIVER COUNTY UTILITIES
INDIAN RIVER COUNTY, FLORIDA

LICENSED PROFESSIONAL
NICHOLAS P.O. BLACK, P.E.
FLORIDA LICENSE NUMBER
84908
DATE: _____

COVER SHEET

SHEET NUMBER
G-1

Plotted By: Andrew Demarshi
 Sheet: SOUTH OSLO ROAD WTP SCADA SYSTEM IMPROVEMENTS, Layout-LEG, March 08, 2021, 08:56:56am
 \\10.110.263.CW_Dropbox\JOBS\66-44\66428_SO_OSLO_RD_WTP_EVALUATION_IMPROVEMENTS_CONTROLS_PLC_UPGRADE\DRAWINGS\SCADA_SYSTEM_IMPROVEMENTS
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GENERAL ELECTRICAL NOTES

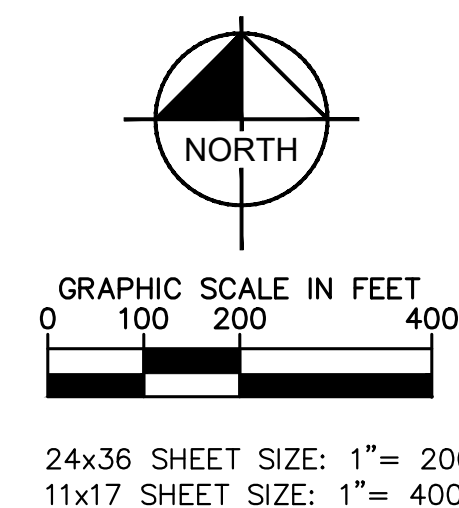
- 1. READ THE SPECIFICATIONS**
REFER TO THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. THERE ARE REQUIREMENTS NOTED IN THE SPECIFICATIONS WHICH ARE NOT INDICATED ON THE DRAWINGS.
- 2. SCHEMATIC NATURE**
PLAN VIEWS ARE SCHEMATIC IN NATURE AND MEANT TO SHOW THE SCHEMATIC ARRANGEMENT OF EQUIPMENT AND CONDUIT.
- 3. APPROVED SHOP DRAWINGS**
USE APPROVED SHOP DRAWINGS FOR LAYOUT OF EQUIPMENT. THE CONTRACT DOCUMENTS WILL VARY FROM THE SHOP DRAWINGS. INFORM THE ENGINEER IMMEDIATELY IF THERE ARE LAY OUT ISSUES OR INADEQUATE SPACE FOR EQUIPMENT OR CLEARANCES. LAND CONDUITS IN OPENINGS OF ENCLOSURES PER THE APPROVED SHOP DRAWINGS, DO NOT USE THE CONTRACT DRAWINGS.
- 4. CLEARANCES**
IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MEET N.E.C. CLEARANCES ABOUT EQUIPMENT.
- 5. ROUTING**
CONDUIT ROUTING IS SCHEMATIC IN NATURE. CONDUIT ROUTING IS SHOWN FOR CLARITY ON THE CONTRACT DRAWINGS. ROUTE CONDUITS AS MAY BE REQUIRED.
- 6. FUTURES FACILITIES**
WHERE FUTURE FACILITIES ARE INDICATED. CONDUIT ROUTING SHALL ACCOUNT FOR SUCH FACILITIES.
- 7. RESPONSIBILITIES**
BIDDERS, SUPPLIERS, EQUIPMENT VENDORS, GENERAL CONTRACTOR, SUB CONTRACTORS AND OTHER SIMILAR ENTITIES ARE REQUIRED TO READ ALL THE CONTRACT DOCUMENTS INCLUDING DRAWINGS AND SPECIFICATIONS.
- 8. HOMERUNS**
CONTRACTOR SHALL COORDINATE HOME RUNS BETWEEN PLAN VIEWS. WHERE ANY CONDUIT IS SHOWN IN ANY PLAN VIEW IT SHALL BE INSTALLED THE ENTIRE LENGTH AS MAY BE REQUIRED.

ELECTRICAL ABBREVIATIONS

37C	37 CONDUCTOR CABLE	NF	NON FUSED OR NANO FILTRATION
ATB	ANALOG TERMINAL BOX	OHC	OPEN-HOLD-CLOSE
AXS	AUTO TRANSFORMER STARTER	OHU	OVER HEAD ELEC UTILITIES
CR	CONTROL RELAY	OL	OVER LOAD RELAY
CP	CONTROL PANEL	PB	PUSH BUTTON
CPB	CONTROL PULL BOX	PD	POWER DIST. PANEL
CS	CONTROL STATION	PM	POWER MONITOR
CSD	CONTROL SYSTEM DESIGN	PMLBD	PANELBOARD
CTB	CONTROL TERM. BOX	PPB	POWER PULL BOX
DISC	DISCONNECT SWITCH	PSA	PANEL SURGE ARRESTOR
DMM	DIGITAL MULTIMETER	PSCP	PUMP STATION CONTROL PANEL
DS	DOOR SWITCH	PTB	POWER TERMINAL BOX
DTB	DISCRETE TERMINAL BOX	R-1/0 CBL	REMOTE I/O CABLE
EN	ETHERNET	R,G,A	RED, GREEN, AMBER PILOT LIGHT
ETM	ELAPSED TIME METER	RGS	RIGID GALV. STEEL
F	FUSE	RO	READ OUT
FCP	FLYGT CONTROL PANEL	SA	SURGE ARRESTER
FO	FIBER OPTIC	SS	SELECTOR SWITCH OR 316 STAINLESS STEEL
FO-E-CBL	FIBER OPTIC ETHERNET CABLE	SWBD	SOFT STARTER
FSA	FIELD SURGE ARRESTOR	STB	SELECTOR SWITCH OR 316 STAINLESS STEEL
GFI	GROUND FAULT INTERRUPTER	TC	TIME CLOCK
HOA	HAND-OFF-AUTO	TOT	TOTALIZER
HOR	HAND-OFF-REMOTE	TS	TEST SWITCH
IPB	INST. PULL BOX	VCP	VENDOR CP
ITB	INST. TERMINAL BOX	VFD	VARIABLE FREQUENCY DRIVE
LA	LIGHTNING ARRESTER	WP	WEATHER PROOF
LOR	LOCAL-OFF-REMOTE	WW	WIRE WAY
M	MOTOR STARTER	WWCP	WET WELL CONTROL PANEL
MB+	MODBUS PLUS	ZSL	POSITION SWITCH CLOSED
MCC	MOTOR CONTROL CENTER	ZSO	POSITION SWITCH OPEN
MLO	MAIN LUG ONLY		
MOV	MOTOR OPERATED VALVE		

SUMMARY OF SCOPE OF WORK

1. PROVIDE ETHERNET UPGRADE BOARDS TO EXISTING HSP (HSP 1,2,3) AND FWP (FWP 4,5) VFD EQUIPMENT.
2. PROVIDE NEW HSP PLC CP.
3. PROVIDE MODIFICATIONS & PARTS FOR MAIN PLC AND OTHER RELATED MODULES, ETHERNET SWITCHES AS INDICATED ON DRAWINGS.
4. OTHER MODIFICATIONS TO EXISTING PLC EQUIPMENT AS INDICATED ON DRAWINGS



ELECTRICAL LEGEND

	RACEWAY EXPOSED		LEVEL SWITCH, FLOAT SWITCH		SWITCH 48" AFF,
	LIGHTING RACEWAY CONCEALED		PRESSURE SWITCH		SWITCH 48" AFF, 3-WAY
	RACEWAY CONCEALED		LIMIT SWITCH		ENCLOSED COMBINATION STARTER
	RACEWAY TURNED UP/DOWN		THERMAL SWITCH		JUNCTION BOX
	MOTOR		HEATER		PANELBOARD, ELECTRICAL EQUIP. ENCL
	TRANSFORMER		PILOT LIGHT		CROSS HATCH DENOTES DELETION
	FUSE		DENOTES SEPARATE CONDUITS WITH SEPARATE WIRE		MANUAL MOTOR STARTER
	CIRCUIT BREAKER		DENOTES PANELBOARD A, CIRCUIT 3		RED, MAINTAINED PUSH BUTTON
	CAPACITOR		ELAPSED TIME METER		TIMING CONTACT
	LIGHTNING ARRESTER		SELECTOR SWITCH		FLOW SWITCH
	SAFETY DISCONNECT SWITCH, HP RATED		PUSH BUTTON ON-OFF SWITCH		CONTROL RELAY, MOTOR STARTER, ETC.
	GROUND		DENOTES CONDUIT TAG 01		
	DUPLEX, 14" AFF				
	SIMPLEX, 14" AFF				
	NORMALLY OPEN CONTACT				
	NORMALLY CLOSED CONTACT				

MATERIAL SCHEDULE

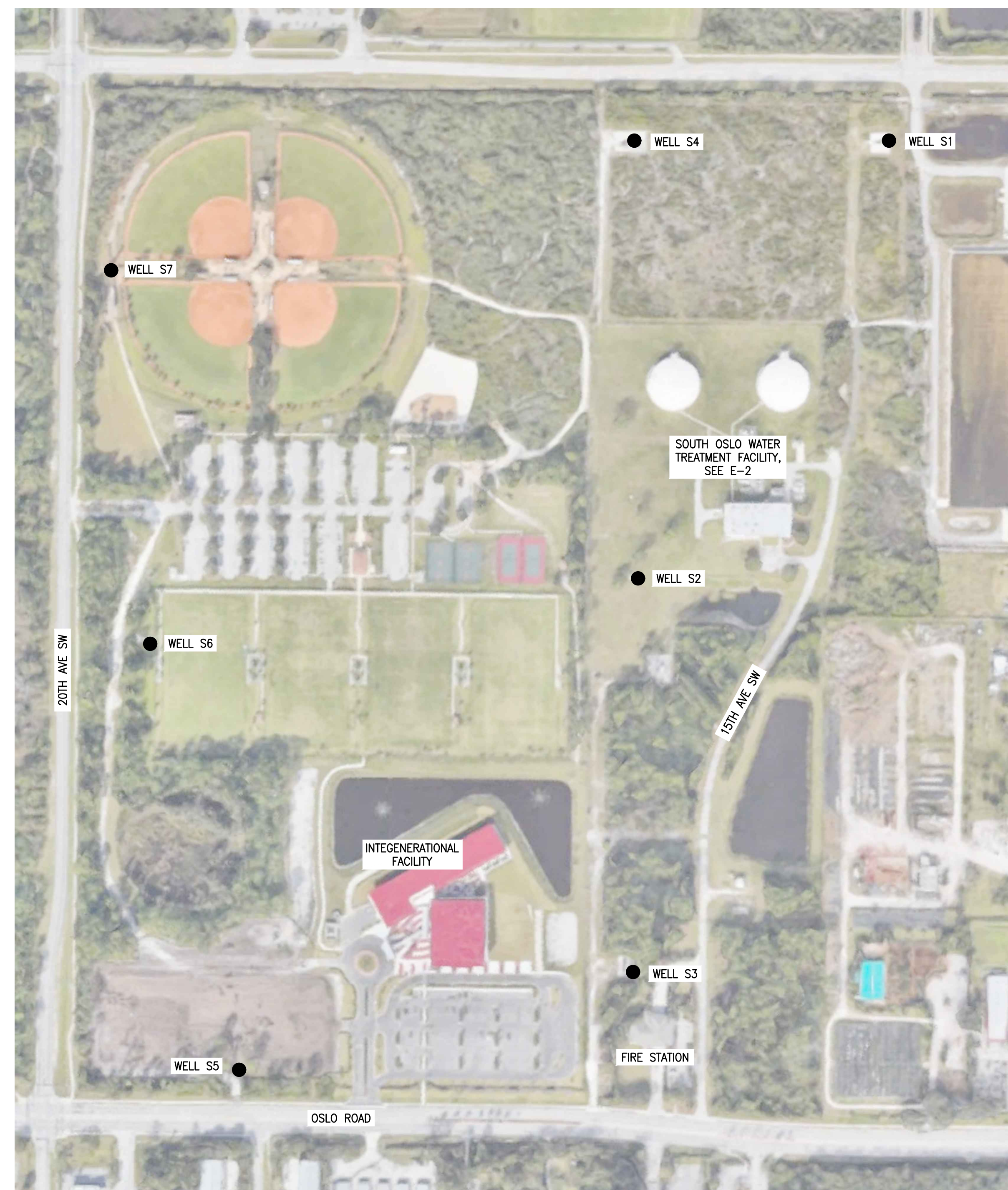
LOCATION	CONDUIT	ENCLOSURE MATERIALS	ENCLOSURE NEMA RATING	FASTENERS, STRUT, THREADED ROD, ETC.	REMARKS
INTERIOR					
EXPOSED IN AIR CONDITIONED EQUIPMENT ROOMS	PVC SCHED 80	PAINTED STEEL	1	GALV. STEEL	NOT APPLICABLE
EXPOSED IN PUMP ROOMS, EQUIPMENT ROOMS, ETC. (NOT AIR CONDITIONED)	PVC SCHED 80	316 SS	1A GASKETED	316 SS	NOT APPLICABLE
EXPOSED IN CHEMICAL ROOMS ETC.	PVC SCHED. 80	316 SS	4X	316 SS	
CONCEALED IN BLOCK WALLS, POURED CONCRETE WALLS, ETC.	PVC SCHED. 40	N/A	N/A	GALV. STEEL	
EXTERIOR					
BELOW GRADE	PVC SCHED. 40	CONCRETE BOXES	N/A	316 SS	
ABOVE GRADE	PVC SCHED. 80	316 SS	4X	316 SS	

GENERAL NOTES

1. THE FOLLOWING SHALL ESTABLISH THE MINIMUM LEVEL OF QUALITY FOR MATERIALS.
2. THE FOLLOWING SHALL APPLY UNLESS OTHERWISE INDICATED BY DRAWINGS
3. THE FOLLOWING SHALL NOT APPLY TO POWER TRANSFORMERS, LIGHT FIXTURES AND LIGHT POLES, THOSE ELEMENTS ARE NOTED OR INDICATED ELSEWHERE

LEGEND

N/A	NOT APPLICABLE
316 SS	316 STAINLESS STEEL
EMT	ELECTRICAL METALLIC TUBING, GALV. STEEL
ALUMINUM	ALUMINUM RIGID CONDUIT 6063 ALLOY, NOT ALUMINUM EMT



OVERALL ELECTRICAL SITE PLAN

NTS

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KHA PROJECT	044572100
DATE	MARCH 2021
SCALE	AS SHOWN
DESIGNED BY	JLR
DRAWN BY	AOD
CHECKED BY	MAG

SOUTH OSLO ROAD WTP SCADA SYSTEM IMPROVEMENTS
 PREPARED FOR
INDIAN RIVER COUNTY UTILITIES
 INDIAN RIVER COUNTY FLORIDA

LICENSED PROFESSIONAL
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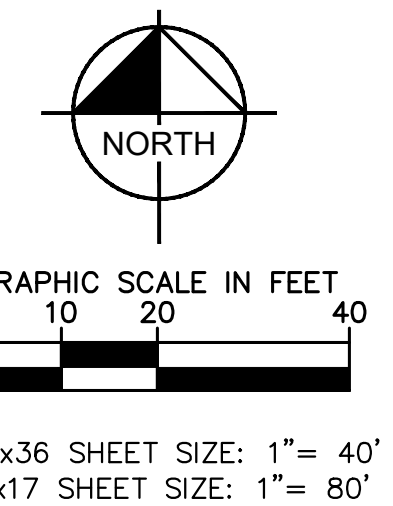
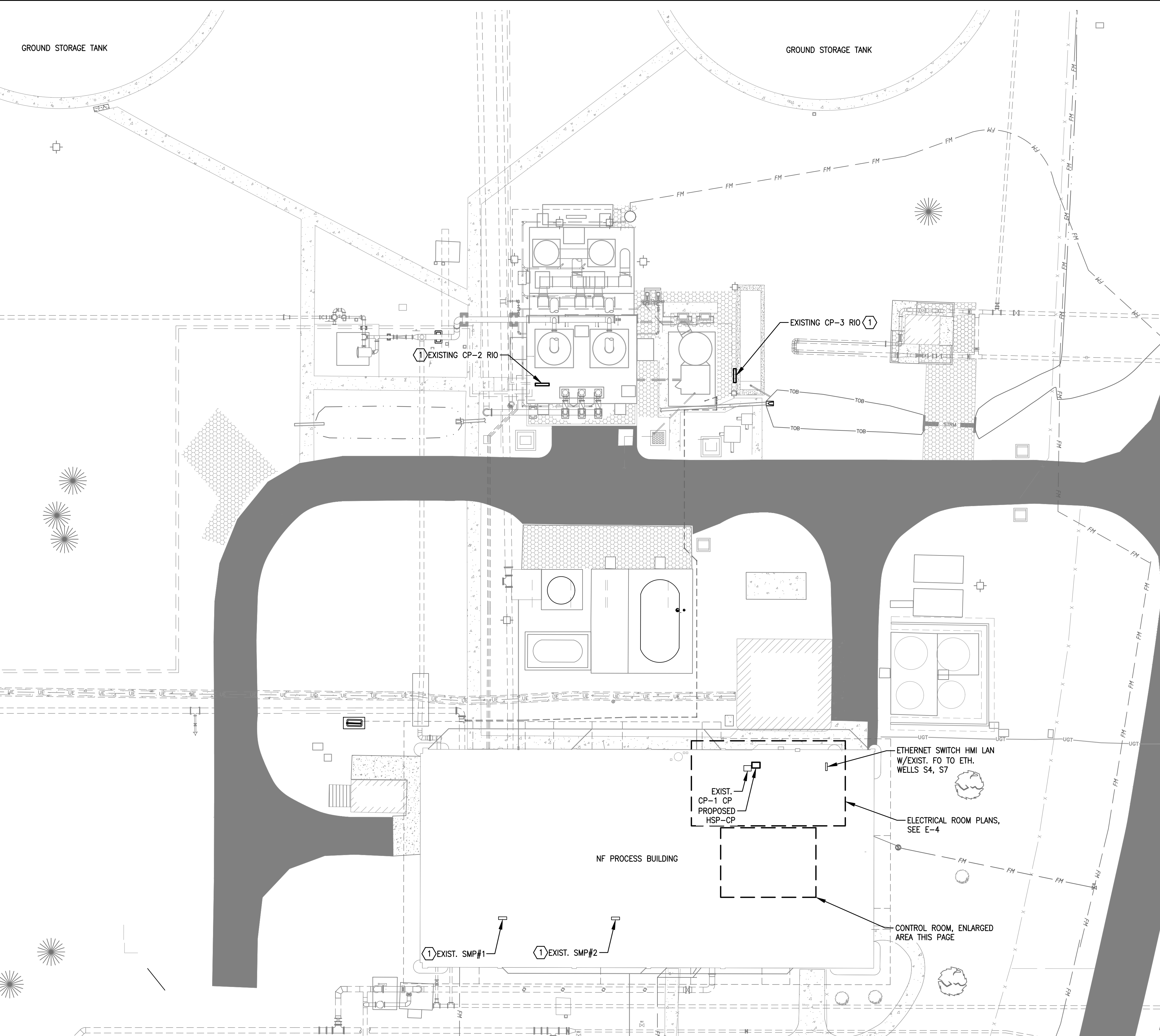
ELECTRICAL NOTES & LEGENDS

SHEET NUMBER

E-1

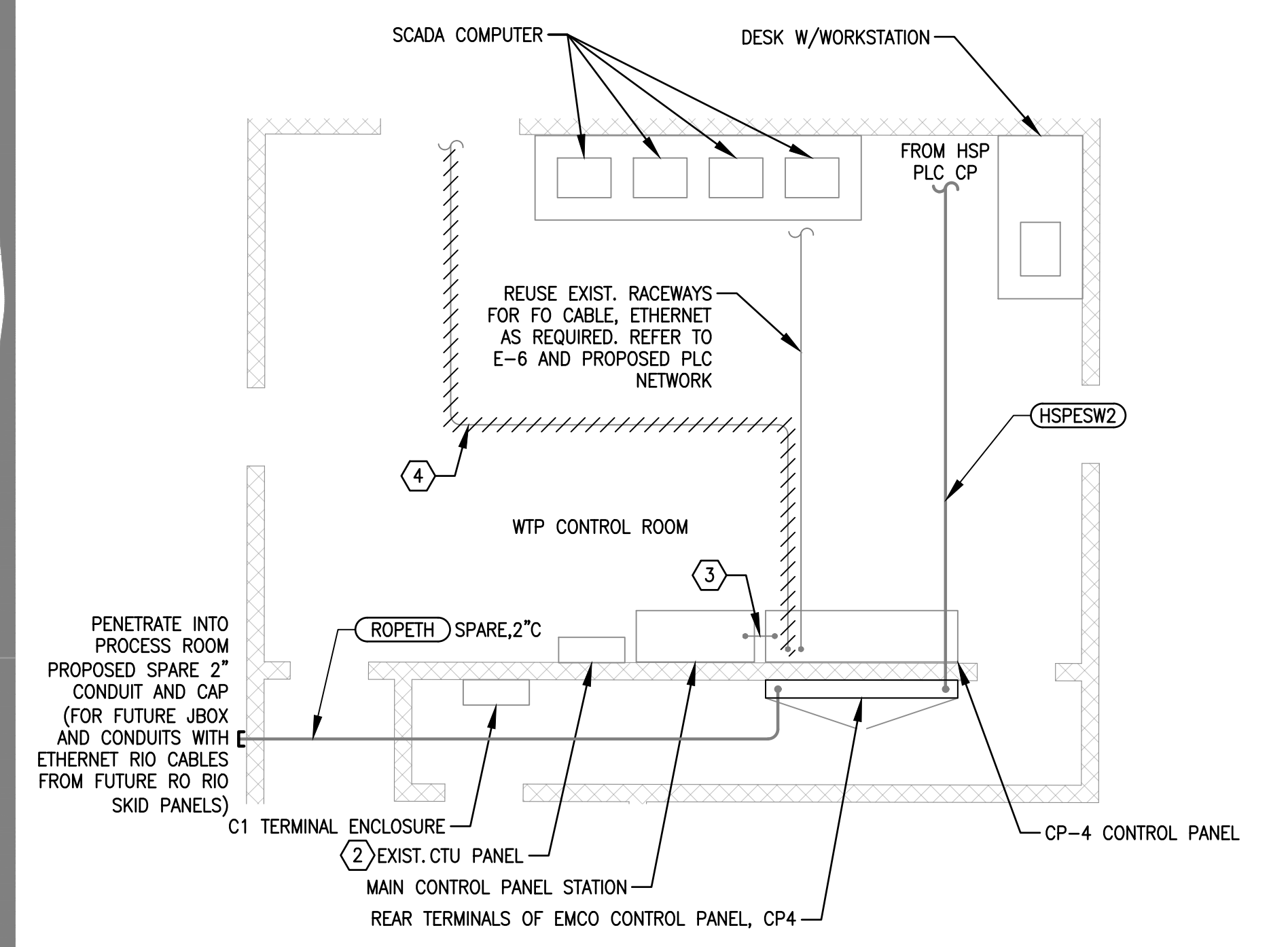
No.	REVISIONS	DATE	BY

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 Sheet: SOUTH OSLO ROAD WTP SCADA SYSTEM IMPROVEMENTS, Layout: SITE PLAN, March 08, 2021, 08:55:58am
 \\\10.1.10.26\CW Dropbox\JOBS\66-KH\66428 SO OSLO RD WTP EVALUATION IMPROVEMENTS, CONTROLS, PLC UPGRADE, DRAWINGS\SCADA SYSTEM IMPROVEMENTS
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SPECIFIC ELECTRICAL NOTES

- ① REUSE EXISTING CP2-RIO CP, CP-3 RIO CP, AND SMP#1 & SMP#2 CONTROL PANELS. NO WORK AT THESE PANELS.
- ② EXISTING CENTRAL RADIO SYSTEM TO REMAIN FOR REMOTE WELL SITES.
- ③ PROVIDE 2" CONDUIT BETWEEN CP4 AND MAIN CONTROL PANEL STATION.
- ④ DEMO I/O HARD WIRED SIGNALS FROM FWP 4 & 5. SEE PROPOSED SEQUENCE ON E-3.



CONTROL ROOM EQUIPMENT PLAN

SCALE: 1" = 5'

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DATE: _____

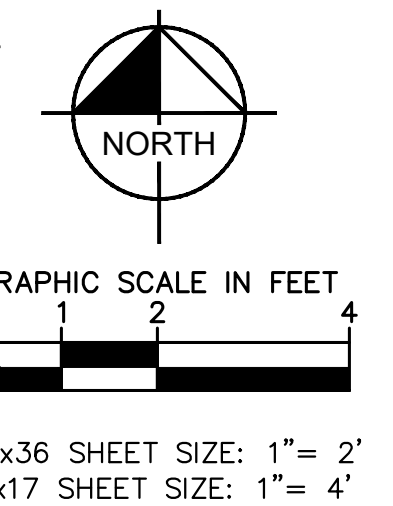
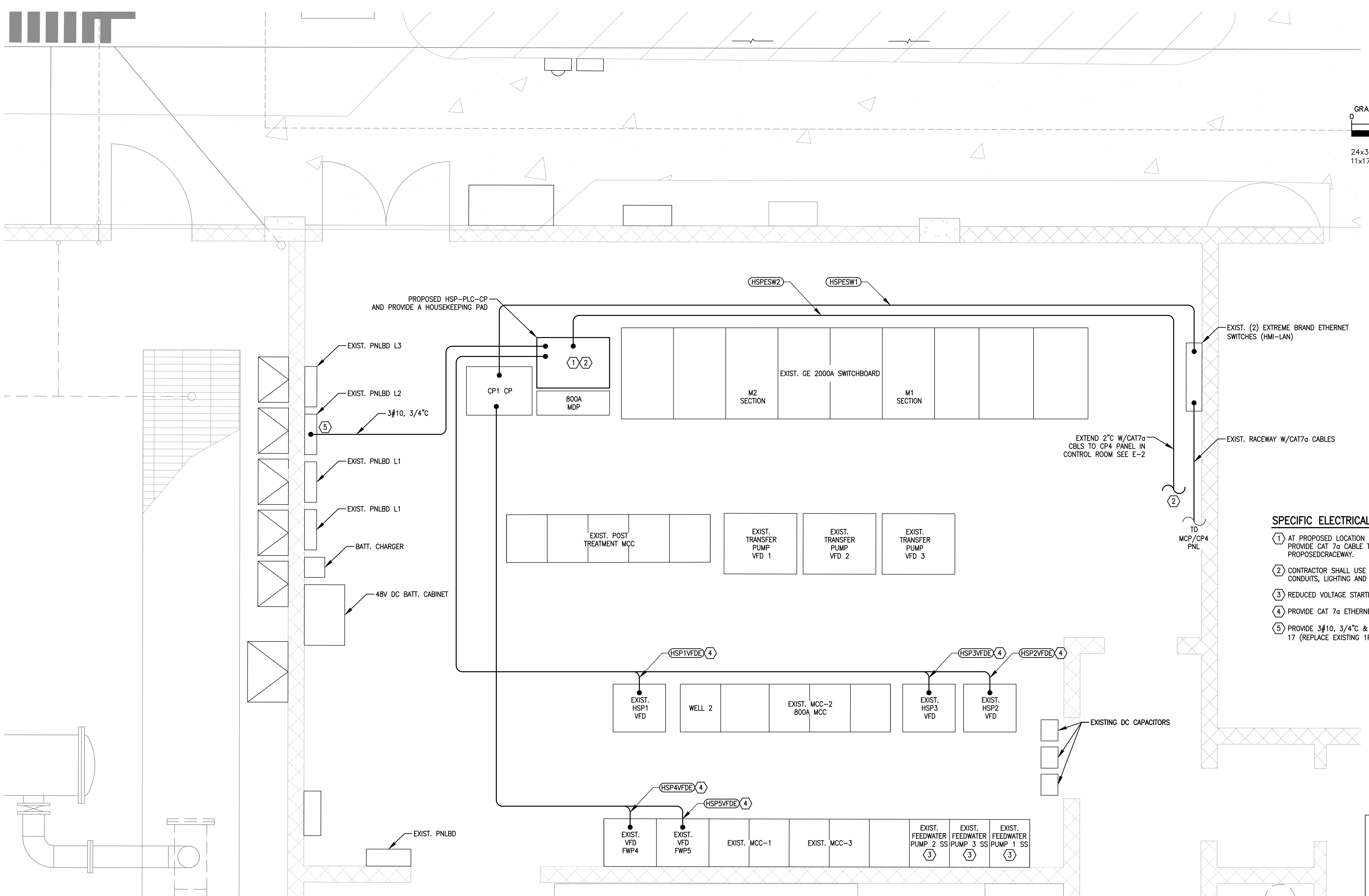
SOUTH R.O. WTP ELECTRICAL SITE PLAN

SHEET NUMBER

E-2

No.	REVISIONS	DATE	BY

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- SPECIFIC ELECTRICAL NOTES**
- ① AT PROPOSED LOCATION FOR HSP PLC CONTROL PANEL, PROVIDE CAT 7a CABLE TO MCP THROUGH PROPOSEDCRACEWAY.
 - ② CONTRACTOR SHALL USE BEST ROUTING TO AVOID EXISTING CONDUITS, LIGHTING AND OTHER EQUIPMENT.
 - ③ REDUCED VOLTAGE STARTER FOR FEEDWATER PUMPS.
 - ④ PROVIDE CAT 7a ETHERNET CABLE IN 1" C.
 - ⑤ PROVIDE 3#10, 3/4" C & 1P-30CB IN PNLBD L2 POSITION 17 (REPLACE EXISTING 1P-20A).

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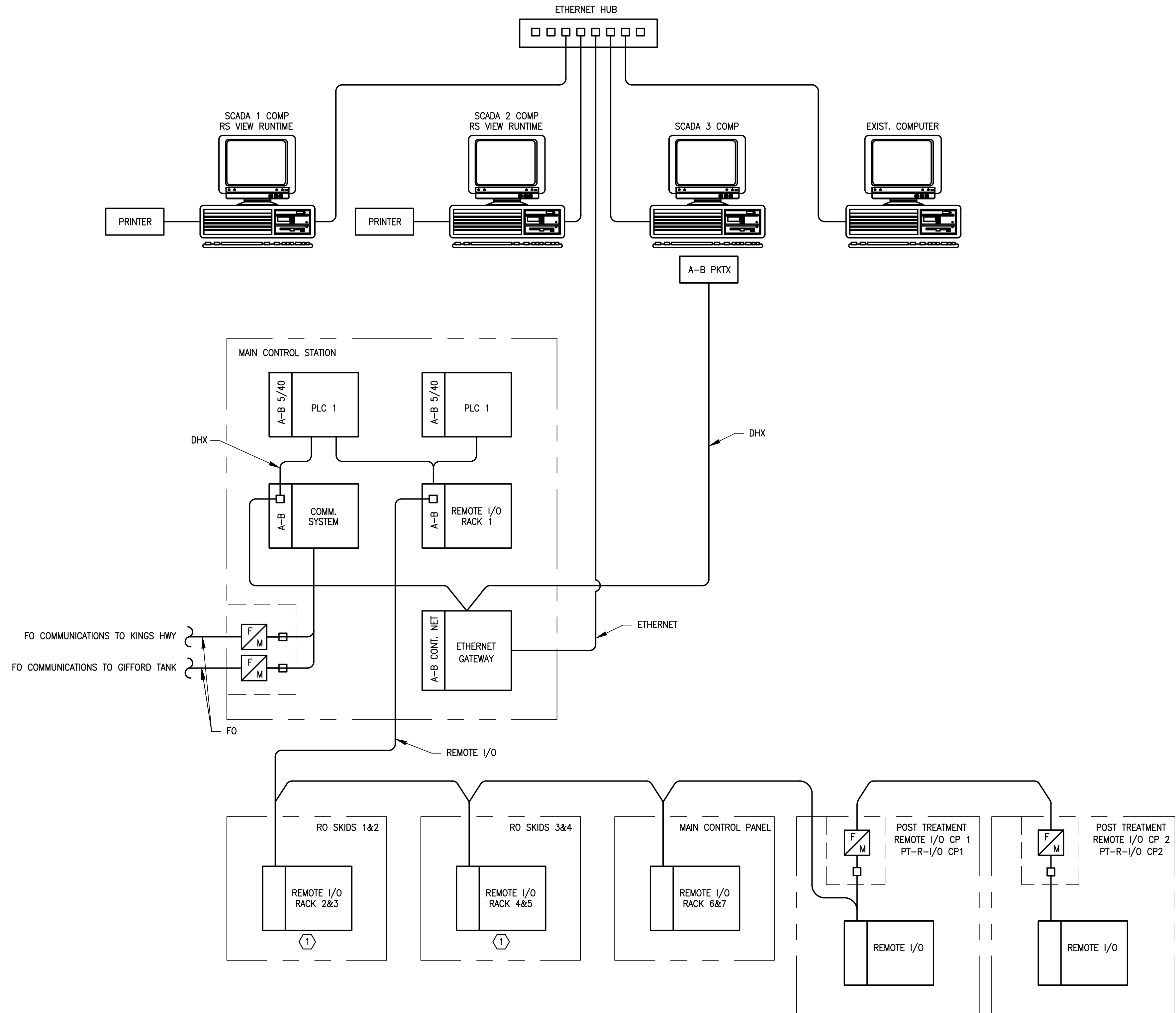
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ELECTRICAL ROOM INSTALL PLAN

SHEET NUMBER
E-4

Plotted By: Andres Demorchi
 Sheet Set: SOUTH OSLO ROAD WTP SCADA SYSTEM IMPROVEMENTS - Layout: EXIST SCADA & MAIN PLC NETWORK - March 08, 2021 08:56:01 am
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SPECIFIC ELECTRICAL NOTES

① CONTINUE TO USE SMP PANELS 1 & 2 UNDER SCADA PROJECT.

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EXISTING SCADA, AND MAIN PLC NETWORK

SHEET NUMBER

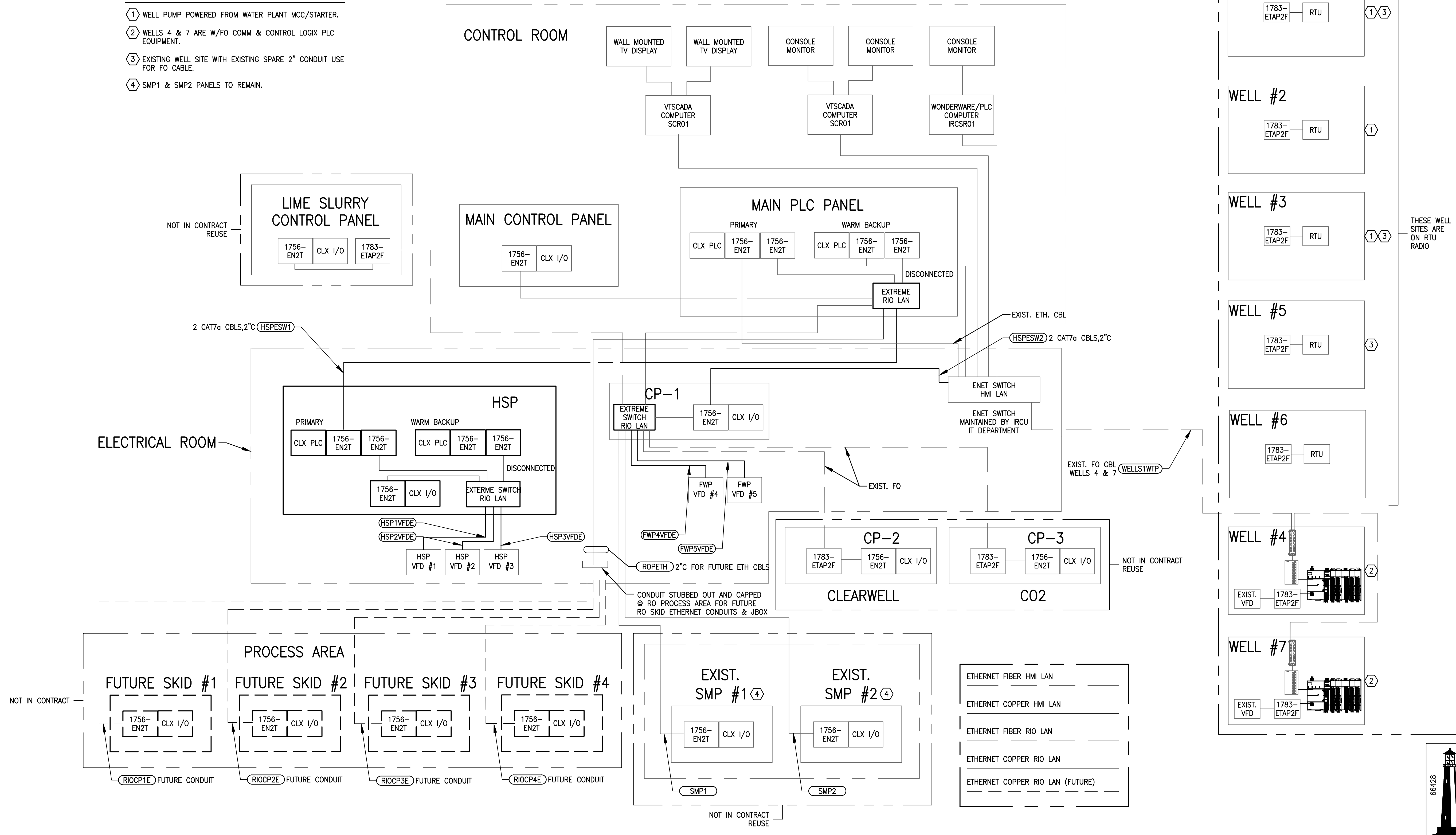
E-5

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SPECIFIC ELECTRICAL NOTES

- ① WELL PUMP POWERED FROM WATER PLANT MCC/STARTER.
- ② WELLS 4 & 7 ARE W/FO COMM & CONTROL LOGIX PLC EQUIPMENT.
- ③ EXISTING WELL SITE WITH EXISTING SPARE 2" CONDUIT USE FOR FO CABLE.
- ④ SMP1 & SMP2 PANELS TO REMAIN.

IRCU SOUTH PLANT NETWORK CONFIGURATION



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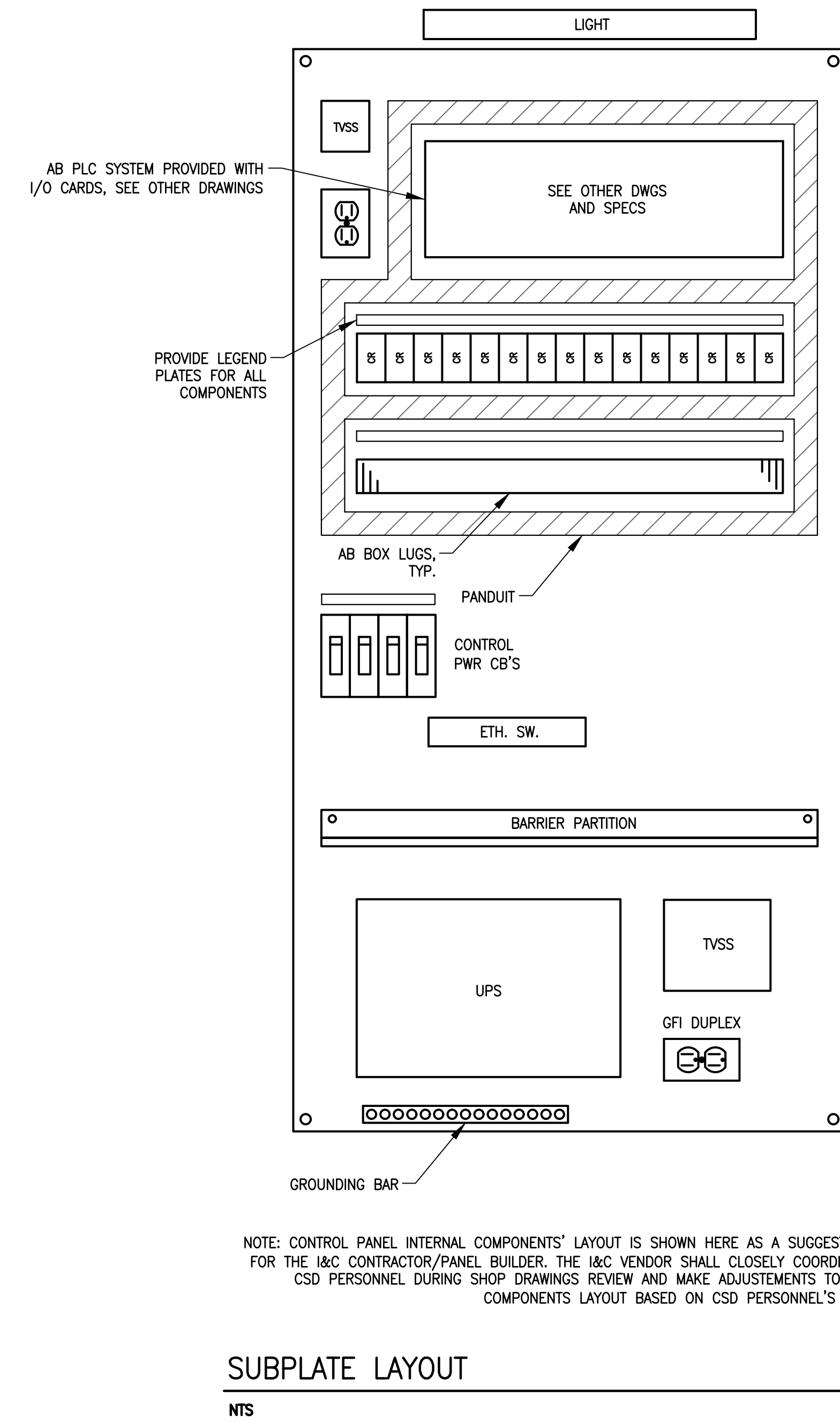
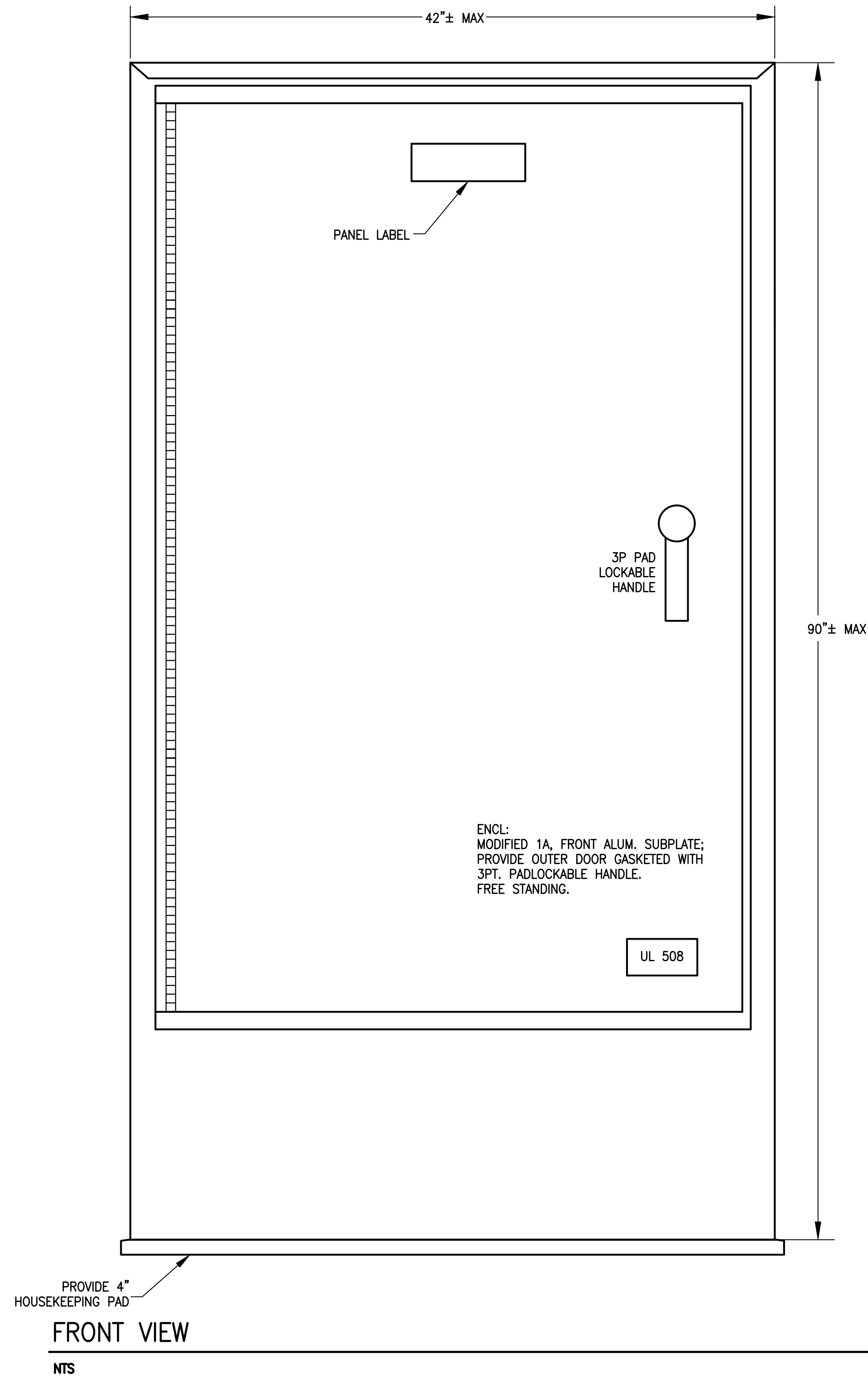
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PROPOSED PLC NETWORK DIAGRAM

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E-6

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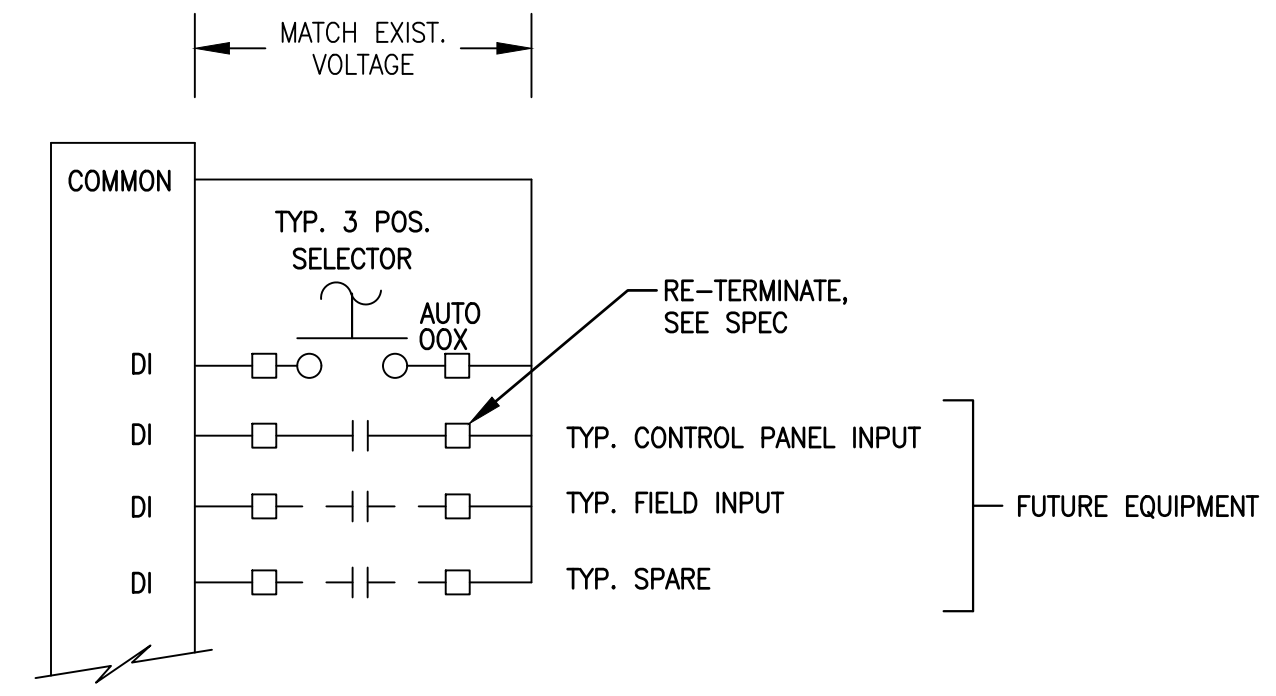
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HSP PLC PANEL DETAILS

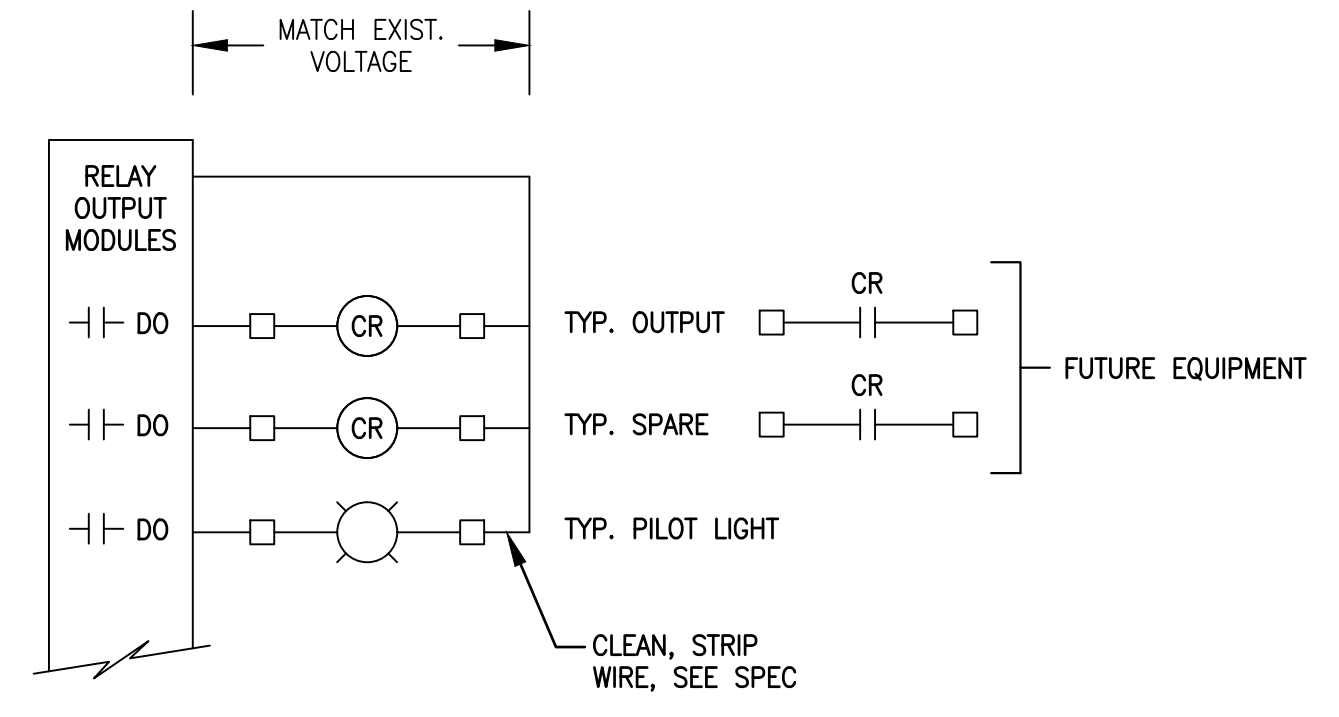
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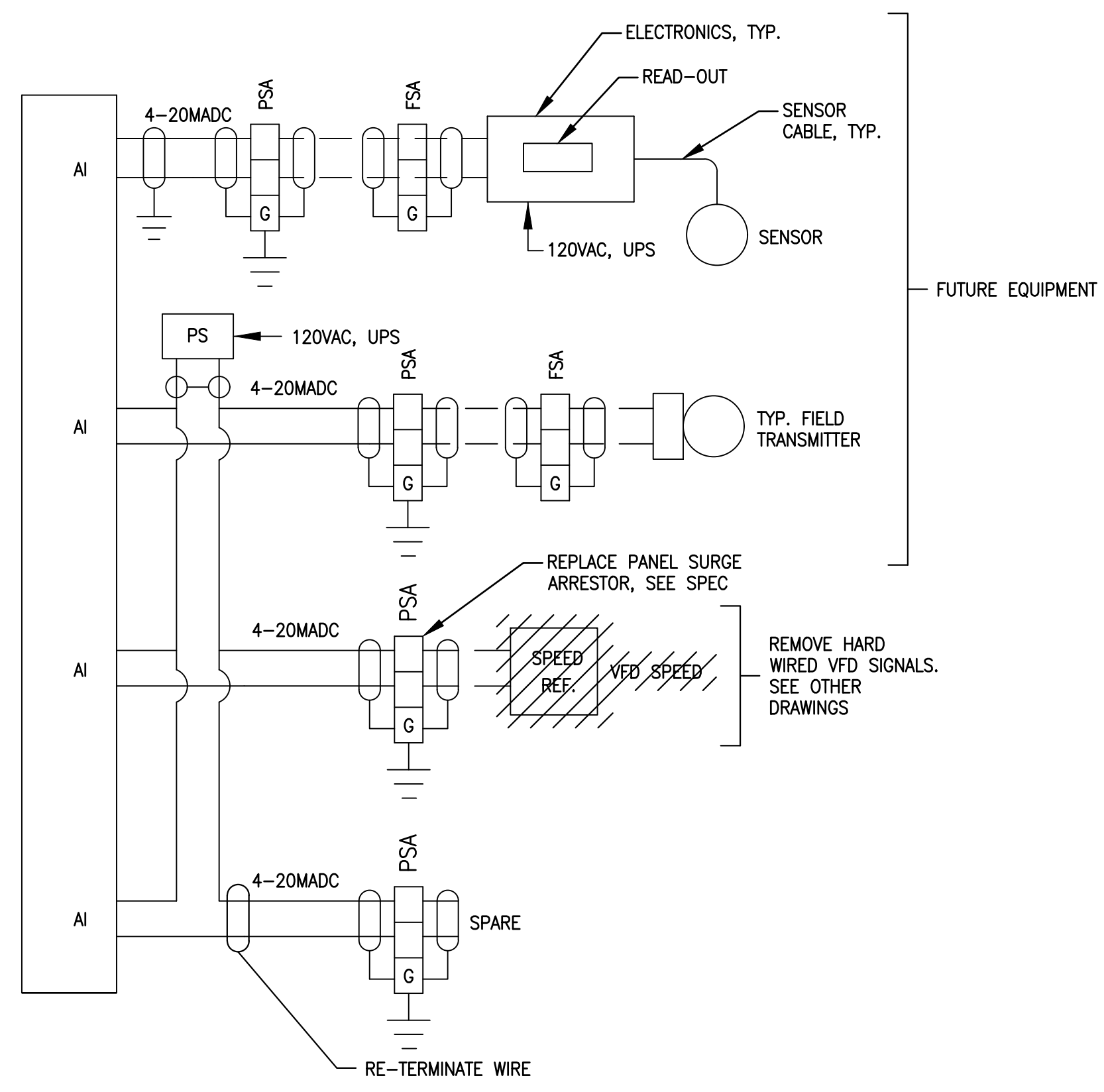
TYPICAL DI DIAGRAM

NTS



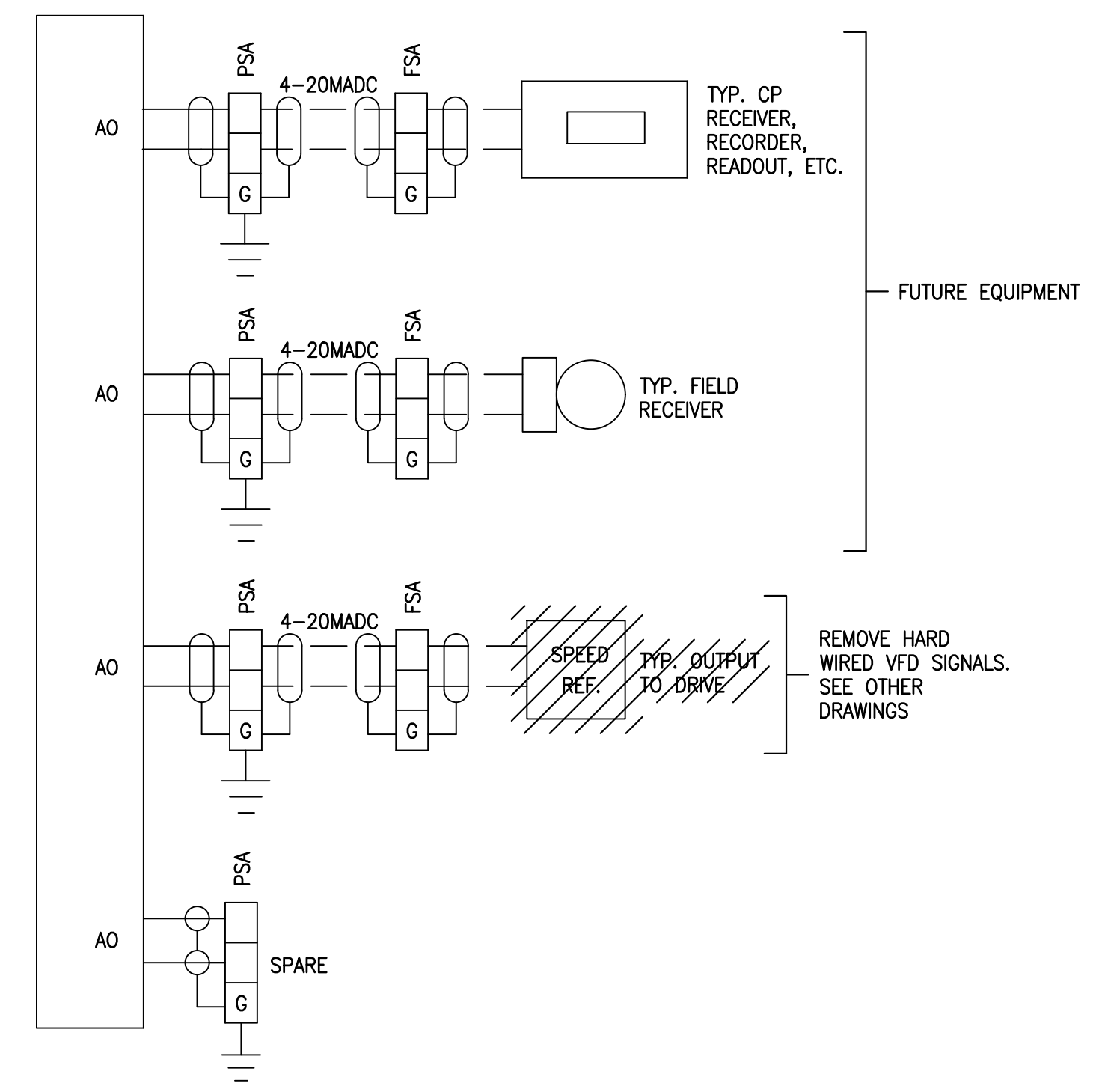
TYPICAL DO DIAGRAM

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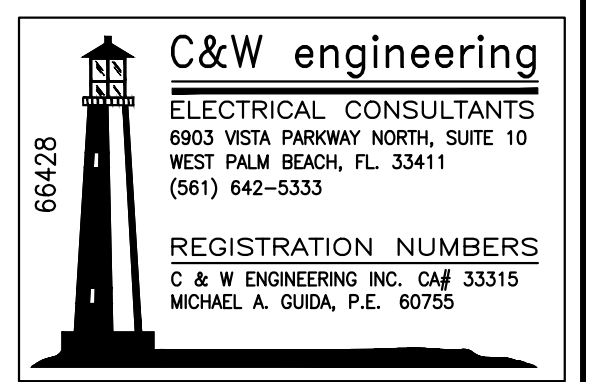
TYPICAL AI LOOP DIAGRAM

NTS



TYPICAL AO LOOP DIAGRAM

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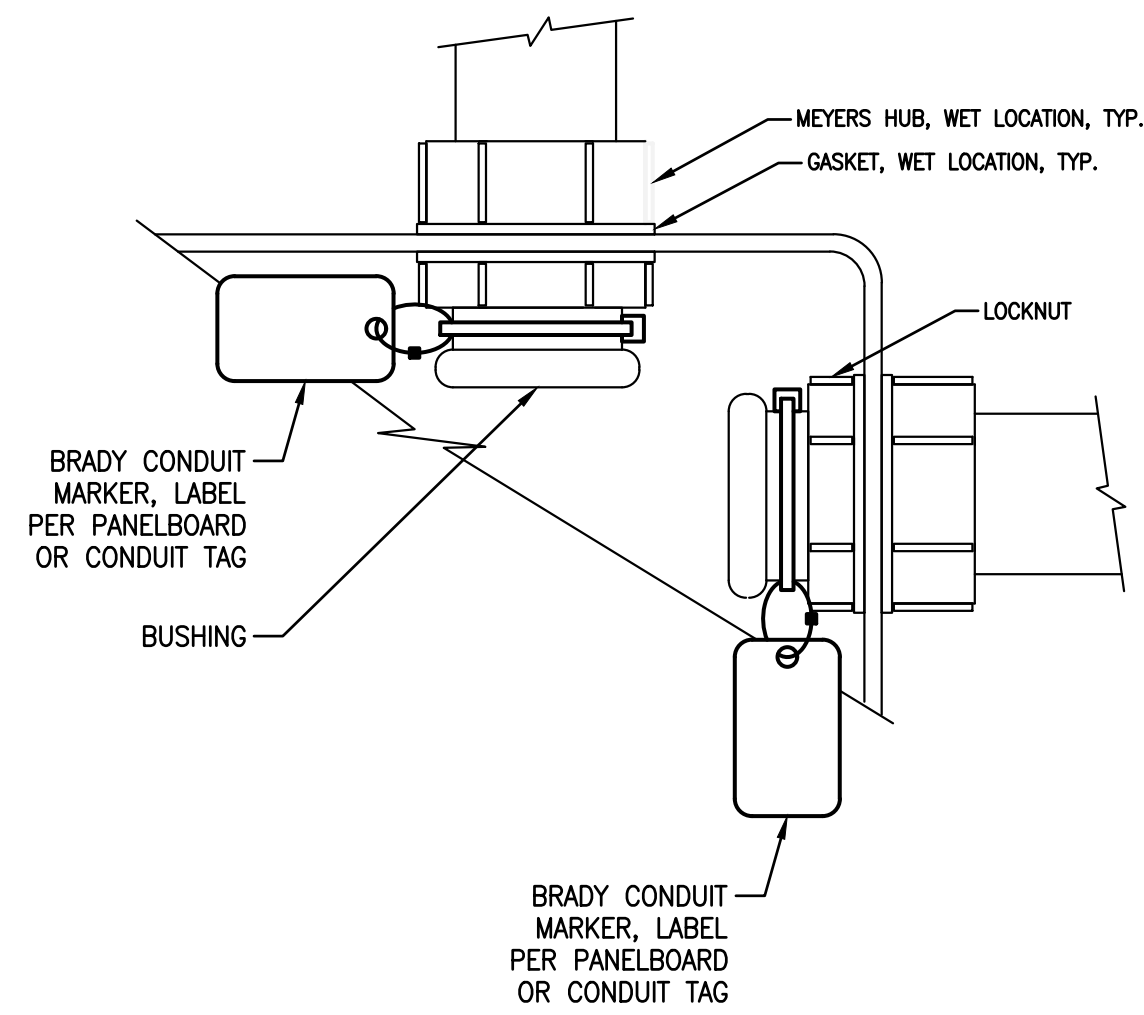
LOOP DIAGRAMS

SHEET NUMBER

E-8

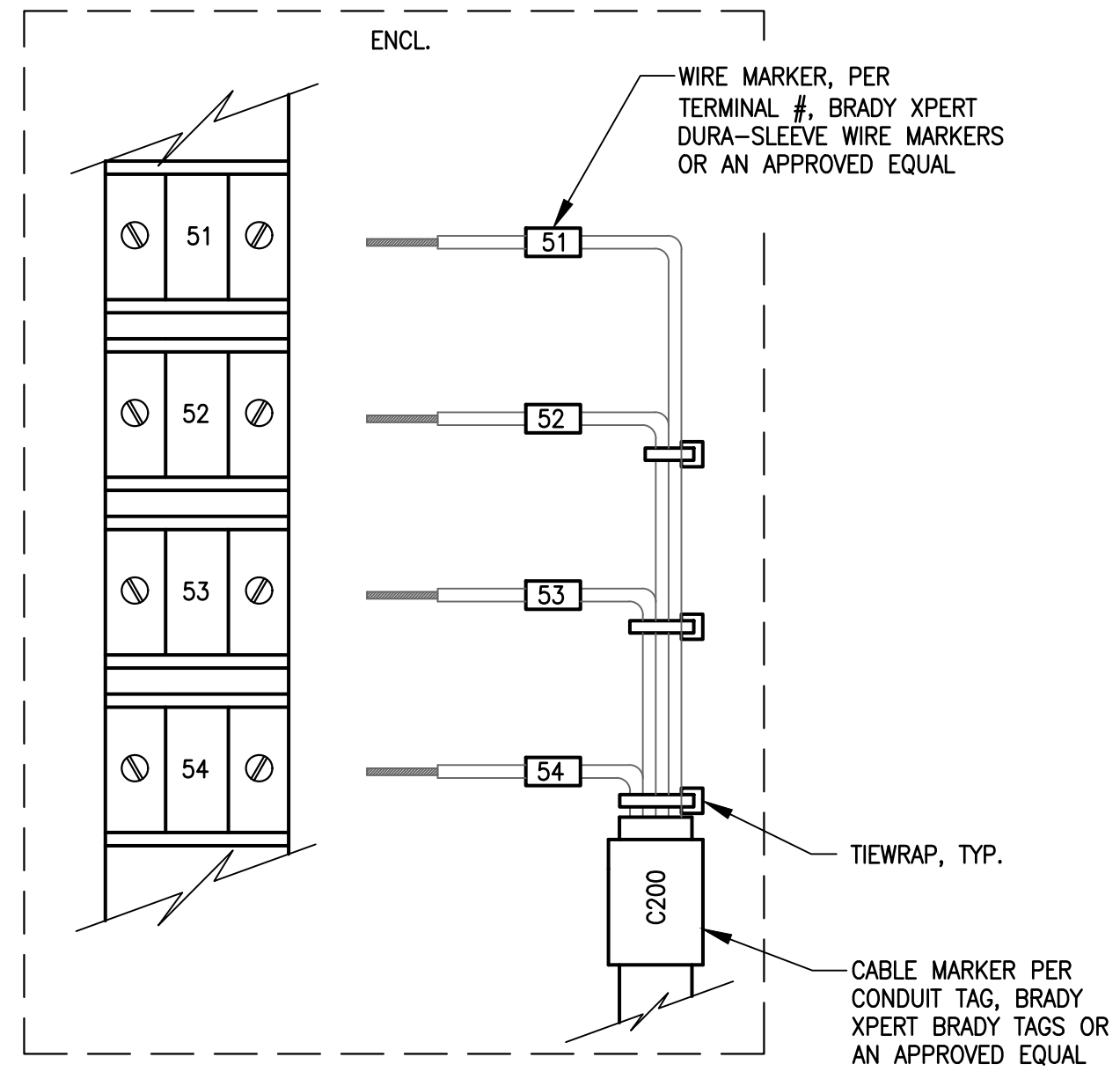
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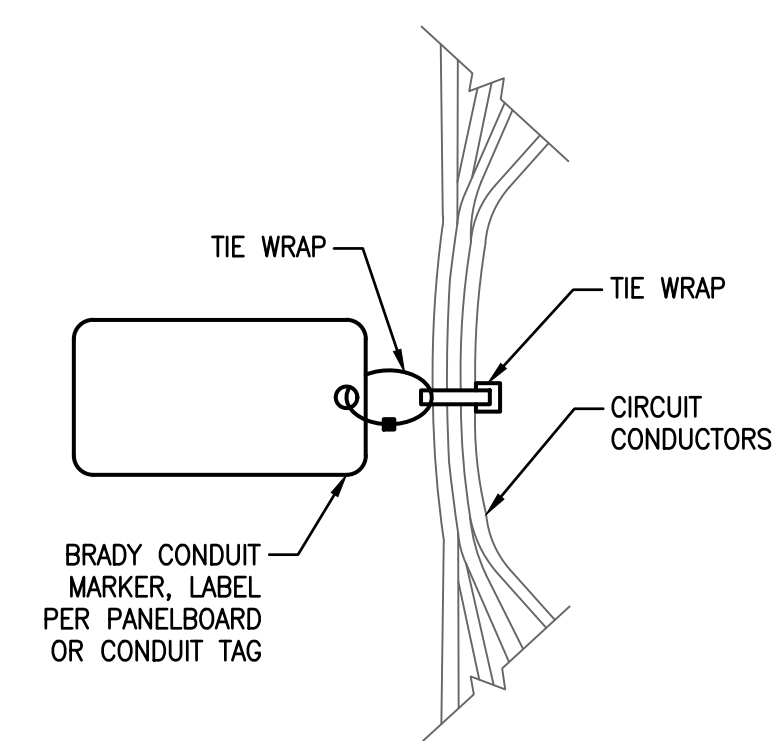
CONDUIT TERMINATION DETAIL

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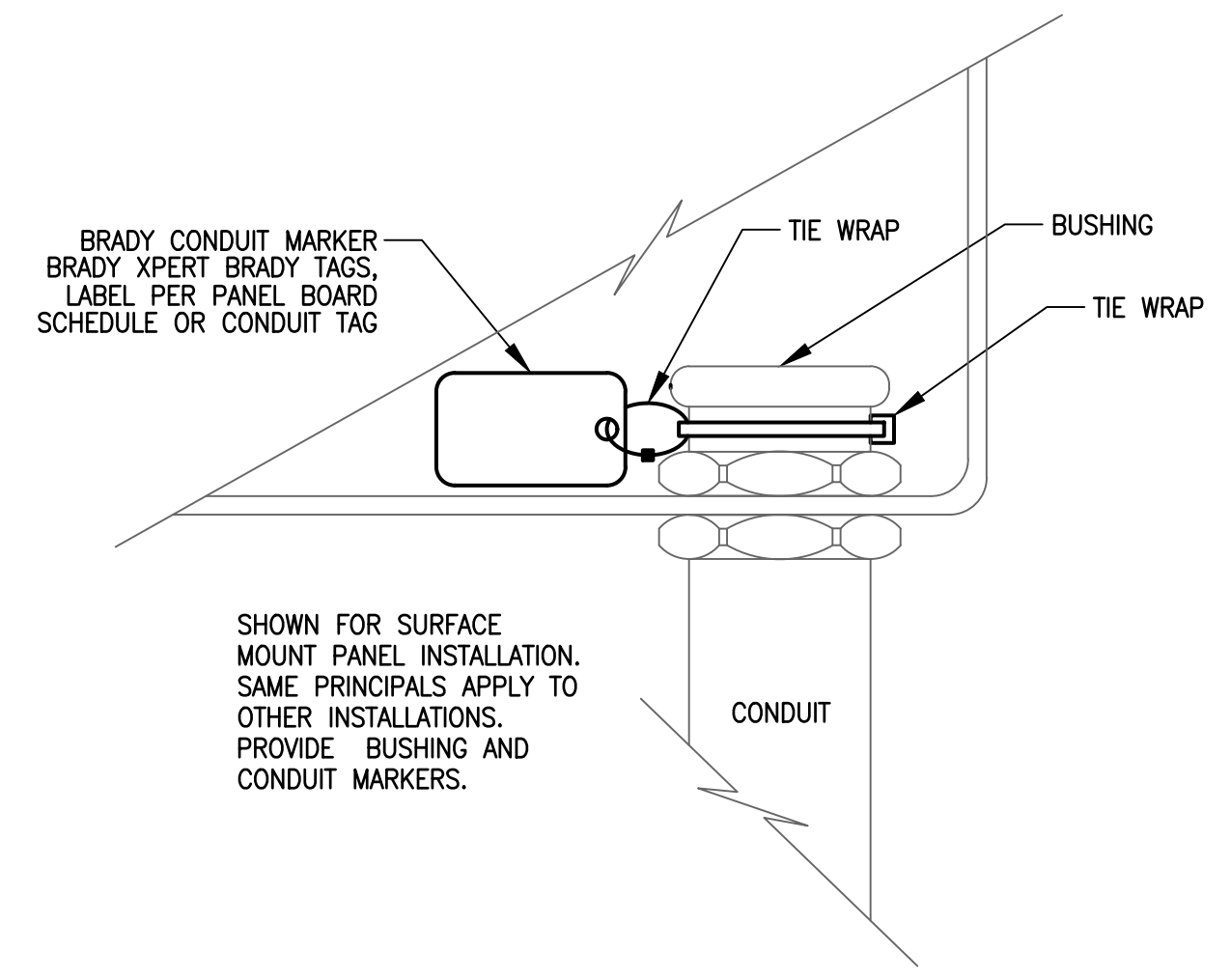
TERMINATION EXAMPLE DETAIL

NTS



CIRCUIT MARKER DETAIL

NTS



CONDUIT DETAIL

NTS

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DRAWN BY	AOD
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ELECTRICAL DETAILS

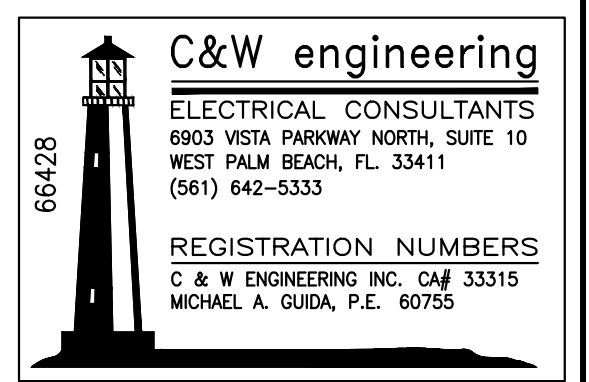
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UPGRADE HARDWARE		
PLC Panel		
Control Room	PLC PANEL	
Part #	Description	Quantity
1756-A4	4 Slot ControlLogix Chassis	2
1756-PA75	85-265 VAC Power Supply (13 Amp @ 5V)	2
1756-L73	ControlLogix5573 Controller With 8 Mbytes Memory	2
1756-EN2T	EtherNet 10-100M Interface Module (supports 128 TCP/IP connections)	4
ISW 4-10/100P, 2-10/100T, 2-SFP	Extreme ISW Series Managed Industrial Ethernet Switch	1
1606-XLE120E	Ethernet Switch Power Supply	1
9080-GCB20	Square D 2 Amp Circuit Breaker	1
	CAT 7a Blue Ethernet Cable from PLC Panel to CP-1	2
Electrical Room	CP-1	
Part #	Description	Quantity
1756-A10	10 Slot ControlLogix Chassis	1
1756-PA75	85-265 VAC Power Supply (13 Amp @ 5V)	1
1756-EN2T	EtherNet 10-100M Interface Module (supports 128 TCP/IP connections)	1
1756-IA16	ControlLogix 16 Pt D/I 120V AC Module	3
1756-OW16I	ControlLogix 16 Pt Digital Relay Module	2
1756-IF16	ControlLogix 16 Point Analog Input	2
1756-OF6CI	ControlLogix 6 Pt Isolated Analog Output Current	2
ISW 4-10/100P, 2-10/100T, 2-SFP	Extreme ISW Series Managed Industrial Ethernet Switch	1
1783-SFP100FX	100BASE-FX multimode fiber/Dual LC	3
1606-XLE120E	Ethernet Switch Power Supply	1
9080-GCB20	Square D 2 Amp Circuit Breaker	1
	3 Meter Multimode 62.5/125um Fiber Patch Cable SC/LC	3
	6 Ft. CAT 7a Red Ethernet Patch Cable	1

NOTE: I&C CONTRACTOR SHALL PROVIDE THE EQUIPMENT LISTED ON THIS BOM, FOR CSD TO USE IN THE PLANTWIDE PLC UPGRADE. PROVIDE LIST DURING SHOP DRAWINGS REVIEW FOR APPROVAL.



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DRAWN BY	AOD
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SOUTH OSLO ROAD WTP SCADA SYSTEM IMPROVEMENTS

PREPARED FOR
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BOM PLC UPGRADE EQUIPMENT LIST

SHEET NUMBER
E-10

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HSP PLC CP I/O LIST		
MOVE TO NEW HSP PANEL	DESCRIPTION	TYPE
CP-4 - SLOT 1 - PNT 13	FIT-4600 WATER FLOW 0-6000 GPM	AI
CP-4 - SLOT 1 - PNT 14	AIT-4700 WATER pH 4-10 pH	AI
CP-4 - SLOT 1 - PNT 15	AIT-4710 POTABLE WATER CONDUCTIVITY 0-1000 uS	AI
CP-4 - SLOT 1 - PNT 16	PIT-4720 POTABLE WATER PRESSURE 20-80 PSIG	AI
CP-4 - SLOT 2 - PNT 1	AIT-4730 POTABLE WATER CL2 RESIDUAL 0-4 PPM	AI
	HSP 4 PSL4, PRESSURE SWITCH LOW	DI
	HSP 5 PSL5, PRESSURE SWITCH LOW	DI

HSP PLC CP I/O LIST			
POINTS TO BE RENAMED EXISTING	NEW POINTS TO BE ADDED	DESCRIPTION	TYPE
	PSH-1700	HSP 1-3 FINISHED WATER HIGH PRESSURE SWITCH	DI
	PSL-1700	HSP 1-3 FINISHED WATER LOW PRESSURE SWITCH	DI
RENAMED TO PIT-1700	PIT-1700	HSP 1-3 FINISHED WATER PRESSURE	AI
	PSH-1701	HSP 4-5 FINISHED WATER HIGH PRESSURE SWITCH	DI
	PSL-1701	HSP 4-5 FINISHED WATER LOW PRESSURE SWITCH	IO
	PIT-1701	HSP 4-5 FINISHED WATER PRESSURE	AI
RENAMED TO AIT-1702	AIT-1702	HSP 1-3 FINISHED WATER CL2 RESIDUAL	AI
RENAMED TO AIT-1703	AIT-1703	HSP 1-3 FINISHED WATER PH	AI
RENAMED TO AIT-1704	CIT-1704	HSP 1-3 FINISHED WATER CONDUCTIVITY	AI
	AIT-1705	HSP 1-3 FINISHED WATER FLUORIDE	AI
	AIT-1706	HSP 4-5 FINISHED WATER CL2 RESIDUAL	AI
RENAMED TO FIT-1707	FIT-1707	HSP 1-3 FINISHED WATER FLOW RATE	AI
	FIT-1708	HSP 4-5 FINISHED WATER FLOW RATE	AI
	PSL-1641	HSP 4 LOW SUCTION PRESSURE SWITCH	DI
	PSL-1651	HSP 5 LOW SUCTION PRESSURE SWITCH	DI

HSP PLC CP I/O LIST			
POINTS TO BE RENAMED EXISTING	POINTS TO BE REMOVED	DESCRIPTION	TYPE
CP-4 - SLOT 13 - PNT 0:075/1		HIGH SERVICE PUMP NO.1 MCP OFF LIGHT LT-18	DO
CP-4 - SLOT 13 - PNT 0:075/2		HIGH SERVICE PUMP NO.2 MCP OFF LIGHT LT-19	DO
CP-4 - SLOT 13 - PNT 0:075/3		HIGH SERVICE PUMP NO.3 MCP OFF LIGHT LT-20	DO
CP-4 - SLOT 15 - PNT 0:077/7		HS-4101F HIGH SERVICE PUMP NO.1 MCP FAIL LT-59	DO
CP-4 - SLOT 15 - PNT 0:077/10		HS-4102F HIGH SERVICE PUMP NO.2 MCP FAIL LT-60	DO
CP-4 - SLOT 15 - PNT 0:077/11		HS-4103F HIGH SERVICE PUMP NO.3 MCP FAIL LT-61	DO
MAIN PLC - SLOT 7 - PNT 0:017/2		CR-4501 HSP NO.1 RUN CR-3	DO
MAIN PLC - SLOT 7 - PNT 0:017/3		CR-4502 HSP NO.2 RUN CR-4	DO
MAIN PLC - SLOT 7 - PNT 0:017/4		CR-4503 HSP NO.3 RUN CR-5	DO
MAIN PLC - SLOT 6 - PNT 1:016/6		RX-4501 HSP NO.1 RUNNING	DI
MAIN PLC - SLOT 6 - PNT 1:016/7		RX-4502 HSP NO.2 RUNNING	DI
MAIN PLC - SLOT 6 - PNT 1:016/10		RX-4503 HSP NO.3 RUNNING	DI

HSP PLC CP I/O MODULES	
HSP I/O MODULES	QUANTITY
1756-IF16 ANALOG INPUT MODULE	2
1756-OF4 ANALOG OUTPUT MODULE	1
1756-IA16 DIGITAL INPUT MODULE	1
1756-OA16 DIGITAL OUTPUT MODULE	1

No.	REVISIONS	DATE	BY



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KHA PROJECT 044572100
DATE MARCH 2021
SCALE AS SHOWN
DESIGNED BY JLR
DRAWN BY AOD
CHECKED BY MAG

**SOUTH OSLO ROAD WTP SCADA
SYSTEM IMPROVEMENTS**
 PREPARED FOR
INDIAN RIVER COUNTY UTILITIES
 INDIAN RIVER COUNTY FLORIDA

LICENSED PROFESSIONAL
 MICHAEL A. GUIDA, P.E.
 FLORIDA LICENSE NUMBER
 60755

HSP PLC CP I-O LIST

SHEET NUMBER
E-11

