

BID DOCUMENTS
FOR THE CONSTRUCTION OF THE
**NAVY MOLE PIER ELECTRICAL
DISTRIBUTION
SYSTEM UPGRADES**



PREPARED FOR
CITY OF KEY WEST
MAYOR
CRAIG CATES

TONY YANIZ
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BILLY WARDLOW

Volume 1 of 2
Specifications

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CH2MHILL

CH2M Hill Project No. 436331
Key West Project No. ITB# 12-023

MAY 2012

CITY OF KEY WEST

Key West, Florida

BID DOCUMENTS

for construction of the

NAVY MOLE PIER ELECTRICAL DISTRIBUTION SYSTEM UPGRADES

CONSISTING OF:
BIDDING REQUIREMENTS
CONTRACT FORMS
CONDITIONS OF THE CONTRACT
TECHNICAL SPECIFICATIONS
DRAWINGS

CH2M HILL

Key West, FL

May 2012

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PROCUREMENT REQUIREMENTS

INVITATION TO BID

Sealed bids for the City of Key West Navy Mole Pier Electrical Distribution System Upgrades, addressed to the City of Key West, will be received at the Office of the City Clerk, City of Key West, 3140 Flagler Ave., Key West Florida, 33040 until **3 p.m, local time, May 16, 2012** and then will be publicly opened and read. Any bids received after the time and date specified will not be considered.

Please submit three (3) originals and three (3) CD-ROMS or USB Drives with one single PDF file of the entire bid package on each CD-ROM. Bid package is to be enclosed in a sealed envelope, clearly marked on the outside “**Navy Mole Pier Electrical Distribution System Upgrades**” addressed and delivered to the City Clerk at the address noted above.

This project consists of upgrades to an existing electrical system located on the Navy Mole Pier. The project includes removal of existing 480-volt electrical distribution subfeeders, installation of approximately 22,000 linear feet of 750 MCM cable, 4,000 LF of #2ground, 5,000 linear feet of Multiconductor 12/#12 600V control cable, cable racking in 10 existing electrical manholes, replacement of 168 CTs, replacement of 9 relays, Calibrate and Reset 56 existing relay, electrical testing, and miscellaneous electrical. The project is located on Navy property. Complete electrical coordination study

Drawings and Specifications may be obtained from Demand Star by Onvia. Please contact Demand Star at www.demandstar.com or call 1-800-711-1712.

A nonmandatory Site Visit will be held at **10 a.m. on May 7, 2012** at the US Navy Mole, Truman Annex, Key West, Florida.

Each Bid must be submitted on the prescribed form and accompanied by bid security as prescribed in the Instructions to Bidders, payable to the City of Key West, Florida, in an amount not less than (5) five percent of the amount of the bid. The contractor shall be a licensed contractor by the State of Florida and submit proof of such with the bid.

The successful Bidder will be required to furnish the necessary additional bond(s) for the faithful performance of the Contract, as prescribed in the Bidding Documents. The Bidder will also be required to furnish documentation showing that he is in compliance with the licensing requirements of the State and the provisions of Chapter 66 section 87 of the Code of Ordinances of the City of Key West. Compliance with these provisions is required before the Contractor can enter into the agreement contained in the Contract Documents. Specifically, Bidder shall demonstrate that he holds, as a minimum, the following licenses and certificates required by State Statute and local codes.

EACH BID MUST BE SUBMITTED ON THE PRESCRIBED FORM AND ACCOMPANIED BY BID SECURITY AS PRESCRIBED IN THE INSTRUCTIONS TO BIDDERS, PAYABLE TO THE CITY OF KEY WEST, FLORIDA, IN AN AMOUNT NOT LESS THAN FIVE (5) PERCENT OF THE AMOUNT BID.

THE BIDDER MUST BE A LICENSED CONTRACTOR BY THE STATE OF FLORIDA AND SUBMIT PROOF OF SUCH WITH THE BID.

The Bidder shall furnish documentation showing that he is in compliance with the Requirement for City Contractors to Provide Equal Benefits for Domestic Partners per City Ordinance Section 2.799 within 10 days following the Notice of Award:

All bid bonds, contract bonds, insurance contracts, and certificates of insurance shall be either executed by or countersigned by a licensed resident agent of the Surety or Insurance Company having his place of business in the State of Florida, and in all ways complying with the insurance laws of the State of Florida. Further, the said Surety or Insurance Company shall be duly licensed and qualified to do business in the State of Florida.

Before a Contract will be awarded for the work contemplated herein, the CITY will conduct such investigation as is necessary to determine the performance record and ability of the apparent low Bidder to perform the size and type of work specified under this Contract. Upon request, the Bidder shall submit such information as deemed necessary by the CITY to evaluate the Bidder's qualifications.

For information concerning the proposed work, or for appointment to visit the site of the proposed work, contact the designated Engineer by the General Services and Utilities Department of the City of Key West.

As stated above at the time of the bid submittal the Bidder must provide satisfactory documentation of State Licenses. The Bidder shall furnish documentation showing that he is in compliance with the licensing requirements of County, and City licenses as would be required within ten days of the award. The successful Bidder must also be able to satisfy the City Attorney as to such insurance coverage and legal requirements as may be demanded by the Bid in question.

The City may reject bids for any and/or all of the following reasons: (1) for budgetary reasons, (2) if the bidder misstates or conceals a material fact in its bid, (3) if the bid does not strictly conform to the law or is non-responsive to the bid requirements, (4) if the bid is conditional, or (5) if a change of circumstances occurs making the purpose of the bid unnecessary to the City. The City may also waive any minor formalities or irregularities in any bid, (6) if such rejection is in the best interest of the City. The City may also waive any minor formalities or irregularities in any bid.

Dated this ___ day of _____ 20__.

CITY OF KEY WEST

By _____
Jim Scholl, City Manager

* * * * *

STATEMENT OF NO BID #

NAVY MOLE PIER ELECTRICAL DISTRIBUTION SYSTEM UPGRADES

NOTE:IF YOU DO NOT INTEND TO BID, PLEASE RETURN THIS FORM ONLY

CITY OF KEY WEST
FINANCE DEPARTMENT
P.O. BOX 1409
KEY WEST, FLORIDA 33040
ATTN: S. SNIDER

We, the undersigned have declined to bid on the above-noted Invitation to Bid for the following reason(s)

- Insufficient time to respond to Invitation to Bid
- Do not offer this product
- Our schedule will not permit us to perform
- Unable to meet specifications
- Specifications unclear (please explain below)
- Remove us from your "Bidder Mailing List"
- Other (Please specify below)

We understand that if a "No Bid" statement is not returned, our name may be removed from the Bidder's list of the City of Key West.

COMPANY
NAME: _____

AUTHORIZED
AGENT _____

COMPANY
ADDRESS _____

DATE: _____ TELEPHONE: _____

INSTRUCTIONS TO BIDDERS

1. CONTRACT DOCUMENTS

A. FORMAT

The Contract Documents are divided into parts, divisions, and sections for convenient organization and reference. Generally, there has been no attempt to divide the Specification sections into work performed by the various building trades, work by separate subcontractors, or work required for separate facilities in the Project.

B. DOCUMENT INTERPRETATION

The separate sections contained within these Contract Documents are intended to be mutually cooperative and to provide all details reasonably required for the execution of the proposed work.

Should there be any doubt as to the meaning or intent of said Contract Documents, the Bidder should request of the Engineer, in writing (at least 5 working days prior to bid opening) an interpretation thereof. Any interpretation or change in said Contract Documents will be made only in writing, in the form of Addenda to the Documents which will be furnished to all registered holders of Contract Documents. Bidders shall submit with their Bid, or indicate receipt of, all Addenda. The Owner will not be responsible for any other explanation or interpretations of said Documents.

C. DRAWINGS

Details of construction are bound separately.

2. GENERAL DESCRIPTION OF THE PROJECT

A general description of the work to be done is contained in the Invitation to Bid. The scope is specified in applicable parts of these Contract Documents.

3. QUALIFICATION OF CONTRACTORS

The prospective Bidders must meet the statutorily prescribed requirements before award of Contract by the Owner.

Bidders must hold or obtain all licenses or certificates required by federal, state, or local statutes, or regulations in order to bid and perform the work specified herein.

4. BIDDER'S UNDERSTANDING

Each Bidder must inform himself of the conditions relating to the execution of the work, and it is assumed that he will inspect the site and make himself thoroughly familiar with all the Contract Documents. Failure to do so will not relieve the successful Bidder of his obligation to enter into a Contract and complete the contemplated work in strict accordance with the Contract Documents. It shall be the Bidder's obligation to verify for himself and to his complete satisfaction all information concerning site and subsurface conditions.

The Owner will make available to prospective Bidders upon request and at the office of the Engineer, prior to bid opening, any information that he may have as to subsurface conditions and surface topography at the worksite.

Information derived from inspection of topographic maps, or from Drawings showing location of utilities and structures will not in any way relieve the Contractor from any risk, or from properly examining the Site and making such additional investigations as he may elect, or from properly fulfilling all the terms of the Contract Documents.

Each Bidder shall inform himself of, and the Bidder awarded a Contract shall comply with, federal, state, and local laws, statutes, and ordinances relative to the execution of the work. This requirement includes, but is not limited to, applicable regulations concerning minimum wage rates, nondiscrimination in the employment of labor, protection of public and employee safety and health, environmental protection, the protection of natural resources, fire protection, burning and nonburning requirements, permits, fees, and similar subjects.

5. TYPE OF PROPOSAL

A. LUMP SUM

Bidders shall submit a Bid on a lump sum basis as set forth in the Bid Form. Some items will be listed as unit price basis for specific items of Work listed in the Bid Form.

The Lump Sum Bid Price shall include such amounts as the Bidder deems proper for overhead and profit on account of specific unit price items and cash allowances, if any, named in the Contract Documents as provided in paragraph 11.02 of the General Conditions.

The total of all Bid unit prices will be the sum of the products of the estimated quantity of each item and the corresponding unit price. The final quantities and Contract Price will be determined in accordance with Paragraph 11.03 of the General Conditions.

Discrepancies between 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.

6. PREPARATION OF PROPOSALS

A. GENERAL

All blank spaces in the Bid form must be filled in for all schedules and associated parts, as required, preferably in BLACK ink. All price information shall be clearly shown in figures where required. No changes shall be made in the phraseology of the forms. In case of discrepancy between unit prices and extended totals, unit prices shall prevail.

Any Bid shall be deemed informal which contains omissions, erasures, alterations, or additions of any kind, or prices uncalled for, or in which any of the prices are obviously unbalanced, or which in any manner shall fail to conform to the conditions of the published Invitation to Bid.

Only one Bid from any individual, firm, partnership, or corporation, under the same or different names, will be considered. Should it appear to the Owner that any Bidder is interested in more than one Bid for work contemplated, all Bids in which such Bidder is interested will be rejected.

B. DESCRIPTION OF SUPPLIERS

The manufacturer name, trade name, brand name, or catalog number used in the Specifications is for the purpose of describing and establishing equipment that has been presented for this Project. Other equipment will not be accepted.

C. SIGNATURE

The Bidder shall sign his Bid in the blank space provided therefore. If Bidder is a corporation, the legal name of the corporation shall be set forth above, together with the signature of the officer or officers authorized to sign Contracts on behalf of the corporation. If Bidder is a partnership, the true name of the firm shall be set forth above, together with the signature of the partner or partners authorized to sign Contracts in behalf of the partnership. If signature is by an agent, other than an officer of a corporation or a member of a partnership, a notarized power-of-attorney must be on file with the Owner prior to opening of Bids or submitted with the Bid, otherwise the Bid will be regarded as not properly authorized.

D. SPECIAL BIDDING REQUIREMENTS

The Bidder shall submit with his Bid his experience record showing his experience and expertise in marine construction similar to this project. Such experience record shall provide at least five current or recent projects of similar work, preferably within Florida or the southeastern United States. For each project the following information shall be provided:

1. Description and location of work.
2. Contract amount.
3. Dates work was performed.
4. Owner.
5. Name of Owner's contact person and phone number.
6. Engineer.
7. Name of Engineer's contact person and phone number.

E. ATTACHMENTS

Bidder shall complete and submit the following forms with this bid:

1. Anti Kickback Affidavit.
2. Public Entity Crimes.
3. Key West Indemnification Form.
4. Disclosure of Lobbying Activities.
5. Non-Collusion Declaration and Compliance with 49 CFR §29.
6. Suspension and Debarment Certification.

F. PUBLIC ENTITY CRIMES

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 on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids 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 Section 287.017, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list.”

G. CITY OF KEY WEST LICENSE REQUIRED

(NOT REQUIRED)

H. ANTI-KICKBACK AFFIDAVIT

The Bidder shall submit a signed and notarized Anti-Kickback Affidavit with Bid on the form provided herein.

I. SECURITY/SITE ACCESS

The Bidders attention is directed to the requirement to obtain access (RAPID GATE PASS) to the site during construction. Since the site is located on a Navy Facility, access is controlled. The successful Bidder is responsible in obtaining access for personnel, subcontractors, and deliveries. All costs associated with this requirement are to be included in the Lump Sum Bid. More information is found in the Supplementary Conditions of this document.

7. STATE AND LOCAL SALES AND USE TAXES

Unless the Supplementary Conditions contains a statement that the Owner is exempt from state sales tax on materials incorporated into the work due to the qualification of the work under this Contract, all state and local sales and use taxes, as required by the laws and statutes of the state and its political subdivisions, shall be paid by the Contractor. Prices quoted in the Bid shall include all nonexempt sales and use taxes, unless provision is made in the Bid form to separately itemize the tax.

8. LOCAL PREFERENCE

Under a competitive bid solicitation, when a responsive, responsible non-local business submits the lowest price bid, and the bid submitted by one or more responsive, responsible local businesses within 5 percent of the price submitted by the non-local business, then the local business with the apparent lowest bid offer may have the opportunity to submit an offer to match the price(s) offered by the lowest, qualified and responsive non-local bidder within three working days of the notice of the intent to award. If the lowest local bidder submits a bid that fully matches the lowest bid from the lowest bid from the lowest non-local bidder tendered previously, then the award shall be made to such local bidder. If the lowest local bidder declines or is unable to match the lowest non-local bid price(s), then the award shall be made to the non-local business.

9. SUBMISSION OF PROPOSALS

All Bids must be submitted not later than the time prescribed, at the place, and in the manner set forth in the Invitation to Bid. Bids must be made on the Bid forms provided herewith. The Bidder shall submit three (3) originals and **THREE (3) ELECTRONIC COPIES ON DISC or USB DRIVES WITH A SINGLE PDF FILE OF THE FULL PROPOSAL** and all required bonds, attachments, and forms.

Each Bid must be submitted in two sealed envelope one within the other, so marked as to indicate the Bidder's name and its contents without being opened, and addressed in conformance with the instructions in the Invitation to Bid.

10. MODIFICATION OR WITHDRAWAL OF PROPOSALS

Prior to the time and date designated for receipt of Bids, any Bid submitted may be withdrawn by notice to the party receiving Bids at the place designated for receipt of Bids. Such notice shall be in writing over the signature of the Bidder or by telegram. If by telegram, written confirmation over the signature of the Bidder shall be mailed and postmarked on or before the date and time set for receipt of Bids. No Bid may be withdrawn after the time scheduled for opening of Bids, unless the time specified in paragraph Award of Contract of these Instructions to Bidders shall have elapsed.

11. BID SECURITY

Bids must be accompanied by cash, a certified check, or cashier's check drawn on a bank in good standing, or a bid bond issued by a Surety authorized to issue such bonds in the state where the work is located, in the amount of 5 percent of the total amount of the Bid submitted. This bid security shall be given as a guarantee that the Bidder will not withdraw his Bid for a period of 90 days after bid opening, and that if awarded the Contract, the successful Bidder will execute the attached Contract and furnish properly executed Performance and Payment Bonds, each in the full amount of the Contract price within the time specified.

The Attorney-in-Fact who executes this bond in behalf of the Surety must attach a notarized copy of his power-of-attorney as evidence of his authority to bind the Surety on the date of execution of the bond. Where State Statute requires, certification by a resident agent shall also be provided.

If the Bidder elects to furnish a Bid Bond, he shall use the Bid Bond form bound herewith, or one conforming substantially thereto in form and content.

12. RETURN OF BID SECURITY

Within 15 days after the award of the Contract, the Owner will return the bid securities to all Bidders who's Bids are not to be further considered in awarding the Contract. Retained bid securities will be held until the Contract has been finally executed, after which all bid securities, other than Bidders' bonds and any guarantees which have been forfeited, will be returned to the respective Bidders whose Bids they accompanied.

13. AWARD OF CONTRACT

The award will be made under one Contract by the Owner on the basis of the Bid from the lowest, responsive, responsible Bidder. The Owner may award entire Bid or selected line items based on the City's best interest and available funds at time of Award.

Within 45 calendar days after the opening of Bids, the Owner will accept one of the Bids or will act in accordance with the following paragraphs. The acceptance of the Bid will be by written notice of award, mailed to the office designated in the Bid, or delivered to the Bidder's representative. In the event of failure of the lowest responsive, responsible Bidder to sign the Contract and provide an acceptable Performance Bond, Payment Bond, insurance certificate(s) and evidence of holding required licenses and certificates, the Owner may award the Contract to the next lowest responsive, responsible Bidder. Such award, if made, will be made within 45 days after the opening of Bids.

The Owner reserves the right to accept or reject any or all Bids, and to waive any informalities and irregularities in said Bids.

14. EXECUTION OF CONTRACT

The successful Bidder shall, within 10 working days after receiving Notice of Award, sign and deliver to the Owner a Contract in the form hereto attached, together with the insurance certificate examples of the bonds as required in the Contract Documents and evidence of holding required licenses and certificates. Within 10 working days after receiving the signed Contract from the successful Bidder, the Owner's authorized agent will sign the Contract. Signature by both parties constitutes execution of the Contract.

15. CONTRACT BONDS

A. PERFORMANCE AND PAYMENT BONDS

The successful Bidder shall file with the Owner, at the time of delivery of the signed Contract, a Performance Bond and Payment Bond on the form bound herewith, each in the full amount of the Contract price in accordance with the requirements of Florida Statutes Section 255.05 or 713.23, as applicable, as

security for the faithful performance of the Contract and the payment of all persons supplying labor and materials for the construction of the work, and to cover all guarantees against defective workmanship or materials, or both, during the warranty period following the date of final acceptance of the work by the Owner. The Surety furnishing this bond shall have a sound financial standing and a record of service satisfactory to the Owner, shall be authorized to do business in the State of Florida, and shall be listed on the current U.S. Department of Treasury Circular Number 570, or amendments thereto in the Federal Register, of acceptable Sureties for federal projects.

B. POWER-OF-ATTORNEY

The Attorney-in-Fact (Resident Agent in state which work is being performed) who executes this Performance and Payment Bond in behalf of the Surety must attach a notarized copy of his power-of-attorney as evidence of his authority to bind the Surety on the date of execution of the bond.

All Contracts, Performance and Payment Bonds, and respective powers-of-attorney will have the same date.

16. FAILURE TO EXECUTE CONTRACT AND FURNISH BOND

The Bidder who has a Contract awarded to him and who fails to promptly and properly execute the Contract or furnish the required Bonds shall forfeit the bid security that accompanied his bid, and the bid security shall be retained as liquidated damages by the Owner, and it is agreed that this said sum is a fair estimate of the amount of damages the Owner will sustain in case the Bidder fails to enter into a Contract or furnish the required Bonds. Bid security deposited in the form of cash, a certified check, or cashier's check shall be subject to the same requirement as a Bid Bond.

17. PERFORMANCE OF WORK BY CONTRACTOR

The Contractor shall perform on the site and with his own organization, labor equivalent to at least 40 percent of the total amount of the work to be performed under this Contract and materials. If, during the progress of the work hereunder, the Contractor requests a reduction of such percentage, and the Engineer determines that it would be to the client's advantage, the percentage of the labor required to be performed by the Contractor's own organization may be reduced; PROVIDED prior written approval of such reduction is obtained by the contractor from the Engineer.

Each Bidder must furnish with his Bid a list of the items that he will perform with his own forces and the estimated total cost of these items.

18. TIME OF COMPLETION

The time of completion of the work to be performed under this Contract is the essence of the Contract. Delays and extensions of time may be allowed in accordance with the provisions stated in the General Conditions. The time allowed for the completion of the work authorized is stated in the Bid.

19. NONMANDATORY PRE-BID CONFERENCE

A nonmandatory Pre-Bid Conference will be held by the City of Key West on **May 7, 2012**. The meeting will take place US Navy Mole, Truman Annex, Key West, Florida beginning at **10:00 a.m.** The City of Key West requests attendance by all prospective bidders. The purpose of the meeting will be to discuss particular requirements and answer questions of the prospective bidders relative to completing this project.

END OF SECTION

NOTE TO BIDDER: Use preferably BLACK ink for completing this Bid form.

BID FORM

To: The City of Key West

Address: 3140 Flagler Ave, Key West, Florida 33040

Project Title: Navy Mole Pier Electrical Distribution System Upgrades

City of Key West Project No.: ITB # 12-023

Bidder's person to contact for additional information on this Bid:

Name: _____

Telephone: _____

BIDDER'S DECLARATION AND UNDERSTANDING

The undersigned, hereinafter called the Bidder, declares that the only persons or parties interested in this Bid are those named herein, that this Bid is, in all respects, fair and without fraud, that it is made without collusion with any official of the Owner, and that the Bid is made without any connection or collusion with any person submitting another Bid on this Contract.

The Bidder further declares that he has carefully examined the Contract Documents for the construction of the project, that he has personally inspected the site, that he has satisfied himself as to the quantities involved, including materials and equipment, and conditions of work involved, including the fact that the description of the quantities of work and materials, as included herein, is brief and is intended only to indicate the general nature of the Work and to identify the said quantities with the detailed requirements of the Contract Documents, and that this Bid is made according to the provisions and under the terms of the Contract Documents, which Documents are hereby made a part of this Bid.

The Bidder further agrees, as evidenced by signing the Bid, that if awarded a Contract, the Florida Trench Safety Act and applicable trench safety standards will be complied with.

CONTRACT EXECUTION AND BONDS

The Bidder agrees that if this Bid is accepted, he will, within 10 days, not including Sundays and legal holidays, after Notice of Award, sign the Contract in the form annexed hereto, and will at that time, deliver to the Owner examples of the Performance Bond and Payment Bond required herein, and evidence of holding required licenses and certificates, and will, to the extent of his Bid, furnish all machinery, tools, apparatus, and other means of construction and do the Work and furnish all the materials necessary to complete all work as specified or indicated in the Contract Documents.

CERTIFICATES OF INSURANCE

Bidder agrees to furnish the Owner, before commencing the Work under this Contract, the certificates of insurance as specified in these Documents.

START OF CONSTRUCTION AND CONTRACT COMPLETION TIMES

The Bidder agrees to begin work within 10 calendar days after the date of the Notice to Proceed and to achieve Substantial Completion within 90 calendar days from the date when the Contract Times commence to run as provided in paragraph 2.03.A of the General Conditions, and Work will be completed and ready for final payment and acceptance in accordance with paragraph 14.07 of the General Conditions within 104 calendar days from the date when the Contract Times commence to run.

LIQUIDATED DAMAGES

In the event the Bidder is awarded the Contract, Owner and Bidder 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 Start of Construction and Contract Completion Times above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. Owner and Bidder also recognize the delays, expense, and difficulties involved in proving in a legal or other dispute resolution preceding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Bidder agree that as liquidated damages for delay (but not as a penalty) Bidder shall pay Owner \$1000 per day for each day that expires after the time specified for substantial completion.

After Substantial Completion, if Bidder neglects, refuses, or fails to complete the remaining Work within the Contract Times or any Owner-granted extension thereof, Bidder shall pay Owner \$500 for each day that expires after the time specified in paragraph Start of Construction and Contract Completion Times, above for completion and readiness for final payment. Liquidated damages shall run concurrent.

Owner will recover such liquidated damages by deducting the amount owed from the final payment or any retainage held by Owner.

ADDENDA

The Bidder hereby acknowledges that he has received Addenda Nos. _____, _____, _____, _____, _____, (Bidder shall insert No. of each Addendum received) and agrees that all addenda issued are hereby made part of the Contract Documents, and the Bidder further agrees that his Bid(s) includes all impacts resulting from said addenda.

SALES AND USE TAXES

The Bidder agrees that all federal, state, and local sales and use taxes are included in the stated Bid Prices for the Work. Cash allowances DO NOT include any sales and use tax. Equipment allowance includes taxes as shown in Equipment Suppliers' Bid.

PUBLIC ENTITY CRIMES

“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 on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids 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 Section 287.017, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list.”

COMBINED UNIT PRICE AND LUMP SUM WORK

The Bidder further proposes to accept as full payment for the Work proposed herein the amounts computed under the provisions of the Contract Documents. For unit price bid items, the estimate of quantities of work to be done is tabulated in the Proposal and, although stated with as much accuracy as possible, is approximate only and is assumed solely for the basis of calculation upon which the award of Contract shall be made. For lump sum bid items, it is expressly understood that the amounts are independent of the exact quantities involved. The Bidder agrees that the amounts for both unit price and lump sum work represent a true measure of labor and materials required to perform the Work, including all allowances for inspection, testing, overhead and profit for each type of work called for in these Contract Documents. The amounts shall be shown in both words and figures. In case of discrepancy, the amount shown in words shall govern.

ADDITIONAL BALSER RELAYS

The unit price includes all material, labor, and equipment necessary to provide, test, calibrate, and install each relay with any appurtenances.

ADDITIONAL CTs

The unit price includes all material, labor, and equipment necessary to provide, test, calibrate, and install each CT with any appurtenances.

ADDITIONAL 1600-AMP BREAKER

Bidder agrees to furnish to Owner 2 Each Eaton/Cutler hammer – Style DSLII 516, 1600A frame, electrically operated, drawout breaker with all appurtenances for installation and the required warranty.

ADDITIONAL 800-AMP BREAKER

Bidder agrees to furnish to Owner 2 each Eaton/Cutler Hammer – Style DSLII 308, 800A frame, electronically operated, drawout breaker with all appurtenances for installation and the required warranty.

CONTINGENCY ALLOWANCE

Bidder further agrees that the amount shown is an estimated amount to be included in the Total Base Bid for unforeseen conditions and conflicts. Bidder further acknowledges that payment will be based on actual costs as determined in conformance with the Contract Documents and as authorized by Change Order. The Owner will negotiate with the Contractor how each Contingency Allowance will be spent prior to performing the work as authorized by Work Change Directive (WCD).

Bidder will complete the Work in accordance with the Contract Documents for a fixed fee price.

LUMP SUM BASE BID

A. Electrical Distribution System Upgrades including the replacement of defective conductors, calibration and adjustment of protective relays, installation of nine new relays, removal and replacement of defective C/Ts, electrical testing, and commissioning replacement of remote control station switches

\$ _____

B. Additional Balser Relays 15 EA \$ _____/EA \$ _____

Additional CTs 15 EA \$ _____

C. Additional 1600-amp Breaker 2 EA \$ _____/EA \$ _____

D. Additional 800-amp Breaker 2 EA \$ _____/EA \$ _____

E. Contingency Allowance \$45,000.00

TOTAL LUMP SUM BID \$ _____
(numerals)

_____ Dollars

(Amount written in words has precedence)

and _____ Cents

(Amount written in words has precedence)

Bidder

The name of the Bidder submitting this Bid is _____

_____ doing business at

Street City State Zip

which is the address to which all communications concerned with this Bid and with the Contract shall be sent.

The names of the principal officers of the corporation submitting this Bid, or of the partnership, or of all persons interested in this Bid as principals are as follows:

If Sole Proprietor or Partnership

IN WITNESS hereto the undersigned has set his (its) hand this ___ day of _____ 20__.

Signature of Bidder

Title

If Corporation

IN WITNESS WHEREOF the undersigned corporation has caused this instrument to be executed and its seal affixed by its duly authorized officers this ___ day of 20__.

(SEAL)

Name of Corporation

By: _____

Title: _____

Attest: _____
Secretary

END OF SECTION

FLORIDA BID BOND

BOND NO. _____

AMOUNT: \$ _____

KNOW ALL MEN BY THESE PRESENTS, that _____

hereinafter called the Contractor (Principal), and _____

a corporation duly organized and existing under and by virtue of the laws of the State of Florida, hereinafter called the Surety, and authorized to transact business within the State of Florida, as Surety, are held and firmly bound unto The City of Key West as Owner

(Obligee), in the sum of: _____

_____ DOLLARS (\$ _____), for the payment for which we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS BOND IS SUCH THAT:

WHEREAS, the Principal is herewith submitting his or its Bid Proposal for NAVY MOLE PIER ELECTRICAL DISTRIBUTION SYSTEM UPGRADES, Key West, Florida, said Bid Proposal, by reference thereto, being hereby made a part hereof.

WHEREAS, the Principal contemplates submitting or has submitted a bid to the Obligee for the furnishing of all labor, materials (except those to be specifically furnished by the Owner), equipment, machinery, tools, apparatus, means of transportation for, and the performance of the work covered in the Proposal and the detailed Drawings and Specifications, entitled:

NAVY MOLE PIER ELECTRICAL DISTRIBUTION SYSTEM UPGRADES

WHEREAS, it was a condition precedent to the submission of said bid that a cashier's check, certified check, or bid bond in the amount of 5 percent of the base bid be submitted with said bid as a guarantee that the Bidder would, if awarded the Contract, enter into a written Contract with the Owner for the performance of said Contract, within 10 working days after written notice having been given of the award of the Contract.

NOW, THEREFORE, the conditions of this obligation are such that if the Principal within 10 consecutive calendar days after written notice of such acceptance, enters into a written Contract with the Obligees and furnishes the Performance and Payment Bonds, each in an amount equal to 100 percent of the awarded base bid, satisfactory to the Owner, then this obligation shall be void; otherwise the sum herein stated shall be due and payable to the Obligees and the Surety herein agrees to pay said sum immediately upon demand of the Obligees in good and lawful money of the United States of America, as liquidated damages for failure thereof of said Principal.

Signed and sealed this ____ day of _____, 20__.

Principal

By: _____

Surety

By: _____

Attorney-In-Fact

END OF SECTION

**SWORN STATEMENT UNDER SECTION 287.133(3)(A)
FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES**

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

1. This sworn statement is submitted with Bid or Proposal for Navy Mole Pier Electrical Distribution System Upgrades, City of Key West, Florida
2. This sworn statement is submitted by _____
(name of entity submitting sworn statement)

whose business address is _____

_____ and (if applicable) its Federal Employer
Identification Number (FEIN) is _____

(If the entity has no FEIN, include the Social Security Number of the individual signing this
sworn statement _____)
3. My name is _____
(please print name of individual signing)

and my relationship to the entity named above is _____
4. I understand that a "public entity crime" as defined in Paragraph 287.133(1)(g), Florida Statutes, 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 or contract for goods or services to be provided to any public or an agency or political subdivision of any other state or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, material misrepresentation.
5. I understand that "convicted" or "conviction" as defined in Paragraph 287.133(1)(b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication guilt, in any federal or state trial court of record relating to charges brought by indictment information after July 1, 1989, as a result of a jury verdict, nonjury trial, or entry of a plea of guilty or nolo contendere.
6. I understand that an "affiliate" as defined in Paragraph 287.133(1)(a), Florida Statutes, means
 1. A predecessor or successor of a person convicted of a public entity crime; or
 2. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm's length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of a public entity crime in Florida during the preceding 36 months shall be considered an affiliate.

- 7. I understand that a "person" as defined in Paragraph 287.133(1)(8), Florida Statutes, means any natural person or entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids or applies to bid on contracts for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with public entity. The term "person" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.
- 8. 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, nor any affiliate of the entity have been charged with and convicted of a public entity crime subsequent to July 1, 1989, AND (Please indicate which additional statement applies.)

____ There has been a proceeding concerning the conviction before a hearing of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer did not place the person or affiliate on the convicted vendor list. (Please attach a copy of the final order.)

____ The person or affiliate was placed on the convicted vendor list. There has been a subsequent proceeding before a hearing officer of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer determined that it was in the public interest to remove the person or affiliate from the convicted vendor list. (Please attach a copy of the final order.)

____ The person or affiliate has not been put on the convicted vendor list. (Please describe any action taken by or pending with the Department of General Services.)

(signature)

(date)

STATE OF _____

COUNTY OF _____

PERSONALLY APPEARED BEFORE ME, the undersigned authority,

_____ who, after first being sworn by me, affixed his/her
(name of individual signing)

signature in the space provided above on this ____ of _____, 20____.

My commission expires:

NOTARY PUBLIC

CITY OF KEY WEST INDEMNIFICATION FORM

Contractor agrees to protect, defend, indemnify, save and hold harmless The City of Key West, all its Departments, Agencies, Boards, Commissions, officers, agents, servants and employees, including volunteers, from and against any and all claims, debts, demands, expense and liability arising out of injury or death to any person or the damage, loss of destruction of any property which may occur or in any way grow out of any act or omission of the Contractor, its agents, servants, and employees, or any and all costs, expense and/or attorney fees incurred by the City as a result of any claim, demands, and/or causes of action except of those claims, demands, and/or causes of action arising out of the negligence of The City of Key West, all its Departments, Agencies, Boards, Commissions, officers, agents, servants and employees. The Contractor agrees to investigate, handle, respond to, provide defense for and defend any such claims, demand, or suit at its sole expense and agrees to bear all other costs and expenses related thereto, even if it (claims, etc.) is groundless, false or fraudulent. The City of Key West does not waive any of its sovereign immunity rights, including but not limited to, those expressed in Section 768.28, Florida Statutes.

These indemnifications shall survive the term of this agreement. In the event that any action or proceeding is brought against the City of Key West by reason of such claim or demand, Contractor shall, upon written notice from the City of Key West, resist and defend such action or proceeding by counsel satisfactory to the City of Key West.

The indemnification provided above shall obligate Contractor to defend at its own expense to and through appellate, supplemental or bankruptcy proceeding, or to provide for such defense, at the City of Key West's option, any and all claims of liability and all suits and actions of every name and description covered above which may be brought against the City of Key West whether performed by Contractor, or persons employed or utilized by Contractor.

The Contractor's obligation under this provision shall not be limited in any way by the agreed upon Contract Price as shown in this agreement, or the Contractor's limit of or lack of sufficient insurance protection.

CONTRACTOR: _____

SEAL:

Address

Signature

Print Name

Title

**LOCAL VENDOR CERTIFICATION PURSUANT TO CKW ORDINANCE 09-22
SECTION 2-798**

The undersigned, as a duly authorized representative of the vendor listed herein, certifies to the best of his/her knowledge and belief, that the vendor meets the definition of a "Local Business." For purposes of this section, "local business" shall mean a business which:

- a. Principle address as registered with the FL Department of State located within 30 miles of the boundaries of the city, listed with the chief licensing official as having a business tax receipt with its principle address within 30 miles of the boundaries of the city for at least one year immediately prior to the issuance of the solicitation.
- b. Maintains a workforce of at least 50 percent of its employees from the city or within 30 miles of its boundaries.
- c. Having paid all current license taxes and any other fees due the city at least 24 hours prior to the publication of the call for bids or request for proposals.
 - Not a local vendor pursuant to Ordinance 09-22 Section 2-798
 - Qualifies as a local vendor pursuant to Ordinance 09-22 Section 2-798

If you qualify, please complete the following in support of the self certification & submit copies of your County and City business licenses. Failure to provide the information requested will result in denial of certification as a local business.

Business Name _____ Phone: _____
 Current Local Address: _____ Fax: _____
 (P.O Box numbers may not be used to establish status)
 Length of time at this address _____

 Signature of Authorized Representative _____ Date _____

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 20__.
By _____, of _____
(Name of officer or agent, title of officer or agent) Name of corporation acknowledging)
or has produced _____ as identification
(type of identification)

 Signature of Notary

 Print, Type or Stamp Name of Notary

 Title or Rank

Return Completed form with
Supporting documents to:
City of Key West Purchasing

BIDDER'S CHECKLIST

(Note: The purpose of this checklist is to serve as a reminder of major items to be addressed in submitting a bid and is not intended to be all inclusive. It does not alleviate the Bidder from the responsibility of becoming familiar with all aspects of the Contract Documents and proper completion and submission of his bid.)

- | | | |
|-----|--|-----|
| 1. | All Contract Documents thoroughly read and understood. | [] |
| 2. | All blank spaces in Proposal filled in, using black ink. | [] |
| 3. | Total and unit prices added correctly. | [] |
| 4. | Addenda acknowledged. | [] |
| 5. | Subcontractors are named as indicated in the Proposal. | [] |
| 6. | Company profile and experience record | [] |
| 7. | Bid signed by authorized officer. | [] |
| 8. | Bid Bond completed and executed, including power-of-attorney dated the same date as Bid Bond. | [] |
| 9. | Bidder familiar with federal, state, and local laws, ordinances, rules and regulations affecting performance of the work. | [] |
| 10. | Bidder, if successful, able to obtain and/or demonstrate possession of required licenses and certificates within (10) ten calendar days after receiving a Notice of Award. | [] |
| 11. | Bid submitted intact with the volume containing the Bidding Requirements, Contract Forms, and Conditions of the Contract and three copies. | [] |
| 12. | Bid Documents submitted in sealed envelope and addressed and labeled in conformance with the instructions in the Invitation to Bid. | [] |
| 13. | Bidder must provide satisfactory documentation of State Licenses | [] |
| 14. | Anti-Kickback Affidavit. | [] |
| 15. | Public Entity Crimes. | [] |
| 16. | Local Vendor Certification. | [] |
| 17. | Non-Collusion Declaration and Compliance. | [] |
| 18. | Suspension and Debarment Certification | [] |

PART 2

CONTRACTING REQUIREMENTS

AGREEMENT

This Agreement, made and entered into this ___ day of _____, 20___,

by and between the City of Key West, hereinafter called the "Owner," and

hereinafter called the "Contractor";

WITNESSETH:

The Contractor, in consideration of the sum to be paid him by the Owner and of the covenants and agreements herein contained, hereby agrees at his own proper cost and expense to do all the work and furnish all the materials, tools, labor, and all appliances, machinery, and appurtenances for Construction of Navy Mole Pier electrical Distribution System Upgrades, to the extent of the Bid made by the Contractor, dated the ____ day of _____, 20___, all in full compliance with the Contract Documents referred to herein.

The BIDDING REQUIREMENTS, including the signed copy of the Bid, the CONTRACT FORMS, the CONDITIONS OF THE CONTRACT, the SPECIFICATIONS, and the DRAWINGS, which consist of Detailed Drawings for "Navy Mole Pier Electrical Distribution System Upgrades" dated _____, 20___, are hereby referred to and by reference made a part of this Contract as fully and completely as if the same were fully set forth herein and are mutually cooperative therewith.

In consideration of the performance of the work as set forth in these Contract Documents, the Owner agrees to pay to the Contractor the amount bid in the Bid as adjusted in accordance with the Contract Documents, or as otherwise herein provided, and to make such payments in the manner and at the times provided in the Contract Documents.

The Contractor agrees to complete the work within the time specified and to accept as full payment hereunder the amounts computed as determined by the Contract Documents and based on the said Bid.

The Contractor agrees to remedy all defects appearing in the work or developing in the materials furnished and the workmanship performed under this Contract during the warranty period after the date of final acceptance of the work by the Owner, and further agrees to indemnify and save the Owner harmless from any costs encountered in remedying such defects.

It is agreed that the Project, based upon the Bid, shall be substantially complete within 90 consecutive calendar days from the date the Notice to Proceed is issued, and will be totally completed and ready for final payment and acceptance within 104 consecutive calendar days from the date the Notice to Proceed is issued.

Liquidated Damages: The Contractor recognizes that time is of the essence and that the Owner will suffer financial loss if the Work is not completed within the times specified in paragraph above, plus any extensions thereof allowed in accordance with Article 12, of the General Conditions.

Owner and Contractor also recognize the delays, expense and difficulties involved in proving in a legal proceeding the actual loss suffered by the Owner, if the Work is not completed on time. Accordingly, instead of requiring any such proof, the Owner and Contractor agree that as liquidated damages for delay (but not as a penalty) Contractor shall pay the Owner (\$1,000.00) for each day that expires after the time specified for substantial completion. After 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 the Owner, Contractor shall pay the Owner (\$500.00) for each day that expires after the time specified for completion and readiness for final payment. Liquidated damages shall run concurrent.

IN WITNESS WHEREOF, we, the parties hereto, each herewith subscribe the same this ____ day of _____, A.D., 20__.

CITY OF KEY WEST

By: _____

Title: _____

Contractor:

By: _____

Title: _____

Approved as to Form

Attorney for Owner

END OF SECTION

PERFORMANCE BOND

BOND NO.
AMOUNT: \$

KNOW ALL MEN BY THESE PRESENTS, that in accordance with Florida Statutes Section 255.05, _____ with offices at _____ hereinafter called the CONTRACTOR (Principal), and

_____ with offices at _____ a corporation duly organized and existing under and by virtue of the laws of the State of Florida, hereinafter called the SURETY, and authorized to transact business within the State of Florida, as SURETY, are held and firmly bound unto **CITY OF KEY WEST**, represented by its _____, hereinafter called the CITY (Obligee), in the sum of:

_____ DOLLARS (\$ _____), lawful money of the United States of America, for the payment of which, well and truly be made to the CITY, the CONTRACTOR and the SURETY bind themselves and each of their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents as follows:

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT:

WHEREAS, the CONTRACTOR has executed and entered into a certain Contract hereto attached, with the CITY, dated _____, 20____, to furnish at his own cost, charges, and expense all the necessary materials, equipment, and/or labor in strict and express accordance with said Contract and the Contract Documents as defined therein, all of which is made a part of said Contract by certain terms and conditions in said Contract more particularly mentioned, which Contract, consisting of the various Contract Documents is made a part of this Bond as fully and completely as if said Contract Documents were set forth herein;

NOW THEREFORE, the conditions of this obligation are such that if the above bounden CONTRACTOR:

1. Shall in all respects comply with the terms and conditions of said Contract and his obligation there under, including the Contract Documents (which include the plans, drawings, specifications, and conditions as prepared by the CITY, invitation to bid, instructions to bidders, the CONTRACTOR’S bid as accepted by the above CITY, the bid and contract performance and payment bonds, and all addenda, if any, issued prior to the opening of bids), 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 CITY all losses, costs, expenses, damages, attorney's fees, including appellate proceedings, injury or loss of whatever kind and however arising including, without limitation, delay damages to which said CITY may be subject by reason of any wrongdoing, misconduct, want of care or skill, negligence, failure of performance, breach, failure to petition within the prescribed time, or default, including patent infringements, on the part of said CONTRACTOR, his agents or employees, in the execution or performance of said Contract; and

4. Performs the guarantee of all work and materials furnished under the contract for the time specified in the contract, then this obligation shall be void; otherwise, to remain in full force and effect for the term of said Contract.

AND, the said Surety for value received, hereby stipulates and agrees that no change involving any extension of time, or addition to the terms of the Contract Documents, or to the work to be performed, or materials to be furnished there under shall affect said obligation of said Surety on this Bond, and the said Surety does hereby waive notice of any such changes, extension of time, alterations, or additions of the terms of the Contract Documents, or to the work.

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.

IN WITNESS WHEREOF, the above parties bonded together have executed this instrument this _____ day of _____, 20____, the name and corporate seal of each corporate party being hereto affixed and those presents duly signed by its undersigned representative, pursuant to authority of its governing body.

CONTRACTOR

By: _____

(SEAL)

ATTEST

SURETY

By: _____

(SEAL)

ATTEST

PAYMENT BOND

BOND NO.
AMOUNT: \$

KNOW ALL MEN BY THESE PRESENTS, that in accordance with Florida Statutes Section 255.05, _____ with offices at _____ hereinafter called the CONTRACTOR, (Principal), and

_____ with offices _____ a corporation duly organized and existing under and by virtue of the laws of the State of _____, hereinafter called the SURETY, and authorized to transact business within the State of Florida, as SURETY, are held and firmly bound CITY OF KEY WEST, represented by its _____, hereinafter called the City (Obligee), in the sum of: _____ DOLLARS (\$ _____), lawful money of the United States of America, for the payment of which, well and truly be made to the CITY, and the CONTRACTOR and the SURETY bind themselves and each of their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents as follows:

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT:

WHEREAS, the CONTRACTOR has executed and entered into a certain Contract for _____ attached hereto, with the CITY, dated _____ 20_____, to furnish at his own cost, charges, and expense the necessary materials, equipment, and/or labor in strict and express accordance with said Contract and the plans, drawings (if any), and specifications prepared by the CITY, all of which is made a part of said Contract by certain terms and conditions in said Contract more particularly mentioned, which Contract, consisting of the various Contract Documents specifically mentioned herein and relative hereto, is made a part of this Bond as fully and completely as if said Contract Documents were set forth herein.

NOW THEREFORE, the conditions of this obligation are such that if the above bounden CONTRACTOR shall in all respects comply with the terms and conditions of said Contract and his obligation thereunder, including the Contract Documents (which include the plans, drawings, specifications, and conditions prepared by the CITY, invitation to bid, instructions to bidders, the CONTRACTOR’S bid as accepted by the CITY, the bid and contract and payment bonds, and all addenda, if any, issued prior to the opening of bids), and further that if said CONTRACTOR shall promptly make payments to all persons supplying materials, equipment, and/or labor, used directly or indirectly by said CONTRACTOR or subcontractors in the prosecution of the work for said contract in accordance with Florida Statutes, Section 255.05 or Section 713.23, then

this obligation shall be void; otherwise to remain in full force and effect for the term of said contract, including and all guarantee periods as specifically mentioned in said Contract Documents.

AND, the said SURETY for value received, hereby stipulates and agrees that no change involving any extension of time, or addition to the terms of the Contract or to the work to be performed, or materials to be furnished thereunder, or in the Contract Documents and specifications accompanying the said contract shall affect said obligation of said SURETY on this Bond, and the said SURETY does hereby waive notice of any such changes, extension of time, alternations, or additions of the terms of the Contract, or to the work, to the Contract Documents, or to the specifications.

Claimant shall give written notice to the CONTRACTOR and the SURETY as required by Section 255.05 or Section 713.23, Florida Statutes. Any action instituted against the CONTRACTOR or SURETY 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.

IN WITNESS WHEREOF, the above parties bounded together have executed this instrument this _____ day of _____, 20____, the name and corporate seal of each corporate party being hereto affixed and those presents duly signed by its undersigned representative, pursuant to authority of its governing body.

CONTRACTOR

By: _____

(SEAL)

ATTEST

SURETY

By _____

(SEAL)

ATTEST



City of Key West
P.O. Box 1409
Key West, FL 33041

Notice of Award

Date

Project Number: _____

Owner City of Key West
Company City of Key West
Address Office of the City Clerk
Address City of Key West P.O. Box 1409
Key West, FL 33041-1409

Project Name: **Navy Mole Pier Electrical Distribution System Upgrades**

Dear:

At a meeting of the City of Key West Commission held on_____, 20__.**COMPANY NAME** was awarded the contract for **Navy Mole Pier Electrical Distribution System Upgrades**. The total Contract amount shall not exceed \$ _____.

Enclosed please find three copies of the Contract Documents for your execution. Please complete the necessary pages, affixing signatures, notary and / or corporate seals, etc. where necessary and return to this office by **DATE**. Also, you need to be mobilized on **DATE**, and remit a bill to the City of Key West by **DATE**.

The Certificate of Insurance must be attached to the documents; one original and two copies are acceptable.

Powers – of – Attorney must be submitted in each bond document, an original and two copies are permissible.

Sincerely,

Birchard Ohlinger
Engineering
cc: Cheri Smith, City Clerk
Project File

CERTIFICATE OF SUBSTANTIAL COMPLETION

Project: **Navy Mole Pier Electrical Distribution System Upgrades**

Project No. _____

DATE OF ISSUANCE _____

CITY _____

CITY'S CONTRACT NO. _____

CONTRACTOR _____ ENGINEER _____

This Certificate of Substantial Completion applies to all Work under the Contract Documents or to the following specified parts thereof:

TO: _____
1 CITY

And To _____
2 CONTRACTOR

The Work to which this Certificate applies has been inspected by authorized representatives of CITY, 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 no alter the responsibility of the 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. 1910-8-D (1990 Edition)
Prepared by the Engineers Joint Contract Documents Committee and endorsed by the Associated General Contractors of America

CERTIFICATE OF FINAL COMPLETION

Project: **Navy Mole Pier Electrical Distribution System Upgrades**

Project No. _____

Date of Issuance: _____

CITY _____

Contractor _____ **Engineer** _____

.....
This Certificate of Completion applies to all Work under the Contract Documents.
.....

The Work to which this Certificate applies has been inspected by authorized representatives of CITY and ENGINEER, and that Work is hereby declared to be complete in accordance with the Contract Documents on

DATE OF COMPLETION

Executed by ENGINEER on _____ , (Date)

ENGINEER

By: _____
(Authorized Signature)

CONTRACTOR accepts this Certificate of Completion on _____,
(DATE)

CONTRACTOR

By: _____

CITY accepts this Certificate of Completion on _____,
(DATE)

CITY

By: _____
(Authorized Signature)

NOTICE TO PROCEED

Date: _____, 20__

Project No: _____

Contractor: _____

Address: _____

Project Navy Mole Pier Electrical Distribution System Upgrades
Project No. _____

You are hereby notified to commence work on _____, 20__ for the **Navy Mole Pier Electrical Distribution System Upgrades** and all related work, as designated by the City in accordance with the Contract made with the City of Key West on the ____ day of _____, 20__. The amount of time to complete the work is _____ (____) consecutive calendar days and should be fully completed on or before_____.

Sincerely,

Project Manager

Receipt of this NOTICE TO PROCEED is hereby acknowledged this, the ____ day of _____, 20__.

CONTRACTOR: _____

By: _____

TITLE: _____

DATE: _____

Please return one (1) copy of this notice to:

CH2M HILL.
6410 5th Street
Suite 2A
Key West, FL 33040

CITY OF KEY WEST

Construction Compliance Certification with Specifications and Plans

Project Number

Date

PO Number

Monthly

Final

Prime Contractor for the above referenced contract hereby verifies based on personnel knowledge or reasonable investigation and good faith belief, all Quality Control functions and Quality Control sampling and test results are in substantial compliance with the pertinent specification requirements for this project The represents work completed between _____ and _____. Exceptions are listed

below.
(add addition sheets as required)
Item No.
Exception:

A false statement or omission made in connection with this certification is sufficient cause for suspension, revocation, or denial of qualification to bid, and a determination of non-responsibility, and may subject the person and /or entity making the false statement to any civil and criminal penalties available pursuant to applicable State and Federal Law.

Contractor: _____ date: _____

State of Florida
County of:

Sworn to and subscribed before me this _____ day
of _____,

By _____
(print name of person signing certification)

Notary Public

Commission Expires

Certificate of Final Payment

Date:
Page: 1 of 2

Payment Application No. _____

Period From: _____ to _____

Project: **Navy Mole Pier Electrical Distribution System Upgrades**
Project No. _____

Contractor: _____

I Hereby Acknowledge that this contract has been completed in substantial compliance with the items of the agreement, Specifications and Plans, as-builts, work change directives and field orders. I, therefore, request acceptance of the work and processing of this final estimate as showing the total amount of money due in compliance with the terms of the Contract.

I _____ certify to the Owner that the Contractor met the Grant requirements provided in the contract documents

Contractor: _____

Address: _____

With the acceptance of this final payment, we, the Contractor, release the Owner and the Engineer and their agents, from all claims and liability to us, the Contractor, for all things done or furnished in connection with the Work, and every act of the Owner and others relating to, or arising, out of the Work.

Signature

Date

Title

Sworn and subscribed before me this _____ day of _____, 20__

NOTARY PUBLIC, State of Florida at Large

My Commission Expires:

436331A.GN1

Certificate of Final Payment (PAGE 2)

ACCEPTED BY:

Project Manager

Date

Owner

By: _____

Date

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By



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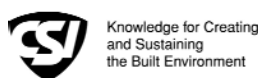
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GENERAL CONDITIONS

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 4.06. G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

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

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

ARTICLE 5 - BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

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

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

agent must be accompanied by a certified copy of the agent's authority to act.

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

5.02 *Licensed Sureties and Insurers*

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

5.03 *Certificates of Insurance*

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

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

5.04 *Contractor's Liability Insurance*

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

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

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

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

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

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

b. by any other person for any other reason;

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

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

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

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

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

3. include completed operations insurance;

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

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

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

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

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

5.05 *Owner's Liability Insurance*

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

5.06 *Property Insurance*

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

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

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to

the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, (other than caused by flood) and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

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

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

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

6. include testing and startup; and

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

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

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

D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any

deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

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

5.07 *Waiver of Rights*

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

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

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct

physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

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

5.08 *Receipt and Application of Insurance Proceeds*

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

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

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

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5

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

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

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

ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

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

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary

circumstances. The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or received from the superintendent shall be binding on Contractor.

6.02 *Labor; Working Hours*

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

a. Submit number of Samples specified in the Specifications.

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

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

C. Submittal Procedures

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

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

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

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

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

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

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

D. Engineer's Review

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

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular

means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

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

E. Resubmittal Procedures

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

6.18 *Continuing the Work*

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

6.19 *Contractor's General Warranty and Guarantee*

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

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

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

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will

constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

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

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

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

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

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

7. any correction of defective Work by Owner.

6.20 *Indemnification*

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

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

or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

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

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

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

6.21 *Delegation of Professional Design Services*

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

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

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

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract

Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

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

ARTICLE 7 - OTHER WORK AT THE SITE

7.01 *Related Work at Site*

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

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

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

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

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper

execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

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

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

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

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

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

7.03 *Legal Relationships*

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

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

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

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

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

8.02 *Replacement of Engineer*

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

under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

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

8.04 *Pay When Due*

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

8.05 *Lands and Easements; Reports and Tests*

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

8.06 *Insurance*

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

8.07 *Change Orders*

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

8.08 *Inspections, Tests, and Approvals*

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

8.09 *Limitations on Owner's Responsibilities*

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

8.10 *Undisclosed Hazardous Environmental Condition*

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

8.11 *Evidence of Financial Arrangements*

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

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

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

9.02 *Visits to Site*

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

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques,

sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

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

9.04 *Authorized Variations in Work*

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

9.05 *Rejecting Defective Work*

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

9.06 *Shop Drawings, Change Orders and Payments*

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

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

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

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

9.07 *Determinations for Unit Price Work*

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

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

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

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

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

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

9.09 *Limitations on Engineer's Authority and Responsibilities*

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

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

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

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

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

ARTICLE 10 - CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be

performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

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

10.02 *Unauthorized Changes in the Work*

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

10.03 *Execution of Change Orders*

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

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

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

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

10.04 *Notification to Surety*

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

applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

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

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

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

1. deny the Claim in whole or in part,
2. approve the Claim, or

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

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

E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or

10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

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

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

11.01 *Cost of the Work*

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

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

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

returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

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

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

5. Supplemental costs including the following:

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

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

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

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

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or

for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

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

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

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

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

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

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

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

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

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

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

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

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

11.02 Allowances

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

B. Cash Allowances

1. Contractor agrees that:

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

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

C. Contingency Allowance

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

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

11.03 *Unit Price Work*

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

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

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

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

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

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

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

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

12.01 *Change of Contract Price*

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

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

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

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

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

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

1. a mutually acceptable fixed fee; or

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

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

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

c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will

be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

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

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

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

12.02 *Change of Contract Times*

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

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

12.03 *Delays*

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

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract

Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

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

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

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

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

13.01 *Notice of Defects*

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

13.02 *Access to Work*

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

13.03 *Tests and Inspections*

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

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

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

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

3. as otherwise specifically provided in the Contract Documents.

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

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

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

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

13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be

uncovered for Engineer's observation and replaced at Contractor's expense.

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

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

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

13.05 *Owner May Stop the Work*

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

13.06 *Correction or Removal of Defective Work*

A. Promptly after receipt of notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but

not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

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

13.07 *Correction Period*

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

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

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

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction

period for that item may start to run from an earlier date if so provided in the Specifications.

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

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

13.08 *Acceptance of Defective Work*

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

SUPPLEMENTARY CONDITIONS

REVISIONS AND ADDITIONS TO THE GENERAL CONDITIONS

The General Conditions are hereby revised as follows:

ARTICLE 1.01.A.19 "Engineer"

Add the following:

Wherever in these Documents the word "Engineer" appears, it shall be understood to mean the Construction Manager and their authorized representatives, acting either directly or indirectly as authorized agents of the Owner.

ARTICLE 1.01.A.29 "Owner"

Add the following:

Wherever in these Documents the word "Owner" appears, it shall be understood to mean the City of Key West whose address is 3140 Flagler Street, Key West, Florida 33040

SC-1.01.A.45. Supplement paragraph 1.01.A.43 of the General Conditions as follows:

Substantial Completion is further defined as (i) that degree of completion of the Project's operating facilities or systems sufficient to provide Owner the full time, uninterrupted, and continuous beneficial operation of the Work; and (ii) all required functional, performance and acceptance or startup testing has been successfully demonstrated for all components, devices, equipment, and instrumentation and control to the satisfaction of Engineer in accordance with the requirements of the Specifications.

SC-1.01.A.52. Add a new paragraph immediately following paragraph 1.01.A.52 of the General Conditions as follows:

1.01.A.53. *Specialist*—The term Specialist refers to a person, partnership, firm, or corporation of established reputation (or if newly organized, whose personnel have previously established a reputation in the same field), which is regularly engaged in, and which maintains a regular force of workers skilled in either (as applicable) manufacturing or fabricating items required by the Contract Documents, or otherwise performing Work required by the Contract Documents. Where the Specifications require the installation by a Specialist, that term shall also be deemed to mean either the manufacturer of the item, a person, partnership, firm, or corporation licensed by the manufacturer, or a person, partnership, firm, or corporation who will perform the Work under the manufacturer's direct supervision.

SC-2.03.A. Delete the third sentence of paragraph 2.03.A *Commencement of Contract Times: Notice to Proceed* of the General Conditions in its entirety.

ARTICLE 4.05 "REFERENCE POINTS"

Add the following:

It will be the Contractor's responsibility to layout the work and to transfer elevations from benchmarks. Where new construction connects to existing facilities, the Contractor shall check and establish the exact location prior to construction of the facilities.

The Contractor shall furnish all surveys, labor, and equipment, including setting all alignment and gradient, grade stakes, batter boards, and everything necessary to lay out his work. The Contractor shall be responsible for maintaining and re-establishing at his expense, all control points. After completion of his construction, he shall reset all permanent monuments at their original locations and elevations.

All layout work may be checked by the Engineer, and the Contractor shall furnish all necessary labor, equipment, and materials, and shall cooperate and assist the Engineer in making such checks.

The dimensions for lines and elevations for grades of the structures, appurtenances, and utilities will be shown on Drawings, together with other pertinent information required for laying out the work. If site conditions vary from those indicated, the Contractor shall notify the Engineer immediately, who will make any minor adjustment as required.

ARTICLE 5.04 "CONTRACTOR'S LIABILITY INSURANCE"

Add the following:

Provide Employer's Liability Insurance in an amount not less than \$1,000,000.

ARTICLE 5.04 "CONTRACTOR'S LIABILITY INSURANCE"

Add the following:

Before commencing work as specified in the contract Contractor shall obtain at its own cost and expense the following insurance in insurance companies authorized in the State of Florida, with an A.M. Best rating of A-:VI or higher and shall provide evidence of such insurance to the City. The policies or certificates shall provide thirty (30) days prior to cancellation notices of same shall be given to the City by registered mail, return receipt requested, for all of the required insurance policies stated below. All notices shall name the Contractor and identify the agreement or contract number. The City of Key West, all Departments, Agencies, Boards and Commissions, its officers, agents, servants and employees are to be added as "additional insureds" as respects liability arising out of activities performed by or on behalf of the Contractor.

Contractor shall maintain limits no less than those stated below:

- A. **Worker's Compensation:** Statutory – in compliance with the Worker's Compensation law of the State of Florida. The coverage must include Employer's Liability with a limit of One Million (\$1,000,000.00) Dollars each accident.

- B. Contractors Commercial General Liability:** The Contractor's Commercial General Liability (CGL) shall be in an amount acceptable to the City of Key West but not less than \$1,000,000 Combined Single Limit per occurrence and \$2,000,000 annual aggregate per project. The coverage must include:
- Premises/Operations
 - Broad Form Contractual Liability
 - Underground, Explosions, and Collapse Hazard (if excavation, blasting, tunneling, demolition, or rebuilding of any structural support of a building is involved or explosion hazard exists).
 - Products/Completed Operations
 - Independent Contractors (if any part of the Work is to be subcontracted)
 - Broad Form Property Damage
 - Personal Injury
- C. Commercial Automobile Liability:** Insurance with a minimum limit of liability per occurrence of One Million (\$1,000,000.00) Dollars Combined Single Limit and no annual aggregate. The City of Key West must be named as an Additional Insured. This insurance shall include for bodily injury and property damage the following coverage:
- Owned automobiles
 - Hired automobiles
 - Non-owned automobiles
 - Location of operation shall be "All Locations"
- D. Excess/Umbrella Liability:** Shall have a minimum limit of Two Million (\$2,000,000.00) per occurrence with an annual aggregate of Two Million (\$2,000,000.00). This coverage is to follow form and include the Commercial General Liability and Automobile Liability Policies.
- E. Waiver of Subrogation:** The insurance required under paragraph A, B, C, &D, shall contain a "Waiver of Subrogation" clause as to the Owner, Consultant, Contractor, and their respective officers, agents, employees, and subcontractors.
- F.** It shall be the responsibility of the Contractor to ensure that all subcontractors comply with the same insurance requirements as is required of Contractor.
- G.** Certificates of Insurance meeting the required insurance provisions shall be forwarded to Engineer and Owner's, Risk Management.

The following **Indemnification Agreement** shall be made a provision of the contract:

Contractor agrees to protect, defend, indemnify, save and hold harmless The City of Key West, all its Departments, Agencies, Boards, Commissions, officers,

agents, servants and employees, including volunteers, from and against any and all claims, debts, demands, expense and liability arising out of injury or death to any person or the damage, loss of destruction of any property which may occur or in any way grow out of any act or omission of the Contractor, its agents, servants, and employees, or any and all costs, expense and/or attorney fees incurred by the City as a result of any claim, demands, and/or causes of action except of those claims, demands, and/or causes of action arising out of the negligence of The City of Key West, all its Departments, Agencies, Boards, Commissions, officers, agents, servants and employees. The Contractor agrees to investigate, handle, respond to, provide defense for and defend any such claims, demand, or suit at its sole expense and agrees to bear all other costs and expenses related thereto, even if it (claims, etc.) is groundless, false or fraudulent. The City of Key West does not waive any of its sovereign immunity rights, including but not limited to, those expressed in Section 768.28, Florida Statutes.

These indemnifications shall survive the term of this agreement. In the event that any action or proceeding is brought against the City of Key West by reason of such claim or demand, Contractor shall, upon written notice from the City of Key West, resist and defend such action or proceeding by counsel satisfactory to the City of Key West.

The indemnification provided above shall obligate Contractor to defend at its own expense to and through appellate, supplemental or bankruptcy proceeding, or to provide for such defense, at the City of Key West's option, any and all claims of liability and all suits and actions of every name and description covered above which may be brought against the City of Key West whether performed by Contractor, or persons employed or utilized by Contractor.

The Contractor's obligation under this provision shall not be limited in any way by the agreed upon Contract Price as shown in this agreement, or the Contractor's limit of or lack of sufficient insurance protection.

ARTICLE 5.04 "CONTRACTOR'S LIABILITY INSURANCE"

Add the following Article:

SURETY AND INSURER QUALIFICATIONS

All bonds, insurance contracts, and certificates of insurance shall be either executed by or countersigned by a licensed resident agent of the Surety or insurance company, having his place of business in the State of Florida, and in all ways complying with the insurance laws of the State of Florida. Further, the said Surety or insurance company shall be duly licensed and qualified to do business in the State of Florida.

ARTICLE 5.04 "CONTRACTOR'S LIABILITY INSURANCE"

Include the City of Key West and CH2M HILL as additional insureds.

6.03. Add the following new paragraphs immediately after Paragraph 6.03.C:

6.03.D. Domestic Products:

6.03.D.1. Contractor agrees to use materials, supplies, and products manufactured, mined, processed, or produced in the United States or its territories, if products are available at reasonable and competitive prices and are not contrary to any sole source specification. If Agreement to use domestic products is breached and domestic products are not used, there shall be a downward adjustment in Contract price equal to any realized savings or benefits to Contractor.

6.03.D.2. Contractor agrees to use steel produced within the United States when specifications require the use of steel and do not limit its supply to a sole source specification. Owner has right to waive this requirement in the event of national emergency, national strike, or other cause. If Agreement to use domestic steel is breached and domestic steel is not used, there shall be a downward adjustment in Contract price equal to any realized savings or benefits to Contractor.

ARTICLE 6.09 "LAWS AND REGULATIONS"

Add the following:

The Contractor shall comply with the City of Key West Noise Ordinance.

ARTICLE 6.09 "LAWS AND REGULATIONS"

Add the following subarticles:

Within 10 days of Notice of Award, the successful Bidder must represent that he holds all applicable state, county, and City of Key West licenses and permits required to do business as a contractor with respect to the work described in the Contract Documents.

Further, the successful Bidder must, within 10 days of Notice of Award, furnish documentation showing that, as a minimum, he has complied with the provisions of Chapter 91 of the Code of Ordinances of the City of Key West in order to enter into the Agreement contained in the Contract Documents.

Specifically, within 10 days after Notice of Award, the successful Bidder must demonstrate that he holds, as a minimum, the following licenses and certificates:

- A. All licenses or certificates required by federal, state, or local statutes or regulations.
- B. Holds a valid Certificate of Competency issued by the Public Service Director of the Building and Zoning Department which shall be valid throughout the Contract time.
- C. Holds a valid occupational license issued by the City of Key West.

FOLLOWING ARTICLE 6.09 "LAWS AND REGULATIONS"

Add the following Article:

HISTORIC PRESERVATION

The Contractor shall comply with Florida's Archives and Historic Act (Florida Statutes, Chapter 267) and the regulations of the local historic preservation board as applicable and protect against the potential loss or destruction of significant historical or archaeological data, sites, and properties in connection with the project.

ARTICLE 6.13 "SAFETY AND PROTECTION"

Add the following Subarticle:

OCCUPATIONAL SAFETY AND HEALTH

The Contractor and its Sub-Contractors shall observe and comply with all applicable local, state, and federal occupational safety and health regulations during the prosecution of work under this Contract. In addition, full compliance by the Contractor with the U.S. Department of Labor's Occupational Safety and Health Standards, as established in Public Law 91-596, will be required under the terms of this Contract. Refer to Specification 01 35 26 for additional requirements particular to this Contract.

ARTICLE 6.20 "INDEMNIFICATION"

Add the following:

The obligation of the Contractor under this Article shall be limited to the contractual liability as specified in the Supplementary Conditions, Article Insurance and Liability.

ARTICLE 13.03 "TESTS AND INSPECTIONS"

SC-13.03.B Delete 13.03.B in its entirety and insert the following:

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

SC-13.03.D. Supplement paragraph 13.03.D of the General Conditions as follows:

Tests required by Contract Documents to be performed by Contractor that require test certificates be submitted to Owner or Engineer for acceptance shall be made by an independent testing laboratory or agency licensed or certified in accordance with Laws and Regulations and applicable state and local statutes. In the event state license or certification is not required, testing laboratories or agencies shall meet following applicable requirements:

13.03.D.1. "Recommended Requirements for Independent Laboratory Qualification," published by the American Council of Independent Laboratories.

13.03.D.2. Basic requirements of ASTM E329, "Standard Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction" as applicable.

13.03.D.3. Calibrate testing equipment at reasonable intervals by devices of accuracy traceable to either the National Bureau of Standards or accepted values of natural physical constants.

ARTICLE 14 "PAYMENTS TO CONTRACTOR AND COMPLETION"

Add the following to the end of Subarticle 14.02.B.1:

Add the following subarticles:

14.02.B1.1 The Owner will deduct from the estimate, and retain as part security, 10 percent of the amount earned for work satisfactorily completed. A deduction and retainage of 10 percent will be made on the estimated amount earned for approved items of material delivered to and properly stored at the jobsite but not incorporated into the work.

14.02.B1.2 After deducting the retainage and the amount of all previous partial payments made to the Contractor from the amount earned, the amount due will be made payable to the Contractor. Recommendations for payment received by the Owner less than 40 days prior to the scheduled day for payment will not be processed or paid until the following month.

**CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY,
AND VOLUNTARY EXCLUSION – LOWER TIER COVERED TRANSACTIONS**

Note: This certification/clause has been extracted from Appendix B to 40 CFR Part 32 and is applicable to all goods and services (including construction) contracts and subcontracts with a price equaling or exceeding \$25,000 and in all solicitations for such contracts and subcontracts.

Instructions for Certification:

1. By signing and submitting this Proposal, the prospective lower tier participant is providing the certification set out below.
2. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.
3. The prospective lower tier participant shall provide immediate written notice to the person to which this Proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
4. The terms “covered transaction,” “debarred,” “suspended,” “ineligible,” “lower tier covered transaction,” “participant,” “person,” “primary covered transaction,” “principal,” “proposal,” and “voluntarily excluded,” as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this Proposal is submitted for assistance in obtaining a copy of those regulations.
5. The prospective lower tier participant agrees by submitting this Proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.
6. The prospective lower tier participant further agrees by submitting this Proposal that it will include this clause titled “Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions,” without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.

7. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List.
8. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
9. Except for transactions authorized under paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

SUPPLEMENTS

- A. The supplements listed below, following “END OF SECTION,” are part of this Specification.
 1. Attachment A Construction Compliance with Specifications and Plans.
 2. Attachment B NAS Rapid Gate Information.
Attachment C Requirement for City Contractors to Provide Equal Benefits for Domestic Partners.

END OF SECTION

**ATTACHMENT A
CITY OF KEY WEST**

Certification of Construction Compliance with Specifications and Plans

Project Number _____

Date _____

PO Number _____

Monthly

Final

Project Name _____

Prime Contractor for the above referenced contract hereby verifies based on personnel knowledge or reasonable investigation and good faith belief, all Quality Control functions and Quality Control sampling and test results are in substantial compliance with the pertinent specification requirements for this project. The represents work completed between _____ and _____.

Exceptions are listed below.

(add addition sheets as required)

Item No.

Exception:

A false statement or omission made in connection with this certification is sufficient cause for suspension, revocation, or denial of qualification to bid, and a determination of non-responsibility, and may subject the person and /or entity making the false statement to any civil and criminal penalties available pursuant to applicable State and Federal Law.

Contractor: _____ Date: _____

State of Florida

County of:

Sworn to and subscribed before me this _____ day

of _____,

By _____

(print name of person signing certification)

Notary Public

Commission Expires

RAPIDGate Company Enrollment Form

Thank you for enrolling in the *RAPIDGate*[®] Program. Please follow these instructions:

1. Complete the Enrollment Information (Part A).
2. Carefully read and sign the *RAPIDGate* User Agreement: Companies (Part B).
3. Fax the entire form to 503-924-5320, attention *RAPIDGate* Customer Service.
4. If you have any questions, please call 1-877-RAPIDGate (1-877-727-4342).

Part A: Enrollment Information

The following information is required and must be completed by an authorized representative of your company.

At which installation is your company enrolling? **NAVAL AIR STATION, KEY WEST, FL**

Does your company require 24x7 access to the installation? Yes No

Are you enrolled in the *RAPIDGate* Program at another installation? Yes No

If yes, list the installation(s) at which you are enrolled:

Your Company Information

Company Name:

Website Address:

Phone:

Fax:

Billing Address:

City:

State:

Zip Code:

Country:

Tenant Sponsor Information (This is a government agent at the installation that can verify your company's legitimate business).

Sponsor Organization (i.e. Commissary, Security Office, Hospital, AAFES):

Sponsor's Name:

Sponsor's Title:

Sponsor's Email:

Sponsor's Phone:

Contract No.:

Expiration Date:

Billing Information

Company Enrollment Fee*: \$199 Employee Registration Fee*: \$159		
*The fees to enroll in Multi-Facility is at a discounted rate. Contact <i>RAPIDGate</i> Customer Service at 1-877-727-4342 to find out about the rates. Eid Passport, Inc. reserves the right to change the <i>RAPIDGate</i> Program fees at its sole discretion.		
Payment Method (Please Select): Visa <input type="checkbox"/> MasterCard <input type="checkbox"/> Discover <input type="checkbox"/> AMEX <input type="checkbox"/> Check* <input type="checkbox"/> Electronic Check* (Fill out bottom of page 3.) <input type="checkbox"/>		
If Credit Card: Cardholder's Name:		
Credit Card Number:		
Security Code (3 or 4 digits):		
Credit Card Expiration:	Month:	Year:
Credit Card Holder's Billing Address:		
City:	State:	Zip Code:
Expected Number of Employee Registrations:		
Please list the names of authorized participating employees names here only if you want the registration fees billed to the form of payment selected above. Do not list the employees' personal information. Attach an additional page for more than 10 authorized employees.		
1. SEE ATTACHED LIST		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
Please initial the appropriate box:		
<input type="checkbox"/> I authorize payment to enroll my company and to register the number of employees with the form of payment cited above.		
<input type="checkbox"/> I authorize payment to enroll my company with the form of payment listed above.		
* Checks should be made payable to Eid Passport, Inc. Please mail to: Eid Passport, Inc. 10450 SW Nimbus Avenue, Bldg R-A Portland, OR 97223 Attention: Accounts Receivable		

Representative from Your Company in Charge of RAPIDGate Administration (“RAPIDGate Company Administrator”)

Name:	Email:
Title:	
Phone:	Fax:

Individual Enrolling Company Check here if this individual can be a second point of contact for the RAPIDGate Program. (This person will have the same authorities as the person listed above).

Name:	Email:
Title:	
Phone:	Fax:

Electronic Check Authorization (Only applicable if you are paying by electronic check).

Name as appears on Check:
Account Number:
Routing Number:
Check Number:
Authorized Debit Amount:
Signature _____ Date _____
I acknowledge that the origination of ACH transactions to my account must comply with the provisions of U.S. law. I agree to notify merchant in writing of any changes in my account information or termination of this authorization 15 days prior to the due date of the charges. I understand that cancellations must be made in writing and I will not dispute merchant debiting my checking/savings account, so long as the amount corresponds to the terms indicated in this contract.



Eid Passport and RAPIDGate are trademarks of Eid Passport, Inc.

B. RAPIDGate USER AGREEMENT: COMPANIES

Terms and Conditions of Your Company's Enrollment, and Renewal of Enrollment, in Eid Passport, Inc.'s RAPIDGate[®] Program.

Please carefully read the following terms and conditions of this RAPIDGate User Agreement ("Agreement"). It is a legally binding contract and affects your company's legal rights.

By signing this Agreement below, and in consideration of the mutual covenants, terms and conditions described in this Agreement, you (1) certify that you have the authority to bind your company to the terms and conditions of this Agreement; (2) accept, on behalf of your company, the terms and conditions of this Agreement; and (3) agree, on behalf of your company, to be bound by the terms and conditions of this Agreement.

Eid Passport, Inc. ("Eid Passport") enters into this Agreement with your company on behalf of itself and on behalf of its related companies, subsidiaries, affiliates and successors.

1. Definitions

For purposes of this Agreement, the following definitions apply:

"**Applicant**" is an individual who has registered to become an authorized RAPIDGate badgeholder.

"**Authorized RAPIDGate badgeholder**" is an individual who has passed a RAPIDGate background screening, meets all other RAPIDGate program eligibility requirements, and has been issued a RAPIDGate badge, thereby entitling the individual to the RAPIDGate program access privileges at participating facilities.

"**Background screening**" and "**background screenings**" refer to a process by which RAPIDGate applicants and authorized RAPIDGate badgeholders consent to ongoing review of certain information relating to their background, to determine whether they meet the RAPIDGate program's eligibility requirements.

"**Company**" refers to the company, department or entity that enrolls in the RAPIDGate program.

"**Enroll**" is the procedure by which a company seeks and obtains authorization for its employees to register for the RAPIDGate program.

"**Fail**" refers to a background screening result by which an individual is determined to NOT meet the RAPIDGate background screening criteria, and which disqualifies the individual from being an authorized RAPIDGate badgeholder.

"**Participating facility**" is any military or other governmental base, installation, department, organization, building, unit, site or other location that offers RAPIDGate access privileges to authorized RAPIDGate badgeholders.

"**Pass**" refers to a background screening result by which an individual is determined to meet the RAPIDGate background screening criteria, and which qualifies the individual to be an authorized RAPIDGate badgeholder if the individual meets all RAPIDGate program eligibility requirements.

"**RAPIDGate badge**" is a credential that is issued to authorized RAPIDGate badgeholders. Depending upon the participating facility, the RAPIDGate badge may be issued either by Eid Passport or by the United States government, and may contain Radio Frequency Identification ("RFID") or other identifying technology.

"**RAPIDGate Company Administrator**" is an employee of a company that is enrolled in the RAPIDGate program, whom the company assigns to be in charge of the company's internal RAPIDGate administration.

"**Register**" is the procedure by which an applicant initiates the process to become an authorized RAPIDGate badgeholder.

2. RAPIDGate Program Introduction

Welcome to Eid Passport's RAPIDGate program! The RAPIDGate program has been developed to enhance access security at participating United States military and other government facilities. It also is designed to improve on-site access for eligible companies and their employees who conduct official business on such facilities on a recurring basis.

The enrollment process is simple. First, your company must receive approval from a participating facility to enroll in the RAPIDGate program. Next, your company completes all required enrollment documentation and pays the RAPIDGate enrollment fee. Eid Passport then validates your company's eligibility to enroll in the RAPIDGate program. Upon enrollment, your company provides RAPIDGate Customer Service with a list of approved employees and pays for their

RAPIDGate registrations. Those employees may then register for the RAPIDGate program at the RAPIDGate Registration Station located at the participating facility(ies) for which your company is enrolled.

Eid Passport will carefully screen each individual who registers for the RAPIDGate program. As part of the registration process, each applicant must pass a confidential RAPIDGate background screening. Each applicant who passes the background screening and who meets all other RAPIDGate program eligibility requirements will be issued a RAPIDGate badge to wear for entrance onto participating facilities. The RAPIDGate badge is part of an integrated solution that lets the participating facility know that the individual is an authorized RAPIDGate badgeholder who meets the RAPIDGate program eligibility requirements for access to the facility. Depending upon the participating facility, the RAPIDGate badge may contain RFID or other identifying technology to record when the RAPIDGate badgeholder arrives at and departs a participating facility, and to track the RAPIDGate badgeholder's whereabouts while on-site at the participating facility.

Your company's RAPIDGate enrollment, and its authorized RAPIDGate badgeholders' access privileges, are valid for a set period of time as determined by the participating facility, provided that your company and its authorized RAPIDGate badgeholders continue to meet the RAPIDGate program eligibility requirements at all times. Eid Passport may conduct periodic background screenings of your company's authorized RAPIDGate badgeholders on a regular basis, to verify their continued eligibility. Renewals in the RAPIDGate program are subject to your company's, and its authorized RAPIDGate badgeholders', continued eligibility.

Some participating facilities maintain the RAPIDGate program as an optional service. Such facilities do not require companies or their employees to join the RAPIDGate program; employees who are not authorized RAPIDGate badgeholders continue to have access privileges to the participating facility pursuant to the facility's usual entry requirements and procedures. At other participating facilities, employees will not be allowed to enter the participating facility unless they are authorized RAPIDGate badgeholders. Please check with RAPIDGate Customer Service or the participating facility for details.

3. The RAPIDGate Program is NOT a Pre-Employment or Employee Screening Service

The RAPIDGate program is not a pre-employment or employee screening service. Eid Passport conducts background screenings of your company's employees solely for the purpose of determining their eligibility to be authorized RAPIDGate badgeholders. Your company may not use the RAPIDGate program, including the RAPIDGate background screenings, for pre-employment or employment-related purposes.

BY SIGNING THIS AGREEMENT BELOW, YOU AGREE, ON BEHALF OF YOUR COMPANY, THAT YOUR COMPANY WILL NOT USE THE RAPIDGate PROGRAM, INCLUDING THE RAPIDGate BACKGROUND SCREENINGS, FOR ANY PRE-EMPLOYMENT OR EMPLOYMENT-RELATED PURPOSES. YOU FURTHER AGREE, ON BEHALF OF YOUR COMPANY, THAT YOUR COMPANY WILL DEFEND, INDEMNIFY AND HOLD HARMLESS EID PASSPORT, ITS RELATED COMPANIES, OFFICERS, DIRECTORS, EMPLOYEES, AGENTS, SUBSIDIARIES OR AFFILIATES, AND ANY AGENCY OF THE UNITED STATES GOVERNMENT, FOR AND OF ANY CLAIMS, DEMANDS, OR CAUSES OF ACTION MADE AGAINST EID PASSPORT OR ANY AGENCY OF THE UNITED STATES GOVERNMENT ARISING FROM ANY PRE-EMPLOYMENT OR EMPLOYMENT-RELATED ACTION TAKEN BY YOUR COMPANY AGAINST ANY INDIVIDUAL, RELATING IN ANY WAY TO OR ARISING IN ANY WAY FROM THE RAPIDGate PROGRAM.

4. Confidential Background Screenings (Required)

Eid Passport takes seriously its commitment to security. That is why Eid Passport restricts its RAPIDGate program to companies and their employees who, at all times, meet all RAPIDGate program eligibility requirements including the RAPIDGate background screening criteria established for participating facilities.

To register for the RAPIDGate program and to become an authorized RAPIDGate badgeholder, your company's employees must consent to undergo, and must pass, a background screening to verify their eligibility. Additional background screenings may be conducted on authorized RAPIDGate badgeholders at any time or times, to verify their continued eligibility. By registering with the RAPIDGate program, the employees consent to such background screenings.

Background screenings will be conducted on individuals under circumstances that may include but are not limited to the following:

- When they first register for the RAPIDGate program
- Periodically and at any time or times while they are authorized RAPIDGate badgeholders
- When your company renews its employees' RAPIDGate badges
- At any time upon request by the participating facility(ies) for which the employees are authorized RAPIDGate badgeholders
- At any time upon request by any governmental department or agency that issues RAPIDGate badges (see Section 5, below)
- At any time, in Eid Passport's sole discretion, to verify that authorized RAPIDGate badgeholders meet the RAPIDGate program's eligibility requirements

ANY EMPLOYEE WHO DOES NOT CONSENT TO UNDERGO THE RAPIDGate BACKGROUND SCREENINGS, IS INELIGIBLE TO BE AN AUTHORIZED RAPIDGate BADGEHOLDER.

Eid Passport contracts with one or more third-party background screening providers to conduct *RAPIDGate* background screenings. The data obtained during the registration process and/or through the background screenings may vary by participating facility and may include any or all of the following:

Individual Information:

- Name
- Social Security Number
- Company-issued Employee Identification Number
- Individual photo
- Date of birth
- Fingerprints
- Address
- Phone number
- Social Security Number verification
- Felony and misdemeanor convictions
- Outstanding warrants
- Sexual offender convictions
- Terrorist or OFAC watch lists
- Driver's license (including all information and images stored on the license)

Public records may be used in the background screening reports, such as civil and/or criminal records. Your company's employees have the right to dispute the information on the report and to request additional disclosures provided under section 606(b) of the Fair Credit Reporting Act ("FCRA"), and a written summary of the employee's rights pursuant to section 609(c) of the FCRA.

If any background screenings produces a "fail" result, Eid Passport and/or its third-party background screening providers will so notify the affected employee. Eid Passport also may notify your company, and possibly also the participating facility(ies), of the employee's "fail" result. In the event of a "fail" result, the employee, and only the employee, will be provided with a copy of his or her background screening report. The employee will be afforded an opportunity to dispute the information in it. If the employee does not timely dispute the background screening results or, if the employee does so but is unsuccessful in changing the results, the employee will not qualify to be an authorized *RAPIDGate* badgeholder. Your company, and possibly also the participating facility(ies) and/or other agency of the United States government, will be so notified.

Eid Passport and/or its third-party background screening providers will NOT provide your company with a copy of the background screening reports or disclose to your company the contents of the background screening reports. Eid Passport may provide the participating facility(ies) and/or other United States government agency with the name and/or other identifying information of your company's employees who are authorized *RAPIDGate* badgeholders. In addition, depending upon the type of *RAPIDGate* badge that is issued to your company's authorized *RAPIDGate* badgeholders (see Section 5, below), Eid Passport also may provide your company, and/or the participating facility(ies) and/or other agency of the United States government, with records of the authorized *RAPIDGate* badgeholders' arrival and departure history, and/or records of their whereabouts, at the participating facility(ies).

YOU HEREBY AUTHORIZE EID PASSPORT AND/OR ITS THIRD-PARTY BACKGROUND SCREENING PROVIDER(S) TO RETAIN YOUR COMPANY'S EMPLOYEES' DATA, AND ANY UPDATES TO THAT DATA, FOR A COMMERCIALLY REASONABLE PERIOD OF TIME. EID PASSPORT AND ITS THIRD-PARTY BACKGROUND SCREENING PROVIDERS ARE COMMITTED TO MAINTAINING THIS DATA IN THE STRICTEST OF CONFIDENCE, AND FOLLOW STRINGENT FAIR INFORMATION PRACTICES IN ACCORDANCE WITH THE FCRA AND OTHER APPLICABLE LAWS AND REGULATIONS.

5. Rights and Obligations of Enrolled Companies and Authorized *RAPIDGate* Badgeholders

- ***RAPIDGate badge.*** The *RAPIDGate* badge is for the sole and exclusive use of the authorized *RAPIDGate* badgeholder. The *RAPIDGate* badgeholder may not share, lend or transfer his or her *RAPIDGate* badge to anyone else.

The *RAPIDGate* badge by itself does not guarantee quick access to, or any access to, any participating facility. For security reasons and under applicable laws, rules and regulations, the participating facility always has the final say on who may enter, and under what circumstances.

The *RAPIDGate* badge may be issued by Eid Passport, or it may be issued directly by the participating facility or another agency or department of the United States government. A government-issued *RAPIDGate* badge may entitle your company and/or its authorized *RAPIDGate* badgeholders to certain government privileges or rights, and/or impose upon your company and/or its authorized *RAPIDGate* badgeholders certain government obligations or restrictions, in addition to but outside of and unrelated to the *RAPIDGate* program. Eid Passport assumes no responsibility or liability whatsoever for government content or functions of government-issued *RAPIDGate* badges.

In the event that an Eid Passport-issued *RAPIDGate* badge is lost, damaged or stolen, the authorized *RAPIDGate* badgeholder must immediately notify your company. In the event that a government-issued *RAPIDGate* badge is lost, damaged or stolen, the authorized *RAPIDGate* badgeholder must immediately notify

the government department or agency that issued the RAPIDGate badge, and follow the department's or agency's instructions and procedures. In addition, if an authorized RAPIDGate badgeholder stops working for your company, or is otherwise disqualified as an authorized RAPIDGate badgeholder, the individual must immediately return the RAPIDGate badge to your company or, in the case of a government-issued RAPIDGate badge, to the issuing government agency.

Depending upon the facility, the RAPIDGate badge may contain radio frequency identification ("RFID") or other identifying technology. Such technology allows Eid Passport to record when authorized RAPIDGate badgeholders arrive at and depart the participating facility, and/or to track the whereabouts of authorized RAPIDGate badgeholders while they are on-site at the facility. Please check with RAPIDGate Customer Service for details on whether the RAPIDGate badge issued to your company's authorized RAPIDGate badgeholders contains this technology.

- **Background screenings.** At any time or times while your company's employees are authorized RAPIDGate badgeholders, they are subject to periodic background screenings, as often as deemed required by Eid Passport and at its sole discretion. This is done to verify that at all times the employees continue to meet the RAPIDGate program eligibility requirements. (See Section 4, above.)
- **Designation of RAPIDGate Company Administrator.** As part of the enrollment process, your company must designate an employee to serve as its RAPIDGate Company Administrator. Please provide RAPIDGate Customer Service with the name, telephone number, postal address and email address of the Vendor Administrator, in the space provided in Part A, Enrollment Form, above.
- **Personnel or background changes affecting an authorized RAPIDGate badgeholder.** Your company must promptly notify RAPIDGate Customer Service of any changes in the employment or background status of its authorized RAPIDGate badgeholders that could affect their RAPIDGate eligibility. Circumstances giving rise to this duty to notify include but are not limited to an authorized RAPIDGate badgeholder's separation from employment; change in job duties eliminating the need to conduct official business on the participating facility(ies); felony or misdemeanor convictions; outstanding warrants; sexual offender convictions; or placement on Terrorist or OFAC watch lists.
- **Refunds.** No refunds will be made to or on behalf of your company, or to or on behalf of any of its employees, if an employee does not pass a RAPIDGate background screening or is disqualified as an authorized RAPIDGate badgeholder. In such event, your company and its employees will have no remedies or other financial recourse against Eid Passport or its related companies, officers, directors, employees, agents, subsidiaries or affiliates, or against any agency of the United States government.

6. RAPIDGate program renewal

a. Company renewal

RAPIDGate Customer Service will contact your company shortly before expiration of its RAPIDGate enrollment. If your company wishes to renew its enrollment, it may do so by paying the RAPIDGate enrollment renewal fee. *Your company's enrollment renewal is subject to the approval of the participating facility and to your company's continued eligibility in all other respects.*

b. Authorized RAPIDGate badgeholder renewals

If your company renews its enrollment for another term, RAPIDGate will notify it of the names of its authorized RAPIDGate badgeholders whose RAPIDGate badges are due to expire. Your company may authorize renewal of their RAPIDGate badges for another term, by paying their renewal fee. It may be necessary for the individuals to re-register at the Registration Station at the participating facility(ies). Renewal is contingent upon their passing a RAPIDGate background screening and in all other respects meeting the RAPIDGate program eligibility requirements. (See Section 4, above.)

Your company is responsible for deciding which RAPIDGate badges to renew. If an authorized RAPIDGate badgeholder does not wish his or her RAPIDGate badge to be renewed, he or she must so notify your company's RAPIDGate Company Administrator at least 45 days before expiration of the RAPIDGate badge. **YOU HEREBY AGREE, ON BEHALF OF YOUR COMPANY, THAT YOUR COMPANY WILL DEFEND, INDEMNIFY AND HOLD HARMLESS EID PASSPORT AND ITS RELATED COMPANIES, OFFICERS, DIRECTORS, EMPLOYEES, AGENTS, SUBSIDIARIES AND AFFILIATES, AND ANY AGENCY OF THE UNITED STATES GOVERNMENT, OF AND FROM ANY AND ALL CLAIMS, DEMANDS OR CAUSES OF ACTION ARISING FROM YOUR COMPANY'S RENEWAL, OR FAILURE TO RENEW, ANY RAPIDGate BADGE FOR ANY COMPANY EMPLOYEE.**

7. Grounds for revoking RAPIDGate program enrollment and access privileges

a. Your company

Your company's *RAPIDGate* enrollment is valid for a specified term, provided that at all times it meets the *RAPIDGate* program eligibility requirements. If at any time your company fails to meet any *RAPIDGate* program eligibility requirements, its enrollment will be subject to revocation. If at any time your company no longer is enrolled in the *RAPIDGate* program, its authorized *RAPIDGate* badgeholders no longer will be eligible for the *RAPIDGate* program, and their *RAPIDGate* badges will be deactivated.

Your company could lose its eligibility to be enrolled in the *RAPIDGate* program, and have its *RAPIDGate* enrollment revoked, on grounds including but not limited to:

- The participating facility(ies) for which your company is enrolled in the *RAPIDGate* program no longer participates in the *RAPIDGate* program
- The participating facility(ies), or other agency or department of the United States government, withdraws your company's authorization to be enrolled in the *RAPIDGate* program
- Your company does not pay its *RAPIDGate* enrollment or renewal fee
- Your company violates any term or condition of this Agreement
- An authorized *RAPIDGate* badgeholder of your company violates any term or condition of his or her *RAPIDGate* Individual User Agreement.

b. *RAPIDGate* badges

The *RAPIDGate* badges issued to your company's employees are valid for a specified term, provided that the employees at all times meet the *RAPIDGate* program eligibility requirements. If at any time an authorized *RAPIDGate* badgeholder fails to meet any of the *RAPIDGate* program eligibility requirements, the individual will lose his or her *RAPIDGate* program eligibility, and his or her *RAPIDGate* badge will be deactivated. Your company's authorized *RAPIDGate* badgeholders may lose their *RAPIDGate* program eligibility, and be subject to deactivation of their *RAPIDGate* badge, on grounds including but not limited to:

- The authorized *RAPIDGate* badgeholder no longer works for your company
- The authorized *RAPIDGate* badgeholder does not pass a *RAPIDGate* background screening
- The authorized *RAPIDGate* badgeholder's work functions no longer include visiting the participating facility(ies)
- Your company requests to remove the authorized *RAPIDGate* badgeholder from the *RAPIDGate* program
- Your company no longer is eligible, or otherwise ends its enrollment in, the *RAPIDGate* program
- The facility(ies) for which your company is enrolled in the *RAPIDGate* program no longer participates in the *RAPIDGate* program
- The facility(ies), or other agency or department of the United States government, withdraws your company's authorization to be enrolled in the *RAPIDGate* program
- The facility(ies), or other agency or department of the United States government, withdraws the individual's authorization as a *RAPIDGate* badgeholder and/or requires deactivation of the individual's *RAPIDGate* badge
- The authorized *RAPIDGate* badgeholder violates any term or condition of his or her *RAPIDGate* Individual User Agreement
- The authorized *RAPIDGate* badgeholder uses the *RAPIDGate* program to access the participating facility(ies) for any reason other than for official business.

8. General Restrictions, Limitations and Resolution of Disputes

- This enrollment does not by itself confer on your company or its employees any rights or privileges under the *RAPIDGate* program. Enrollment is subject to the approval of the participating facility(ies). In addition, your company's enrollment is subject to the terms and conditions set forth in this Agreement. Your company's employees who register for the *RAPIDGate* program are subject to the terms and conditions of their *RAPIDGate* Individual User Agreement.
- This enrollment does not guarantee your company's authorized *RAPIDGate* badgeholders access to any participating facility. The participating facility(ies) maintains the right to deny entrance to your company's authorized *RAPIDGate* badgeholders and to take any security precautions it deems necessary, including but not limited to conducting random inspections of your company's authorized *RAPIDGate* badgeholders and/or their vehicles.
- Your company's enrollment is valid only for the participating facility(ies) that have authorized your company to enroll in the *RAPIDGate* program and for which your company has enrolled.
- A participating facility may revoke your company's, and/or its authorized *RAPIDGate* badgeholders', access privileges under the *RAPIDGate* program at any time for any reason. You agree on behalf of your company that, in such event, your company and its employees have no financial, legal or other remedies against Eid Passport or any of its related companies, officers, directors, employees, agents, subsidiaries or affiliates, or against any agency of the United States Government.
- Eid Passport takes pride in its background screening service but cannot guarantee the accuracy of the data obtained. As explained in Section 4, above, your company's employees have the right to dispute a "fail" result of a *RAPIDGate* background screening. **You agree on behalf of your company that neither your company, nor its employees, has any remedy, in equity or law, and will initiate no legal action, against Eid Passport or any of its related companies, officers, directors, employees, agents, subsidiaries or affiliates, or against any agency of the United States government, arising from any dispute over the accuracy or completeness of data derived from a *RAPIDGate* background screening, or arising from an employee not passing a *RAPIDGate* background screening.**

- *RAPIDGate* badges that are issued by the government may entitle the authorized *RAPIDGate* badgeholders and/or your company to certain government privileges or rights, or impose upon them certain government obligations or restrictions, in addition to but outside of and unrelated to the *RAPIDGate* program. Eid Passport assumes no responsibility or liability whatsoever for government content or functions of government-issued *RAPIDGate* badges. **You agree on behalf of your company that neither your company, nor its employees, has any remedy, in equity or law, and will initiate no legal action, against Eid Passport or any of its related companies, officers, directors, employees, agents, subsidiaries or affiliates, arising from any dispute over any government content or functions of government-issued *RAPIDGate* badges.**
- Eid Passport contracts with one or more third parties to conduct *RAPIDGate* background screenings. Such third party(ies) conform to the highest standards of care with respect to protection of personally identifiable data. Eid Passport stores on its own servers only limited personally identifiable information on *RAPIDGate* participants. Eid Passport does not store on its servers, and maintains no database containing, the contents of background screenings conducted on *RAPIDGate* participants. Such data is stored with Eid Passport's third-party background screening provider(s). **You agree on behalf of your company that neither your company nor its employees has any remedy, in equity or law, and will initiate no legal action, against Eid Passport or any of its related companies, officers, directors, employees, agents, subsidiaries or affiliates, arising from the storage of any personally identifiable data on any employee that is not maintained on Eid Passport's own servers or contained in Eid Passport's own database.**
- You agree that, if your company has a dispute with Eid Passport arising from or relating to the *RAPIDGate* program, your company will so notify Eid Passport in writing within six months of the event or the action giving rise to the dispute, at the address listed in Section A, Enrollment Form, above. You agree that your company will make every effort to resolve the dispute informally. You further agree that, in the event of a breach of this Agreement by Eid Passport, your company's sole and exclusive remedy will be an amount equal to your company's enrollment fee for the year in which the breach occurred.
- This Agreement is governed by the laws of the State of Oregon, notwithstanding conflicts of laws principles. You agree that any legal action brought under this Agreement must be brought in Washington County, Oregon. The prevailing party shall be entitled to recover its/his/her legal costs and attorney's fees.
- If any provision of this Agreement is found by a proper legal authority to be unenforceable, that provision shall be severed and the remainder of this Agreement shall continue in full force and effect.

This Agreement constitutes the entire agreement between your company and Eid Passport with respect to the *RAPIDGate* program. This Agreement supersedes any proposal or any prior or contemporaneous writings or other agreement, oral or written, and any other communications or representations between your company and Eid Passport relating to the *RAPIDGate* program.

I hereby (1) certify that I have the authority to bind my company to the terms and conditions of this Agreement; (2) accept, on behalf of my company, the terms and conditions of this Agreement; and (3) agree, on behalf of my company, to be bound by the terms and conditions of this Agreement.

Name (Signed) 31 Jan 2012

Date

Name (Printed)

Title

Name of company on whose behalf individual is signing

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The *RAPIDGate* Program is provided by Eid Passport, Inc.
The *RAPIDGate* Program contains products and services subject to U.S. Patent No. 6,779,721.
Eid Passport and *RAPIDGate* are trademarks of Eid Passport, Inc.

City Ordinance Sec. 2-799
Requirements for City Contractors to Provide Equal Benefits for Domestic Partners

(a) Definitions. For purposes of this section only, the following definitions shall apply:

- (1) **Benefits** means the following plan, program or policy provided or offered by a contractor to its employees as part of the employer's total compensation package: sick leave, bereavement leave, family medical leave, and health benefits.
- (2) **Bid** shall mean a competitive bid procedure established by the city through the issuance of an invitation to bid, request for proposals, request for qualifications, or request for letters of interest.
- (3) **Cash equivalent** means the amount of money paid to an employee with a domestic partner in lieu of providing benefits to the employee's domestic partner. The cash equivalent is equal to the employer's direct expense of providing benefits to an employee for his or her spouse.

The cash equivalents of the following benefits apply:

- a. For bereavement leave, cash payment for the number of days that would be allowed as paid time off for the death of a spouse. Cash payment would be in the form of the wages of the domestic partner employee for the number of days allowed.
 - b. For health benefits, the cost to the contractor of the contractor's share of the single monthly premiums that are being paid for the domestic partner employee, to be paid on a regular basis while the domestic partner employee maintains such insurance in force for himself or herself.
 - c. For family medical leave, cash payment for the number of days that would be allowed as time off for an employee to care for a spouse who has a serious health condition. Cash payment would be in the form of the wages of the domestic partner employee for the number of days allowed.
- (4) **Contract** means any written agreement, purchase order, standing order or similar instrument entered into pursuant to the award of a bid whereby the city is committed to expend or does expend funds in return for work, labor, professional services, consulting services, supplies, equipment, materials, construction, construction related services or any combination of the foregoing.
 - (5) **Contractor** means any person or persons, sole proprietorship, partnership, joint venture, corporation, or other form of doing business, that is awarded a bid and enters into a covered contract with the city, and which maintains five (5) or more full-time employees.
 - (6) **Covered contract** means a contract between the city and a contractor awarded subsequent to the date when this section becomes effective valued at over twenty thousand dollars (\$20,000).
 - (7) **Domestic partner** shall mean any two adults of the same or different sex, who have registered as domestic partners with a governmental body pursuant to state or

local law authorizing such registration, or with an internal registry maintained by the employer of at least one of the domestic partners. A contractor may institute an internal registry to allow for the provision of equal benefits to employees with domestic partner who do not register their partnerships pursuant to a governmental body authorizing such registration, or who are located in a jurisdiction where no such governmental domestic partnership registry exists. A contractor that institutes such registry shall not impose criteria for registration that are more stringent than those required for domestic partnership registration by the City of Key West pursuant to Chapter 38, Article V of the Key West Code of Ordinances.

- (8) ***Equal benefits*** mean the equality of benefits between employees with spouses and employees with domestic partners, and/or between spouses of employees and domestic partners of employees.

(b) Equal benefits requirements.

- (1) Except where otherwise exempt or prohibited by law, a Contractor awarded a covered contract pursuant to a bid process shall provide benefits to domestic partners of its employees on the same basis as it provides benefits to employees' spouses.
- (2) All bid requests for covered contracts which are issued on or after the effective date of this section shall include the requirement to provide equal benefits in the procurement specifications in accordance with this section.
- (3) The city shall not enter into any covered contract unless the contractor certifies that such contractor does not discriminate in the provision of benefits between employees with domestic partners and employees with spouses and/or between the domestic partners and spouses of such employees.
- (4) Such certification shall be in writing and shall be signed by an authorized officer of the contractor and delivered, along with a description of the contractor's employee benefits plan, to the city's procurement director prior to entering into such covered contract.
- (5) The city manager or his/her designee shall reject a contractor's certification of compliance if he/she determines that such contractor discriminates in the provision of benefits or if the city manager or designee determines that the certification was created, or is being used for the purpose of evading the requirements of this section.
- (6) The contractor shall provide the city manager or his/her designee, access to its records for the purpose of audits and/or investigations to ascertain compliance with the provisions of this section, and upon request shall provide evidence that the contractor is in compliance with the provisions of this section upon each new bid, contract renewal, or when the city manager has received a complaint or has reason to believe the contractor may not be in compliance with the provisions of this section. This shall include but not be limited to providing the city manager or his/her designee with certified copies of all of the contractor's records pertaining to its benefits policies and its employment policies and practices.

- (7) The contractor may not set up or use its contracting entity for the purpose of evading the requirements imposed by this section.
- (c) Mandatory contract provisions pertaining to equal benefits. Unless otherwise exempt, every covered contract shall contain language that obligates the contractor to comply with the applicable provisions of this section. The language shall include provisions for the following:
- (1) During the performance of the covered contract, the contractor certifies and represents that it will comply with this section.
 - (2) The failure of the contractor to comply with this section will be deemed to be a material breach of the covered contract.
 - (3) If the contractor fails to comply with this section, the city may terminate the covered contract and all monies due or to become due under the covered contract may be retained by the city. The city may also pursue any and all other remedies at law or in equity for any breach.
 - (4) If the city manager or his designee determines that a contractor has set up or used its contracting entity for the purpose of evading the requirements of this section, the city may terminate the covered contract.
- (d) Enforcement. If the contractor fails to comply with the provisions of this section:
- (1) The failure to comply may be deemed to be a material breach of the covered contract; or
 - (2) The city may terminate the covered contract; or
 - (3) Monies due or to become due under the covered contract may be retained by the city until compliance is achieved; or
 - (4) The city may also pursue any and all other remedies at law or in equity for any breach;
 - (5) Failure to comply with this section may also subject contractor to the procedures set forth in Division 5 of this article, entitled "Debarment of contractors from city work."
- (e) Exceptions and waivers.

The provisions of this section shall not apply where:

- (1) The contractor does not provide benefits to employees' spouses.
- (2) The contractor is a religious organization, association, society or any non-profit charitable or educational institution or organization operated, supervised or controlled by or in conjunction with a religious organization, association or society.
- (3) The contractor is a governmental entity.
- (4) The sale or lease of city property.

- (5) The provision of this section would violate grant requirement, the laws, rules or regulations of federal or state law (for example, The acquisition services procured pursuant to Chapter 287.055, Florida Statutes known as the "Consultants' Competitive Negotiation Act").
- (6) Provided that the contractor does not discriminate in the provision of benefits, a contractor may also comply with this section by providing an employee with the cash equivalent of such benefits, if the city manager or his/her designee determines that either:
 - a. The contractor has made a reasonable yet unsuccessful effort to provide equal benefits. The contractor shall provide the city manager or his/her designee with sufficient proof of such inability to provide such benefit or benefits which shall include the measures taken to provide such benefits or benefits and the cash equivalent proposed, along with its certificate of compliance, as is required under this section.
- (7) The city commission waives compliance of this section in the best interest of the city, including but not limited to the following circumstances:
 - a. The covered contract is necessary to respond to an emergency.
 - b. Where only one bid response is received.
 - c. Where more than one bid response is received, but the bids demonstrate that none of the bidders can comply with the requirements of this section.
- (f) City's authority to cancel contract. Nothing in this section shall be construed to limit the city's authority to cancel or terminate a contract, deny or withdraw approval to perform a subcontract or provide supplies, issue a non-responsibility finding, issue a non-responsiveness finding, deny a person or entity prequalification, or otherwise deny a person or entity city business.
- (g) Timing of application. This section shall be applicable only to covered contracts awarded pursuant to bids which are after the date when this section becomes effective.

PART 3

SPECIFICATIONS

**SECTION 01 11 00
SUMMARY OF WORK**

PART 1 GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

The completed Work will provide Owner with a functioning electrical system located on the Navy Mole Pier. The project includes removal of existing 480-volt electrical distribution subfeeders, installation of approximately 22,000 LF of 750 MCM cable, 4,000 LF of #2 ground, 5,000 LF of multiconductor number 12/#12 600-volt control cable. Cable racking in 10 existing electrical manholes, replacement of 168 CTs, replacement of 9 Relays, Calibrate and Reset 56 existing relays, electrical testing and commissioning and miscellaneous electrical. Complete an Electrical System Analysis and Arc Flash Study and adjust all protective devices accordingly. Provide any required signage as result of Arc Flash Study. The project is located on Navy property and will require the contractor and all employees to adhere to the Navy security requirements.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 29 00
PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SUBMITTALS

- A. Informational Submittals:
 - 1. Schedule of Values: Submit on Contractor's standard form.
 - 2. Application for Payment.
 - 3. Final Application for Payment.

1.02 CASH ALLOWANCES

- A. Consult with Engineer in selection of products or services. Obtain proposals from Suppliers and installers, and offer recommendations.
- B. Cash allowances will be administered in accordance with Paragraph 11.02 of General Conditions.
- C. Submit, with application for payment, invoice showing date of purchase, from whom the purchase was made, the date of delivery of the product or service, and the price, including delivery to the Site and applicable taxes.

1.03 SCHEDULE OF VALUES

- A. Prepare a separate Schedule of Values for each schedule of the Work under the Agreement.
- B. Upon request of Engineer, provide documentation to support the accuracy of the Schedule of Values.
- C. Unit Price Work: Reflect unit price quantity and price breakdown from conformed Bid Form.
- D. Lump Sum Work:
 - 1. Reflect specified contingency allowances and alternates, as applicable.
 - 2. List bonds and insurance premiums, mobilization, demobilization, preliminary and detailed progress schedule preparation, equipment testing, facility startup, and contract closeout separately.
- E. An unbalanced or front-end loaded schedule will not be acceptable.
- F. Summation of the complete Schedule of Values representing all the Work shall equal the Contract Price.

1.04 SCHEDULE OF ESTIMATED PROGRESS PAYMENTS

- A. Show estimated payment requests throughout Contract Times aggregating initial Contract Price.
- B. Base estimated progress payments on initially acceptable progress schedule. Adjust to reflect subsequent adjustments in progress schedule and Contract Price as reflected by modifications to the Contract Documents.

1.05 APPLICATION FOR PAYMENT

- A. Transmittal Summary Form: Attach one Summary Form with each detailed Application for Payment for each schedule and include Request for Payment of Materials and Equipment on Hand as applicable. Execute certification by authorized officer of Contractor.
- B. Use detailed Application for Payment Form provided by Owner.
- C. Provide separate form for each schedule as applicable.
- D. Include accepted Schedule of Values for each schedule or portion of lump sum Work and the unit price breakdown for the Work to be paid on a unit priced basis.
- E. Include separate line item for each Change Order and Work Change Directive executed prior to date of submission. Provide further breakdown of such as requested by Engineer.
- F. Preparation:
 - 1. Round values to nearest dollar.
 - 2. Submit Application for Payment, including a Transmittal Summary Form and detailed Application for Payment Form(s) for each schedule as applicable, a listing of materials on hand for each schedule as applicable, and such supporting data as may be requested by Engineer.

1.06 PAYMENT

- A. Payment for all Lump Sum Work shown or specified in Contract Documents is included in the Contract Price. Payment will be based on a percentage complete basis for each line item of the accepted Schedule of Values.

1.07 NONPAYMENT FOR REJECTED OR UNUSED PRODUCTS

- A. Payment will not be made for following:
 - 1. Loading, hauling, and disposing of rejected material.
 - 2. Quantities of material wasted or disposed of in manner not called for under Contract Documents.

3. Rejected loads of material, including material rejected after it has been placed by reason of failure of Contractor to conform to provisions of Contract Documents.
4. Material not unloaded from transporting vehicle.
5. Defective Work not accepted by Owner.
6. Material remaining on hand after completion of Work.

1.08 PARTIAL PAYMENT FOR STORED MATERIALS AND EQUIPMENT

- A. Partial Payment: No partial payments will be made for materials and equipment delivered or stored unless Shop Drawings and preliminary operation and maintenance data is acceptable to Engineer.
- B. Final Payment: Will be made only for products incorporated in Work; remaining products, for which partial payments have been made, shall revert to Contractor unless otherwise agreed, and partial payments made for those items will be deducted from final payment.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 31 13
PROJECT COORDINATION

PART 1 GENERAL

1.01 UTILITY NOTIFICATION AND COORDINATION

- A. Coordinate the Work with various utilities within Project limits. Notify applicable utilities prior to commencing Work, if damage occurs, or if conflicts or emergencies arise during Work.
 - 1. Keys Energy Electricity Company:
 - a. Contact Person: Matthew Alfonso
 - b. Telephone: 305-295-1055

1.02 FACILITY OPERATIONS

- A. Continuous operation of Owner's facilities is of critical importance. Schedule and conduct activities to enable existing facilities to operate continuously, unless otherwise specified.
- B. Perform Work continuously during critical connections and changeovers, and as required to prevent interruption of Owner's operations.
- C. When necessary, plan, design, and provide various temporary services, utilities, connections, temporary piping and heating, access, and similar items to maintain continuous operations of Owner's facility.
- D. Do not close lines, open or close valves, or take other action which would affect the operation of existing systems, except as specifically required by the Contract Documents and after authorization by Owner and Engineer. Such authorization will be considered within 48 hours after receipt of Contractor's written request.
- E. Process or Facility Shutdown:
 - 1. Provide 7 days' advance written request for approval of need to shut down a process or facility to Owner and Engineer.
 - 2. Power outages will be considered upon 48 hours written request to Owner and Engineer. Describe the reason, anticipated length of time, and areas affected by the outage. Provide temporary provisions for continuous power supply to critical facility components.
- F. Do not proceed with Work affecting a facility's operation without obtaining Owner's and Engineer's advance approval of the need for and duration of such Work.

1.03 ADJACENT FACILITIES AND PROPERTIES

A. Examination:

1. After Effective Date of the Agreement and before Work at Site is started, Contractor, Engineer, and affected property owners and utility owners shall make a thorough examination of pre-existing conditions including existing buildings, structures, and other improvements in vicinity of Work, as applicable, which could be damaged by construction operations.
2. Periodic reexamination shall be jointly performed to include, but not limited to, cracks in structures, settlement, leakage, and similar conditions.

B. Documentation:

1. Record and submit documentation of observations made on examination inspections in accordance with Article Construction Photographs.
2. Upon receipt, Engineer will review, sign, and return one record copy of documentation to Contractor to be kept on file in field office.
3. Such documentation shall be used as indisputable evidence in ascertaining whether and to what extent damage occurred as a result of Contractor's operations, and is for the protection of adjacent property owners, Contractor, and Owner.

1.04 CONSTRUCTION PHOTOGRAPHS

A. Photographically document all phases of the project including preconstruction, construction progress, and post-construction.

B. Engineer shall have the right to select the subject matter and vantage point from which photographs are to be taken.

C. Preconstruction and Post-Construction:

1. After Effective Date of the Agreement and before Work at Site is started, and again upon issuance of Substantial Completion, take a minimum of 48 exposures of Construction Site and property adjacent to perimeter of Construction Site.
2. Particular emphasis shall be directed to structures both inside and outside the Site.
3. Format: Digital, minimum resolution of 1152 by 864 pixels and 24 bit, millions of color.

D. Construction Progress Photos:

1. Photographically demonstrate progress of construction, showing every aspect of Site and adjacent properties as well as interior and exterior of new or impacted structures.
2. Weekly: Take 24 exposures using Digital, minimum resolution of 1152 by 864 pixels and 24 bit, millions of color.

E. Digital Images:

1. Archive using a commercially available photo management system.
2. Label each disk with Project and Owner's name, and week and year images were produced.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 SALVAGE OF MATERIALS

- A. Salvage materials for Contractor's own use.
 1. Promptly remove from Work area salvaged materials.
- B. Meet with Owner prior to starting to dismantle equipment or piping designated to be salvaged. Engineer will indicate locations where equipment is to be disconnected.
- C. Provide new or repair damaged equipment or material specified or indicated to be salvaged. Clean and protect equipment from dust, dirt, natural elements, and store as directed.

3.02 CUTTING, FITTING, AND PATCHING

- A. Cut, fit, adjust, or patch Work and work of others, including excavation and backfill as required, to make Work complete.
- B. Obtain prior written authorization of Owner before commencing Work to cut or otherwise alter:
 1. Structural or reinforcing steel, structural column or beam, elevated slab, trusses, or other structural member.
 2. Weather- or moisture-resistant elements.
 3. Efficiency, maintenance, or safety of element.
 4. Work of others.
- C. Refinish surfaces to provide an even finish.
 1. Refinish continuous surfaces to nearest intersection.
 2. Refinish entire assemblies.

3. Finish restored surfaces to such planes, shapes, and textures that no transition between existing work and Work is evident in finished surfaces.
- D. Restore existing work, Underground Facilities, and surfaces that are to remain in completed Work including concrete-embedded piping, conduit, and other utilities as specified and as shown.
- E. Make restorations with new materials and appropriate methods as specified for new Work of similar nature; if not specified, use recommended practice of manufacturer or appropriate trade association.
- F. Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces and fill voids.
- G. Remove specimens of installed Work for testing when requested by Engineer.

END OF SECTION

**SECTION 01 31 19
PROJECT MEETINGS**

PART 1 GENERAL

1.01 GENERAL

- A. Owner will schedule physical arrangements for meetings throughout progress of the Work, prepare meeting agenda with regular participant input and distribute with written notice of each meeting, preside at meetings, record minutes to include significant proceedings and decisions, and reproduce and distribute copies of minutes within 5 days after each meeting to participants and parties affected by meeting decisions.

1.02 PRECONSTRUCTION CONFERENCE

- A. Contractor shall be prepared to discuss the following subjects, as a minimum:

1. Required schedules.
2. Status of Bonds and insurance.
3. Sequencing of critical path work items.
4. Progress payment procedures.
5. Project changes and clarification procedures.
6. Use of Site, access, office and storage areas, security and temporary facilities.
7. Major product delivery and priorities.
8. Contractor's safety plan and representative.

- B. Attendees will include:

1. Owner's representatives.
2. Contractor's office representative.
3. Contractor's resident superintendent.
4. Contractor's quality control representative.
5. Subcontractors' representatives whom Contractor may desire or Engineer may request to attend.
6. Engineer's representatives.
7. Others as appropriate.

1.03 PRELIMINARY SCHEDULES REVIEW MEETING

- A. As set forth in General Conditions and Section 01 32 00, Construction Progress Documentation.

1.04 PROGRESS MEETINGS

- A. Owner will schedule regular progress meetings at Site, conducted weekly to review the Work progress, Progress Schedule, Schedule of Submittals, Application for Payment, contract modifications, and other matters needing discussion and resolution.
- B. Attendees will include:
 - 1. Owner's representative(s).
 - 2. Contractor, Subcontractors, and Suppliers, as appropriate.
 - 3. Others as appropriate.

1.05 FACILITY STARTUP MEETINGS

- A. Schedule and attend a minimum of ten facility startup meetings. The first of such meetings shall be held prior to submitting Facility Startup Plan, as specified in Section 01 91 14, Equipment Testing and Facility Startup, and shall include preliminary discussions regarding such plan.
- B. Agenda items shall include, but not be limited to, content of Facility Startup Plan, coordination needed between various parties in attendance, and potential problems associated with startup.
- C. Attendees will include:
 - 1. Contractor.
 - 2. Contractor's designated quality control representative.
 - 3. Subcontractors and equipment manufacturer's representatives whom Contractor deems to be directly involved in facility startup.
 - 4. Engineer's representatives.
 - 5. Owner's operations personnel.
 - 6. Others as required by Contract Documents or as deemed necessary by Contractor.

1.06 OTHER MEETINGS

- A. In accordance with Contract Documents and as may be required by Owner and Engineer.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 32 00
CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 GENERAL

1.01 SUBMITTALS

A. Informational Submittals:

1. Detailed Progress Schedule:
 - a. Submit initial Detailed Progress Schedule within 5 days after Effective Date of the Agreement.
 - b. Submit an Updated Progress Schedule at each update, in accordance with Article Detailed Progress Schedule.
2. Submit with Each Progress Schedule Submission:
 - a. Contractor's certification that Progress Schedule submission is actual schedule being utilized for execution of the Work.
 - b. Progress Schedule: One legible copy.
 - c. Narrative Progress Report: Same number of copies as specified for Progress Schedule.
3. Prior to final payment, submit a final Updated Progress Schedule.

1.02 DETAILED PROGRESS SCHEDULE

- A. In addition to requirements of General Conditions, submit Detailed Progress Schedule beginning with Notice to Proceed and continuing through Final Completion.
- B. Show the duration and sequences of activities required for complete performance of the Work reflecting means and methods chosen by Contractor.
- C. When accepted by Engineer, Detailed Progress Schedule will replace Preliminary Progress Schedule and become Baseline Schedule. Subsequent revisions will be considered as Updated Progress Schedules.
- D. Format: In accordance with Article Progress Schedule—Bar Chart.
- E. Update bi-monthly to reflect actual progress and occurrences to date, including weather delays.

1.03 PROGRESS SCHEDULE—BAR CHART

- A. General: Comprehensive bar chart schedule, generally as outlined in Associated General Contractors of America (AGC) 580, "Construction Project Planning and Scheduling Guidelines." If a conflict occurs between the AGC publication and this Specification, this Specification shall govern.

- B. Format:
1. Unless otherwise approved, white paper, 11-inch by 17-inch sheet size.
 2. Title Block: Show name of project and Owner, date submitted, revision or update number, and name of scheduler.
 3. Identify horizontally, across the top of the schedule, the time frame by year, month, and day.
 4. Identify each activity with a unique number and a brief description of the Work associated with that activity.
 5. Legend: Describe standard and special symbols used.
- C. Contents: Identify, in chronological order, those activities reasonably required to complete the Work, including as applicable, but not limited to:
1. Obtaining permits, submittals for early product procurement, and long lead time items.
 2. Mobilization and other preliminary activities.
 3. Initial Site work.
 4. Specified Work sequences, constraints, and Milestones, including Substantial Completion date(s).
 5. Subcontract Work.
 6. Major equipment design, fabrication, factory testing, and delivery dates.
 7. Delivery dates for Owner-furnished products, as specified in Section 01 11 00, Summary of Work.
 8. Sitework.
 9. Electrical Work.
 10. Instrumentation and Control Work.
 11. Other important Work for each major facility.
 12. Equipment and system startup and test activities.
 13. Project closeout and cleanup.
 14. Demobilization.

1.04 PROGRESS OF THE WORK

- A. Updated Progress Schedule shall reflect:
1. Progress of Work to within 5 working days prior to submission.
 2. Approved changes in Work scope and activities modified since submission.
 3. Delays in Submittals or resubmittals, deliveries, or Work.
 4. Adjusted or modified sequences of Work.
 5. Other identifiable changes.
 6. Revised projections of progress and completion.
 7. Report of changed logic.

- B. Produce detailed subschedules during Project, upon request of Owner or Engineer, to further define critical portions of the Work such as facility shutdowns.
- C. If Contractor fails to complete activity by its latest scheduled completion date and this Failure is anticipated to extend Contract Times (or Milestones), Contractor shall, within 7 days of such failure, submit a written statement as to how Contractor intends to correct nonperformance and return to acceptable current Progress Schedule. Actions by Contractor to complete the Work within Contract Times (or Milestones) will not be justification for adjustment to Contract Price or Contract Times.
- D. Owner may order Contractor to increase plant, equipment, labor force or working hours if Contractor fails to:
 - 1. Complete a Milestone activity by its completion date.
 - 2. Satisfactorily execute Work as necessary to prevent delay to overall completion of Project, at no additional cost to Owner.

1.05 NARRATIVE PROGRESS REPORT

- A. Format:
 - 1. Organize same as Progress Schedule.
 - 2. Identify, on a cover letter, reporting period, date submitted, and name of author of report.
- B. Contents:
 - 1. Number of days worked over the period, work force on hand, construction equipment on hand (including utility vehicles such as pickup trucks, maintenance vehicles, stake trucks).
 - 2. General progress of Work, including a listing of activities started and completed over the reporting period, mobilization/demobilization of subcontractors, and major milestones achieved.
 - 3. Contractor's plan for management of Site (e.g., lay down and staging areas, construction traffic), utilization of construction equipment, buildup of trade labor, and identification of potential Contract changes.
 - 4. Identification of new activities and sequences as a result of executed Contract changes.
 - 5. Documentation of weather conditions over the reporting period, and any resulting impacts to the work.
 - 6. Description of actual or potential delays, including related causes, and the steps taken or anticipated to mitigate their impact.
 - 7. Changes to activity logic.
 - 8. Changes to the critical path.

9. Identification of, and accompanying reason for, any activities added or deleted since the last report.
10. Steps taken to recover the schedule from Contractor-caused delays.

1.06 SCHEDULE ACCEPTANCE

A. Engineer's acceptance will demonstrate agreement that:

1. Proposed schedule is accepted with respect to:
 - a. Contract Times, including Final Completion and all intermediate Milestones are within the specified times.
 - b. Specified Work sequences and constraints are shown as specified.
 - c. Specified Owner-furnished Equipment or Material arrival dates, or range of dates, are included.
 - d. Access restrictions are accurately reflected.
 - e. Startup and testing times are as specified.
 - f. Submittal review times are as specified.
 - g. Startup testing duration is as specified and timing is acceptable.
2. In all other respects, Engineer's acceptance of Contractor's schedule indicates that, in Engineer's judgement, schedule represents reasonable plan for constructing Project in accordance with the Contract Documents. Engineer's review will not make any change in Contract requirements. Lack of comment on any aspect of schedule that is not in accordance with the Contract Documents will not thereby indicate acceptance of that change, unless Contractor has explicitly called the nonconformance to Engineer's attention in submittal. Schedule remains Contractor's responsibility and Contractor retains responsibility for performing all activities, for activity durations, and for activity sequences required to construct Project in accordance with the Contract Documents.

B. Unacceptable Detailed Progress Schedule:

1. Make requested corrections; resubmit within 10 days.
2. Until acceptable to Engineer as Baseline Progress Schedule, continue review and revision process.

C. Narrative Report: All changes to activity duration and sequences, including addition or deletion of activities subsequent to Engineer's acceptance of Baseline Progress Schedule, shall be delineated in Narrative Report current with proposed Updated Progress Schedule.

1.07 ADJUSTMENT OF CONTRACT TIMES

A. Reference General Conditions.

- B. Evaluation and reconciliation of Adjustments of Contract Times shall be based on the Updated Progress Schedule at the time of proposed adjustment or claimed delay.
- C. Claims Based on Contract Times:
 - 1. Where Engineer has not yet rendered formal decision on Contractor's Claim for adjustment of Contract Times, and parties are unable to agree as to amount of adjustment to be reflected in Progress Schedule, Contractor shall reflect an interim adjustment in the Progress Schedule as acceptable to Engineer.
 - 2. It is understood and agreed that such interim acceptance will not be binding on either Contractor or Owner, and will be made only for the purpose of continuing to schedule Work until such time as formal decision has been rendered as to an adjustment, if any, of the Contract Times.
 - 3. Contractor shall revise Progress Schedule prepared thereafter in accordance with Engineer's formal decision.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 33 00
SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 DEFINITIONS

- A. Action Submittal: Written and graphic information submitted by Contractor that requires Engineer's approval.
- B. Informational Submittal: Information submitted by Contractor that requires Engineer's review and determination that submitted information is in accordance with the Conditions of the Contract.

1.02 PROCEDURES

- A. Direct submittals to Engineer at the following, unless specified otherwise.
 - 1. CH2M HILL
Attn: Andrew Smyth
6410 5th Street, Suite 2A
Key West, Florida 33040
- B. Transmittal of Submittal:
 - 1. Contractor shall:
 - a. Review each submittal and check for compliance with Contract Documents.
 - b. Stamp each submittal with uniform approval stamp before submitting to Engineer.
 - 1) Stamp to include Project name, submittal number, Specification number, Contractor's reviewer name, date of Contractor's approval, and statement certifying submittal has been reviewed, checked, and approved for compliance with Contract Documents.
 - 2) Engineer will not review submittals that do not bear Contractor's approval stamp and will return them without action.
 - 2. Complete, sign, and transmit with each submittal package, one Transmittal of Contractor's Submittal form attached at end of this section.

3. Identify each submittal with the following:
 - a. Numbering and Tracking System:
 - 1) Sequentially number each submittal.
 - 2) Resubmission of submittal shall have original number with sequential alphabetic suffix.
 - b. Specification section and paragraph to which submittal applies.
 - c. Project title and Engineer's project number.
 - d. Date of transmittal.
 - e. Names of Contractor, Subcontractor or Supplier, and manufacturer as appropriate.
 4. Identify and describe each deviation or variation from Contract Documents.
- C. Format:
1. Do not base Shop Drawings on reproductions of Contract Documents.
 2. Package submittal information by individual specification section. Do not combine different specification sections together in submittal package, unless otherwise directed in specification.
 3. Present in a clear and thorough manner and in sufficient detail to show kind, size, arrangement, and function of components, materials, and devices, and compliance with Contract Documents.
 4. Index with labeled tab dividers in orderly manner.
- D. Timeliness: Schedule and submit in accordance Schedule of Submittals, and requirements of individual specification sections.
- E. Processing Time:
1. Time for review shall commence on Engineer's receipt of submittal.
 2. Engineer will act upon Contractor's submittal and transmit response to Contractor not later than 10 days after receipt, unless otherwise specified.
 3. Resubmittals will be subject to same review time.
 4. No adjustment of Contract Times or Price will be allowed as a result of delays in progress of Work caused by rejection and subsequent resubmittals.
- F. Resubmittals: Clearly identify each correction or change made.
- G. Incomplete Submittals:
1. Engineer will return entire submittal for Contractor's revision if preliminary review deems it incomplete.

2. When any of the following are missing, submittal will be deemed incomplete:
 - a. Contractor's review stamp; completed and signed.
 - b. Transmittal of Contractor's Submittal; completed and signed.
 - c. Insufficient number of copies.

H. Submittals not required by Contract Documents:

1. Will not be reviewed and will be returned stamped "Not Subject to Review."
2. Engineer will keep one copy and return submittal to Contractor.

1.03 ACTION SUBMITTALS

A. Prepare and submit Action Submittals required by individual specification sections.

B. Shop Drawings:

1. Copies: Six and one reproducible, except copyrighted documents.
2. Identify and Indicate:
 - a. Applicable Contract Drawing and Detail number, products, units and assemblies, and system or equipment identification or tag numbers.
 - b. Equipment and Component Title: Identical to title shown on Drawings.
 - c. Critical field dimensions and relationships to other critical features of Work. Note dimensions established by field measurement.
 - d. Project-specific information drawn accurately to scale.
3. Manufacturer's standard schematic drawings and diagrams as follows:
 - a. Modify to delete information that is not applicable to the Work.
 - b. Supplement standard information to provide information specifically applicable to the Work.
4. Product Data: Provide as specified in individual specifications.
5. Deferred Submittal: See Drawings for list of deferred submittals.
 - a. Contractor-design drawings and product data related to permanent construction.
 - 1) Written and graphic information.
 - 2) Drawings.
 - 3) Cut sheets.
 - 4) Data sheets.
 - 5) Action item submittals requested in individual specification section.

- b. Prior to installation of indicated structural or nonstructural element, equipment, distribution system, or component or its anchorage, submit required supporting data and drawings for review and acceptance by Engineer. Documentation of review and approval provided on Engineer's comment form, along with completed submittal, shall be filed with permitting agency by Contractor and approved by permitting agency prior to installation.
6. Foreign Manufacturers: When proposed, include names and addresses of at least two companies that maintain technical service representatives close to Project.

C. Samples:

1. Copies: Two, unless otherwise specified in individual specifications.
2. Preparation: Mount, display, or package Samples in manner specified to facilitate review of quality. Attach label on unexposed side that includes the following:
 - a. Manufacturer name.
 - b. Model number.
 - c. Material.
 - d. Sample source.
3. Manufacturer's Color Chart: Units or sections of units showing full range of colors, textures, and patterns available.
4. Full-size Samples:
 - a. Size as indicated in individual specification section.
 - b. Prepared from same materials to be used for the Work.
 - c. Cured and finished in manner specified.
 - d. Physically identical with product proposed for use.

D. Action Submittal Dispositions: Engineer will review, comment, stamp, and distribute as noted:

1. Approved:
 - a. Contractor may incorporate product(s) or implement Work covered by submittal.
 - b. Distribution:
 - 1) Two copies furnished Owner.
 - 2) One copy furnished Resident Project Representative.
 - 3) One copy retained in Engineer's file.
 - 4) Remaining copies returned to Contractor appropriately annotated.
2. Approved as Noted:
 - a. Contractor may incorporate product(s) or implement Work covered by submittal, in accordance with Engineer's notations.
 - b. Distribution:

- 1) Two copies furnished Owner.
 - 2) One copy furnished Resident Project Representative.
 - 3) One copy retained in Engineer's file.
 - 4) Remaining copies returned to Contractor appropriately annotated.
3. Partial Approval, Resubmit as Noted:
- a. Make corrections or obtain missing portions, and resubmit.
 - b. Except for portions indicated, Contractor may begin to incorporate product(s) or implement Work covered by submittal, in accordance with Engineer's notations.
 - c. Distribution:
 - 1) Two copies furnished Owner.
 - 2) One copy furnished Resident Project Representative.
 - 3) One copy retained in Engineer's file.
 - 4) Remaining copies returned to Contractor appropriately annotated.
4. Revise and Resubmit:
- a. Contractor may not incorporate product(s) or implement Work covered by submittal.
 - b. Distribution:
 - 1) One copy furnished Resident Project Representative.
 - 2) One copy retained in Engineer's file.
 - 3) Remaining copies returned to Contractor appropriately annotated.

1.04 INFORMATIONAL SUBMITTALS

A. General:

1. Copies: Submit three copies, unless otherwise indicated in individual specification section.
2. Refer to individual specification sections for specific submittal requirements.
3. Engineer will review each submittal. If submittal meets conditions of the Contract, Engineer will forward copy to appropriate parties. If Engineer determines submittal does not meet conditions of the Contract and is therefore considered unacceptable, Engineer will retain one copy and return remaining copy with review comments to Contractor, and require that submittal be corrected and resubmitted.

B. Certificates:

1. General:
 - a. Provide notarized statement that includes signature of entity responsible for preparing certification.

- b. Signed by officer or other individual authorized to sign documents on behalf of that entity.
 2. Welding: In accordance with individual specification sections.
 3. Installer: Prepare written statements on manufacturer's letterhead certifying installer complies with requirements as specified in individual specification section.
 4. Material Test: Prepared by qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.
 5. Certificates of Successful Testing or Inspection: Submit when testing or inspection is required by Laws and Regulations or governing agency or specified in individual specification sections.
 6. Manufacturer's Certificate of Compliance: In accordance with Section 01 43 33, Manufacturers' Field Services.
 7. Manufacturer's Certificate of Proper Installation: In accordance with Section 01 43 33, Manufacturers' Field Services.
- C. Construction Photographs in accordance with Section 01 31 13, Project Coordination, and as may otherwise be required in Contract Documents.
- D. Closeout Submittals: In accordance with Section 01 77 00, Closeout Procedures.
- E. Contractor-design Data (related to temporary construction):
1. Written and graphic information.
 2. List of assumptions.
 3. List of performance and design criteria.
 4. Summary of loads or load diagram, if applicable.
 5. Calculations.
 6. List of applicable codes and regulations.
 7. Name and version of software.
 8. Information requested in individual specification section.
- F. Deferred Submittals: See Drawings for list of deferred submittals.
1. Contractor-design data related to permanent construction:
 - a. List of assumptions.
 - b. List of performance and design criteria.
 - c. Summary of loads or load diagram, if applicable.
 - d. Calculations.
 - e. List of applicable codes and regulations.
 - f. Name and version of design software.
 - g. Factory test results.
 - h. Informational submittals requested in individual specification section.

2. Prior to installation of indicated structural or nonstructural element, equipment, distribution system, or component or its anchorage, submit calculations and test results of Contractor-designed components for review by Engineer. Documentation of review and indication of compliance with general design intent and project criteria provided on Engineer's comment form as meets conditions of the Contract, along with completed submittal, shall be filed with permitting agency by Contractor and approved by permitting agency prior to installation.
- G. Manufacturer's Instructions: Written or published information that documents manufacturer's recommendations, guidelines, and procedures in accordance with individual specification section.
- H. Operation and Maintenance Data: As required in Section 01 78 23, Operation and Maintenance Data.
- I. Payment:
1. Application for Payment: In accordance with Section 01 29 00, Payment Procedures.
 2. Schedule of Values: In accordance with Section 01 29 00, Payment Procedures.
- J. Quality Control Documentation: As required in Section 01 45 16.13, Contractor Quality Control.
- K. Schedules:
1. Schedule of Submittals: Prepare separately or in combination with Progress Schedule as specified in Section 01 32 00, Construction Progress Documentation.
 - a. Show for each, at a minimum, the following:
 - 1) Specification section number.
 - 2) Identification by numbering and tracking system as specified under Paragraph Transmittal of Submittal.
 - 3) Estimated date of submission to Engineer, including reviewing and processing time.
 - b. On a monthly basis, submit updated Schedule of Submittals to Engineer if changes have occurred or resubmittals are required.
 2. Progress Schedules: In accordance with Section 01 32 00, Construction Progress Documentation.
- L. Special Guarantee: Supplier's written guarantee as required in individual specification sections.
- M. Statement of Qualification: Evidence of qualification, certification, or registration as required in Contract Documents to verify qualifications of

professional land surveyor, engineer, materials testing laboratory, specialty Subcontractor, trade, Specialist, consultant, installer, and other professionals.

- N. Submittals Required by Laws, Regulations, and Governing Agencies:
1. Promptly submit promptly notifications, reports, certifications, payrolls, and otherwise as may be required, directly to the applicable federal, state, or local governing agency or their representative.
 2. Transmit to Engineer for Owner's records one copy of correspondence and transmittals (to include enclosures and attachments) between Contractor and governing agency.
- O. Test, Evaluation, and Inspection Reports:
1. General: Shall contain signature of person responsible for test or report.
 2. Factory:
 - a. Identification of product and specification section, type of inspection or test with referenced standard or code.
 - b. Date of test, Project title and number, and name and signature of authorized person.
 - c. Test results.
 - d. If test or inspection deems material or equipment not in compliance with Contract Documents, identify corrective action necessary to bring into compliance.
 - e. Provide interpretation of test results, when requested by Engineer.
 - f. Other items as identified in individual specification sections.
 3. Field:
 - a. As a minimum, include the following:
 - 1) Project title and number.
 - 2) Date and time.
 - 3) Record of temperature and weather conditions.
 - 4) Identification of product and specification section.
 - 5) Type and location of test, Sample, or inspection, including referenced standard or code.
 - 6) Date issued, testing laboratory name, address, and telephone number, and name and signature of laboratory inspector.
 - 7) If test or inspection deems material or equipment not in compliance with Contract Documents, identify corrective action necessary to bring into compliance.
 - 8) Provide interpretation of test results, when requested by Engineer.
 - 9) Other items as identified in individual specification sections.
- P. Testing and Startup Data: In accordance with Section 01 91 14, Equipment Testing and Facility Startup.

1.05 SUPPLEMENTS


A. The supplements listed below, following “End of Section,” are part of this specification.

1. Forms: Transmittal of Contractor’s Submittal.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

 CH2MHILL	TRANSMITTAL OF CONTRACTOR'S SUBMITTAL (ATTACH TO EACH SUBMITTAL)	DATE: _____
TO: _____ _____ _____ _____ _____ FROM: _____ <p style="text-align: center;">Contractor</p> _____ _____ _____	Submittal No.: _____ <input type="checkbox"/> New Submittal <input type="checkbox"/> Resubmittal Project: _____ Project No.: _____ Specification Section No.: _____ <p style="text-align: center;">(Cover only one section with each transmittal)</p> Schedule Date of Submittal: _____ _____	
SUBMITTAL TYPE: <input type="checkbox"/> Shop Drawing <input type="checkbox"/> Sample <input type="checkbox"/> Informational <input type="checkbox"/> Deferred		

The following items are hereby submitted:

Number of Copies	Description of Item Submitted (Type, Size, Model Number, Etc.)	Spec. and Para. No.	Drawing or Brochure Number	Contains Variation to Contract	
				No	Yes

Contractor hereby certifies that (i) Contractor has complied with the requirements of Contract Documents in preparation, review, and submission of designated Submittal and (ii) the Submittal is complete and in accordance with the Contract Documents and requirements of laws and regulations and governing agencies.

By: _____
 Contractor (Authorized Signature)

SECTION 01 42 13
ABBREVIATIONS AND ACRONYMS

PART 1 GENERAL

- 1.01 REFERENCE TO STANDARDS AND SPECIFICATIONS OF TECHNICAL SOCIETIES
- A. Reference to standards and specifications of technical societies and reporting and resolving discrepancies associated therewith shall be as provided in Article 3 of the General Conditions, and as may otherwise be required herein and in the individual Specification sections.
 - B. Work specified by reference to published standard or specification of government agency, technical association, trade association, professional society or institute, testing agency, or other organization shall meet requirements or surpass minimum standards of quality for materials and workmanship established by designated standard or specification.
 - C. Where so specified, products or workmanship shall also meet or exceed additional prescriptive or performance requirements included within Contract Documents to establish a higher or more stringent standard of quality than required by referenced standard.
 - D. Where two or more standards are specified to establish quality, product and workmanship shall meet or exceed requirements of most stringent.
 - E. Where both a standard and a brand name are specified for a product in Contract Documents, proprietary product named shall meet or exceed requirements of specified reference standard.
 - F. Copies of standards and specifications of technical societies:
 - 1. Copies of applicable referenced standards have not been bound in these Contract Documents.
 - 2. Where copies of standards are needed by Contractor, obtain a copy or copies directly from publication source and maintain in an orderly manner at the Site as Work Site records, available to Contractor's personnel, Subcontractors, Owner, and Engineer.

1.02 ABBREVIATIONS

A. Abbreviations for trade organizations and government agencies: Following is a list of construction industry organizations and government agencies to which references may be made in the Contract Documents, with abbreviations used.

1.	AA	Aluminum Association
2.	AABC	Associated Air Balance Council
3.	AAMA	American Architectural Manufacturers Association
4.	AASHTO	American Association of State Highway and Transportation Officials
5.	ABMA	American Bearing Manufacturers' Association
6.	ACI	American Concrete Institute
7.	AEIC	Association of Edison Illuminating Companies
8.	AGA	American Gas Association
9.	AGMA	American Gear Manufacturers' Association
10.	AI	Asphalt Institute
11.	AISC	American Institute of Steel Construction
12.	AISI	American Iron and Steel Institute
13.	AITC	American Institute of Timber Construction
14.	ALS	American Lumber Standards
15.	AMCA	Air Movement and Control Association
16.	ANSI	American National Standards Institute
17.	APA	APA – The Engineered Wood Association
18.	API	American Petroleum Institute
19.	APWA	American Public Works Association
20.	AHRI	Air-Conditioning, Heating, and Refrigeration Institute
21.	ASA	Acoustical Society of America
22.	ASABE	American Society of Agricultural and Biological Engineers
23.	ASCE	American Society of Civil Engineers
24.	ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
25.	ASME	American Society of Mechanical Engineers
26.	ASNT	American Society for Nondestructive Testing
27.	ASSE	American Society of Sanitary Engineering
28.	ASTM	ASTM International
29.	AWI	Architectural Woodwork Institute
30.	AWPA	American Wood Preservers' Association
31.	AWPI	American Wood Preservers' Institute
32.	AWS	American Welding Society
33.	AWWA	American Water Works Association

34.	BHMA	Builders Hardware Manufacturers' Association
35.	CBM	Certified Ballast Manufacturer
36.	CDA	Copper Development Association
37.	CGA	Compressed Gas Association
38.	CISPI	Cast Iron Soil Pipe Institute
39.	CMAA	Crane Manufacturers' Association of America
40.	CRSI	Concrete Reinforcing Steel Institute
41.	CS	Commercial Standard
42.	CSA	Canadian Standards Association
43.	CSI	Construction Specifications Institute
44.	DIN	Deutsches Institut für Normung e.V.
45.	DIPRA	Ductile Iron Pipe Research Association
46.	EIA	Electronic Industries Alliance
47.	EJCDC	Engineers Joint Contract Documents' Committee
48.	ETL	Electrical Test Laboratories
49.	FAA	Federal Aviation Administration
50.	FCC	Federal Communications Commission
51.	FDA	Food and Drug Administration
52.	FEMA	Federal Emergency Management Agency
53.	FIPS	Federal Information Processing Standards
54.	FM	FM Global
55.	Fed. Spec.	Federal Specifications (FAA Specifications)
56.	FS	Federal Specifications and Standards (Technical Specifications)
57.	GA	Gypsum Association
58.	GANA	Glass Association of North America
59.	HI	Hydraulic Institute
60.	HMI	Hoist Manufacturers' Institute
61.	IBC	International Building Code
62.	ICBO	International Conference of Building Officials
63.	ICC	International Code Council
64.	ICEA	Insulated Cable Engineers' Association
65.	IFC	International Fire Code
66.	IEEE	Institute of Electrical and Electronics Engineers, Inc.
67.	IESNA	Illuminating Engineering Society of North America
68.	IFI	Industrial Fasteners Institute
69.	IGMA	Insulating Glass Manufacturer's Alliance
70.	IMC	International Mechanical Code
71.	INDA	Association of the Nonwoven Fabrics Industry
72.	IPC	International Plumbing Code
73.	ISA	International Society of Automation
74.	ISO	International Organization for Standardization

75.	ITL	Independent Testing Laboratory
76.	JIC	Joint Industry Conferences of Hydraulic Manufacturers
77.	MIA	Marble Institute of America
78.	MIL	Military Specifications
79.	MMA	Monorail Manufacturers' Association
80.	MSS	Manufacturer's Standardization Society
81.	NAAMM	National Association of Architectural Metal Manufacturers
82.	NACE	NACE International
83.	NBGQA	National Building Granite Quarries Association
84.	NEBB	National Environmental Balancing Bureau
85.	NEC	National Electrical Code
86.	NECA	National Electrical Contractor's Association
87.	NEMA	National Electrical Manufacturers' Association
88.	NESC	National Electrical Safety Code
89.	NETA	InterNational Electrical Testing Association
90.	NFPA	National Fire Protection Association
91.	NHLA	National Hardwood Lumber Association
92.	NICET	National Institute for Certification in Engineering Technologies
93.	NIST	National Institute of Standards and Technology
94.	NRCA	National Roofing Contractors Association
95.	NRTL	Nationally Recognized Testing Laboratories
96.	NSF	NSF International
97.	NSPE	National Society of Professional Engineers
98.	NTMA	National Terrazzo and Mosaic Association
99.	NWWDA	National Wood Window and Door Association
100.	OSHA	Occupational Safety and Health Act (both Federal and State)
101.	PCI	Precast/Prestressed Concrete Institute
102.	PEI	Porcelain Enamel Institute
103.	PPI	Plastic Pipe Institute
104.	PS	Product Standards Section-U.S. Department of Commerce
105.	RMA	Rubber Manufacturers' Association
106.	RUS	Rural Utilities Service
107.	SAE	SAE International
108.	SDI	Steel Deck Institute
109.	SDI	Steel Door Institute
110.	SJI	Steel Joist Institute
111.	SMACNA	Sheet Metal and Air Conditioning Contractors National Association
112.	SPI	Society of the Plastics Industry
113.	SSPC	The Society for Protective Coatings

114. STI/SPFA	Steel Tank Institute/Steel Plate Fabricators Association
115. SWI	Steel Window Institute
116. TEMA	Tubular Exchanger Manufacturers' Association
117. TCA	Tile Council of North America
118. TIA	Telecommunications Industry Association
119. UBC	Uniform Building Code
120. UFC	Uniform Fire Code
121. UL	Underwriters Laboratories Inc.
122. UMC	Uniform Mechanical Code
123. USBR	U.S. Bureau of Reclamation
124. WCLIB	West Coast Lumber Inspection Bureau
125. WI	Wood Institute
126. WWPA	Western Wood Products Association

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. American Nursery and Landscape Association (ANLA): American Standards for Nursery Stock.
2. Federal Emergency Management Agency (FEMA).
3. National Fire Prevention Association (NFPA): 241, Standard for Safeguarding Construction, Alteration, and Demolition Operations.
4. Telecommunications Industry Association (TIA): 568-C, Commercial Building Telecommunications Cabling Standard.
5. U.S. Department of Agriculture (USDA): Urban Hydrology for Small Watersheds.
6. U.S. Weather Bureau: Rainfall-Frequency Atlas of the U.S. for Durations from 30 Minutes to 24 Hours and Return Periods from 1 to 100 Years.
7. Federal Law 29 CFR 1926; US Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1.

1.02 SUBMITTALS

A. Informational Submittals:

1. Copies of permits and approvals for construction as required by Laws and Regulations and governing agencies.
 - a. Provide a safety plan and activity hazard analysis for all major work per U.S.A.R.D.E. Safety and Health Requirements Manual, EM 385-1.1: In effect on the date of solicitation.
2. Temporary Utility Submittals:
 - a. Electric power supply and distribution plans.
 - b. Water supply and distribution plans.
 - c. Sanitary.
3. Temporary Construction Submittals:
 - a. Parking area plans.
 - b. Contractor's field office, storage yard, and storage building plans, including gravel surfaced area.
 - c. Fencing and protective barrier locations and details.
 - d. Staging area location plan.
4. Temporary Control Submittals:
 - a. Plan for disposal of waste materials and intended haul routes.

1.03 MOBILIZATION

- A. Mobilization shall include, but not be limited to, these principal items:
 - 1. Obtaining required permits.
 - 2. Moving Contractor's field office and equipment required for first month operations onto Site.
 - 3. Installing temporary construction power, wiring, and lighting facilities.
 - 4. Providing onsite communication facilities, including telephones.
 - 5. Providing onsite sanitary facilities and potable water facilities as specified and as required by Laws and Regulations, and governing agencies.
 - 6. Arranging for and erection of Contractor's work and storage yard.
 - 7. Posting OSHA required notices and establishing safety programs and procedures.
 - 8. Having Contractor's superintendent at Site full time.

1.04 PROTECTION OF WORK AND PROPERTY

- A. Comply with Owner's (Navy Health and Safety) safety rules while on Owner's property.
- B. Keep Owner informed of serious onsite accidents and related claims.
- C. Use of Explosives: No blasting or use of explosives will be allowed onsite.

PART 2 PRODUCTS

PART 3 EXECUTION

3.01 TEMPORARY UTILITIES

- A. Power:
 - 1. Electric power will be available at or near Site. Determine type and amount available and make arrangements for obtaining temporary electric power service, and metering equipment for electric power used during Contract period.
 - 2. Cost of electric power will be borne by Owner.
- B. Lighting: Provide temporary lighting to meet applicable safety requirements to allow erection, application, or installation of materials and equipment, and observation or inspection of the Work.
- C. Water: No construction or potable water is available at Site. Make arrangements for and bear costs of providing water required for construction purposes and for drinking by construction personnel during construction.

- D. Sanitary and Personnel Facilities: Provide and maintain facilities for Contractor's employees, Subcontractors, and other onsite employers' employees. Service, clean, and maintain facilities and enclosures.
- E. Fire Protection: Furnish and maintain on Site adequate firefighting equipment capable of extinguishing incipient fires. Comply with applicable parts of NFPA 241.

3.02 PROTECTION OF WORK AND PROPERTY

A. General:

1. Perform Work within right-of-way and easements in a systematic manner that minimizes inconvenience to property owners and the public.
2. No residence or business shall be cut off from vehicular traffic for a period exceeding 4 hours, unless special arrangements have been made.
3. Maintain in continuous service existing oil and gas pipelines, underground power, telephone or communication cable, water mains, irrigation lines, sewers, poles and overhead power, and other utilities encountered along line of the Work, unless other arrangements satisfactory to owners of said utilities have been made.
4. Where completion of the Work requires temporary or permanent removal or relocation of existing utility, coordinate activities with owner of said utility and perform work to their satisfaction.
5. Protect, shore, brace, support, and maintain underground pipes, conduits, drains, and other underground utility construction uncovered or otherwise affected by construction operations.
6. Keep fire hydrants and water control valves free from obstruction and available for use at all times.
7. In areas where Contractor's operations are adjacent to or near a utility, such as gas, telephone, television, electric power, water, sewer, or irrigation system, and such operations may cause damage or inconvenience, suspend operations until arrangements necessary for protection have been made by Contractor.
8. Do not impair operation of existing sewer system. Prevent construction material, pavement, concrete, earth, volatile and corrosive wastes, and other debris from entering sewers, pump stations, or other sewer structures.
9. Maintain original Site drainage wherever possible.

- B. Site Security: Provide and maintain additional temporary security fences as necessary to protect the Work and Contractor-furnished products not yet installed.

3.03 STORAGE YARDS AND BUILDINGS

- A. Coordinate requirements with Section 01 61 00, Common Product Requirements.
- B. Temporary Storage Yards: Construct temporary storage yards for storage of products that are not subject to damage by weather conditions.
- C. Temporary Storage Buildings:
 - 1. Provide environmental control systems that meet recommendations of manufacturers of equipment and materials stored.
 - 2. Arrange or partition to provide security of contents and ready access for inspection and inventory.
 - 3. Store combustible materials (paints, solvents, fuels) in a well-ventilated and remote building meeting safety standards.

3.04 PARKING AREAS

- A. Control vehicular parking to preclude interference with public traffic or parking, access by emergency vehicles, Owner's operations, or construction operations.
- B. Provide parking facilities for personnel working on Project. No employee or equipment parking will be permitted on Owner's existing paved areas, except as specifically designated for Contractor's use.

3.05 VEHICULAR TRAFFIC

- A. Comply with Laws and Regulations regarding closing or restricting use of public streets or highways. No public or private road shall be closed, except by written permission of proper authority. Ensure the least possible obstruction to traffic and normal commercial pursuits.
- B. Conduct the Work to interfere as little as possible with public travel, whether vehicular or pedestrian.
- C. Whenever it is necessary to cross, close, or obstruct roads, driveways, and walks, whether public or private, provide and maintain suitable and safe bridges, detours, or other temporary expedients for accommodation of public and private travel.
- D. Maintenance of traffic is not required if Contractor obtains written permission from Owner and tenant of private property, or from authority having jurisdiction over public property involved, to obstruct traffic at designated point.

- E. When flaggers and guards are required by regulation or when deemed necessary for safety, furnish them with approved orange wearing apparel and other regulation traffic control devices.
- F. Notify fire department and police department before closing street or portion thereof. Notify said departments when streets are again passable for emergency vehicles. Do not block off emergency vehicle access to consecutive arterial crossings or dead-end streets, in excess of 300 linear feet, without written permission from fire department. Conduct operations with the least interference to fire equipment access, and at no time prevent such access. Furnish Contractor's night emergency telephone numbers to police department.

3.06 CLEANING DURING CONSTRUCTION

- A. In accordance with General Conditions, as may be specified in other Specification sections, and as required herein.
- B. Wet down exterior surfaces prior to sweeping to prevent blowing of dust and debris. At least weekly, sweep floors (basins, tunnels, platforms, walkways, roof surfaces), and pick up and dispose of debris.
- C. Provide approved containers for collection and disposal of waste materials, debris, and rubbish. At least weekly, dispose of such waste materials, debris, and rubbish offsite.
- D. At least weekly, brush sweep entry drive, roadways, and other streets and walkways affected by the Work and where adjacent to the Work.

END OF SECTION

**SECTION 01 61 00
COMMON PRODUCT REQUIREMENTS**

PART 1 GENERAL

1.01 DEFINITIONS

A. Products:

1. New items for incorporation in the Work, whether purchased by Contractor or Owner for the Project, or taken from previously purchased stock, and may also include existing materials or components required for reuse.
2. Includes the terms material, equipment, machinery, components, subsystem, system, hardware, software, and terms of similar intent and is not intended to change meaning of such other terms used in Contract Documents, as those terms are self-explanatory and have well recognized meanings in construction industry.
3. Items identified by manufacturer's product name, including make or model designation, indicated in manufacturer's published product literature, that is current as of the date of the Contract Documents.

1.02 DESIGN REQUIREMENTS

A. Where Contractor design is specified, design of installation, systems, equipment, and components, including supports and anchorage, shall be in accordance with provisions of latest edition of Florida Building Code.

1. Wind: Basic wind speed, V:175 mph, with exposure Category B, and an importance factor, I, of 1.0 inch accordance with ASCE 7-10.

1.03 ENVIRONMENTAL REQUIREMENTS

A. Altitude: Provide materials and equipment suitable for installation and operation under rated conditions at 10 feet above sea level and in a marine environment.

B. Provide equipment and devices installed outdoors or in unheated enclosures capable of continuous operation within an ambient temperature range of 20 degrees F to 110 degrees F.

1.04 PREPARATION FOR SHIPMENT

A. When practical, factory assemble products. Mark or tag separate parts and assemblies to facilitate field assembly. Cover machined and unpainted parts that may be damaged by the elements with strippable protective coating.

- B. Package products to facilitate handling and protect from damage during shipping, handling, and storage. Mark or tag outside of each package or crate to indicate its purchase order number, bill of lading number, contents by name, name of Project and Contractor, equipment number, and approximate weight. Include complete packing list and bill of materials with each shipment.
- C. Extra Materials, Special Tools, Test Equipment, and Expendables:
 - 1. Furnish as required by individual Specifications.
 - 2. Schedule:
 - a. Ensure that shipment and delivery occurs concurrent with shipment of associated equipment.
 - b. Transfer to Owner shall occur immediately subsequent to Contractor's acceptance of equipment from Supplier.
 - 3. Packaging and Shipment:
 - a. Package and ship extra materials and special tools to avoid damage during long term storage in original cartons insofar as possible, or in appropriately sized, hinged-cover, wood, plastic, or metal box.
 - b. Prominently displayed on each package, the following:
 - 1) Manufacturer's part nomenclature and number, consistent with Operation and Maintenance Manual identification system.
 - 2) Applicable equipment description.
 - 3) Quantity of parts in package.
 - 4) Equipment manufacturer.
 - 4. Deliver materials to Site.
 - 5. Notify Owner upon arrival for transfer of materials.
 - 6. Replace extra materials and special tools found to be damaged or otherwise inoperable at time of transfer to Owner.
- D. Request a minimum 7-day advance notice of shipment from manufacturer.
- E. Factory Test Results: Reviewed and accepted by Engineer before product shipment as required in individual Specification sections.

1.05 DELIVERY AND INSPECTION

- A. Deliver products in accordance with accepted current Progress Schedule and coordinate to avoid conflict with the Work and conditions at Site. Deliver anchor bolts and templates sufficiently early to permit setting prior to placement of structural concrete.

- B. Deliver products in undamaged condition, in manufacturer's original container or packaging, with identifying labels intact and legible. Include on label, date of manufacture and shelf life, where applicable.
- C. Unload products in accordance with manufacturer's instructions for unloading or as specified. Record receipt of products at Site. Promptly inspect for completeness and evidence of damage during shipment.
- D. Remove damaged products from Site and expedite delivery of identical new undamaged products, and remedy incomplete or lost products to provide that specified, so as not to delay progress of the Work.

1.06 HANDLING, STORAGE, AND PROTECTION

- A. Handle and store products in accordance with manufacturer's written instructions and in a manner to prevent damage. Store in approved storage yards or sheds provided in accordance with Section 01 50 00, Temporary Facilities and Controls. Provide manufacturer's recommended maintenance during storage, installation, and until products are accepted for use by Owner.
- B. Manufacturer's instructions for material requiring special handling, storage, or protection shall be provided prior to delivery of material.
- C. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored products to assure that products are maintained under specified conditions, and free from damage or deterioration. Keep running account of products in storage to facilitate inspection and to estimate progress payments for products delivered, but not installed in the Work.
- D. Store electrical, instrumentation, and control products, and equipment with bearings in weather-tight structures maintained above 60 degrees F. Protect electrical, instrumentation, and control products, and insulate against moisture, water, and dust damage. Connect and operate continuously space heaters furnished in electrical equipment.
- E. Store fabricated products above ground on blocking or skids, and prevent soiling or staining. Store loose granular materials in well-drained area on solid surface to prevent mixing with foreign matter. Cover products that are subject to deterioration with impervious sheet coverings; provide adequate ventilation to avoid condensation.
- F. Store finished products that are ready for installation in dry and well-ventilated areas. Do not subject to extreme changes in temperature or humidity.

- G. After installation, provide coverings to protect products from damage due to traffic and construction operations. Remove coverings when no longer needed.
- H. Hazardous Materials: Prevent contamination of personnel, storage area, and Site. Meet requirements of product specification, codes, and manufacturer's instructions.

PART 2 PRODUCTS

2.01 GENERAL

- A. Provide manufacturer's standard materials suitable for service conditions, unless otherwise specified in the individual Specifications.
- B. Where product specifications include a named manufacturer, with or without model number, and also include performance requirements, named manufacturer's products must meet the performance specifications.
- C. Like items of products furnished and installed in the Work shall be end products of one manufacturer and of the same series or family of models to achieve standardization for appearance, operation and maintenance, spare parts and replacement, manufacturer's services, and implement same or similar process instrumentation and control functions in same or similar manner.
- D. Do not use materials and equipment removed from existing premises, except as specifically permitted by Contract Documents.
- E. Provide interchangeable components of the same manufacturer, for similar components, unless otherwise specified.
- F. Equipment, Components, Systems, and Subsystems: Design and manufacture with due regard for health and safety of operation, maintenance, and accessibility, durability of parts, and shall comply with applicable OSHA, state, and local health and safety regulations.
- G. Regulatory Requirement: Coating materials shall meet federal, state, and local requirements limiting the emission of volatile organic compounds and for worker exposure.
- H. Safety Guards: Provide for all belt or chain drives, fan blades, couplings, or other moving or rotary parts. Cover rotating part on all sides. Design for easy installation and removal. Use 16-gauge or heavier; galvanized steel, aluminum coated steel, or galvanized or aluminum coated 1/2-inch mesh expanded steel. Provide galvanized steel accessories and supports, including bolts. For outdoors application, prevent entrance of rain and dripping water.

- I. Authority Having Jurisdiction (AHJ):
 - 1. Provide the Work in accordance with NFPA 70, National Electrical Code (NEC). Where required by the AHJ, material and equipment shall be labeled or listed by a nationally recognized testing laboratory or other organization acceptable to the AHJ in order to provide a basis for approval under NEC.
 - 2. Materials and equipment manufactured within the scope of standards published by Underwriters Laboratories, Inc. shall conform to those standards and shall have an applied UL listing mark.

- J. Equipment Finish:
 - 1. Provide manufacturer's standard finish and color, except where specific color is indicated.
 - 2. If manufacturer has no standard color, provide equipment with gray finish as approved by Owner.

- K. Special Tools and Accessories: Furnish to Owner, upon acceptance of equipment, all accessories required to place each item of equipment in full operation. These accessory items include, but are not limited to, adequate oil and grease (as required for first lubrication of equipment after field testing), light bulbs, fuses, hydrant wrenches, valve keys, handwheels, chain operators, special tools, and other spare parts as required for maintenance.

- L. Lubricant: Provide initial lubricant recommended by equipment manufacturer in sufficient quantity to fill lubricant reservoirs and to replace consumption during testing, startup, and operation until final acceptance by Owner.

2.02 FABRICATION AND MANUFACTURE

- A. General:
 - 1. Manufacture parts to U.S.A. standard sizes and gauges.
 - 2. Two or more items of the same type shall be identical, by the same manufacturer, and interchangeable.
 - 3. Design structural members for anticipated shock and vibratory loads.
 - 4. Use 1/4-inch minimum thickness for steel that will be submerged, wholly or partially, during normal operation.
 - 5. Modify standard products as necessary to meet performance Specifications.

- B. Lubrication System:
 - 1. Require no more than weekly attention during continuous operation.

2. Convenient and accessible; oil drains with bronze or stainless steel valves and fill-plugs easily accessible from the normal operating area or platform. Locate drains to allow convenient collection of oil during oil changes without removing equipment from its installed position.
3. Provide constant-level oilers or oil level indicators for oil lubrication systems.
4. For grease type bearings, which are not easily accessible, provide and install stainless steel tubing; protect and extend tubing to convenient location with suitable grease fitting.

2.03 SOURCE QUALITY CONTROL

- A. Where Specifications call for factory testing to be witnessed by Engineer, notify Engineer not less than 14 days prior to scheduled test date, unless otherwise specified.
- B. Calibration Instruments: Bear the seal of a reputable laboratory certifying instrument has been calibrated within the previous 12 months to a standard endorsed by the National Institute of Standards and Technology (NIST).
- C. Factory Tests: Perform in accordance with accepted test procedures and document successful completion.

PART 3 EXECUTION

3.01 INSPECTION

- A. Inspect materials and equipment for signs of pitting, rust decay, or other deleterious effects of storage. Do not install material or equipment showing such effects. Remove damaged material or equipment from the Site and expedite delivery of identical new material or equipment. Delays to the Work resulting from material or equipment damage that necessitates procurement of new products will be considered delays within Contractor's control.

3.02 INSTALLATION

- A. Equipment Drawings show general locations of equipment, devices, and raceway, unless specifically dimensioned.
- B. No shimming between machined surfaces is allowed.
- C. Install the Work in accordance with NECA Standard of Installation, unless otherwise specified.
- D. Repaint painted surfaces that are damaged prior to equipment acceptance.

- E. Do not cut or notch any structural member or building surface without specific approval of Engineer.
- F. Handle, install, connect, clean, condition, and adjust products in accordance with manufacturer's instructions, and as may be specified. Retain a copy of manufacturers' instruction at Site, available for review at all times.
- G. For material and equipment specifically indicated or specified to be reused in the Work:
 - 1. Use special care in removal, handling, storage, and reinstallation to assure proper function in the completed Work.
 - 2. Arrange for transportation, storage, and handling of products that require offsite storage, restoration, or renovation. Include costs for such Work in the Contract Price.

3.03 ADJUSTMENT AND CLEANING

- A. Perform required adjustments, tests, operation checks, and other startup activities.

3.04 LUBRICANTS

- A. Fill lubricant reservoirs and replace consumption during testing, startup, and operation prior to acceptance of equipment by Owner.

END OF SECTION

**SECTION 01 77 00
CLOSEOUT PROCEDURES**

PART 1 GENERAL

1.01 SUBMITTALS

A. Informational Submittals:

1. Submit prior to application for final payment.
 - a. Record Documents: As required in General Conditions.
 - b. Approved Shop Drawings and Samples: As required in the General Conditions.
 - c. Special bonds, Special Guarantees, and Service Agreements.
 - d. Consent of Surety to Final Payment: As required in General Conditions.
 - e. Releases or Waivers of Liens and Claims: As required in General Conditions.
 - f. Releases from Agreements.
 - g. Final Application for Payment: Submit in accordance with procedures and requirements stated in Section 01 29 00, Payment Procedures.
 - h. Extra Materials: As required by individual Specification sections.

1.02 RECORD DOCUMENTS

A. Quality Assurance:

1. Furnish qualified and experienced person, whose duty and responsibility shall be to maintain record documents.
2. Accuracy of Records:
 - a. Coordinate changes within record documents, making legible and accurate entries on each sheet of Drawings and other documents where such entry is required to show change.
 - b. Purpose of Project record documents is to document factual information regarding aspects of the Work, both concealed and visible, to enable future modification of the Work to proceed without lengthy and expensive Site measurement, investigation, and examination.
3. Make entries within 24 hours after receipt of information that a change in the Work has occurred.
4. Prior to submitting each request for progress payment, request Engineer's review and approval of current status of record documents. Failure to properly maintain, update, and submit record documents may result in a deferral by Engineer to recommend whole or any part of Contractor's Application for Payment, either partial or final.

1.03 RELEASES FROM AGREEMENTS

- A. Furnish Owner written releases from property owners or public agencies where side agreements or special easements have been made, or where Contractor's operations have not been kept within the Owner's construction right-of-way.
- B. In the event Contractor is unable to secure written releases:
 - 1. Inform Owner of the reasons.
 - 2. Owner or its representatives will examine the Site, and Owner will direct Contractor to complete the Work that may be necessary to satisfy terms of the side agreement or special easement.
 - 3. Should Contractor refuse to perform this Work, Owner reserves right to have it done by separate contract and deduct cost of same from Contract Price, or require Contractor to furnish a satisfactory bond in a sum to cover legal Claims for damages.
 - 4. When Owner is satisfied that the Work has been completed in agreement with Contract Documents and terms of side agreement or special easement, right is reserved to waive requirement for written release if: (i) Contractor's failure to obtain such statement is due to grantor's refusal to sign, and this refusal is not based upon any legitimate Claims that Contractor has failed to fulfill terms of side agreement or special easement, or (ii) Contractor is unable to contact or has had undue hardship in contacting grantor.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 MAINTENANCE OF RECORD DOCUMENTS

- A. General:
 - 1. Promptly following commencement of Contract Times, secure from Engineer at no cost to Contractor, one complete set of Contract Documents.
 - 2. Label or stamp each record document with title, "RECORD DOCUMENTS," in neat large printed letters.
 - 3. Record information concurrently with construction progress and within 24 hours after receipt of information that change has occurred. Do not cover or conceal Work until required information is recorded.

B. Preservation:

1. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.
2. Make documents and Samples available at all times for observation by Engineer.

C. Making Entries on Drawings:

1. Using an erasable colored pencil (not ink or indelible pencil), clearly describe change by graphic line and note as required.
 - a. Color Coding:
 - 1) Green when showing information deleted from Drawings.
 - 2) Red when showing information added to Drawings.
 - 3) Blue and circled in blue to show notes.
2. Date entries.
3. Call attention to entry by “cloud” drawn around area or areas affected.
4. Legibly mark to record actual changes made during construction, including, but not limited to:
 - a. Depths of various elements of foundation in relation to finished first floor data if not shown or where depth differs from that shown.
 - b. Horizontal and vertical locations of existing and new Underground Facilities and appurtenances, and other underground structures, equipment, or Work. Reference to at least two measurements to permanent surface improvements.
 - c. Location of internal utilities and appurtenances concealed in the construction referenced to visible and accessible features of the structure.
 - d. Locate existing facilities, piping, equipment, and items critical to the interface between existing physical conditions or construction and new construction.
 - e. Changes made by Addenda and Field Orders, Work Change Directive, Change Order, and Engineer’s written interpretation and clarification using consistent symbols for each and showing appropriate document tracking number.
5. Dimensions on Schematic Layouts: Show on record drawings, by dimension, the centerline of each run of items such as are described in previous subparagraph above.
 - a. Clearly identify the item by accurate note such as “cast iron drain,” “galv. water,” and the like.
 - b. Show, by symbol or note, vertical location of item (“under slab,” “in ceiling plenum,” “exposed,” and the like).
 - c. Make identification so descriptive that it may be related reliably to Specifications.

3.02 FINAL CLEANING

- A. At completion of the Work or of a part thereof and immediately prior to Contractor's request for certificate of Substantial Completion; or if no certificate is issued, immediately prior to Contractor's notice of completion, clean entire Site or parts thereof, as applicable.
1. Leave the Work and adjacent areas affected in a cleaned condition satisfactory to Owner.
 2. Remove grease, dirt, dust, paint or plaster splatter, stains, labels, fingerprints, and other foreign materials from exposed surfaces.
 3. Repair, patch, and touch up marred surfaces to specified finish and match adjacent surfaces.
 4. Clean all windows.
 5. Clean and wax wood, vinyl, or painted floors.
 6. Broom clean exterior paved driveways and parking areas.
 7. Hose clean sidewalks, loading areas, and others contiguous with principal structures.
 8. Rake clean all other surfaces.
 9. Remove snow and ice from access to buildings.
 10. Replace air-handling filters and clean ducts, blowers, and coils of ventilation units operated during construction.
 11. Leave water courses, gutters, and ditches open and clean.
- B. Use only cleaning materials recommended by manufacturer of surfaces to be cleaned.

END OF SECTION

SECTION 26 05 01
ELECTRICAL

PART 1 GENERAL

1.01 REFERENCES

- A. The following is a list of standards that may be referenced in this section:
1. American Association of State Highway Transportation Officials (AASHTO).
 2. ASTM International (ASTM):
 - a. A167, Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
 - b. A240/A240M, Standard Specification for Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels.
 - c. A1011/A1011M, Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
 - d. B8, Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft.
 - e. C857, Standard Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures.
 3. Electronic Industries Association (EIA/TIA): 569, Commercial Building Standard for Telecommunications Pathways and Spaces.
 4. Federal Specifications (FS):
 - a. W-C-596, Connector, Electrical, Power, General Specification for.
 - b. W-S-896, Switch, Toggle (Toggle and Lock), Flush Mounted (General Specification).
 5. Institute of Electrical and Electronics Engineers, Inc. (IEEE):
 - a. C62.41, Recommended Practice on Surge Voltages in Low-Voltage AC Power Circuits.
 - b. PC62.41.1, Draft Guide on the Surge Environment in Low-Voltage (1000 V and less) AC Power Circuits.
 - c. 112, Standard Test Procedure for Polyphase Induction Motors and Generators.
 - d. 114, Standard Test Procedures for Single-Phase Induction Motors.
 6. International Electrical Testing Association (NETA): ATS, Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.
 7. National Electrical Contractors Association, Inc. (NECA): 1, Standard Practices for Good Workmanship in Electrical Contracting.
 8. National Electrical Manufacturers Association (NEMA):
 - a. C80.1, Rigid Steel Conduit-Zinc Coated.

- b. C80.3, Electrical Metallic Tubing-Zinc Coated.
 - c. C80.6, Intermediate Metal Conduit-Zinc Coated (IMC).
 - d. 250, Enclosures for Electrical Equipment (1,000 Volts Maximum).
 - e. CC1, Electrical Power Connectors for Substations.
 - f. ICS 1, Industrial Control and Systems: General Requirements.
 - g. ICS 2, Industrial Control and Systems: Controllers, Contactors, and Overload Relays Rated Not More Than 2000 Volts AC or 750 Volts DC.
 - h. ICS 2.3, Industrial Control and Systems: Instructions for the Handling, Installation, Operation and Maintenance of Motor Control Centers.
 - i. MG 1, Motors and Generators.
 - j. PB 1, Panelboards.
 - k. RN 1, Polyvinyl Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit.
 - l. ST 20, Dry Type Transformers for General Applications.
 - m. TC 2, Electrical Polyvinyl Chloride (PVC) Tubing and Conduit.
 - n. TC 3, PVC Fittings for Use with Rigid PVC Conduit and Tubing.
 - o. WC 55, Instrumentation Cables and Thermocouple Wire.
 - p. WC 70, Standard for Non-Shielded Power Cables Rated 2000 V or Less for the Distribution of Electrical Energy.
 - q. WC 71, Standard for Non-Shielded Cables Rated 2001-5000 Volts for use in the Distribution of Electrical Energy.
 - r. WC 74, 5-46 KV Shielded Power Cable for use in the Transmission and Distribution of Electric Energy.
 - s. WD 1, General Color Requirements for Wiring Devices.
9. National Fire Protection Association (NFPA): 70, National Electrical Code (NEC).
10. Underwriters Laboratories, Inc. (UL):
- a. 1, Flexible Metal Conduit.
 - b. 6, Electrical Rigid Metal Conduit—Steel.
 - c. 13, Power-Limited Circuit Cables.
 - d. 44, Thermoset Insulated Wires and Cables.
 - e. 62, Flexible Cord and Fixture Wire.
 - f. 67, Panelboards.
 - g. 98, Enclosed and Dead-Front Switches.
 - h. 198C, High Interrupting Capacity Fuses, Current Limiting Types.
 - i. 198E, Class R Fuses.
 - j. 360, Liquid-Tight Flexible Steel Conduit.
 - k. 486A, Wire Connectors and Soldering Lugs for Use with Copper Conductors.
 - l. 486C, Splicing Wire Connectors.
 - m. 489, Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit Breaker Enclosures.
 - n. 508, Industrial Control Equipment.

- o. 510, Polyvinyl Chloride, Polyethylene and Rubber Insulating Tape.
- p. 514B, Fittings for Cable and Conduit.
- q. 651, Schedule 40 and 80 PVC Conduit.
- r. 674, Electric Motors And Generators for use in Division 1 Hazardous (Classified) Locations.
- s. 797, Electrical Metallic Tubing.
- t. 854, Service-Entrance Cables.
- u. 870, Wireways, Auxiliary Gutters, and Associated Fittings.
- v. 943, Ground-Fault Circuit Interrupters.
- w. 1059, Terminal Blocks.
- x. 1242, Intermediate Metal Conduit.
- y. 1277, Electrical Power and Control Tray Cables with Optional Optical-Fibre Members.
- z. 1449, Transient Voltage Surge Suppressors.
- aa. 1561, Dry-Type General Purpose and Power Transformers.
- bb. 2111, Overheating Protection for Motors.

1.02 SUBMITTALS

A. Action Submittals:

1. Protective Relays
2. Current transformers
3. Stainless Steel box extensions .
4. Cable Racking System for Handholes
5. Circuit breakers.
6. Control devices, terminal blocks, and relays.
7. Support and framing channels.
8. Nameplates and nameplate schedule.
9. Conductors, cable, and accessories.
10. Grounding materials

B. Informational Submittals:

1. Field test reports.
2. Signed permits indicating Work is acceptable to regulatory authorities having jurisdiction.
3. Operation and Maintenance Data:
 - a. Provide for all equipment, as well as each device having features that can require adjustment, configuration, or maintenance.
 - b. Minimum information shall include manufacturer's preprinted instruction manual, one copy of the approved submittal information for the item, tabulation of any settings, and copies of any test reports.

4. As-Built Drawings: The as-built drawings shall update the one line diagrams showing any field changes; substation/switchboard location for replaced protective relays (Basler Be1-951); field modifications to circuit breakers; Pier 8 cubicle modifications; and feeder routing and manhole identification for the feeders from Substation 4 to the end of Pier 8.

1.03 APPROVAL BY AUTHORITY HAVING JURISDICTION

- A. Provide the Work in accordance with NFPA 70, National Electrical Code (NEC).
- B. Materials and equipment manufactured within the scope of standards published by Underwriters Laboratories, Inc. shall conform to those standards and shall have an applied UL listing mark or label.

1.04 QUALIFICATIONS

- A. Contractor shall have a minimum of 10 years experience in the installation repair and of electrical distribution systems in a marine environment. Contractor shall be familiar with and meet all security requirements of the US Navy and the City of Key West Contractors on site supervisor personal shall be a licensed master electrician or a licensed journeyman electrician with a minimum of 10 years as a certified journeyman.
- B. Testing Firm Qualifications: NETA Certified testing company with 10 years' minimum experience professionally independent of manufacturers, suppliers, and installers, or electrical equipment and systems being tested.

1.05 EXTRA MATERIALS

- A. Protective Relays: Qty (4).
- B. Current Transformers; Qty (4).
- C. Main Fuses Qty (6).
- D. 800-Amp Circuit breaker Qty (2) as specified on Bid Form.
- E. 1600-Amp Circuit Breaker Qty (2) as specified on Bid Form.
- F. Spare parts as recommended by Eaton Electrical Manufacturing.

PART 2 PRODUCTS

2.01 GENERAL

- A. Products shall comply with all applicable provisions of NFPA 70.

- B. Like Items of Equipment: End products of one manufacturer in order to achieve standardization for appearance, operation, maintenance, spare parts, and manufacturer's service.
- C. Equipment and Devices Installed Outdoors or in Unheated Enclosures: Capable of continuous operation within ambient temperature range of 44 degrees F to 120 degrees F.

2.02 STAINLESS STEEL BOX EXTENSION

- A. Contractor shall field measure the four existing utility stations at Pier 8 and manufacture a box extension as shown in the details on the Drawings. Box shall allow for bending radius of new 750 Kcmil conductor.
- B. All stainless shall be Type 316.

2.03 PUSHBUTTONS, INDICATING LIGHTS, AND SELECTOR SWITCHES

- A. Type: Heavy-duty, oiltight. Provide contact arrangements, colors, inscriptions, and functions as shown.
- B. Contact Rating: NEMA ICS 2, Type A600.
- C. Unless otherwise shown, provide the following features:
 - 1. Selector Switch Operating Lever: Standard.
 - 2. Indicating Lights: Push-to-test, transformer-type.
 - 3. Pushbutton Color:
 - a. ON or START: Black.
 - b. OFF or STOP: Red.
 - 4. Pushbuttons and selector switches lockable in OFF position where indicated.
- D. Legend Plate:
 - 1. Material: Marine Grade Aluminum.
 - 2. Engraving: Indicating specific function, or as shown.
 - 3. Letter Height 3/4 inch.
- E. Attachment: Stainless fastener
- F. Manufacturers and Products:
 - 1. Eaton; Type 10250T.
 - 2. Square D Co.; Type T.
 - 3. General Electric Co.; Type CR 104P.

2.04 TERMINAL BLOCKS

- A. Type: UL 1059. Compression screw clamp, with current bar providing direct contact with wire and yoke, with individual rail mounted terminals. Marking system shall permit use of preprinted or field-marked tags.
- B. Yokes and Clamping Screws: Stainless steel.
- C. Rating: 600V ac.
- D. Manufacturers:
 - 1. Weidmuller, Inc.
 - 2. Ideal.

2.05 SUPPORT AND FRAMING CHANNELS

- A. Stainless Steel Framing Channel: Rolled, ASTM A167, Type 316 stainless steel, 12 gauge.
- B. Manufacturers:
 - 1. B-Line Systems, Inc.
 - 2. Unistrut Corp.

2.06 CABLE RACKING SYSTEM FOR HAND HOLES

- A. Cable racks shall be made from 50% glass-reinforced nylon or a NON-METALLIC material having equal mechanical strength, thermal resistance, chemical resistance, dielectric strength and physical properties. The top face of the cable support arm, on which the cable rests, shall be 3 inches wide and shall be smooth and free of ridges and projections that might score or abrade the cable insulation. Holes or slots shall be provided on the top face for insertion of cable tie-downs. The mounting face of the support arm shall be 5-1/2 inches long and shall incorporate 2-bolt mounting holes. The cable support arms shall meet or exceed the manufacturer's load requirements. Mounting hardware shall be stainless steel.
 - 1. Underground Devices Inc or equal.
 - 2. Devices and Equipment: Name or tag shown, or as required.
 - 3. Source serving equipment
 - a. Designation.
 - b. Service voltage.
 - c. Phases.
 - 4. Minimum Requirement: Label Utility Stations Existing manholes and power distribution equipment, local control panels,

- B. Letter Height: 3/4 inch.
- C. Ground Conductors: #4/0 bare CU for all in ground and manholes
- D. Connectors:
 - 1. Exothermic Weld Type:
 - a. Outdoor Weld: Suitable for exposure to elements or direct burial.
 - b. Manufacturers:
 - 1) Erico Products, Inc.; Cadweld and Cadweld Exolon.
 - 2) Thermoweld.
 - 2. Compression Type:
 - a. Compress-deforming type; wrought copper extrusion material.
 - b. Single indentation for conductors 6 AWG and smaller.
 - c. Double indentation with extended barrel for conductors 4 AWG and larger.
 - d. Single barrels prefilled with oxide-inhibiting and antiseizing compound.
 - e. Manufacturers:
 - 1) Burndy Corp.
 - 2) Thomas and Betts Co.
 - 3) ILSCO.

2.07 PROTECTIVE RELAYS

- A. Basler BE1-951 no equal match existing:
 - 1. Overcurrent Protection: Phase Faults (50/51P-67P, 50/51Q-67Q)
 - 2. The Voltage Protection:
 - a. Volts per Hertz Overexcitation (24).
 - b. Phase Under/Overvoltage (27P/59P).
 - c. Auxiliary Under/Overvoltage (27X/59X).
 - d. Negative Sequence Overvoltage (47).
 - e. Fuse Loss Detection (60).
 - f. Under/Overfrequency (81O/U).
 - 3. The directional power protection: Directional Power (32).
 - 4. Sensing and Control:
 - a. Automatic Reclosing Control.
 - b. Settings Groups: The relay shall have 4 user-programmable settings groups.
 - c. Input/Output: The relay shall have 4 optically isolated inputs, 5 general purpose output contacts, and one fail-safe normally closed alarm output contact. Each output shall be isolated and rated for tripping duty (30A for 0.2 seconds, 7A continuous).
 - d. Virtual Control Switches (43/101): The relay shall include 4 virtual selector switches (x43) and one virtual breaker control

- switch (101), controllable from both the HMI and communication ports.
- e. Relay Logic: The relay shall include programmable logic for each output, for all inputs, and at least ten additional virtual outputs for user programming.
 - f. Logic Timers and Logic Latches (62 and 86): The relay shall include 2 logic timers (62) and 2 nonvolatile logic latches (86) to aid in the development of custom logic.
 - g. Selectable Wye or Delta Voltage Inputs: The relay shall be field selectable after purchase to operate with either wye-connected (four wire) or open-delta-connected (three wire) potential transformers.
 - h. Terminal Blocks and Wiring: Other than RS-232, or optional Ethernet wiring, all connections, including RS-485 wiring and IRIG-B wiring, shall be to barrier terminal strips capable of accepting ring lug connection. RS-232 wiring shall be to DB9S female connectors on the front and rear. RS-232 wiring shall be configured to allow 1-to-1 wiring to the DTE port on a PC, without need for null-modem adaptors or proprietary cabling or connectors Ethernet connection shall be made through a case mounted RJ-45 connector. Standard Ethernet cabling practices shall apply.
 - i. HMI/Display: A backlit 2 line x 16-character LCD display shall be provided integral to the relay, along with a 4-key cursor/navigation keypad. Separate target/alarm reset and settings edit pushbuttons shall be included. Keypad/pushbuttons shall include a continuous, flexible, water-resistant membrane overlay over all keys.
5. Reporting and Alarm:
 - a. Oscillography and Sequential Events Recorder.
 - b. Nonvolatile Status and Trip Target LEDs.
 - c. Real Time Metering The relay shall include real time metering that provides Watt, Watt-hour, VAR, VAR-hour, voltage, amp, and unbalance loading telemetry for the protected circuit.
 - d. Demand Metering.
 - e. Circuit Breaker Monitor.
 - f. Distance to Fault.
 6. Communications:
 - a. Relay Interface: The relay shall include three independent general-purpose communication ports, including a front and rear RS-232 port and a rear RS-485 port. All communications ports, (with the exception of the optional Ethernet port) shall support ASCII protocol, and the RS-485 port and optional Ethernet port shall support Modbus™ or DNP3.0 options. Ethernet port replaces the rear RS-232 port.

- 1) Modbus RTU Slave Communications: The relay shall incorporate Modbus RTU slave protocol internally. External converters or adapters are not acceptable.
 - b. IRIG-B: The relay shall include an interface port for a demodulated IRIG-B time synchronization input signal. IRIG-B connection shall be to a barrier terminal strip capable of accepting ring lug terminated wiring.
 - c. PC Interface: The relay shall be capable of being set by Windows[®]-based graphical user interface and ASCII terminal interfaces.
7. Settings and Analysis Software:
- a. PC Software PC software compatible with Windows 98, NT, 2000, XP Home, XP Professional, and Me shall be included at no charge. The software shall be freely reproducible within the end user's organization without additional charge. The software must include serial communications for settings upload and download, graphical programming and display of logic equations (including pictorial display of AND and OR gates), and the ability to display and print COMTRADE oscillography and event files.
8. CASE OPTIONS (packaging):
- a. S1 Single or Double Ended (S1 or S1D)

2.08 CURRENT TRANSFORMERS

- A. Replace existing current transformers with equal 400:5 corrosion resistant and suitable for marine applications current transformers matching the existing bolt pattern provide new stainless steel mounting hardware.
- B. Eaton T Line.

2.09 SUBMITTALS

- A. Action Submittals:
 1. Product Data:
 - a. Wire and cable.
 - b. Wire and cable accessories.
 - c. Cable fault detection system.

2.10 CONDUCTORS 600 VOLT AND BELOW REPLACEMENT:

- A. The following is a list of standards which may be referenced in this section:
 1. Association of Edison Illuminating Companies (AEIC): CS 8, Specification for Extruded Dielectric Shielded Power Cables Rated 5 kV through 46 kV.

2. ASTM International (ASTM):
 - a. A167, Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
 - b. B3, Standard Specification for Soft or Annealed Copper Wire.
 - c. B8, Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft.
 - d. B496, Standard Specification for Compact Round Concentric-Lay-Stranded Copper Conductors.
3. Institute of Electrical and Electronics Engineers, Inc. (IEEE):
 - a. 48, Standard Test Procedures and Requirements for Alternating-Current Cable Terminations Used on Shielded Cables Having Laminated Insulation Rated 2.5 kV through 765 kV or Extruded Insulation Rated 2.5 kV Through 500 kV.
 - b. 386, Standard for Separable Insulated Connector Systems for Power Distribution Systems Above 600V.
 - c. 404, Standard for Extruded and Laminated Dielectric Shielded Cable Joints Rated 2500 V to 500000 V.
4. Insulated Cable Engineer's Association, Inc. (ICEA):
 - a. S-58-679, Standard for Control Cable Conductor Identification.
 - b. S-73-532, Standard for Control Thermocouple Extensions and Instrumentation Cables.
 - c. T-29-520, Conducting Vertical Cable Tray Flame Tests with Theoretical Heat Input of 210,000 Btu/hour.
5. National Electrical Manufacturers' Association (NEMA):
 - a. CC 1, Electric Power Connectors for Substations.
 - b. WC 57, Standard for Control, Thermocouple Extension, and Instrumentation Cables.
 - c. WC 70, Standard for Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy.
 - d. WC 71, Standard for Nonshielded Cables Rated 2001-5000 Volts for Use in the Distribution of Electric Energy.
 - e. WC 74, 5-46 kV Shielded Power Cable for Use in the Transmission and Distribution of Electric Energy.
6. National Fire Protection Association (NFPA):
 - a. 70, National Electrical Code (NEC).
 - b. 262, Standard Method of Test for Flame Travel and Smoke of Wires and Cables for Use in Air-Handling Spaces.
7. Telecommunications Industry Association (TIA): TIA-568-C, Commercial Building Telecommunications Cabling Standard.
8. Underwriters Laboratories Inc. (UL):
 - a. 13, Standard for Safety for Power-Limited Circuit Cables.
 - b. 44, Standard for Safety for Thermoset-Insulated Wires and Cables.
 - c. 62, Standard for Safety for Flexible Cord and Cables.
 - d. 486A-486B, Standard for Safety for Wire Connectors.
 - e. 486C, Standard for Safety for Splicing Wire Connectors.

- f. 510, Standard for Safety for Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape.
- g. 854, Standard for Safety for Service-Entrance Cables.
- h. 1072, Standard for Safety for Medium-Voltage Power Cables.
- i. 1277, Standard for Safety for Electrical Power and Control Tray Cables with Optional Optical-Fiber Members.
- j. 1569, Standard for Safety for Metal-Clad Cables.
- k. 1581, Standard for Safety for Reference Standard for Electrical Wires, Cables, and Flexible Cords.
- l. Conductors shall be UL-listed Type or THWN- gasoline and oil resistant II, suitable for operations at 600 volts as specified in the National Electrical Code. Sizes 14 through 1 AWG shall be rated VW-1, larger sizes shall be listed for CT use. Sizes 2 AWG and larger listed and marked sunlight-resistant in black only. Conductors shall be annealed copper, insulated with high-heat and moisture resistant PVC, jacketed with abrasion, moisture, gasoline, and oil resistant nylon or listed equivalent, as manufactured by Southwire Company or approved equal.

2.11 CONDUCTORS 600 VOLTS AND BELOW

- A. Conform to applicable requirements of NEMA WC 70.
- B. Conductor Type: Stranded copper.
- C. Insulation: THHN/THWN-2.

2.12 CONDUCTORS FOR CONTROL CABLE REPLACEMENT:

- A. Type 1, Multiconductor Control Cable:
 - 1. Conductors:
 - a. 12 AWG, seven-strand copper.
 - b. Insulation: 15-mil PVC with 4-mil nylon.
 - c. UL 1581 listed as Type THHN/THWN rated VW-1.
 - d. Conductor group bound with spiral wrap of barrier tape.
 - e. Color Code: In accordance with ICEA S-58-679, Method 1, Table 2.
 - 2. Cable: Passes the ICEA T-29-520, 210,000 Btu per hour Vertical Tray Flame Test.
 - 3. Cable Sizes: 12 conductor/# 12 600 volt jacket thickness 60 mil outside dimension 1.0.
 - 4. Manufacturers:
 - a. Southwire.
 - b. Okonite.
 - c. Okonite Co.

2.13 ACCESSORIES FOR CONDUCTORS 600 VOLTS AND BELOW

A. Tape:

1. General Purpose, Flame Retardant: 7-mil, vinyl plastic, Scotch Brand 33+, rated for 90 degrees C minimum, meeting requirements of UL 510.
2. Flame Retardant, Cold and Weather Resistant: 8.5-mil, vinyl plastic, Scotch Brand 88.
3. Arc and Fireproofing:
 - a. 30-mil, elastomer.
 - b. Manufacturers and Products:
 - 1) 3M; Scotch Brand 77, with Scotch Brand 69 glass cloth tapebinder.
 - 2) Plymouth; 53 Plyarc, with 77 Plyglas glass cloth tapebinder.

B. Identification Devices:

1. Sleeve:
 - a. Permanent, PVC, yellow or white, with legible machine-printed black markings.
 - b. Manufacturers and Products:
 - 1) Raychem; Type D-SCE or ZH-SCE.
 - 2) Brady, Type 3PS.
2. Heat Bond Marker:
 - a. Transparent thermoplastic heat bonding film with acrylic pressure sensitive adhesive.
 - b. Self-laminating protective shield over text.
 - c. Machine printed black text.
 - d. Manufacturer and Product: 3M Co.; Type SCS-HB.
3. Marker Plate: Nylon, with legible designations permanently hot stamped on plate.
4. Tie-On Cable Marker Tags:
 - a. Chemical-resistant white tag.
 - b. Size: 1/2 inch by 2 inches.
 - c. Manufacturer and Product: Raychem; Type CM-SCE.
5. Grounding Conductor: Permanent green heat-shrink sleeve, 2-inch minimum.

C. Connectors and Terminations:

1. Nylon, Self-Insulated Crimp Connectors:
 - a. Manufacturers and Products:
 - 1) Thomas & Betts; Sta-Kon.
 - 2) Burndy; Insulug.
 - 3) ILSCO.

2. Nylon, Self-Insulated, Crimp Locking-Fork, Torque-Type Terminator:
 - a. Suitable for use with 75 degrees C wire at full NFPA 70, 75 degrees C ampacity.
 - b. Seamless.
 - c. Manufacturers and Products:
 - 1) Thomas & Betts; Sta-Kon.
 - 2) Burndy; Insulink.
 - 3) ILSCO; ILSCONS.
3. Self-Insulated, Freespring Wire Connector (Wire Nuts):
 - a. UL 486C.
 - b. Plated steel, square wire springs.
 - c. Manufacturers and Products:
 - 1) Thomas & Betts.
 - 2) Ideal; Twister.
4. Self-Insulated, Set Screw Wire Connector:
 - a. Two piece compression type with set screw in brass barrel.
 - b. Insulated by insulator cap screwed over brass barrel.
 - c. Manufacturers:
 - 1) 3M Co.
 - 2) Thomas & Betts.
 - 3) Marrette.

D. Cable Lugs:

1. In accordance with NEMA CC 1.
2. Rated 600 volts of same material as conductor metal.
3. Uninsulated Crimp Connectors and Terminators:
 - a. Suitable for use with 75 degrees C wire at full NFPA 70, 75 degrees C ampacity.
 - b. Manufacturers and Products:
 - 1) Thomas & Betts; Color-Keyed.
 - 2) Burndy; Hydent.
 - 3) ILSCO.
4. Uninsulated, Bolted, Two-Way Connectors and Terminators:
 - a. Manufacturers and Products:
 - 1) Thomas & Betts; Locktite.
 - 2) Burndy; Quiklug.
 - 3) ILSCO.

E. Cable Ties:

1. Nylon, adjustable, self-locking, and reusable.
2. Manufacturer and Product: Thomas & Betts; TY-RAP.

F. Heat Shrinkable Insulation:

1. Thermally stabilized cross-linked polyolefin.
2. Single wall for insulation and strain relief.
3. Dual Wall, adhesive sealant lined, for sealing and corrosion resistance.
4. Manufacturers and Products:
 - a. Thomas & Betts; SHRINK-KON.
 - b. Raychem; RNF-100 and ES-2000.

2.14 PULLING COMPOUND

- A. Nontoxic, noncorrosive, noncombustible, nonflammable, water-based lubricant; UL listed.
- B. Suitable for rubber, neoprene, PVC, polyethylene, hypalon, CPE, and lead-covered wire and cable.
- C. Approved for intended use by cable manufacturer.
- D. Suitable for zinc-coated steel, aluminum, PVC, bituminized fiber, and fiberglass raceways.
- E. Manufacturers:
 1. Ideal Co.
 2. Polywater, Inc.
 3. Cable Grip Co.

2.15 GROUNDING

- A. The existing grounding system shall be tested under the commission section of these specifications. Contractor shall include grounding materials to assure all raceways, pull boxes and junction boxes are properly grounded to the grid system. All Manhole metal parts shall be bonded to the grid system. Grounding test wells will be installed in two locations for Pier 8 480 volt system to be utilized during testing and commission phase of contract. Field locate test wells with on site representative.

2.16 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
 1. Institute of Electrical and Electronics Engineers (IEEE): C2, National Electrical Safety Code (NESC).
 2. National Fire Protection Association (NFPA): 70, National Electrical Code. (NEC).

2.17 SUBMITTALS

A. Action Submittals

1. Shop Drawings: Product data for the following:
 - a. Exothermic weld connectors.
 - b. Mechanical connectors.
 - c. Compression connectors.

2.18 GROUND ROD

- A. Material: Copper.
- B. Diameter: Minimum 5/8.
- C. Length: 10 feet sectional.

2.19 GROUND CONDUCTORS

- A. All direct buried or duct system grounds shall be 4/0 bare CU minimum size and meet the conductor referenced standards and specification contained in this section .

2.20 CONNECTORS

A. Exothermic Weld Type:

1. Outdoor Weld: Suitable for exposure to elements or direct burial.
2. Indoor Weld: Utilize low-smoke, low-emission process.
3. Manufacturers:
 - a. Erico Products, Inc.; Cadweld.
 - b. Thermoweld.

B. Compression Type:

1. Compress-deforming type; wrought copper extrusion material.
2. Single indentation for conductors 6 AWG and smaller.
3. Double indentation with extended barrel for conductors 4 AWG and larger.
4. Barrels prefilled with oxide-inhibiting and antiseizing compound and sealed.
5. Manufacturers:
 - a. Burndy Corp.
 - b. Thomas and Betts Co.
 - c. ILSCO.

- C. Mechanical Type: Split-bolt, saddle, or cone screw type; copper alloy material.
 - 1. Manufacturers:
 - a. Burndy Corp.
 - b. Thomas and Betts Co.

2.21 GROUNDING WELLS

- A. Ground rod box complete with cast iron riser ring and traffic cover marked GROUND ROD.
- B. Manufacturers and Products:
 - 1. Christy Co.; No. G5. or
 - 2. Lightning and Grounding Systems, Inc.; I-R S.

PART 3 EXECUTION

3.01 GENERAL

- A. Install materials and equipment in accordance with manufacturer's instructions and recommendations.
- B. Work shall comply with all applicable provisions of NECA 1.
- C. Electrical Drawings show general locations of equipment, devices, and raceway, unless specifically dimensioned.
- D. Operations: Existing primary electrical distribution system shall be coordinated through Naval Facilities Engineering Command.

3.02 DEMOLITION

- A. General Demolition: Remove existing 480-volt feeder conductors and control cables from pier igloos back to supplying substations. Clean out manholes and remove any existing cable racking system and ant debris. All salvaged conductor shall be turned over to the Owner.

3.03 PROTECTION FOLLOWING INSTALLATION

- A. Protect materials and equipment from corrosion, physical damage, and effects of moisture on insulation.
- B. Stainless Steel Box Extension: Contractor shall field measure existing power stations 1,2,3,4. Install box extension with stainless hardware.

3.04 PROTECTIVE RELAYS

- A. Replace relays as directed in the field. Calibrate all new and existing relays and adjust settings in accordance with the switchgear manufacturer's recommendations.

3.05 PRECAST HANDHOLES

- A. Identify all existing Manholes MH 1-2-3-4-etc. Use new marine grade aluminum markers as specified. Install directional arrows indicating the routing of the existing duct bank.

3.06 CONDUCTOR GENERAL

- A. Conductor installation shall be in accordance with manufacturer's recommendations.
- B. No feeder or sub-feeder splices will be permitted contractor shall pull continuous through manholes and provide conductor and adequately rack all conductors in all manholes on the new racking system.
- C. Conductor and cable sizing shown is based on copper conductors, unless noted otherwise.
- D. Do not exceed cable manufacturer's recommendations for maximum pulling tensions and minimum bending radii.
- E. Terminate conductors and cables, unless otherwise indicated. Tighten screws and terminal bolts in accordance with UL 486A-486B for copper conductors.
- F. Cable Lugs: Provide with correct number of holes, bolt size, and center-to-center spacing as required by equipment terminals.
- G. Bundling: Where single conductors and cables in manholes, hand holes, vaults, cable trays, and other indicated locations are not wrapped together by some other means, bundle conductors from each conduit throughout their exposed length with cable ties placed at intervals not exceeding 12 inches on center.
- H. Ream, remove burrs, and clear interior of installed conduit before pulling wires or cables. Clean interior of all existing manholes prior to re-pulling cable
- I. Existing Duct Bank System: Prior to installation of conductors, pull through each raceway a mandrel approximately 1/4 inch smaller than raceway inside diameter.

- J. All conductors shall be protected during storage and installation. Use pulley and rack system to guide conductors. No conductors shall be placed on the ground. All conductors shall be pulled from onsite wire reel staging system utilizing all necessary devices to protect conductors and cables during installation. All conductors will be installed with an electrical powered puller with accurate torque measuring abilities. Record torques during installation. Contractor shall not exceed manufacturers recommended maximum cable torque ratings or pulling tensions. Any conductors installed where it is observed that these values were exceeded will be removed and replaced at the contractors expenses.

3.07 POWER CONDUCTOR COLOR CODING

A. Conductors 600 Volts and Below:

- 1. 6 AWG and Larger: Apply general purpose, flame retardant tape at each end, and at accessible locations wrapped at least six full overlapping turns, covering area 1-1/2 inches to 2 inches wide.
- 2. 8 AWG and Smaller: Provide colored conductors.
- 3. Colors:

System	Conductor	Color
All Systems	Equipment Grounding	Green
240/120 Volts, Single-Phase, Three-Wire	Grounded Neutral One Hot Leg Other Hot Leg	White Black Red
208Y/120 Volts, Three-Phase, Four-Wire	Grounded Neutral Phase A Phase B Phase C	White Black Red Blue
240/120 Volts, Three-Phase, Four-Wire, Delta, Center Tap, Ground on Single-Phase	Grounded Neutral Phase A High (wild) Leg Phase C	White Black Orange Blue
480Y/277 Volts, Three-Phase, Four-Wire	Grounded Neutral Phase A Phase B Phase C	White Brown Orange Yellow
Note: Phase A, B, C implies direction of positive phase rotation.		

3.08 CIRCUIT IDENTIFICATION

- A. Identify power, instrumentation, and control conductor circuits at each termination, and in accessible locations such as manholes, hand holes, panels, switchboards, motor control centers, pull boxes, and terminal boxes.
- B. Circuits Appearing in Circuit Schedules: Identify using circuit schedule designations.
- C. Circuits Not Appearing in Circuit Schedules:
 - 1. Assign circuit name based on device or equipment at load end of circuit.
 - 2. Where this would result in same name being assigned to more than one circuit, add number or letter to each otherwise identical circuit name to make it unique.
- D. Method:
 - 1. Conductors 3 AWG and Smaller: Identify with sleeves or heat bond markers.
 - 2. Cables and Conductors 2 AWG and Larger:
 - a. Identify with marker plates or tie-on cable marker tags.
 - b. Attach with nylon tie cord.
 - 3. Taped-on markers or tags relying on adhesives not permitted.

3.09 TERMINAL BLOCKS

- A. Install for termination of control circuits entering or leaving equipment and local control panels. Leave 25% spare terminals

3.10 SUPPORT AND FRAMING CHANNELS

- A. Install where required for mounting and supporting electrical equipment and raceway systems, stainless steel box extensions
 - 1. All Locations: Type 316 stainless steel.
- B. Conductors and Cable Racking System: Install conductors and cable racking system on all sides of existing manholes utilizing stainless steel hardware. All support racks will be installed in a manner which allows looping and securing of conductors as they enter and exit the manholes. Utilize manufacturer's recommendations for adequate sizing of all racks and mounting systems. Conductors and cables shall not be suspended from the racking system and shall be installed in a uniform manor on the surface of the racking system support arms.

- C. Nameplates: Provide identifying nameplate on all equipment, manholes, and control stations. Install as directed in the field utilizing stainless steel hardware.

3.11 GROUNDING GENERAL

- A. Grounding shall be in compliance with NFPA 70 and IEEE C2.
- B. Ground electrical service neutral at service entrance equipment to supplementary grounding electrodes.
- C. Ground each separately derived system neutral to nearest effectively grounded building structural steel member or separate grounding electrode.
- D. Bond together system neutrals, service equipment enclosures, exposed noncurrent-carrying metal parts of electrical equipment, metal raceways, ground conductor in raceways and cables, receptacle ground connections, and metal piping systems.
- E. Shielded Power Cables: Ground shields at each splice or termination in accordance with recommendations of splice or termination manufacturer.
- F. Shielded Instrumentation Cables:
 - 1. Ground shield to ground bus at power supply for analog signal.
 - 2. Expose shield minimum 1 inch at termination to field instrument and apply heat shrink tube.
 - 3. Do not ground instrumentation cable shield at more than one point.

3.12 WIRE CONNECTIONS

- A. Ground Conductors: Install in conduit containing power conductors and control circuits above 50 volts.
- B. Nonmetallic Raceways and Flexible Tubing: Install equipment grounding conductor connected at both ends to noncurrent-carrying grounding bus.
- C. Connect ground conductors to raceway grounding bushings.
- D. Extend and connect ground conductors to ground bus in all equipment containing a ground bus.
- E. Connect enclosure of equipment containing ground bus to that bus.
- F. Bolt connections to equipment ground bus.
- G. Bond grounding conductors to metallic enclosures at each end, and to intermediate metallic enclosures.

- H. Junction Boxes: Furnish materials and connect to equipment grounding system with grounding clips mounted directly on box, or with 3/8-inch machine screws.

3.13 GROUND RODS

- A. Install full length with conductor connection at upper end.
- B. Install with connection point below finished grade, unless otherwise shown.
- C. Space multiple ground rods by one rod length.

3.14 GROUNDING WELLS

- A. Install inside buildings, asphalt, and paved areas.
- B. Install riser ring and cover flush with surface.
- C. Place 12 inches of crushed rock in bottom of each well.

3.15 CONNECTIONS

- A. General:
 - 1. Abovegrade Connections: Install exothermic weld, mechanical, or compression-type connectors; or brazing.
 - 2. Belowgrade Connections: Install exothermic weld or compression type connectors.
 - 3. Remove paint, dirt, or other surface coverings at connection points to allow good metal-to-metal contact.
 - 4. Notify Engineer and Owner prior to backfilling ground connections.
- B. Exothermic Weld Type:
 - 1. Wire brush or file contact point to bare metal surface.
 - 2. Use welding cartridges and molds in accordance with manufacturer's recommendations.
 - 3. Avoid using badly worn molds.
 - 4. Mold to be completely filled with metal when making welds.
 - 5. After completed welds have cooled, brush slag from weld area and thoroughly clean joint.
- C. Compression Type:
 - 1. Install in accordance with connector manufacturer's recommendations.

2. Install connectors of proper size for grounding conductors and ground rods specified.
3. Install using connector manufacturer's compression tool having proper sized dies.

D. Mechanical Type:

1. Apply homogeneous blend of colloidal copper and rust and corrosion inhibitor before making connection.
2. Install in accordance with connector manufacturer's recommendations.
3. Do not conceal mechanical connections.

3.16 METAL STRUCTURE GROUNDING

- A. Ground metal sheathing and exposed metal vertical structural elements to grounding system.
- B. Bond electrical equipment supported by metal platforms to the platforms.
- C. Provide electrical contact between metal frames and railings supporting pushbutton stations, receptacles, and instrument cabinets, and raceways carrying circuits to these devices.

3.17 MANHOLE AND HANDHOLE GROUNDING

- A. Install one ground rod inside each.
- B. Ground Rod Floor Protrusion: 4 to 6 inches above floor.
- C. Make connections of grounding conductors fully visible and accessible.
- D. Connect all noncurrent-carrying metal parts, and any metallic raceway grounding bushings to ground rod with No. 6 AWG copper conductor.
- E. Equipment Grounding Conductors: Provide in all conduits containing power conductors and control circuits above 50 volts.

3.18 CURRENT TRANSFORMERS

- A. Disconnect and remove all existing current transformers and install with new current transformers with new stainless steel hardware. C/T shall be installed in a manor to prevent over torque and cracking of the C/T housing. Installation of the new C/T shall be supervised by the switchgear manufacturer to assure compliance with the installation instructions. Modify C/T cables as necessary to complete the installation. Install and test under the direction of the equipment manufacturer.

3.19 FIELD QUALITY CONTROL

- A. Tests shall be performed in accordance with the requirements of Section 26 08 00, Commissioning and Start Up.
- B. General:
 - 1. Test equipment shall have an operating accuracy equal to, or greater than, requirements established by NETA ATS.
 - 2. Test instrument calibration shall be in accordance with NETA ATS.
 - 3. Perform inspection and electrical tests after equipment has been installed.
 - 4. Perform tests with apparatus de-energized whenever feasible.
 - 5. Inspection and electrical tests on energized equipment are to be:
 - a. Prior to operation of any primary switch approval must be obtained from the Owner.
 - b. Tests and inspection shall be completed in accordance with Section 26 08 00, Commissioning and Start Up.
- C. Controls:
 - 1. Test control and signal wiring for proper termination and function.
 - 2. Test local control panels and other control devices for proper terminations, configuration and settings, and functions.
 - 3. Demonstrate control, monitoring, and indication functions in presence of Owner and Engineer.
- D. Voltage Testing:
 - 1. When installation is complete and facility is in operation, check voltage at point of termination of electric utility supply system to Project.
 - 2. Record supply voltage for 72 continuous hours.
 - 3. If corrections are not made, obtain written statement from a responsible electric utility official that voltage variations and/or unbalance are within their normal standards.
- E. Equipment Line Current:
 - 1. Check line current in each phase for each piece of equipment.
 - 2. If electric utility makes adjustments to supply voltage magnitude or balance, make line current check after adjustments are made.

END OF SECTION

SECTION 26 05 70
ELECTRICAL SYSTEMS ANALYSIS

PART 1 GENERAL

1.01 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
1. American National Standards Institute (ANSI).
 2. Institute of Electrical and Electronics Engineers, Inc. (IEEE):
 - a. C57.12.00, Standard General Requirements for Liquid-Immersed Distribution, Power, and Regulating Transformers.
 - b. 242, Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems.
 - c. 399, Recommended Practice for Industrial and Commercial Power System Analysis.
 - d. 1584, Guide for Performing Arc Flash Hazard Calculations.
 3. National Electrical Manufacturers Association (NEMA): Z535.4, Product Safety Signs and Labels.
 4. National Fire Protection Association (NFPA):
 - a. 70, National Electrical Code (NEC).
 - b. 70E, Standard for Electrical Safety in the Workplace.
 5. Occupational Safety and Health Standards (OSHA): 29 CFR, Part 1910 Subpart S, Electrical.

1.02 SUBMITTALS

- A. Action Submittals:
1. Short circuit study.
 2. Protective Device Coordination Study: Submit within 30 days after approval of short circuit study.
 3. Arc flash study.
 4. Arc flash warning labels.

1.03 QUALITY ASSURANCE

- A. Short circuit and protective device coordination and arc flash studies shall be prepared by manufacturer of the existing switchgear.

1.04 SEQUENCING AND SCHEDULING

- A. Initial complete short circuit study shall be submitted and reviewed before Engineer will review Shop Drawings for switchgear substrate equipment.

- B. Initial complete protective device coordination and arc flash studies shall be submitted within 60 days after approval of initial short circuit study.
- C. Revised short circuit, protective device coordination, and arc flash studies, and arc flash labels shall be submitted 10 days before energizing electrical equipment.
- D. Final short circuit, protective device coordination, and arc flash studies shall be completed prior to Project Substantial Completion. Final version of study shall include as-installed equipment, materials, and parameter data or settings entered into equipment based on study.
- E. Submit final arc flash labels described herein and in compliance with NEMA Z535.4 prior to Project Substantial Completion.

1.05 GENERAL STUDY REQUIREMENTS

- A. Equipment and component titles used in the studies shall be identical to equipment and component titles shown on Drawings.
- B. Perform studies using one of the following electrical engineering software packages:
 - 1. SKM Power Tools for Windows.
 - 2. ETAP.
 - 3. EDSA.
 - 4. Easy Power.
- C. Perform complete fault calculations for each existing source combination.
 - 1. Source combination may include present and future power company supply circuits, large motors, or generators.
- D. Utilize proposed and existing load data for study and obtained from field investigation of system configuration, wiring information, and equipment.
- E. Existing System and Equipment:
 - 1. Extent of existing system to be included in study is all of the existing system and equipment.
 - 2. Include fault contribution of existing motors and equipment in study.
 - 3. Include impedance elements that affect new system and equipment.
 - 4. Include protective devices in series with new equipment.
- F. Device coordination time-current curves for low voltage distribution system; include individual protective device time-current characteristics.

1.06 SHORT CIRCUIT STUDY

A. General:

1. Prepare in accordance with IEEE 399.
2. Use cable impedances based on copper conductors, except where aluminum conductors are specified or shown.
3. Use bus impedances based on copper bus bars, except where aluminum bus bars are specified or shown.
4. Use cable and bus resistances calculated at 25 degrees C.
5. Use medium-voltage cable reactances based on use of typical dimensions of shielded cables with 133 percent insulation levels.
6. Use 600-volt cable reactances based on use of typical dimensions of THWN conductors.
7. Use transformer impedances 92.5 percent of “nominal” impedance based on tolerances specified in IEEE C57.12.00.

B. Provide:

1. Calculation methods and assumptions.
2. Typical calculation.
3. Tabulations of calculated quantities.
4. Results, conclusions, and recommendations.
5. Selected base per unit quantities.
6. One-line diagrams.
7. Source impedance data, including electric utility system and motor fault contribution characteristics.
8. Impedance diagrams.
9. Zero-sequence impedance diagrams.

C. Calculate short circuit interrupting and momentary (when applicable) duties for an assumed three-phase bolted fault at each:

1. Electric utility’s supply termination point.
2. Main switchgear and unit substations including the Unit substation primary and secondary terminals.
3. Low-voltage switchgear.
4. Future load contributions as shown on one-line diagram.

D. Provide bolted line-to-ground fault current study for areas as defined for three-phase bolted fault short circuit study.

E. Provide bolted line-to-line fault current study for areas as defined for three-phase bolted fault short circuit study.

F. Verify:

1. Equipment and protective devices are applied within their ratings.
2. Adequacy of switchgear substation bus bars to withstand short circuit stresses.
3. Adequacy of transformer windings to withstand short circuit stresses.
4. Cable and busway sizes for ability to withstand short circuit heating, in addition to normal load currents.

G. Tabulations:

1. General Data:
 - a. Short circuit reactances of rotating machines.
 - b. Cable and conduit material data.
 - c. Bus data.
 - d. Transformer data.
 - e. Circuit resistance and reactance values.
2. Short Circuit Data:
 - a. Fault impedances.
 - b. X to R ratios.
 - c. Asymmetry factors.
 - d. Motor contributions.
 - e. Short circuit kVA.
 - f. Symmetrical and asymmetrical fault currents.
3. Equipment Evaluation:
 - a. Equipment bus bracing, equipment short circuit rating, transformer, cable, busway.
 - b. Maximum fault current available.

H. Written Summary:

1. Scope of studies performed.
2. Explanation of bus and branch numbering system.
3. Prevailing conditions.
4. Selected equipment deficiencies.
5. Results of short circuit study.
6. Comments or suggestions.

I. Suggest changes and additions to equipment rating and/or characteristics.

J. Notify Engineer and Owner in writing of existing circuit protective devices improperly rated for new fault conditions.

K. Revise data for “as-installed” condition.

1.07 PROTECTIVE DEVICE COORDINATION STUDY

A. General:

1. Prepare in accordance with IEEE 242.
2. Proposed protective device coordination time-current curves for distribution system, graphically displayed on conventional log-log curve sheets.
 - a. Provide separate curve sheets for phase and ground fault coordination for each scenario.
 - b. Each curve sheet to have title and one-line diagram that applies to specific portion of system associated with time-current curves on that sheet. Limit number of devices shown to four to six.
 - c. Identify device associated with each curve by manufacturer type, function, and, if applicable, recommended tap, time delay, instantaneous and other settings recommended.
 - d. Terminate device characteristic curves at a point reflecting maximum symmetrical or asymmetrical fault current to which device is exposed.
 - e. Apply motor protection methods that comply with NFPA 70.

B. Plot Characteristics on Curve Sheets:

1. Electric utility's relays.
2. Electric utility's fuses including manufacturer's minimum melt, total clearing, tolerance, and damage bands.
3. Medium-voltage equipment relays.
4. Medium-voltage and low-voltage fuses including manufacturer's minimum melt, total clearing, tolerance, and damage bands.
5. Low-voltage equipment circuit breaker trip devices, including manufacturers tolerance bands.
6. Pertinent transformer full-load currents at 100 percent.
7. Transformer magnetizing inrush currents.
8. Transformer damage curves; appropriate for system operation and location.
9. ANSI transformer withstand parameters.
10. Significant symmetrical and asymmetrical fault currents.
11. Ground fault protective device settings.
12. Other system load protective devices for largest branch circuit and feeder circuit breaker in each motor control center.

C. Primary Protective Device Settings for Delta-Wye Connected Transformer:

1. Secondary Line-to-Ground Fault Protection: Primary protective device operating band within transformer's characteristics curve, including a point equal to 58 percent of IEEE C57.12.00 withstand point.

2. Secondary Line-To-Line Faults: 16 percent current margin between primary protective device and associated secondary device characteristic curves.
- D. Separate medium voltage relay characteristics curves from curves for other devices by at least 0.4-second time margin.
- E. Tabulate Recommended Protective Device Settings:
1. Relays:
 - a. Current tap.
 - b. Time dial.
 - c. Instantaneous pickup.
 - d. Electronic settings data file.
 2. Circuit Breakers:
 - a. Adjustable pickups.
 - b. Adjustable time-current characteristics.
 - c. Adjustable time delays.
 - d. Adjustable instantaneous pickups.
 - e. I^2t In/Out.
 - f. Zone interlocking.
 - g. Electronic settings data file.
- F. Written Summary:
1. Scope of studies performed.
 2. Summary of protective device coordination methodology.
 3. Prevailing conditions.
 4. Selected equipment deficiencies.
 5. Results of coordination study.
 6. Appendix of complete relay and circuit breaker electronic setting files and submit electronic data files from manufacturer's software.
 7. Comments or suggestions.

1.08 ARC FLASH STUDY

- A. Perform arc flash hazard study after short circuit and protective device coordination study has been completed, reviewed and accepted.
- B. Perform arc flash study in accordance with NFPA 70E, OSHA 29 CFR, Part 1910 Subpart S, and IEEE 1584.
- C. Base Calculation: For each major part of electrical power system, determine the following:
 1. Flash hazard protection boundary.

2. Limited approach boundary.
 3. Restricted approach boundary.
 4. Prohibited approach boundary.
 5. Incident energy level.
 6. Personal protection equipment (PPE) hazard/risk category.
 7. Type of PPE required.
- D. Produce arc flash warning labels that list items in Paragraph Base Calculation and the following additional items.
1. Bus name.
 2. Bus voltage.
- E. Produce bus detail sheets that list items in Paragraph Base Calculation and the following additional items:
1. Bus name.
 2. Upstream protective device name, type, and settings.
 3. Bus line-to-line voltage.
- F. Produce arc flash evaluation summary sheet listing the following additional items:
1. Bus name.
 2. Upstream protective device name, type, settings.
 3. Bus line-to-line voltage.
 4. Bus bolted fault.
 5. Protective device bolted fault current.
 6. Arcing fault current.
 7. Protective device trip/delay time.
 8. Breaker opening time.
 9. Solidly grounded column.
 10. Equipment type.
 11. Gap.
 12. Arc flash boundary.
 13. Working distance.
 14. Incident energy.
 15. Required protective fire rated clothing type and class.

- G. Analyze short circuit, protective device coordination, and arc flash calculations and highlight equipment that is determined to be underrated or causes incident energy values greater than 40 cal/cm^2 . Propose approaches to reduce energy levels.
- H. Prepare report summarizing arc flash study with conclusions and recommendations which may affect integrity of electric power distribution system. As a minimum, include the following:
 - 1. Equipment manufacturer's information used to prepare study.
 - 2. Assumptions made during study.
 - 3. Reduced copy of one-line drawing; 11 inches by 17 inches maximum.
 - 4. Arc flash evaluations summary spreadsheet.
 - 5. Bus detail sheets.
 - 6. Arc flash warning labels printed in color on adhesive backed labels.

PART 2 PRODUCTS

2.01 ARC FLASH WARNING LABELS

- A. Printed in multicolor on laminated plastic and be riveted on equipment. An example label is located following end of section in Figure 1.

PART 3 EXECUTION

3.01 GENERAL

- A. Adjust relay and protective device settings according to values established by coordination study.
- B. Make minor modifications to equipment as required to accomplish conformance with short circuit and protective device coordination studies.
- C. Notify Engineer in writing of required major equipment modifications.
- D. Provide laminated one-line diagrams (minimum size 11 inches by 17 inches) to post on interior of electrical room doors.
- E. Provide arc flash warning labels on equipment as specified in this section.

3.02 SUPPLEMENTS

- A. The supplement listed below, following "End of Section," is a part of this Specification:
 - 1. Figure 1: Example Arc Flash Label.

END OF SECTION



Figure 1
Example Arc Flash Label

SECTION 26 08 00
COMMISSIONING OF ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. ASTM International (ASTM):
 - a. D877, Standard Test Method for Dielectric Breakdown Voltage of Insulating Liquids Using Disk Electrodes.
 - b. D923, Standard Practice for Sampling Electrical Insulating Liquids.
 - c. D924, Standard Test Method for Dissipation Factor (or Power Factor) and Relative Permittivity (Dielectric Constant) of Electrical Insulating Liquids.
 - d. D971, Standard Test Method for Interfacial Tension of Oil Against Water by the Ring Method.
 - e. D974, Standard Test Method for Acid and Base Number by Color-Indicator Titration.
 - f. D1298, Standard Test Method for Density, Relative Density (Specific Gravity), or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method.
 - g. D1500, Standard Test Method for ASTM Color of Petroleum Products (ASTM Color Scale).
 - h. D1524, Standard Test Method for Visual Examination of Used Electrical Insulating Oils of Petroleum Origin in the Field.
 - i. D1533, Standard Test Method for Water in Insulating Liquids by Coulometric Karl Fischer Titration.
 - j. D1816, Standard Test Method for Dielectric Breakdown Voltage of Insulating Oils of Petroleum Origin Using VDE Electrodes.
2. Institute of Electrical and Electronics Engineers (IEEE):
 - a. 43, Recommended Practice for Testing Insulating Resistance of Rotating Machinery.
 - b. 48, Standard Test Procedures and Requirements for Alternating-Current Cable Terminators Used on Shielded Cables Having Laminated Insulation Rated 2.5 kV through 765 kV or Extruded Insulation Rated 2.5kV through 500kV.
 - c. 81, Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System.
 - d. 95, Recommended Practice for Insulation Testing of AC Electric Machinery (2300V and Above) with High Direct Voltage.
 - e. 386, Standard for Separable Insulated Connector Systems for Power Distribution Systems Above 600V.

- f. 400, Guide for Field Testing and Evaluation of the Insulation of Shielded Power Cable Systems.
 - g. 450, Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications.
 - h. C2, National Electrical Safety Code.
 - i. C37.20.1, Standard for Metal-Enclosed Low Voltage Power Circuit Breaker Switchgear.
 - j. C37.20.2, Standard for Metal-Clad Switchgear.
 - k. C37.20.3, Standard for Metal-Enclosed Interrupter Switchgear.
 - l. C37.23, Standard for Metal-Enclosed Bus.
 - m. C62.33, Standard Test Specifications for Varistor Surge-Protective Devices.
3. Insulated Cable Engineers Association (ICEA):
 - a. S-93-639, 5-46 kV Shielded Power Cables for Use in the Transmission and Distribution of Electric Energy.
 - b. S-94-649, Concentric Neutral Cables Rated 5 through 46 kV.
 - c. S-97-682, Standard for Utility Shielded Power Cables Rated 5 through 46 kV.
 4. National Electrical Manufacturers Association (NEMA):
 - a. AB 4, Guidelines for Inspection and Preventive Maintenance of Molded Case Circuit Breakers Used in Commercial and Industrial Applications.
 - b. PB 2, Deadfront Distribution Switchboards.
 - c. WC 74, 5-46 kV Shielded Power Cable for Use in the Transmission and Distribution of Electric Energy.
 5. InterNational Electrical Testing Association (NETA): ATS, Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems.
 6. National Fire Protection Association (NFPA):
 - a. 70, National Electrical Code (NEC).
 - b. 70B, Recommended Practice for Electrical Equipment Maintenance.
 - c. 70E, Standard for Electrical Safety in the Workplace.
 - d. 101, Life Safety Code.
 7. National Institute for Certification in Engineering Technologies (NICET).
 8. Occupational Safety and Health Administration (OSHA): CFR 29, Part 1910, Occupational Safety and Health Standards.

1.02 SUBMITTALS

A. Informational Submittals:

1. Submit 30 days prior to performing inspections or tests:
 - a. Schedule for performing inspection and tests.
 - b. List of references to be used for each test.
 - c. Sample copy of equipment and materials inspection form(s).
 - d. Sample copy of individual device test form.
 - e. Sample copy of individual system test form.
2. Submit test or inspection reports and certificates for each electrical item tested within 5 days after completion of test:
3. Operation and Maintenance Data:
 - a. In accordance with Section 01 78 23, Operation and Maintenance Data.
 - b. After test or inspection reports and certificates have been reviewed by Engineer and returned, insert a copy of each in Operation and Maintenance Manual.

1.03 QUALITY ASSURANCE

A. Testing Firm Qualifications:

1. Corporately and financially independent organization functioning as an unbiased testing authority.
2. Professionally independent of manufacturers, suppliers, and installers of electrical equipment and systems being tested.
3. Employer of engineers and technicians regularly engaged in testing and inspecting of electrical equipment, installations, and systems.
4. Supervising engineer accredited as Certified Electrical Test Technologist by NICET or NETA and having a minimum of 5 years' testing experience on similar projects.
5. Technicians certified by NICET or NETA.
6. Assistants and apprentices assigned to Project at ratio not to exceed two certified to one noncertified assistant or apprentice.
7. Registered Professional Engineer or State Certified Master electrical contractor with 15 years testing experience to provide comprehensive Project report outlining services performed, results of such services, recommendations, actions taken, and opinions.
8. In compliance with OSHA CFR 29, Part 1910.7 criteria for accreditation of testing laboratories and a full member company of NETA.

- B. Test equipment shall have an operating accuracy equal to or greater than requirements established by NETA ATS.

- C. Test instrument calibration shall be in accordance with NETA ATS.

1.04 SEQUENCING AND SCHEDULING

- A. Perform inspection and electrical tests after equipment listed herein has been installed.
- B. Perform tests with apparatus de-energized whenever feasible.
- C. Inspection and electrical tests on energized equipment shall be:
 - 1. Scheduled with both the Owner and the Engineer prior to de-energization.
 - 2. Minimized to avoid extended period of interruption to the operating plant equipment.
- D. Notify both the Owner and the Engineer at least 72 hours prior to performing tests on energized electrical equipment.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 GENERAL

- A. Testing firm shall coordinate upstream primary requirements with KEYS ENERGY SYSTEMS, Mr. Dale Finigan, to ensure loading requirements and primary overcurrent protection are adequate for the full operation of the electrical distribution system at 80 percent of connected load capability.
- B. Perform tests in accordance with requirements of NETA STANDARDS for Equipment Testing and Facility Startup.
- C. Test will include conductor meg testing, Hi Potential testing of any failed 13.8 systems (if needed), breaker current injection testing, ground system fall of potential testing. C/T calibration testing for rated accuracy, protective relay calibration and testing. Add contingency for 2 additional testing days into the lump sum bid.
- D. Testing company shall work with the manufacturer of the existing switchgear company to establish and set up all protective devices.
- E. Remote control devices for the existing breaker remote Close/Opening have defective communication ports on at least eight locations testing firm and switchgear manufacturer shall work to resolve the replacement and relocation of the com-ports for control and C/T trip controls.

- F. Tests and inspections shall establish:
1. Electrical equipment is operational within industry and manufacturer's tolerances and standards.
 2. Installation operates properly.
 3. Equipment is suitable for energization.
 4. Installation conforms to requirements of Contract Documents and NFPA 70, NFPA 70E, NFPA 101, and IEEE C2.
- G. Perform inspection and testing in accordance with NETA ATS, industry standards, and manufacturer's recommendations.
- H. Set, test, and calibrate protective relays, circuit breakers, fuses power monitoring meters, and other applicable devices in accordance with values established by coordination study.
- I. Adjust mechanisms and moving parts of equipment for free mechanical movement.
- J. Adjust and set electromechanical electronic relays and sensors to correspond to operating conditions, or as recommended by manufacturer.
- K. Verify nameplate data for conformance to Contract Documents and approved Submittals.
- L. Realign equipment not properly aligned and correct unlevelness.
- M. Properly anchor electrical equipment found to be inadequately anchored.
- N. Tighten accessible bolted connections, including wiring connections, with calibrated torque wrench/screw driver to manufacturer's recommendations, or as otherwise specified in NETA ATS. This for all new wiring connections and existing switchgear bus system.
- O. Clean contaminated surfaces with cleaning solvents as recommended by manufacturer.
- P. Provide proper lubrication of applicable moving parts.
- Q. Inform both the Owner and Engineer of working clearances not in accordance with NFPA 70.
- R. Investigate and repair or replace:
1. Electrical items that fail tests.
 2. Active components not operating in accordance with manufacturer's instructions.

3. Damaged electrical equipment.

S. Electrical Enclosures:

1. Remove foreign material and moisture from enclosure interior.
2. Vacuum and wipe clean enclosure interior.
3. Remove corrosion found on metal surfaces.
4. Repair or replace, as determined by both the Engineer and Owner, door and panel sections having dented surfaces.
5. Repair or replace, as determined by both the Engineer and Owner, poor fitting doors and panel sections.
6. Repair or replace improperly operating latching, locking, or interlocking devices.
7. Replace missing or damaged hardware.
8. Finish:
 - a. Provide matching paint and touch up scratches and mars.
 - b. If required due to extensive damage, as determined by both the Engineer and Owner, refinish entire assembly.

- T. Replace fuses and circuit breakers that do not conform to size and type required by the Contract Documents or approved Submittals.

- U. Replace transformer insulating oil not in compliance with ASTM D923.

- V. Replace transformer gauges not meeting current calibration standards.

3.02 CHECKOUT AND STARTUP

A. Voltage Field Test:

1. Check voltage at point of termination of power company supply system to Project when installation is essentially complete and is in operation.
2. Check voltage amplitude and balance between phases for loaded and unloaded conditions.
3. Record supply voltage (all three phases simultaneously on same graph) for 72 hours during normal working day.
 - a. Submit Voltage Field Test Report within 5 days of test.
4. Unbalance Corrections:
 - a. Make written request to power company to correct condition if balance (as defined by NEMA) exceeds 1 percent, or if voltage varies throughout the day and from loaded to unloaded condition more than plus or minus 4 percent of nominal.
 - b. Obtain written certification from responsible power company official that voltage variations and unbalance are within their normal standards if corrections are not made.

B. Equipment Line Current Tests:

1. Check line current in each phase for each piece of equipment.
2. Make line current check after power company has made final adjustments to supply voltage magnitude or balance.
3. If phase current for a piece of equipment is above rated nameplate current, prepare Equipment Line Phase Current Report that identifies cause of problem and corrective action taken.

3.03 SWITCHGEAR AND SWITCHBOARD ASSEMBLIES

A. Visual and Mechanical Inspection:

1. Insulator damage and contaminated surfaces.
2. Proper barrier and shutter installation and operation.
3. Proper operation of indicating devices.
4. Improper blockage of air-cooling passages.
5. Proper operation of drawout elements.
6. Integrity and contamination of bus insulation system.
7. Check door and device interlocking system by:
 - a. Closure attempt of device when door is in OPEN position.
 - b. Opening attempt of door when device is in CLOSED position.
8. Check key interlocking systems for:
 - a. Key captivity when device is in ON and in the CLOSED position.
 - b. Key removal when device is in ON and in the or CLOSED position.
 - c. Closure attempt of device when key has been removed.
 - d. Correct number of keys in relationship to number of lock cylinders.
 - e. Existence of other keys capable of operating lock cylinders: Destroy duplicate sets of keys.
9. Check nameplates for proper identification of:
 - a. Equipment title and tag number with latest one-line diagram.
 - b. Pushbutton.
 - c. Control switch.
 - d. Pilot light.
 - e. Control relay.
 - f. Circuit breaker.
 - g. Indicating meter.
 - h. Source feed originates.
10. Verify fuse and circuit breaker ratings, sizes, and types conform to those specified.

11. Check bus and cable connections for high resistance by low resistance ohmmeter and calibrated torque wrench thermographic survey applied to bolted joints.
 - a. Ohmic value to be zero.
 - b. Bolt torque level in accordance with NETA ATS, Table 100.12, unless otherwise specified by manufacturer.
 - c. Thermographic survey temperature gradient of 2 degrees C, or less.
12. Check operation and sequencing of electrical and mechanical interlock systems by:
 - a. Closure attempt for locked open devices.
 - b. Opening attempt for locked closed devices.
 - c. Key exchange to operate devices in OFF-NORMAL positions.
13. Verify performance of each control device and feature.
14. Control Wiring:
 - a. Compare wiring to local and remote control and protective devices with elementary diagrams.
 - b. Proper conductor lacing and bundling.
 - c. Proper conductor identification.
 - d. Proper conductor lugs and connections.
15. Exercise active components.
16. Perform phasing check on double-ended equipment to ensure proper bus phasing from each source.

B. Electrical Tests:

1. Insulation Resistance Tests:
 - a. Applied megohmmeter dc voltage in accordance with NETA ATS, Table 100.1.
 - b. Each phase of each bus section.
 - c. Phase-to-phase and phase-to-ground for 1 minute.
 - d. With switches and breakers open.
 - e. With switches and breakers closed.
 - f. Control wiring except that connected to solid state components.
 - g. Insulation resistance values equal to, or greater than, ohmic values established by manufacturer.
2. Overpotential Tests:
 - a. Applied ac or dc voltage and test procedure in accordance with IEEE C37.20.1, C37.20.2, C37.20.3, and NEMA PB 2. Alternatively use NETA ATS, Table 100.2.
 - b. Each phase of each bus section.
 - c. Phase-to-phase and phase-to-ground for 1 minute.
 - d. Test results evaluated on a pass/fail basis.

3. Current Injection Tests:
 - a. For entire current circuit in each section.
 - b. Secondary injection for current flow of 1 ampere.
 - c. Test current at each device.
4. Control Wiring:
 - a. Apply secondary voltage to control power and potential circuits.
 - b. Check voltage levels at each point on terminal boards and each device terminal.
5. Operational Test:
 - a. Initiate control devices.
 - b. Check proper operation of control system in each section.

3.04 PANELBOARDS

- A. Visual and Mechanical Inspection: Include the following inspections and related work:
 1. Inspect for defects and physical damage, labeling, and nameplate compliance with requirements of up-to-date drawings and panelboard schedules.
 2. Exercise and perform operational tests of mechanical components and other operable devices in accordance with manufacturer's instruction manual.
 3. Check panelboard mounting, area clearances, and alignment and fit of components.
 4. Check tightness of bolted electrical connections with calibrated torque wrench. Refer to manufacturer's instructions for proper torque values.
 5. Perform visual and mechanical inspection for overcurrent protective devices.
- B. Electrical Tests: Include the following items performed in accordance with manufacturer's instruction:
 1. Insulation Resistance Tests:
 - a. Applied megohmmeter dc voltage in accordance with NETA ATS, Table 100.1.
 - b. Each phase of each bus section.
 - c. Phase-to-phase and phase-to-ground for 1 minute.
 - d. With switches and breakers open.
 - e. With switches and breakers closed.
 - f. Control wiring except that connected to solid state components.
 - g. Insulation resistance values equal to, or greater than, ohmic values established by manufacturer.
 2. Ground continuity test ground bus to system ground.

3.05 DRY TYPE TRANSFORMERS

A. Visual and Mechanical Inspection:

1. Physical and insulator damage.
2. Proper winding connections.
3. Bolt torque level in accordance with NETA ATS, Table 100.12, unless otherwise specified by manufacturer.
4. Defective wiring.
5. Proper operation of fans, indicators, and auxiliary devices.
6. Removal of shipping brackets, fixtures, or bracing.
7. Free and properly installed resilient mounts.
8. Cleanliness and improper blockage of ventilation passages.
9. Verify tap-changer is set at correct ratio for rated output voltage under normal operating conditions.
10. Verify proper secondary voltage phase-to-phase and phase-to-ground after energization and prior to loading.

B. Electrical Tests:

1. Insulation Resistance Tests:
 - a. Applied megohmmeter dc voltage in accordance with NETA ATS, Table 100.5 for each:
 - 1) Winding-to-winding.
 - 2) Winding-to-ground.
 - b. Test Duration: 10 minutes with resistances tabulated at 30 seconds, 1 minute, and 10 minutes.
 - c. Results temperature corrected in accordance with NETA ATS, Table 100.14.
 - d. Temperature corrected insulation resistance values equal to, or greater than, ohmic values established by manufacturer.
 - e. Insulation resistance test results to compare within 1 percent of adjacent windings.
2. Perform tests and adjustments for fans, controls, and alarm functions as suggested by manufacturer.

3.06 LIQUID FILLED TRANSFORMERS

A. Visual and Mechanical Inspection:

1. Physical and insulator damage.
2. Proper winding connections.
3. Bolt torque level in accordance with NETA ATS, Table 100.12, unless otherwise specified by manufacturer.

4. Defective wiring.
5. Proper operation of fans, indicators, and auxiliary devices.
6. Effective core and equipment grounding.
7. Removal of shipping brackets, fixtures, or bracing.
8. Tank leaks and proper liquid level.
9. Integrity and contamination of bus insulation system.
10. Verify tap-changer is set at correct ratio for rated voltage under normal operating conditions.
11. Verify proper secondary voltage phase-to-phase and phase-to-ground after energization and prior to loading.

B. Electrical Tests:

1. Insulation Resistance Tests:
 - a. Applied megohmmeter dc voltage in accordance with NETA ATS, Table 100.5 for each:
 - 1) Winding-to-winding.
 - 2) Winding-to-ground.
 - b. Test Duration: 10 minutes with resistances tabulated at 30 seconds, 1 minute, and 10 minutes.
 - c. Results temperature corrected in accordance with NETA ATS, Table 100.14.
 - d. Temperature corrected insulation resistance values equal to, or greater than, ohmic values established by manufacturer.
 - e. Insulation resistance test results to compare within 1 percent of adjacent windings.
2. Perform tests and adjustments for fans, controls, and alarm functions as suggested by manufacturer.
3. Sample insulating oil in accordance with ASTM D923 and have laboratory test for:
 - a. Dielectric breakdown voltage in accordance with ASTM D877 or ASTM D1816.
 - b. Acid neutralization number in accordance with ASTM D974.
 - c. Interfacial tension in accordance with ASTM D971.
 - d. Color in accordance with ASTM D1500.
 - e. Visual condition in accordance with ASTM D1524.
 - f. Specific gravity in accordance with ASTM D1298.
 - g. Water content, in parts per million, in accordance with ASTM D1533.
 - h. Dielectric fluid test results in accordance with NETA ATS, Table 100.4.
 - i. Power factor at 25 degrees C and at 100 degrees, in accordance with ASTM D924.
 - j. Maximum power factor, corrected to 20 degrees C, in accordance with manufacturer's specifications.

3.07 LOW VOLTAGE CABLES, 600 VOLTS MAXIMUM

A. Visual and Mechanical Inspection:

1. Inspect each individual exposed power cable No. 4 and larger for:
 - a. Physical damage.
 - b. Proper connections in accordance with single-line diagram.
 - c. Cable bends not in conformance with manufacturer's minimum allowable bending radius where applicable.
 - d. Color coding conformance with specification.
 - e. Proper circuit identification.
2. Mechanical Connections For:
 - a. Proper lug type for conductor material.
 - b. Proper lug installation.
 - c. Bolt torque level in accordance with NETA ATS, Table 100.12, unless otherwise specified by manufacturer.
3. Shielded Instrumentation Cables For:
 - a. Proper shield grounding.
 - b. Proper terminations.
 - c. Proper circuit identification.
4. Control Cables For:
 - a. Proper termination.
 - b. Proper circuit identification.
5. Cables Terminated Through Window Type CTs: Verify neutrals and grounds are terminated for correct operation of protective devices.

B. Electrical Tests for Conductors No. 4 and Larger:

1. Insulation Resistance Tests:
 - a. Utilize 1,000-volt dc megohmmeter for 600-volt insulated conductors.
 - b. Test each conductor with respect to ground and to adjacent conductors for 1 minute.
 - c. Evaluate ohmic values by comparison with conductors of same length and type.
 - d. Investigate values less than 50 megohms.
2. Continuity test by ohmmeter method to ensure proper cable connections.

C. Low-voltage cable tests may be performed by installer in lieu of independent testing firm.

3.08 MEDIUM-VOLTAGE CABLES, 15 KV MAXIMUM

- A. At this time the 15KV system will not be testing unless during the test and start up a conductor or device should fail. Test will then be performed to determine the nature of the failure and repairs shall be made for the contingency included in the contract.
- B. Visual and Mechanical Inspection:
 - 1. Inspect each individual exposed cable for:
 - a. Physical damage plus jacket and insulation condition.
 - b. Proper connections in accordance with single-line diagram or approved Submittals.
 - c. Proper shield grounding.
 - d. Proper cable support.
 - e. Proper cable termination.
 - f. Cable bends not in conformance with manufacturer's minimum allowable bending radius.
 - g. Proper arc and fireproofing in common cable areas.
 - h. Proper circuit and phase identification.
 - 2. Mechanical Connections:
 - a. Proper lug type for conductor material.
 - b. Proper lug installation.
 - c. Bolt torque level in accordance with NETA ATS, Table 100.12, unless otherwise specified by manufacturers.
 - 3. Conductors Terminated Through Window Type CTs: Verify neutrals and grounds are terminated for correct operation of protective devices.
- C. Electrical Tests:
 - 1. Insulation Resistance Tests:
 - a. Utilize 5,000-volt megohmmeter for 8 kV and 15 kV conductors.
 - b. Test each cable individually with remaining cables and shields grounded.
 - c. Test each conductor with respect to ground and to adjacent conductors for 1 minute.
 - d. Evaluate ohmic values by comparison with conductors of same length and type.
 - e. Investigate values less than 50 megohms.
 - 2. Shield Continuity Tests:
 - a. By ohmmeter method on each section of conductor.
 - b. Investigate values in excess of 10 ohms per 1,000 feet of conductors.

3. Acceptance Tests:
 - a. In accordance with IEEE 400, ICEA S-93-639, NEMA WC 74, ICEA S-94-649, and ICEA S-97-682 for insulated conductors.
 - b. Each conductor section tested with:
 - 1) Splices and terminations in place but disconnected from equipment.
 - 2) Remaining conductors and shields grounded in accordance with IEEE 400.
 - c. Apply maximum test voltage per NETA ATS, Table 100.6, based on method (DC, AC, PD or VLF) used.
 - d. Measure only leakage current associated with conductor.
 - e. Utilize guard ring or field reduction sphere to suppress corona at disconnected terminations.
 - f. Maximum test voltage shall not exceed limits for terminators specified in IEEE 48, IEEE 386, or manufacturer's specifications.
 - g. Apply test voltage in a minimum of five equal increments until maximum acceptable test voltage is reached.
 - 1) Increments not to exceed ac voltage rating of conductor.
 - 2) Record dc leakage current at each step after a constant stabilization time consistent with system charging current.
 - h. Raise conductor to specified maximum test voltage and hold for 15 minutes or as specified by conductor manufacturer. Record leakage current at 30 seconds and 1 minute, and at 1-minute intervals, thereafter.
 - i. Immediately following test, ground conductor for adequate time period to drain insulation stored charge.
 - j. Test results evaluated on a pass/fail basis.
 - 1)
 - 2) High potential test with test voltage not to exceed 60 percent of applied acceptance dc test voltage.

3.09 METAL ENCLOSED BUSWAYS

A. Visual and Mechanical Inspection:

1. Inspect for:
 - a. Proper connections.
 - b. Proper bracing, suspension alignment, and enclosure ground.
 - c. Check if orientation of ventilated bus provides proper cooling in accordance with manufacturer's instructions and if ventilation openings are not blocked.
 - d. Proper phase relationship using continuity test.
 - e. Supports at maximum allowable intervals.

2. For busways rated for outdoors, check for:
 - a. Check bus orientation for proper location of breathers or weep-hole plugs.
 - b. Removal of weep-hole plugs.
 - c. Proper installation of joint shields.
 - d. Proper operation of space heaters.

B. Electrical Tests:

1. Insulation Resistance Tests:
 - a. Applied megohmmeter dc voltage in accordance with NETA ATS, Table 100.1
 - b. Each phase of each bus section.
 - c. Phase-to-phase and phase-to-ground for 1 minute.
 - d. Insulation resistance values equal to, or greater than, ohmic values established by manufacturer.
2. Overpotential Tests:
 - a. Applied dc voltage in accordance with IEEE C37.23 and NETA ATS, Table 100.19 on busways rated above 600 volts.
 - b. Phase-to-phase and phase-to-ground for 1 minute.
 - c. Test results evaluated on pass/fail basis.
3. Contact Resistance Tests:
 - a. At each uninsulated bus connection.
 - b. On insulated bus, measure resistance of bus section and compare values with adjacent phases.

3.10 SAFETY SWITCHES, 600 VOLTS MAXIMUM

A. Visual and Mechanical Inspection:

1. Proper blade pressure and alignment.
2. Proper operation of switch operating handle.
3. Adequate mechanical support for each fuse.
4. Proper contact-to-contact tightness between fuse clip and fuse.
5. Cable connection bolt torque level in accordance with NETA ATS, Table 100.12.
6. Proper phase barrier material and installation.
7. Verify fuse sizes and types correspond to one-line diagram or approved Submittals.
8. Perform mechanical operational test and verify electrical and mechanical interlocking system operation and sequencing.

B. Electrical Tests:

1. Insulation Resistance Tests:
 - a. Applied megohmmeter dc voltage in accordance with NETA ATS, Table 100.1.
 - b. Phase-to-phase and phase-to-ground for 1 minute on each pole.
 - c. Insulation resistance values equal to, or greater than, ohmic values established by manufacturer.
2. Contact Resistance Tests:
 - a. Contact resistance in microhms across each switch blade and fuse holder.
 - b. Investigate deviation of 50 percent or more from adjacent poles or similar switches.

3.11 MOLDED AND INSULATED CASE CIRCUIT BREAKERS

A. General: Inspection and testing limited to circuit breakers rated 50 amperes and larger.

B. Visual and Mechanical Inspection:

1. Proper mounting.
2. Proper conductor size.
3. Feeder designation according to nameplate and one-line diagram.
4. Cracked casings.
5. Connection bolt torque level in accordance with NETA ATS, Table 100.12.
6. Operate breaker to verify smooth operation.
7. Compare frame size and trip setting with circuit breaker schedules or one-line diagram.
8. Verify that terminals are suitable for 75 degrees C rated insulated conductors.

C. Electrical Tests:

1. Insulation Resistance Tests:
 - a. Utilize 1,000-volt dc megohmmeter for 480-volt and 600-volt circuit breakers and 500-volt dc megohmmeter for 208 and 277volt circuit breakers.
 - b. Pole-to-pole and pole-to-ground with breaker contacts opened for 1 minute.
 - c. Pole-to-pole and pole-to-ground with breaker contacts closed for 1 minute.
 - d. Test values to comply with NETA ATS, Table 100.1.
2. Contact Resistance Tests:
 - a. Contact resistance in microhms across each pole.

- b. Investigate deviation of 50 percent or more from adjacent poles and similar breakers.
- 3. Primary Current Injection Test to Verify:
 - a. Long-time minimum pickup and delay.
 - b. Short-time pickup and delay.
 - c. Ground fault pickup and delay.
 - d. Instantaneous pickup by run-up or pulse method.
 - e. Trip characteristics of adjustable trip breakers shall be within manufacturer's published time-current characteristic tolerance band, including adjustment factors.
 - f. Trip times shall be within limits established by NEMA AB 4, Table 5-3. Alternatively, use NETA ATS, Table 100.7.
 - g. Instantaneous pickup value shall be within values established by NEMA AB 4, Table 5-4. Alternatively, use NETA ATS, Table 100.8.

3.12 LOW VOLTAGE POWER CIRCUIT BREAKERS

A. Visual and Mechanical Inspection:

- 1. Proper mounting, cell fit, and element alignment.
- 2. Proper operation of racking interlocks.
- 3. Check for damaged arc chutes.
- 4. Proper contact condition.
- 5. Bolt torque level in accordance with NETA ATS, Table 100.12.
- 6. Perform mechanical operational and contact alignment tests in accordance with manufacturer's instructions.
- 7. Check operation of closing and tripping functions of trip devices by activating ground fault relays, undervoltage shunt relays, and other auxiliary protective devices.
- 8. Verify primary and secondary contact wipe, gap setting, and other dimensions vital to breaker operation are correct.
- 9. Check charging motor, motor brushes, associated mechanism, and limit switches for proper operation and condition.
- 10. Check operation of electrically operated breakers in accordance with manufacturer's instructions.
- 11. Check for adequate lubrication on contact, moving, and sliding surfaces.

B. Electrical Tests:

- 1. Insulation Resistance Tests:
 - a. Utilize 1,000-volt dc megohmmeter for 480-volt and 600-volt circuit breakers.
 - b. Pole-to-pole and pole-to-ground with breaker contacts opened for 1 minute.

- c. Pole-to-pole and pole-to-ground with breaker contacts closed for 1 minute.
 - d. Test values to comply with NETA ATS, Table 100.1.
 - 2. Contact Resistance Tests:
 - a. Contact resistance in microhms across each pole.
 - b. Investigate deviation of 50 percent or more from adjacent poles and similar breakers.
 - 3. Primary Current Injection Test to Verify:
 - a. Long-time minimum pickup and delay.
 - b. Short-time pickup and delay.
 - c. Ground fault pickup and delay.
 - d. Instantaneous pickup by run-up or pulse method.
 - e. Trip characteristic when adjusted to setting sheet parameters shall be within manufacturer's published time-current tolerance band.

3.13 MEDIUM-VOLTAGE AIR CIRCUIT BREAKERS

A. Visual and Mechanical Inspection:

- 1. Proper cell fit and element alignment.
- 2. Proper operation of cubicle shutters and racking mechanism.
- 3. Proper contact condition.
- 4. Bolt torque level in accordance with NETA ATS, Table 100.12.
- 5. Perform mechanical operator and contact alignment tests on breaker and its operating mechanism in accordance with manufacturer's instructions.
- 6. Verify primary and secondary contact wipe, gap setting, and other dimensions vital to breaker operations are correct.
- 7. Ensure maintenance devices are available for servicing and operating breaker.
- 8. Check for adequate lubrication on contact, moving, and sliding parts.
- 9. Check condition of brushes and limit switches on charging and lifting motors.
- 10. With breaker in TEST position:
 - a. Trip and close breaker with control switch.
 - b. Trip breaker by manually operating each protective relay.
- 11. Perform breaker travel and velocity analysis in accordance with manufacturer's instructions; values shall be in accordance with manufacturer's acceptable limits.

B. Electrical Tests:

- 1. Insulation Resistance Tests:
 - a. Utilize 2,500-volt dc megohmmeter for 15-kV circuit breakers.
 - b. Pole-to-pole and pole-to-ground with breaker contacts opened for 1 minute.

- c. Pole-to-pole and pole-to-ground with breaker contacts closed for 1 minute.
 - d. Test values to comply with NETA ATS, Table 100.1.
- 2. Contact Resistance Tests:
 - a. Contact resistance in microhms across each pole.
 - b. Investigate deviation of 50 percent or more from adjacent poles and similar breakers.
- 3. Overpotential Tests:
 - a. Maximum applied dc voltage in accordance with NETA ATS, Table 100.19.
 - b. Each pole-to-ground with other poles grounded and contacts closed for 1 minute.
 - c. Test results evaluated on pass/fail basis.
- 4. Minimum pickup voltage tests on trip and close coils.
- 5. Control Wiring Tests: Insulation resistance test at 1,000 volts dc on control wiring except that connected to solid state components. Insulation resistance to be 1 megohm minimum.
- 6. Power factor test on each phase with breaker in both OPEN and CLOSED positions. Compare power factor and arc chute watt loss with adjacent poles or manufacturer's published data.
- 7. Power factor test on each bushing utilizing conductive straps and hot collar procedures if bushings are not equipped with power factor tap. Power factor and capacitance test results within nameplate rating of bushings.

3.14 MEDIUM-VOLTAGE VACUUM CIRCUIT BREAKERS

A. Visual and Mechanical Inspection:

- 1. Check for proper element alignment.
- 2. Check for proper operation of cubicle shutters and racking mechanism.
- 3. Bolt torque level in accordance with NETA ATS, Table 100.12.
- 4. Perform mechanical operational tests on breaker and its operating mechanism in accordance with manufacturer's instructions, plus check:
 - a. Pull rod adjustment.
 - b. Trip latch clearance.
 - c. Overtravel stops.
 - d. Wipe and gap setting.
- 5. Perform breaker travel and velocity analysis in accordance with manufacturer's instructions; values shall be in accordance with manufacturer's acceptable limits.
- 6. Check contact erosion indicators in accordance with manufacturer's instructions.
- 7. With breaker in TEST position:
 - a. Trip and close breaker with control switch.

- b. Trip breaker by manually operating each protective relay.

B. Electrical Tests:

1. Insulation Resistance Tests:
 - a. Utilize 2,500-volt dc megohmmeter for 15-kV circuit breakers.
 - b. Pole-to-pole and pole-to-ground with breaker contacts opened for 1 minute.
 - c. Pole-to-pole and pole-to-ground with breaker contacts closed for 1 minute.
 - d. Test values to comply with NETA ATS, Table 100.1.
2. Contact Resistance Tests:
 - a. Between the line and load stab of closed contact resistance in microhms across each pole.
 - b. Investigate deviation of 50 percent or more from adjacent poles and similar breakers.
3. Overpotential Tests:
 - a. Maximum applied dc voltage in accordance with NETA ATS, Table 100.19.
 - b. Each pole-to-ground with other poles grounded and contacts closed for 1 minute.
 - c. Test results evaluated on pass/fail basis.
4. Minimum pickup voltage tests on trip and close coils.
5. Control Wiring Tests:
 - a. Insulation resistance test at 1,000-volt dc on control wiring, except that connected to solid state components.
 - b. Insulation resistance to be 1 megohm minimum.
6. Vacuum bottle overpotential integrity test across each vacuum bottle with breaker in OPEN position, in accordance with manufacturer's instructions.
7. Power Factor Test (each Phase):
 - a. With breaker in both OPEN and CLOSED position.
 - b. Compare power factor and arc chute watt loss with adjacent poles or manufacturer's published data.
8. Power Factor Test (Each Bushing):
 - a. Utilize conductive straps and hot collar procedures if bushings are not equipped with power factor tap.
 - b. Power factor and capacitance test results within nameplate rating of bushings.

3.15 PROTECTIVE RELAYS

A. Visual and Mechanical Inspection:

1. Visually check each relay for:
 - a. Tight cover gasket and proper seal.

- b. Unbroken cover glass.
 - c. Condition of spiral spring and contacts.
 - d. Disc clearance.
 - e. Condition of case shorting contacts if present.
2. Mechanically check each relay for:
 - a. Freedom of movement.
 - b. Proper travel and alignment.
 3. Verify each relay:
 - a. Complies with Contract Documents, approved Submittal, and application.
 - b. Is set in accordance with recommended settings from information provided by Switchgear Manufacturer and Engineer

B. Electrical Tests:

1. Insulation resistance test on each circuit to frame, except for solid state devices.
2. Test on nominal recommended setting for:
 - a. Pickup parameters on each operating element.
 - b. Timing at three points on time-current curve.
 - c. Pickup target and seal-in units.
 - d. Special tests as required to check operation of restraint, directional, and other elements in accordance with manufacturer's instruction manual.
3. Phase angle and magnitude contribution tests on differential and directional relays after energization to vectorially verify proper polarity and connections.
4. Current Injection Tests:
 - a. For entire current circuit in each section.
 - b. Secondary injection for current flow of 1 ampere.
 - c. Test current at each device.

3.16 INSTRUMENT TRANSFORMERS

A. Visual and Mechanical Inspection:

1. Visually check current, potential, and control transformers for:
 - a. Cracked insulation.
 - b. Broken leads or defective wiring.
 - c. Proper connections.
 - d. Adequate clearances between primary and secondary circuit wiring.

2. Verify mechanically:
 - a. Grounding and shorting connections have good contact.
 - b. Withdrawal mechanism and grounding operation, when applicable, operate properly.
3. Verify proper primary and secondary fuse sizes for potential transformers.

B. Electrical Tests:

1. Current Transformer Tests:
 - a. Insulation resistance test of transformer and wiring-to-ground at 1,000 volts dc for 30 seconds.
 - b. Polarity test.
2. Potential Transformer Tests:
 - a. Insulation resistance test at test voltages in accordance with NETA ATS, Table 100.9, for 1 minute on:
 - 1) Winding-to-winding.
 - 2) Winding-to-ground.
 - b. Polarity test to verify polarity marks or H1-X1 relationship as applicable.
3. Insulation resistance measurement on instrument transformer shall not be less than that shown in NETA ATS, Table 100.5.

3.17 GROUNDING SYSTEMS

A. Visual and Mechanical Inspection:

1. Equipment and circuit grounds in switchboard and switchgear assemblies for proper connection and tightness.
2. Ground bus connections in panelboard, switchboard, and switchgear assemblies for proper termination and tightness.
3. Effective transformer core and equipment grounding.
4. Accessible connections to grounding electrodes for proper fit and tightness.
5. Accessible exothermic-weld grounding connections to verify that molds were fully filled and proper bonding was obtained.

B. Electrical Tests:

1. Fall-of-Potential Test:
 - a. In accordance with IEEE 81, Section 8.2.1.5 for measurement of main ground system's resistance.
 - b. Main ground electrode system resistance to ground to be no greater than 2 (two) ohm(s).
2. Two-Point Direct Method Test:

- a. In accordance with IEEE 81, Section 8.2.1.1 for measurement of ground resistance between main ground system, equipment frames, and system neutral and derived neutral points.
 - b. Equipment ground resistance shall not exceed main ground system resistance by 0.50 ohm.
3. Neutral Bus Isolation:
- a. Test each neutral bus individually with neutral bonding jumper removed at service entrance or separately derived system.
 - b. Evaluate ohmic values by measuring resistance between ground bus and neutral bus.
 - c. Investigate values less than 50 megohms.

3.18 GROUND FAULT SYSTEMS

A. Inspection and testing limited to:

- 1. Zero sequence grounding systems.
- 2. Residual ground fault systems.

B. Visual and Manual Inspection:

- 1. Neutral main bonding connection to ensure:
 - a. Zero sequence sensing system is grounded ahead of neutral disconnect link.
 - b. Ground strap sensing system is grounded through sensing device.
 - c. Neutral ground conductor is solidly grounded.
- 2. Verify control power has adequate capacity for system.
- 3. Manually operate monitor panels for:
 - a. Trip test.
 - b. No trip test.
 - c. Nonautomatic rest.
- 4. Zero sequence system for symmetrical alignment of core balance transformers about current carrying conductors.
- 5. Relay check for pickup and time under simulated ground fault conditions.
- 6. Verify nameplate identification by device operation.

C. Electrical Tests:

- 1. Test system neutral insulation resistance with neutral ground link removed; minimum 1 megohm.
- 2. Determine relay pickup by primary current injection at the sensor. Relay pickup current within plus or minus 10 percent of device dial or fixed setting.

3. Test relay timing by injecting 300 percent of pick-up current or as specified by manufacturer. Relay operating time in accordance with manufacturer's time-current characteristic curves.
4. Test system operation at 55 percent rated control voltage, if applicable.
5. Test zone interlock system by simultaneous sensor current injection and monitoring zone blocking functions.

3.19 LOW VOLTAGE SURGE ARRESTORS

A. Visual and Mechanical Inspection:

1. Adequate clearances between arrestors and enclosures.
2. Ground connections to ground bus or electrode.

B. Electrical Tests:

1. Varistor Type Arrestors:
 - a. Clamping voltage test.
 - b. Rated RMS voltage test.
 - c. Rated dc voltage test.
 - d. Varistor arrestor test values in accordance with IEEE C62.33, Section 4.4 and Section 4.9.

3.20 THERMOGRAPHIC SURVEY

A. Provide thermographic survey per NETA ATS Table 100.18 of connections associated with incoming service conductors, bus work, and branch feeder conductors No. 4 and larger at each:

1. Medium and low voltage switchgear.
2. Switchboard.
3. Unit substation.
4. Panelboard.

B. Provide thermographic survey of feeder conductors No. 4 (four) and larger terminating at the switchboard and pier power receptacles.

C. Remove necessary enclosure metal panels and covers prior to performing survey.

D. Perform with equipment energized during periods of maximum possible loading per NFPA 70B, Section 20.17.

E. Do not perform survey on equipment operating at less than 40 percent of rated load. If load is insufficient, perform test with supplemental load bank producing rated load on item being measured.

- F. Utilize thermographic equipment capable of:
1. Detecting emitted radiation.
 2. Converting detected radiation to visual signal.
 3. Detecting 1 degree C temperature difference between subject area and reference point of 30 degrees C.
- G. Temperature Gradients:
1. 3 degrees C to 7 degrees C indicates possible deficiency that warrants investigation.
 2. 7 degrees C to 15 degrees C indicates deficiency that is to be corrected as time permits.
 3. 16 degrees C and above indicates deficiency that is to be corrected immediately.
- H. Provide written report of:
1. Areas surveyed and the resultant temperature gradients.
 2. Locations of areas having temperature gradients of 3 degrees C or greater.
 3. Cause of heat rise and actions taken to correct cause of heat rise.
 4. Detected phase unbalance.

END OF SECTION

PART 4

**DRAWINGS (BOUND
SEPARATELY)**
