

CONTRACT DOCUMENTS

AND

TECHNICAL SPECIFICATIONS

FOR

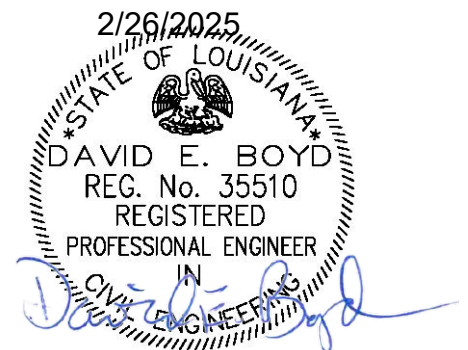
***HUEY P. LONG AVE.
STREET LIGHTING 11TH ST TO WESTBANK EXPWY.***

***DEPARTMENT OF PUBLIC WORKS
CITY OF GRETN, LOUISIANA***

February 26, 2025

BURK-KLEINPETER, INC.
4176 CANAL ST. NEW ORLEANS, LA 70119

Set No. _____



**HUEY P. LONG AVE.
STREET LIGHTING 11TH STREET TO WESTBANK EXPWY.**

**FOR THE
CITY OF GRETN, LOUISIANA**

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HUEY P. LONG AVE. STREET LIGHTING 11TH STREET TO WESTBANK EXPWY.

ELECTRICAL SPECIFICATIONS

The following specification sections included in this Project Manual were prepared by or under the responsible supervision of the company listed below:

260500	Common Work Results for Electrical
260526	Grounding and Bonding
260533	Raceway and Boxes for Electrical Systems
260553	Identification for Electrical Systems

Perry P. Hogan, PE
Burk-Kleinpeter, Inc.

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INVITATION TO BID

**HUEY P. LONG AVENUE
STREET LIGHTING 11TH TO WESTBANK EXPWY.
FOR THE
DEPARTMENT OF PUBLIC WORKS
CITY OF GRETN, LOUISIANA**

Sealed Bids will be received by the City of Gretna in the Mayor's Office, Gretna City Hall, 2nd Street and Huey P. Long Avenue, Gretna, Louisiana 70053 or electronically through the website www.publicpurchase.com on March 27, 2025, until 2:45 p.m. local time for:

HUEY P. LONG AVE. STREET LIGHTING, 11TH STREET TO WESTBANK EXPWY.

At 3:00 p.m. local time on the same day, in the Council Chamber, Gretna City Hall, Gretna, Louisiana, all Bids that have been duly received will be officially opened and read aloud.

Without limiting the scope of work described herein, the proposed bid provides for installation of lighting pole foundations, grounding, raceway, excavation and backfill, removal and replacement of concrete sidewalks, removal and replacement of sod, and all other incidental work thereto.

All Bids must be in accordance with the Contract Documents on file at the office of BURK-KLEINPETER, INC., Consulting Engineers, 2400 Veteran's Blvd., Suite 310 Kenner, Louisiana 70062.

Copies of the Bidding Documents and Contract Documents, consisting of drawings and specifications for use in preparing Bids may be secured from the office of BURK-KLEINPETER, INC., 2400 VETERAN'S BLVD., SUITE 310, KENNER, LA 70062, (504) 483-6271 by licensed contractors upon payment of \$50.00 per set or through the website www.publicpurchase.com. Deposit on the first set of documents furnished bona fide prime bidders will be fully refunded upon return of the documents in good condition no later than ten calendar days after receipt of bids. On other sets of documents furnished to prime bidders, the deposit less \$25.00 will be refunded upon return of the documents in good condition no later than ten calendar days after receipt of bids. Good condition is defined as free of all pencils, pens and other marks. All sets furnished to subcontractors and suppliers are non-refundable. Partial sets will not be issued. Request for mailing Contract Documents will be handled by Federal Express only, provided the addressee supplies his courier's account number and "street" address.

Each Bidder must obtain a contractor's license from the State of Louisiana prior to submitting his bid.

The work for this project is classified as Category IV, Municipal and Public Works Construction or Category V Electrical. **ONLY** Contractors with these classifications may submit bids for this project. Bids received by Contractors without this classification will not be opened.

Bids will be received on a unit price basis as described in the Contract Documents.

All work is to commence immediately after the Date of Contract. Completion of the work is required within 60 calendar days. All time limits commencing upon the date of issuance by registered mail of the Owner's "Notice to Proceed."

Bid security in the amount of 5 percent (5%) of the total Bid must accompany each Bid.

The successful Bidder will be required to furnish a Performance and Payment Bond guaranteeing faithful performance and the payment of all bills and obligations arising from the performance of the contract.

Sureties will be required to meet qualifications set forth in the Contract Documents.

Bidders are required to attend a mandatory pre-bid conference on Friday March 21, 2025, at 2:00 p.m. on the corner of 11th Street and Huey P. Long Avenue, Gretna LA to discuss the project. In the event of rain, the meeting will take place at Gretna City Hall Council Chambers; 740 2nd Street, Gretna, La. 70053. Prebid conference details are set forth in the Bidding Documents.

No Bid may be withdrawn within a period of 45 days after the date fixed for opening Bids.

The City of Gretna reserves the right to reject all Bids, and to reject nonconforming, nonresponsive, or conditional Bids.

**/S/ BELINDA C. CONSTANT
MAYOR
CITY OF GRETN
STATE OF LOUISIANA**

Publish: February 26; March 5; and March 12, 2025.

INSTRUCTIONS TO BIDDERS - LIST OF SUBJECTS

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- B-4. FAMILIARIZATION WITH THE WORK
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INSTRUCTIONS TO BIDDERS

B-1. CROSS REFERENCE TO PRIMARY STATEMENTS. Definitions, requirements, and limitations affecting the bidding are contained in the various Contract Documents, and are not necessarily repeated in these instructions. The following is a partial list of applicable provisions and their locations:

Availability of Land	General Conditions and Division 1
Bonds and Insurance	General and Supplemental Conditions
Definitions	General and Supplemental Conditions
Detailed Description of the Work	Division 1
Liquidated Damages	Agreement and Special Provisions
Laws and Regulations	General and Supplemental Conditions
Retainage	Agreement and Special Provisions
Subsurface Investigations	General and Supplemental Conditions

B-2. QUALIFICATIONS OF BIDDERS. Bidders may be required to submit evidence that they have a practical knowledge of the particular Work bid upon, and that they have the financial resources to complete the proposed Work.

In determining the Bidder's qualifications, the following factors will be considered: Work previously completed by the Bidder and whether the Bidder (a) maintains a permanent place of business, (b) has adequate plant and equipment to do the Work properly and expeditiously, (c) has the financial resources to meet all obligations incident to the Work, and (d) has appropriate technical experience. In accordance with Louisiana Public Contract Law (38:2281), preference will be given to bidders domiciled in Louisiana.

Each Bidder may be required to show that he has handled former work so that no just claims are pending against such work. No Bid will be accepted from a Bidder who is engaged on any work which would impair his ability to perform or finance this Work.

B-3. LOUISIANA LICENSE REQUIREMENTS. Only Bids of Contractors licensed under LSA R.S. - 37:2150 et seq., will be considered. Licensing is supervised by the Louisiana Licensing Board for Contractors, State Capitol Building, Baton Rouge, Louisiana. Contractors desiring to bid shall submit with their Bids evidence that they hold a valid license in the proper classification. This work is classified as Municipal and Public Works construction or Electrical construction. **ONLY** Contractors with these classifications may submit bids for this project. Bids received by Contractors without this classification will not be opened.

B-4. FAMILIARIZATION WITH THE WORK. Before submitting his Bid, each prospective Bidder shall familiarize himself with the Work, the site where the Work is to be performed, local labor conditions and all laws, regulations and other factors affecting performance of the Work. He shall carefully correlate his observations with requirements of the Contract Documents and otherwise satisfy himself of the expense and difficulties attending performance of the Work. The submission of a Bid will constitute a representation of compliance by the Bidder. There will be no subsequent financial adjustment for lack of such familiarization.

B-4.01. Site Conditions. Each Bidder shall visit the site of the Work and completely inform himself relative to construction hazards and procedure, the availability of lands, the character and quantity of surface and subsurface materials, and utilities to be encountered, the arrangement and condition of existing structures and facilities, the character of construction equipment and facilities needed for performance of the Work, and facilities for transportation, handling, and storage of materials and equipment. All such factors shall be properly investigated and considered in the preparation of the Bid.

B-4.02. Mandatory Prebid Conference. A mandatory prebid conference will be held at Gretna City Hall, 2nd Street and Huey P. Long Avenue, Gretna, Louisiana, on **March 21, 2025, at 2:00 P.M.** Representatives of BURK-KLEINPETER, INC., will be present to discuss the Project and answer questions. Bidders, subcontractors, and suppliers are encouraged to attend and participate in the conference. Contractors and subcontractors shall be responsible for all matters discussed at the mandatory pre-bid conference as well as decisions made at that time.

B-5. INTERPRETATIONS. All questions about the meaning or intent of the Contract Documents shall be submitted to the Engineer in writing. Replies will be issued by Addenda, mailed or delivered to all parties recorded by the Engineer as having received the bidding documents. Addenda will be issued at least 72 hours (excluding weekends and holidays) prior to the time stated for opening bids. Questions received less than fifteen calendar days prior to the date for opening Bids will not be answered. Only answers furnished by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

B-6. TAXES AND PERMITS. Attention is directed to the requirements of the General and Supplementary Conditions regarding payment of taxes and obtaining permits. All taxes that are lawfully assessed against Owner or Contractor in connection with the Work shall be paid by the Contractor. The bid prices shall include all such taxes and the costs of all required permits.

B-7. BID SECURITY. The amount of bid security is stated in the Invitation to Bid. The required security must be in the form of a certified or bank cashier's check or a bid bond. The bid bond must be executed by a surety meeting the requirements set forth in General Conditions.

The bid security shall be made payable without condition to the Department of Public Works, City of Gretna, hereinafter referred to as Owner. The bid security may be retained by and shall be forfeited to the Owner as liquidated damages if the Bid is accepted and a contract based thereon is awarded and the Bidder shall fail to enter into a contract in the form prescribed, with legally responsible sureties, within ten days after contract has been delivered to the Bidder by the Owner.

B-8. RETURN OF BID SECURITY. The bid security of the successful Bidder will be retained until he has executed the Agreement and furnished the required Contract Security, whereupon checks furnished as bid security will be returned; if he fails to execute and deliver the Agreement and furnish the required Contract Security within twelve days after the Contract has been delivered to the Bidder by the Owner, Owner may annul the Notice of Award and the bid security of that Bidder will be forfeited. The bid security of any Bidder whom Owner believes to have a reasonable

chance of receiving the award may be retained by Owner until the seventh day after the executed Agreement is delivered by Owner to Contractor and the required Contract Security is furnished but not to exceed 45 days. Checks furnished as bid security by other Bidders will be returned within seven days of the Bid opening.

B-9. CONTRACT TIME. The Contract Time is an essential part of the contract and it will be necessary for each Bidder to satisfy Owner of his ability to complete the Work within the time set forth in the Bid Form. Provisions for delays, liquidated damages, and extensions of time are set forth in the General and Supplementary Conditions.

B-10. SUBCONTRACTORS AND SUPPLIERS. Within seven days after Bids are opened, the apparent low Bidder, and any other Bidder so requested, shall submit a list of all Subcontractors he expects to use in the Work.

B-10.01. Subcontractor Qualification. Particular consideration will be given to the qualifications of each Subcontractor proposed to perform more than ten per cent (10%) of the Work. An experience statement with pertinent information as to similar projects and other evidence of qualification shall be furnished for each named Subcontractor, as requested by the Owner. If Owner or Engineer after due investigation has reasonable objection to any proposed Subcontractor, he may before giving the Notice of Award request the apparent low Bidder to submit an acceptable substitute without an increase in his Bid. If the apparent low Bidder declines to make any such substitution, Notice of Award shall not be given to such bidder, but in declining to make substitution he will not thereby sacrifice his bid security. Any Subcontractor so listed and to whom Owner or Engineer does not make written objection prior to the giving of the Notice of Award will be deemed acceptable to the Owner and Engineer.

Contractor shall not be required to employ any subcontractor against whom he has reasonable objection.

The use of subcontractors listed by the Bidder and accepted by the Owner prior to the Notice of Award will be required in the performance of the Work.

B-10.02. Suppliers. The list of subcontractors shall also include the suppliers and manufacturers of principal items of materials and equipment the Bidder expects to use in the Work.

B-11. BIDS.

B-11.01. Bid Form. Bound sets of Contract Documents are for the Bidder's information only and should not be used when submitting bids. The Bidder shall use the Proposal Form issued by Addendum for the submission of bids. All papers bound with or attached to the Proposal Form are a necessary part thereof and must not be detached. Necessary copies of this form will be furnished for bidding. Proposal Forms must be made out in ink or typed. Illegibility or ambiguity therein may constitute justification for rejection of the bid.

Bids by Corporations must be executed in the corporate name by the signature of the president or vice-president (or other corporate officer accompanied by evidence of

authority to sign) and the corporate seal shall be affixed and attested by the secretary or an assistant secretary. The state of incorporation shall be shown below the corporate name. Bids by partnerships must be executed in the partnership name and signed by a partner; title and the official address of the partnership must be shown below the signature. Bids by joint ventures shall be signed by each participant in the joint venture or by an authorized agent of each participant.

The names of all persons signing must also be legibly printed below the signature. A Bid by a person who affixes to his signature the word "president", "secretary", "agent", or other designation without disclosing his principal may be held to be the Bid of the individual signing. When requested by Owner, evidence of the authority of the person signing shall be furnished.

All blank spaces in the Bid Form shall be filled. A bid price shall be indicated for all unit price items and the total Bid. The total Bid will be determined as the sum of the products of the estimated quantities of each item and the unit price bid.

The bid shall contain an acknowledgment of receipt of all Addenda, the numbers and dates of which shall be filled in on the Bid Form.

No alterations in Bids, or in the printed forms therefore, by erasures, interpolations, or otherwise will be acceptable unless each such alteration is signed or initialed by the Bidder; if initialed, Owner may require the Bidder to identify any alteration so initialed.

B-11.02. Bid Pricing. The Bid shall be based on the Work as indicated on the drawings and as specified. The Bidder shall complete the schedule of unit prices included in the Bid Form.

The total Bid price quoted for the Work shall be stated in figures and in words. The price quoted in the Bid Form shall include all costs necessary for the complete performance of the work in full conformity with the conditions of the Contract Documents, and shall include all applicable Federal, State, County or Parish, Municipal or other taxes.

The final Contract Price will be subject to adjustment according to final measured, used, or delivered quantities, and the unit prices in the Bid will apply to such final quantities.

B-11.03. NOT USED

B-11.04. Submission of Bids. Each Bid and accompanying documents shall be enclosed in duplicate in a sealed opaque envelope or wrapping, addressed to: Gretna City Hall, Mayor's Office, 2nd Street and Huey P. Long Avenue, Gretna, Louisiana 70054 and identified on the outside with the Bidder's name; return address; the words "Huey P. Long Ave. Street Lighting 11TH Street to Westbank Expwy." or submitted electronically through the website www.publicpurchase.com.

If the bid is in the amount of \$50,000 or more, the state license number of the bidder, unless otherwise accepted by law. (Amended by Resolution No. 47418) If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "BID ENCLOSED" on the face thereof.

Bids shall be deposited at the designated location prior to the time and date for receipt of Bids indicated in the Invitation to Bid, or the modified time and date indicated by Addendum. Bids received after the time and date for receipt of Bids will be returned unopened.

Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

Oral, telephone, or faxed Bids are invalid and will not receive consideration.

No Bidder may submit more than one Bid. Multiple Bids under different names will not be accepted from one firm or association.

B-11.05. Modification and Withdrawal of Bids. Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to the opening of Bids.

B-11.06. Bids to Remain Open. All Bids shall remain open for 45 days after the day of the Bid opening. Owner shall release bids and return bid securities as specified in this section under "Return of Bid Security".

B-12. AWARD OF CONTRACT. Owner shall award a contract to the Bidder who, in Owner's judgment, is the lowest responsive, responsible Bidder. Owner reserves the right to reject any or all Bids, to waive informalities, and to reject nonconforming, nonresponsive, or conditional Bids.

In evaluating Bids, Owner shall consider the qualifications of the Bidders, and whether or not the Bids comply with the prescribed requirements. Owner may consider the qualifications and experience of Subcontractors and other persons and organizations (including those who are to furnish the principal items of material), and may reject the Bid of any Bidder who does not pass any such evaluation to Owner's satisfaction.

If the contract is awarded, Owner shall give the apparent successful Bidder a Notice of Award within 90 days after the date of the Bid opening.

B-13. EXECUTION OF THE AGREEMENT. Engineer will furnish to Contractor six copies of the Agreement and other Contract Documents bound therewith. Within 12 days, Contractor shall execute the Agreement; insert executed copies of the required bonds and power of attorney and submit all copies to the Owner. The date of contract on the Agreement and Bond forms shall be left blank for filling in by Owner. The certification date on the power of attorney also shall be left blank for filling in by Owner.

Owner will execute all copies, insert the date of contract on the Agreement, Bonds, and power of attorney, and return all copies to Engineer for review and distribution. Distribution of signed copies shall be two copies each to Owner and Contractor, and one copy each to Surety and Engineer.

Owner will file one complete copy of the executed Contract Documents with the Recorder of Mortgages in Jefferson Parish and will bill Contractor.

B-14. COPIES OF CONTRACT DOCUMENTS. Copies of the Bidding Documents and Contract Documents, consisting of drawings and specifications for use in preparing Bids may be secured from the office of BURK-KLEINPETER, INC., 2400 Veteran's Blvd, Suite 310 Kenner, LA 70063, (504) 483-6271 by licensed contractors upon payment of \$50.00 per set. Deposit on the first set of documents furnished bona fide prime bidders will be fully refunded upon return of the documents in good condition no later than ten calendar days after receipt of bids. On other sets of documents furnished to prime bidders, the deposit less \$25.00 will be refunded upon return of the documents in good condition no later than ten calendar days after receipt of bids. Good condition is defined as free of all pencil, pen and other marks. All sets furnished to subcontractors and suppliers are non-refundable. Partial sets will not be issued.

The Contractor to whom a contract is awarded will be furnished 6 copies of the specifications and the drawings, together with all Addenda thereto.

B-15. LOCAL MATERIALS AND FIRMS. By statutory authority, preference is hereby given to materials, supplies, and provisions produced, manufactured, or grown in Louisiana, quality being equal to articles offered by competitors outside of the State (LSA R.S. - 38:2251), and preference is hereby given to firms doing business in the State of Louisiana (LSA R.S. - 38:2253)

B-16. through B-20. NOT USED

B-21. PERFORMANCE AND PAYMENT BOND QUALIFICATIONS. All performance and payment bonds for contracts with the City of Gretna are to be provided by a company or companies with at least an "A" or better financial rating according to the latest A.M. Best Company rating.

B-22. BIDDER'S CHECKLIST. Bidders shall refer to the Bidder's Check List to ensure all required documents and instructions are followed prior to submitting the Bid. Failure to submit required documents may render a bid informal. (See page B-8).

BIDDER'S CHECK LIST

Check off each box as you complete the instructions.

- _____ Bid Surety equal to 5% of total bid in the form of a certified check, cashiers check, or bid bond. Bid Bond must have attached appropriate and satisfactory power of attorney and certificate as to corporate principal. (Res. No. 10677, Section I-1-A and LRS 38:2214) (Pages BB-1 through BB-3).
- _____ Proper attestations affidavit attached to bid, signed and notarized. (Page AA-1 and AA-2).
- _____ Proper affidavit attached to bid, signed and notarized. (Page AF-1).
- _____ Satisfactory evidence of the authority of the person signing on behalf of the individual, firm, partnership, or corporation must be attached. In the case of a corporation, said authority must be in the form of a Corporate Resolution.
- _____ If bid is \$50,000.00 or more, your Louisiana State Contractor's license number must be affixed to the outside of your bid envelope and to the bid form. (Res. No. 10677 as amended by Res. No. 13385 Sec. I-1-A.)
- _____ Your bid package must be submitted with original typed or in ink and receipt of all Addenda acknowledged. (Pages BF-1 through BF-5).
- _____ Bid documents shall be enclosed in a sealed opaque envelope or wrapping properly addressed and identified on the outside with Bidder's name, return address, Louisiana State License Number, Title of Project and Proposal Number or submitted electronically through the website www.publicpurchase.com.
- _____ Check terms, delivery, and/or starting and completion times.
- _____ Certification of Equal Opportunity and Non-Segregated Facilities signed and attached to bid. (Pages EO-1 and NF-1). The documents should be submitted within 10 days after bid deadline.
- _____ Bid forms signed and state license number shown.

BURK-KLEINPETER, INC.

Engineers-Architects-Planners-Environmental Scientists
2400 Veteran's Blvd, Suite 310-Kenner, LA 70062 - (504) 975-7735

SELLING OF PLANS AND SPECIFICATION

JOB NAME	Huey P. Long Ave. Lighting 11th ST. to WESTBANK EXPWY.
JOB NUMBER	9344-8350
CLIENT:	City of Gretna, Amie Hebert
CONTACT PERSON:	
Engineer Perry Hogan, PE / David Boyd, PE	
Architect: N/A	
DATES OF ADVERTISEMENTS: 2/26/25, 3/5/25 & 3/12/25	
PRE-BID DATE: 3/21/25 MANDATORY	
PRE-BID TIME: 2:00 PM	
PRE-BID LOCATION: Gretna City Hall Conference Room	
BID DATE: 3/27/25	
BID TIME: Bids due 2:45 PM, Bid opening 3:00 PM	
BID LOCATION: Gretna City Hall Council Room	
DESCRIPTION OF WORK:	
Install pole foundations and conduit for street lighting on Huey P. Long Ave. from 11 th Street to Westbank Expwy..	
COST OF PLANS AND SPECIFICATIONS: \$ 50.00	
ENGINEERS ESTIMATE: \$N/A	

**** PLEASE INFORM DAVID BOYD 504-975-7735 WHEN ADDENDUM COMES OUT.

LOUISIANA UNIFORM PUBLIC WORK BID FORM

TO: City of Gretna
2nd St. and Huey P. Long Avenue
Gretna, LA 70053
(Owner to provide name and address of owner)

BID FOR: HUEY P. LONG AVE. STREET
LIGHTING 11TH TO WESTBANK EXPWY.
(Owner to provide name of project and other identifying information)

The undersigned bidder hereby declares and represents that she/he; a) has carefully examined and understands the Bidding Documents, b) has not received, relied on, or based his bid on any verbal instructions contrary to the Bidding Documents or any addenda, c) has personally inspected and is familiar with the project site, and hereby proposes to provide all labor, materials, tools, appliances and facilities as required to perform, in a workmanlike manner, all work and services for the construction and completion of the referenced project, all in strict accordance with the Bidding Documents prepared by: BURK-KLEINPETER, INC., and dated: 2/2025.
(Owner to provide name of entity preparing bidding documents.)

Bidders must acknowledge all addenda. The Bidder acknowledges receipt of the following **ADDENDA:** (Enter the number the Designer has assigned to each of the addenda that the Bidder is acknowledging) _____.

TOTAL BASE BID: For all work required by the Bidding Documents (including any and all unit prices designated "Base Bid" * but not alternates) the sum of:

_____ Dollars (\$ _____)

ALTERNATES: For any and all work required by the Bidding Documents for Alternates including any and all unit prices designated as alternates in the unit price description.

Alternate No. 1 *(Owner to provide description of alternate and state whether add or deduct)* for the lump sum of:

_____ Dollars (\$ _____)

Alternate No. 2 *(Owner to provide description of alternate and state whether add or deduct)* for the lump sum of:

_____ Dollars (\$ _____)

Alternate No. 3 *(Owner to provide description of alternate and state whether add or deduct)* for the lump sum of:

_____ Dollars (\$ _____)

NAME OF BIDDER: _____

ADDRESS OF BIDDER: _____

LOUISIANA CONTRACTOR'S LICENSE NUMBER: _____

NAME OF AUTHORIZED SIGNATORY OF BIDDER: _____

TITLE OF AUTHORIZED SIGNATORY OF BIDDER: _____

SIGNATURE OF AUTHORIZED SIGNATORY OF BIDDER **: _____

DATE: _____

* The Unit Price Form shall be used if the contract includes unit prices. Otherwise it is not required and need not be included with the form. The number of unit prices that may be included is not limited and additional sheets may be included if needed.
** If someone other than a corporate officer signs for the Bidder/Contractor, a copy of a corporate resolution or other signature authorization shall be required for submission of bid. Failure to include a copy of the appropriate signature authorization, if required, may result in the rejection of the bid unless bidder has complied with La. R.S. 38:2212(B)5.
BID SECURITY in the form of a bid bond, certified check or cashier's check as prescribed by LA RS 38:2218.A is attached to and made a part of this bid.

LOUISIANA UNIFORM PUBLIC WORK BID FORM

UNIT PRICE FORM

TO: City of Gretna

2nd St. and Huey P. Long Avenue
Gretna, LA 70053
(Owner to provide name and address of owner)

BID FOR: HUEY P. LONG AVE. STREET
LIGHTING 11TH TO WESTBANK EXPWY.

UNIT PRICES: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

DESCRIPTION:	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# MOBILIZATION AND DEMOBILIZATION			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
1	1	LS		

DESCRIPTION:	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# TRAFFIC CONTROL AND COORDINATION			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
2	1	LS		

DESCRIPTION:	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# PULL BOX			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
3	1	EA		

DESCRIPTION:	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# POLE FOUNDATION			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
4	18	EA		

DESCRIPTION:	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# TRENCHING			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
5	560	LF		

DESCRIPTION:	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# RACEWAY			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
6	690	LF		

DESCRIPTION:	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# CONCRETE DEMOLITION			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
7	217	S.Y.		

DESCRIPTION:	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# CONCRETE FLATWORK			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
8	249	S.Y.		

DESCRIPTION:	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# DIRECTIONAL DRILL			
--------------	--	--	--	--

REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
9	560	LF		

DESCRIPTION:	<input checked="" type="checkbox"/> Base Bid or <input type="checkbox"/> Alt.# SODDING			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
10	100	S.Y.		

Wording for “DESCRIPTION” is to be provided by the Owner.

All quantities are estimated. The contractor will be paid based upon actual quantities as verified by the Owner.

BID BOND
FOR
FACILITY PLANNING AND CONTROL PROJECTS

Date: _____

KNOW ALL MEN BY THESE PRESENTS:

That _____ of _____,
as Principal, and _____, as Surety,
are held and firmly bound unto the State of Louisiana, Division of Administration, Office of Facility
Planning and Control (Obligee), in the full and just sum of five (5%) percent of the total amount of this
proposal, including all alternates, lawful money of the United States, for payment of which sum, well and
truly be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and
severally firmly by these presents.

Surety represents that it is listed on the current U. S. Department of the Treasury Financial
Management Service list of approved bonding companies as approved for an amount equal to or greater
that the amount for which it obligates itself in this instrument or that it is a Louisiana domiciled insurance
company with at least an A - rating in the latest printing of the A. M. Best's Key Rating Guide. If surety
qualifies by virtue of its Best's listing, the Bond amount may not exceed ten percent of policyholders'
surplus as shown in the latest A. M. Best's Key Rating Guide.

Surety further represents that it is licensed to do business in the State of Louisiana and that this
Bond is signed by surety's agent or attorney-in-fact. This Bid Bond is accompanied by appropriate power
of attorney.

THE CONDITION OF THIS OBLIGATION IS SUCH that, whereas said Principal is herewith
submitting its proposal to the Obligee on a Contract for:

NOW, THEREFORE, if the said Contract be awarded to the Principal and the Principal shall,
within such time as may be specified, enter into the Contract in writing and give a good and sufficient
bond to secure the performance of the terms and conditions of the Contract with surety acceptable to the
Obligee, then this obligation shall be void; otherwise this obligation shall become due and payable.

PRINCIPAL (BIDDER)

SURETY

BY: _____
AUTHORIZED OFFICER-OWNER-PARTNER

BY: _____
AGENT OR ATTORNEY-IN-FACT(SEAL)

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the
_____, Secretary of the
Corporation names as Principal in the within bond; that _____
_____who signed the said
bond on behalf of the Principal was then _____
of said Corporation; that I know his signature, and his signature thereto is genuine; and
that said bond was duly signed, sealed, and attested to for and in behalf of said
corporation by authority of this governing body.

(Corporate Seal)

(Title)

* Power-of-Attorney for person signing for the surety company must be
attached to bond.

AFFIDAVIT

STATE OF LOUISIANA
CITY OF GRETNA

BEFORE ME, the undersigned authority, personally came and appeared _____ who after being by me duly sworn, deposed and said that he is the fully authorized _____ of _____ (hereinafter referred to as bidder) the party who submitted a bid for _____

which bid was received by the City of Gretna on _____ and _____ said affiant further said:

(1) That bidder employed no person, corporation, firm, association, or other organization, either directly or indirectly, to secure the public contract under which he received payment, other than persons regularly employed by the bidder whose services in connection with the construction of the public building or project or in securing the public contract were in the regular course of their duties for bidder; and

(2) That no part of the contract price received by bidder was paid or will be paid to any person, corporation, firm, association, or other organization for soliciting the contract, other than the payment of their normal compensation to persons regularly employed by the bidder whose services in connection with the construction of the public building or project were in the regular course of their duties for bidder.

(3) Said bid is genuine and the bidder has not colluded, conspired or agreed directly or indirectly with any other bidder to offer a sham or collusive bid.

(4) Said bidder has not in any manner directly or indirectly agreed with any other person to fix the bid price of affiant or any other bidder, or to fix any overhead profit or cost element of said bid price, or that of any other bidder, or to induce any other person to refrain from bidding.

(5) Said bid is not intended to secure an unfair advantage of benefit from the Parish of Jefferson or in favor of any person interested in the proposed contract.

(6) All statements contained in said bid are true and correct.

(7) Neither affiant nor any member of his company has divulged information regarding said bid or any data relative thereto to any other person, firm or corporation.

SWORN TO AND SUBSCRIBED
BEFORE ME THIS _____
DAY OF _____, 20____

Signed: _____

Title

NOTARY PUBLIC

ATTESTATIONS AFFIDAVIT

NAME OF PROJECT

Before me, the undersigned notary public, duly commissioned and qualified in and for the parish and state aforesaid, personally came and appeared Affiant, who after being duly sworn, attested as follows:

LA R.S. 38:2227 PAST CRIMINAL CONVICTIONS OF BIDDERS

- A. No sole proprietor or individual partner, incorporator, director, manager, officer, organizer, or member who has a minimum of a ten percent (10%) ownership in the bidding entity named below has been convicted of, or has entered a plea of guilty or nolo contendere to any of the following state crimes or equivalent federal crimes:

- | | |
|---------------------------------------|------------------------------------|
| (a) Public bribery (R.S. 14:118) | (c) Extortion (R.S. 14:66) |
| (b) Corrupt influencing (R.S. 14:120) | (d) Money laundering (R.S. 14:230) |

- B. Within the past five years from the project bid date, no sole proprietor or individual partner, incorporator, director, manager, officer, organizer, or member who has a minimum of a ten percent (10%) ownership in the bidding entity named below has been convicted of, or has entered a plea of guilty or nolo contendere to any of the following state crimes or equivalent federal crimes, during the solicitation or execution of a contract or bid awarded pursuant to the provisions of Chapter 10 of Title 38 of the Louisiana Revised Statutes:

- | | |
|---|--|
| (a) Theft (R.S. 14:67) | (f) Bank fraud (R.S. 14:71.1) |
| (b) Identity Theft (R.S. 14:67.16) | (g) Forgery (R.S. 14:72) |
| (c) Theft of a business record
(R.S. 14:67.20) | (h) Contractors; misapplication of
payments (R.S. 14:202) |
| (d) False accounting (R.S. 14:70) | (i) Malfeasance in office (R.S. 14:134) |
| (e) Issuing worthless checks
(R.S. 14:71) | |

LA R.S. 38:2212.10 VERIFICATION OF EMPLOYEES

- A. Appearer is registered and participates in a status verification system to verify that all employees in the state of Louisiana are legal citizens of the United States or are legal aliens.
- B. If awarded the contract, Appearer shall continue, during the term of the contract, to utilize a status verification system to verify the legal status of all new employees in the state of Louisiana.
- C. If awarded the contract, Appearer shall require all subcontractors to submit to it a sworn affidavit verifying compliance with Paragraphs (A) and (B) of this Subsection.

LA R.S. 23:1726(B) CERTIFICATION REGARDING UNPAID WORKERS COMPENSATION INSURANCE

- A. R.S. 23:1726 prohibits any entity against whom an assessment under Part X of Chapter 11 of Title 23 of the Louisiana Revised Statutes of 1950 (Alternative Collection Procedures & Assessments) is in effect, and whose right to appeal that assessment is exhausted, from submitting a bid or proposal for or obtaining any contract pursuant to Chapter 10 of Title 38 of the Louisiana Revised Statutes of 1950 and Chapters 16 and 17 of Title 39 of the Louisiana Revised Statutes of 1950.
- B. By signing this bid /proposal, Affiant certifies that no such assessment is in effect against the bidding/proposing entity.

NAME OF BIDDER

NAME OF AUTHORIZED SIGNATORY OF BIDDER

DATE

TITLE OF AUTHORIZED SIGNATORY OF BIDDER

SIGNATURE OF AUTHORIZED
SIGNATORY OF BIDDER

WITNESSES:

Sworn to and subscribed before me this _____ day of _____, 201____.

Notary Public

PROSPECTIVE PRIME SUPPLIER'S
(BIDDER) STATEMENT ABOUT
EQUAL OPPORTUNITY CLAUSE

- () I have participated in previous contract(s) or subcontract(s) subject to the equal opportunity clause under Executive Orders 11246 and 11375 or preceding Executive Orders 10925 and 11114. I have filed all reports due under the requirements contained in 40 CRF, Part C, 8.11.
- () I have not participated in previous contract(s) subject to the equal opportunity clause under Executive Orders 11246 and 11375 or preceding Executive Order 10925 and 11114.

I will obtain a similar statement from any proposed subcontractor(s), when appropriate.

(Signature and Title of Prospective Prime or Subcontractor's Representative)

(Printed or typed Name and Title of Prospective Prime or Subcontractor's Representative)

(Name and address of Prospective Prime or Subcontractor)

CERTIFICATION OF NONSEGREGATED FACILITIES

The Bidder certified that he does not maintain nor provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location under his control, where segregated facilities are maintained. The bidder certified further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The bidder agrees that a breach of this certification would be a violation of the Equal Opportunity clause in any contract resulting from acceptance of this bid. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, timeclocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin, because of habit, local custom, or otherwise. The bidder agrees that (except where he has obtained identical certification from proposed subcontractors) prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity clause, and that he will retain such certifications in his files.

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

Date _____, 20____

Name of Bidder

Official Address (Including Zip Code):

BY: _____

BIDDER'S REPRESENTATION

By the act of submitting a bid for the proposed contract, the Bidder represents that:

1. The Bidder and all subcontractors the Bidder intends to use have carefully and thoroughly reviewed the drawings, specifications and other construction contract documents and have found them free from ambiguities and sufficient for the purpose intended; further that,
2. The Bidder and all workmen, employees and subcontractors the Bidder intends to use are skilled and experienced in the type of construction represented by the construction contract documents bid upon; further that,
3. Neither the Bidder nor any of the Bidder's employees, agents, intended suppliers or subcontractors have relied upon any verbal representations, allegedly authorized or unauthorized from the Owner, or the Owner's employees or agents including architects, engineers or consultants, in assembling the bid figure; and further that,
4. The bid figure is based solely upon the bid documents and the construction contract documents and properly issued written addenda and not upon any other written representation.

Contractor's Name

By (Signature)

Typed or Clearly Printed Name and Title

Date

END OF SECTION

AGREEMENT

THIS AGREEMENT, made on the _____ day of __, 20__, by and between, The City of Gretna, Louisiana, referred to in these Contract Documents as "Owner" acting through its Mayor and his authorized agents, and _____ is referred to in these Contract Documents as "Contractor":

WITNESSETH:

THAT WHEREAS: in accordance with law, Owner has caused Contract Documents to be prepared and an Invitation to Bid to be published, for and in connection with HUEY P. LONG AVE. STREET LIGHTING 11TH ST. TO WESTBANK EXPWY. Without limiting the scope of work described herein, the proposed bid provides for installation of lighting pole foundations, grounding, raceway, excavation and backfill, removal and replacement of concrete sidewalks, removal and replacement of sod, and all other incidental work thereto.

WHEREAS, Contractor, in response to the Invitation to Bid, has submitted to Owner, in the manner and at the time specified, a sealed Bid in accordance with Instructions to Bidders; and

WHEREAS, Owner, in the manner prescribed by law, has publicly opened, examined, and canvassed the Bids submitted, and has determined Contractor to be the lowest and best Bidder for the Work and duly awarded to Contractor a contract therefor, for the sum or sums named in Contractor's Bid.

NOW, THEREFORE, in consideration of the compensation to be paid to Contractor and of the mutual agreements herein contained, the parties to these presents have agreed and hereby agree, Owner for itself and its successors, and Contractor for itself, himself, or themselves, and its, his, or their successors and assigns, and its, his, or their executors and administrators, as follows:

ARTICLE I. All notices, letters, and other communication directed to Owner shall be delivered or addressed and mailed, postage prepaid to:

Director of Public Utilities
100 5th Street
Gretna, Louisiana 70053

The business address of Contractor given in the Bid Form and Contractor's office in the vicinity of the Work are both hereby designated as the places to which all notices, letters, and other communication to Contractor will be mailed or delivered.

All duties and responsibilities assigned to Engineer in the Contract Documents, with the corresponding rights and authority, will be assumed by BURK-KLEINPETER, INC. and their authorized agents.

Owner or Contractor may change its address at any time by written notification to Engineer and the other party.

ARTICLE II. The Contractor shall perform all Work, including the assumption of all obligations, duties and responsibilities necessary to the successful completion of the contract and the furnishing of all materials and equipment required to be incorporated in and form a permanent part of the Work; tools, equipment, supplies, transportation, facilities, labor, superintendence and services required to perform the Work; and Bonds, insurance and submittals, all as indicated or specified in the Contract Documents to be performed or furnished by Contractor for the Work included in and covered by Owner's official award of this contract to Contractor, such award being based on the acceptance by Owner of Contractor's Bid, as follows:

Without limiting the scope of work described herein, the proposed bid provides for installation of lighting pole foundations, grounding, raceway, excavation and backfill, removal and replacement of concrete sidewalks, removal and replacement of sod, and all other incidental work thereto.

ARTICLE III. That Owner shall pay to Contractor for performance of the Work embraced in this contract, and Contractor shall accept as full compensation therefor, the sum (subjected to the adjustment as provided in the Contract Documents for all Work covered by and included in the contract award and designated in the foregoing Article I; payment thereof to be made in current funds in the manner provided in the Contract Documents.

ARTICLE IV. That Contractor shall complete all Work for the Bid within 120 (ninety) calendar days after the commencement of Contract Time (as defined in General Conditions).

ARTICLE V. Time is an essential condition of the contract. Should Contractor fail to perform the Work within the Contract Time stipulated herein, Contractor shall pay to Owner, as liquidated damages and not as a penalty, \$500 per day of default unless the Contract Time is extended by Owner.

The expiration of the Contract Time shall ipso facto constitute a putting in default where Contractor has failed to perform the Work, and Owner need not formally place the Contractor in default. Contractor hereby waives any and all notices of default.

ARTICLE VI. Pursuant to LSA R.S. - 38:2248 (Public Contract Law), Owner shall retain (five/ten) percent of each progress payment until payment is due under the terms and conditions governing substantial completion or final payment.

ARTICLE VII. That the Contract Documents which comprise the contract between Owner and Contractor, attached hereto and made a part hereof, consist of the documents listed in Table of Contents, and the documents identified below.

Addenda numbers: _____

Information submitted by Contractor with the Bid: Bid Form, Signature of Bidder, Affidavit, Bidders Representation, Equal Opportunity Clause, Certification of Non-segregated Facilities, Bid Bond, Certificate as to Corporate Principal, Power of Attorney

Information submitted by Contractor prior to the time Owner issues Notice of Award:
Payment and Performance Bond, Certificate of Insurance

Notice of Award.

Notice to Proceed.

Any Modifications (as defined in General Conditions) duly delivered after execution of this Agreement.

The Contract Drawings consists of 13 (thirteen) sheets. In addition, each sheet bears the following general title:

HUEY P. LONG AVE. STREET LIGHTING 11TH ST. TO WESTBANK EXPWY.
9344-8350 – 2/2025

ARTICLE VIII. In order to induce Owner to enter into this Agreement, Contractor makes the following representations:

1. Contractor has familiarized himself with the nature and extent of the Contract Documents, Work, locality, and with all local conditions and federal, state and local laws, ordinances, rules and regulations that in any manner may affect cost, progress or performance of the Work.
2. Contractor has studied carefully all latent physical conditions at the site or otherwise affecting cost, progress or performance of the Work which were relied upon by Engineer in the preparation of the Drawings and Specifications and which have been identified in the Supplementary Conditions.

3. Contractor has made or caused to be made examinations, investigations and tests and studies of such reports and related data in addition to those referred to in paragraph 2 as he deems necessary for the performance of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents; and no additional examinations, investigations, tests, reports or similar data are or will be required by Contractor for such purposes.
4. Contractor has correlated the results of all such observations, examinations, investigations, tests, reports and data with the terms and conditions of the Contract Documents.
5. Contractor has given Engineer written notice of all conflicts, errors or discrepancies that he has discovered in the Contract Documents and the written resolution thereof by Engineer is acceptable to Contractor.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement the day and year first above written.

(Contractor)

By _____ (SEAL &)
(ATTEST)

Title _____

Date _____

(Joint Venturer)

CITY OF GRETNA

(Owner)

By _____ (SEAL &)
Belinda C. Constant (ATTEST)
Mayor - City of Gretna

Approved As to Form

Attorney for Owner

PERFORMANCE AND PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS that we, _____
_____ of _____, hereinafter referred
to as "Contractor", a corporation organized under the laws of the State of _____
and _____, as "Surety", a corporation organized under the
laws of the State of _____ and authorized to transact business in the State of
Louisiana, are held and firmly bound unto the City of Gretna, Louisiana, hereinafter
referred to as "Owner", in the penal sum of
_____ dollars
(\$ _____), for the payment of which sum, well and truly to be made, we bind
ourselves and our heirs, executors, administrator, successors, and assigns, jointly and
severally, by these presents:

WHEREAS, on the _____ day of _____, 20____, the Contractor entered
into a written contract with the Owner for furnishing materials, supplies, and equipment
not furnished by the Owner, construction tools, equipment, and plant, and the
performance of all necessary labor, for and in connection with the construction of certain
improvements described in the attached contract documents; and

WHEREAS, it was a condition of the contract award by the Owner that these presents
be executed by the Contractor and Surety;

NOW, THEREFORE, if the Contractor shall, in all particulars, well, duly, and faithfully
observe, perform, and abide by each and every covenant, condition, and part of the said
contract, and the conditions, specifications, drawings, and other contract documents
thereto attached or, by reference, made a part thereof, according to the true intent and
meaning in each case, then this obligation shall be null and void; otherwise it shall
remain in full force and effect.

PROVIDED FURTHER, that if the Contractor shall fail to pay all just claims and
demands by, or in behalf of, any employee or other person, or any firm, association, or
corporation, for labor performed or materials, supplies, or equipment furnished, used, or
consumed by the Contractor or his subcontractors in the performance of the work, then
the Surety will pay the full value of all such claims or demands in any total amount not
exceeding the amount of this obligation, together with interest as provided by law.

THE UNDERSIGNED SURETY, for value received, hereby agrees that no extension of
time, change in, addition to, or other modification of the terms of the contract or work to
be performed thereunder, or of the specifications or other contract document, shall in
any way affect its obligation on this bond, and the Surety does hereby waive notice of
any such extension of time, change, addition, or modification.

IN TESTIMONY WHEREOF, the Contractor has hereunto set his hand and the Surety has caused these presents to be executed in its name and its corporate seal to be affixed by its attorney-in-fact at

_____ on this the _____ day
of _____ 20_____.

ATTEST

Witness of Principal

_____(SEAL)
CONTRACTOR

By: _____
Principal

By: _____
Title: _____

Address

ATTEST

Witness as to Surety

SURETY COMPANY

By: _____(SEAL)
Attorney-in-Fact

By: _____
Title: _____

Address

(Accompany this bond with attorney-in-fact's authority from)
(the Surety Company certified to include the date of the bond)

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly By



**National Society of
Professional Engineers**
Professional Engineers in Private Practice

ASCE **American Society
of Civil Engineers**

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

AMERICAN COUNCIL OF ENGINEERING COMPANIES

AMERICAN SOCIETY OF CIVIL ENGINEERS

This document has been approved and endorsed by



The Associated General Contractors of America



Knowledge for Creating
and Sustaining
the Built Environment

Construction Specifications Institute
Edited And Adopted For Use By Burk-Kleinpeter, Inc.
February 2003

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National Society of Professional Engineers
1420 King Street, Alexandria, VA 22314

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

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

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

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GENERAL CONDITIONS

ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

* See SC-1.01 of Supplemental Conditions

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

* See SC-2.03 of Supplemental Conditions

** See SC-2.04 of Supplemental Conditions

*** See SC-2.05B of Supplemental Conditions

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 adaption 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

1. 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

* See SC-4.02A of Supplemental Conditions

** See SC-4.02B of Supplemental Conditions

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,

*** See SC-4.04.A of Supplemental Conditions**

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.

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:

*** See SC-5.04.A of Supplemental Conditions

**** See SC-5.04.B of Supplemental Conditions

* See SC-5.01.A of Supplemental Conditions

** See SC-5.01.B of Supplemental Conditions

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~~

* See SC-5.06.A of Supplemental Conditions

** See SC-5.06.B of Supplemental Conditions

~~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

* See SC-5.06.D of Supplemental Conditions

** See SC-5.06.E of Supplemental Conditions

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,

* See SC-6.02.B of Supplemental Conditions

** See SC-6.03.A of Supplemental Conditions

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,

* See SC-6.04.A.1 of Supplemental Conditions

b) be similar in substance to that specified, and

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

2) will state:

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

b) whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and

c) whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

3) will identify:

a) all variations of the proposed substitute item from that specified, and

b) available engineering, sales, maintenance, repair, and replacement services;

4) and shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change,

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

C. Engineer's Evaluation: Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or

equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

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

E. Engineer's Cost Reimbursement: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

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

6.06 Concerning Subcontractors, Suppliers, and Others

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

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

entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

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

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

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

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

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

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

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

insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

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

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

6.08 *Permits*

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

6.09 *Laws and Regulations*

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

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

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

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

6.11 *Use of Site and Other Areas*

A. Limitation on Use of Site and Other Areas

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

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

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of

or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

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

C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

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

6.12 *Record Documents*

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

6.13 *Safety and Protection*

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

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities

not designated for removal, relocation, or replacement in the course of construction.

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

C. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or , or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

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

6.14 *Safety Representative*

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

6.15 *Hazard Communication Programs*

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

6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give

Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

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

1. Shop Drawings

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

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

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

a. Submit number of Samples specified in the Specifications.

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

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

C. Submittal Procedures

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

a. all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog

numbers, and similar information with respect thereto;

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

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

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

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

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

D. Engineer's Review

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

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

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation

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

E. Resubmittal Procedures

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

6.18 Continuing the Work

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

6.19 Contractor's General Warranty and Guarantee

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

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

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

2. normal wear and tear under normal usage.

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

1. observations by Engineer;

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

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

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

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

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

7. any correction of defective Work by Owner.

6.20 *Indemnification*

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

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

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

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

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

6.21 *Delegation of Professional Design Services*

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

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

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

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

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

ARTICLE 7 - OTHER WORK AT THE SITE

7.01 *Related Work at Site*

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

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

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

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

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

7.02 *Coordination*

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

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

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

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

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

7.03 *Legal Relationships*

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

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

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

ARTICLE 8 - OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

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

8.02 *Replacement of Engineer*

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

8.03 *Furnish Data*

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

8.04 *Pay When Due*

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

* See SC-7.02.A of Supplemental Conditions

** See SC-7.02.B of Supplemental Conditions

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

* See SC-9.03 of Supplemental Conditions

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 respon-

sible 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

*** See SC-12.03.F and SC-12.03.G of Supplemental Conditions**

Work at reasonable times for their observation, inspecting, and testing. Contractor shall provide them proper and safe conditions for such access and advise

them of Contractor's Site safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections*

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

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

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

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

3. as otherwise specifically provided in the Contract Documents.

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

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

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

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

13.04 *Uncovering Work*

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

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

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

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

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

13.05 *Owner May Stop the Work*

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

13.06 *Correction or Removal of Defective Work*

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

or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

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

13.07 *Correction Period*

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

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

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

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

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be

extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

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

13.08 *Acceptance of Defective Work*

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

13.09 *Owner May Correct Defective Work*

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

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

access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

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

ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

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

14.02 *Progress Payments*

A. Applications for Payments

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

covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

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

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

B. *Review of Applications*

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

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

a. the Work has progressed to the point indicated;

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

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

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

* See SC-14.02.A.1 of Supplemental Conditions

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.

*** See SC-14.02.C Supplemental Conditions**

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

* See SC-14.07.A of Supplemental Conditions

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.

* See SC-14.07.C of Supplemental Conditions

** See SC-14.08 of Supplemental Conditions

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,

ments, 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.

*** See SC-17.07 of Supplemental Conditions.**

SECTION 00810

SUPPLEMENTARY CONDITIONS

**SUPPLEMENTARY CONDITIONS
TO THE
STANDARD GENERAL CONDITIONS
OF THE
CONSTRUCTION CONTRACT
(C-700, 2002 EDITION)**

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (C-700, 2002 Edition) and other provisions of the Contract Documents as indicated herein. All provisions which are not so amended or supplemented remain in full force and effect. Revision Date: February 2003.

SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (C-700, 2002 Edition, as edited for use by Burk-Kleinpeter, Inc. [February 2003]) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

SC-1.01

The items used in these Supplementary Conditions which are defined in the Standard General Conditions of the Construction Contract (C-700, 2002 Edition, as edited for use by Burk-Kleinpeter, Inc. [February 2003]) have the meanings assigned to them in the General Conditions.

Add the following definitions:

"Easement/Servitude - The burden placed on property due to specified rights to its use. The terms may be used interchangeably."

"Record Drawing - The engineering plans, amended for the changes incorporated during construction."

"Special Provision - The part of the Contract Documents which emphasizes, specifies or advises the CONTRACTOR of special items or circumstances particular to the project or amends or supplements General Conditions and Supplementary Conditions."

SC-2.03.

Refer to paragraph GC 2.03. The seventh line of this paragraph is amended to read as follows:

".....later than the one hundred-twentieth (120th) day after day of Bid opening....."

and so amended paragraph 2.03. remains in effect.

SC-2.04.

Amend the first sentence of paragraph 2.04. of General Conditions to read as follows:

"CONTRACTOR shall start to perform the Work within ten (10) calendar days of the date when...."

and so amended paragraph 2.04. remains in effect.

SC-2.05.B

Add the following paragraph SC-2.05.B at the end of this Section.

"2.05.B. *Evidence of Insurance*: All liability, property and other insurance specified in Contract Documents shall be purchased and maintained by CONTRACTOR as set forth in Article 5 (unless otherwise specified in the Special Provisions). CONTRACTOR shall deliver the required insurance certificates for the project to the ENGINEER within seven (7) calendar days of the execution of the Agreement. Failure to comply with this requirement will delay issuance of the Notice to Proceed."

SC-4.02.A.

Amend the first line of paragraph 4.02.A. of General Conditions to read as follows:

"The Special Provisions identify:"

and so amended paragraph 4.02.A. remains in effect.

SC-4.02.B.

Amend the fifth line of paragraph 4.02.B. of General Conditions to read as follows:

"Such "technical data" is identified in the Special Provisions."

and so amended paragraph 4.02.B. remains in effect.

SC-4.04.A.

Amend the last sentence of paragraph 4.04.A. of General Conditions to read as follows:

"Unless it is otherwise expressly provided in the Special Provisions:"

and so amended paragraph 4.04.A. remains in effect.

SC-5.01.A.

The first sentence of paragraph 5.01.A. of General Conditions shall be amended to read as follows:

"CONTRACTOR shall purchase and maintain performance....."

Also, the sixth line of paragraph 5.01.A. of General Conditions shall be amended to read as follows:

"one year after the date of Official OWNER acceptance, except"

and so amended paragraph 5.01.A. remains in effect.

SC-5.01.B.

The first sentence of paragraph 5.01.B. of the General Conditions shall be amended to read as follows:

"All Bonds shall be in the forms prescribed by Law or Regulations or by the Contract Documents and shall be executed by such sureties as (i) are licensed to conduct business in the state where the Project is located, (ii) are approved by the Louisiana State Insurance Commissioners and (iii) sureties shall have at least an "A" or better financial rating and a Class 8 or better General Policy holder rating according to the latest A.M. Best Company ratings."

and so amended paragraph 5.01.B. remains in effect.

SC-5.04.A.

The insurance requirements in Article 5.04.A. of General Conditions are hereby modified. All liability and property insurance shall be purchased and maintained by CONTRACTOR as set forth herein.

Satisfactory certificates of insurance shall be filed with OWNER/ ENGINEER prior to starting any construction work on this contract. Applicable provisions of General Conditions 5.04.A. shall govern the purchase of all insurance coverage.

"5.04.A.1 & 5.04.A.2. Workmen's Compensation and Employer's Liability: This insurance shall protect CONTRACTOR against all claims under applicable state workmen's compensation laws. CONTRACTOR shall also be protected against claims for injury, disease, or death of employees, which, for any reason, may not fall within the provisions of a workmen's compensation law. This policy shall include an "all states" endorsement.

The liability limits shall be not less than:

Workmen's compensation Statutory

Employer's liability \$100,000 each occurrence

5.04.A.3. through 5.04.A.5. Comprehensive General Liability: This insurance shall be written in comprehensive form and shall protect CONTRACTOR against all claims arising from injuries to persons other than his employees or damage to property of OWNER or others arising out of any act or omission of CONTRACTOR or his agents, employees, or Subcontractors. The policy shall also include protection against claims

insured by usual personal injury liability coverage, a "protective liability" endorsement to insure the contractual liability assumed by CONTRACTOR under the indemnification provisions in General Conditions, and "Completed Operations and Products Liability" coverage (to remain in force during the correction period). To the extent that CONTRACTOR's work, or work under his direction, may require blasting, explosive conditions, or underground operations, the comprehensive general liability coverage shall contain no exclusion relative to blasting, explosion, collapse of buildings, or damage to underground property.

Combined single limits of \$500,000.00 each occurrence and \$1,000,000 aggregate for Bodily Injury and Property Damage.

5.04.A.6. Comprehensive Automobile Liability: This insurance shall be written in comprehensive form and shall protect CONTRACTOR against all claims for injuries to members of the public and damage to property of others arising from the use of motor vehicles licensed for highway use, whether they are owned, non-owned, or hired.

The liability limits shall be not less than: Combined single limit of \$500,000.00 each occurrence and \$500,000 aggregate for Bodily Injury and Property Damage.

5.04.A.7. Umbrella Liability Policy: This insurance shall protect CONTRACTOR against all claims in excess of the limits provided under the workmen's compensation and employer's liability, comprehensive automobile liability, and general liability policies. The liability limits of the umbrella liability policy shall not be less than \$5,000,000."

and so amended paragraph 5.04.A. remains in effect.

SC-5.04.B.

The contractual liability required by paragraph 5.04.B.2.of General Conditions shall provide coverage for not less than the following amounts:

"5.04.B.2.1.	Bodily Injury:\$500,000 \$1,000,000	each occurrence aggregate
5.04.B.2.2.	Property Damage\$250,000 \$500,000	each occurrence aggregate"

Amend the first line of the paragraph following paragraph 5.04.B.6.of General Conditions to read as follows:

"Remain in effect until Official OWNER acceptance and at all times thereafter..."

Amend the third and fourth lines of the paragraph 5.04.B.7. of General Conditions to read as follows:

"...remain in effect for at least two years after Official OWNER acceptance..."

and so amended Article 5.04.B. of General Conditions remains in effect.

SC-5.06.A.

Change the first sentence of paragraph 5.06.A to read as follows:

"5.06.A. CONTRACTOR shall purchase and maintain, from effective date of agreement to official OWNER acceptance, property insurance upon the Work at the site..."

Add paragraph 5.06.A.8 of General Conditions to read as follows:

Installation Floater: This insurance shall protect CONTRACTOR, OWNER and ENGINEER from all insurable risks of physical loss or damage to materials and equipment not otherwise covered under builder's risk insurance, while in approved warehouses or approved storage areas, during installation, during testing, and after the Work is completed. It shall be of the "all-risks" type, with coverage designed for the circumstances which may occur in the particular Work included in this contract. The coverage shall be for an amount not less than the insurable value of the Work at completion, less the value of the materials and equipment insured under builder's risk insurance. The value shall include the aggregate value of the OWNER-furnished equipment and materials (if any) to be erected or installed by CONTRACTOR not otherwise insured under builder's risk insurance.

Installation floater insurance shall provide for losses to be payable to CONTRACTOR, OWNER and ENGINEER as their interest may appear. The policy shall contain a provision that in the event of payment for any loss under the coverage provided, the insurance company shall have no rights of recovery against the CONTRACTOR, OWNER and ENGINEER.

Certificates of insurance covering installation floater insurance shall quote the insuring agreement and all exclusions as they appear in the policy; or in lieu of certificates, copies of the complete policy may be submitted."

SC-5.06.B.

Delete entire paragraph 5.06.B. of General Conditions.

SC-5.06.D.

Add the following language at the end of paragraph 5.06.D. of General Conditions:

"No property insurance required by Contract Documents shall have deductible amount in excess of \$5,000.00."

SC-5.06.E.

Delete entire paragraph 5.06.E. of General Conditions and so amended Article 5.06. of General Conditions remains in effect.

SC-6.02.B.

The following paragraph shall be added at the end of paragraph 6.02.B. of General Conditions:

"6.02.B.1. Overtime Work: No work shall be done between 6:00 P.M. and 7:00 A.M. nor on Sundays or legal holidays without permission of OWNER. However, emergency work may be done without prior permission.

Night work may be undertaken as a regular procedure with the permission of OWNER; such permission, however, may be revoked at any time by OWNER if CONTRACTOR fails to maintain adequate equipment and supervision for the proper prosecution and control of the Work at night.

The CONTRACTOR shall establish a normal work schedule which does not exceed 40 hours per week. Whenever CONTRACTOR's work requires scheduled overtime, CONTRACTOR shall reimburse OWNER for extra costs incurred at a rate of \$70.00 per hour for providing Resident Project Representative and overtime shall be scheduled only after CONTRACTOR obtains written permission from OWNER. A Change Order shall be prepared to cover OWNER's reimbursable costs."

and so amended Article 6.02.B. of General Conditions remains in effect.

SC-6.03.A.

Add the following language at the end of paragraph 6.03.A. of General Conditions:

"Except for items specifically identified as provided by OWNER, CONTRACTOR shall pay for all labor, materials and other costs incurred under this contract."

and so amended paragraph 6.03.A. remains in effect.

SC-6.04.A.1.

At the end of paragraph 6.04.A.1. of General Conditions to read as follows:

"Contractor shall submit adjustments in the progress schedule every thirty (30) days or as directed by ENGINEER to reflect the impact thereon of new developments."

and so amended paragraph 6.04.A. remains in effect.

SC-7.02.A.

The words "Supplementary Conditions" in the third line of paragraph 7.02.A. of the General Conditions shall be substituted with "Special Provisions." and so amended paragraph 7.02.A. will remain in effect.

SC-7.02.B.

The words "Supplementary Conditions" in the first line of paragraph 7.02.B. of the General Conditions shall be substituted with "Special Provisions." and so amended paragraph 7.02.B. will remain in effect.

SC-9.03.

The paragraph 9.03. of General Conditions shall be amended by adding, at the end of the paragraph, the following language:

"ENGINEER may furnish a RESIDENT PROJECT REPRESENTATIVE and assistants to aid ENGINEER in carrying out his responsibilities at the site. The duties, responsibilities and limitations of authority of the Resident Project Representative are set forth in Exhibit A attached to these Supplementary Conditions."

and so amended paragraph 9.03. will remain in effect.

SC-12.03.F and SC-12.03.G.

Add the following articles 12.03.F and 12.03.G. after paragraph 12.03.E. of General Conditions.

"12.03.F. CONTRACTOR shall accept the risk of any delays caused by the rate of progress of the Work to be performed under other Sections of this contract or other contracts. In the event CONTRACTOR is delayed in the prosecution and completion of the Work because of such conditions, CONTRACTOR shall have no claim against

OWNER for damages or contract adjustment other than an extension of Contract Time and waiving of liquidated damages during the period occasioned by the delay.

12.03.G. Time limitations required by OWNER shall be for the benefit of OWNER and CONTRACTORS under other Sections of this contract or other contracts who have entered into such contracts with OWNER in reliance on the time limitations set forth in these Contract Documents. Any claim by CONTRACTOR for damages due to delay by another contractor shall be asserted against that CONTRACTOR."

and so amended paragraph 12.03. remains in effect.

SC-14.02.A.1.

Add article 14.02.A.1.a. and 14.02.A.1.b. immediately after paragraph 14.02.A.1. of General Conditions, as follows:

"14.02.A.1.a. Schedules: Each Application for Progress Payment shall be accompanied by CONTRACTOR's updated schedule of operations, or progress report, with such shop drawing schedules, procurement schedules, value of material on hand included in application, and other data specified in Division 1 or reasonably required by ENGINEER.

14.02.A.1.b. Payment for Material on Hand:

- (a) General: When approved by the ENGINEER, advance payments may be made for fabricated or manufactured materials that are to be incorporated in the project when such materials are stockpiled or stored on the project or in acceptable facilities outside the limits of the project within a 50 mile radius. These materials must meet the specifications; however, partial payment for materials on hand will not constitute acceptance. It shall be the CONTRACTOR's responsibility to protect the material from damage while in storage. Payments shall be limited to those materials described herein that are durable in nature and must represent a SIGNIFICANT portion of the project cost. Further, on lump sum contracts or lump sum bid items, payments shall be limited to those materials which are specifically identified by a separate line item on the schedule of values. Perishable articles, small warehouse items, reinforcing steel and natural materials such as aggregate, stone, expanded clay, river sand, crushed rock and recycled concrete will not be included.

Payment for materials, unless otherwise stated in the specifications, shall be the invoice price for the material. For fabricated materials purchased from commercial sources and delivered to approved storage, payment for material on hand may be the invoice price plus freight and taxes. The quantity of materials for payment will not exceed the total estimated quantity required to complete the project and the invoice values will not exceed the appropriate portion of the contract item in which such materials are to be incorporated.

The amounts advanced on stockpiles or stored materials will be recovered by the OWNER through deductions made on construction estimates and payments as the materials are incorporated in the work.

Payment for material on hand must be requested by the CONTRACTOR in writing and the following documents must be furnished before approval is recommended:

- (1) Written consent from the CONTRACTOR's surety for the OWNER to make such partial payment.
- (2) A copy of the original invoices from the supplier or manufacturer verifying the cost and quantity of material, and identifying the material by serial number or other appropriate description.
- (3) If storage is on private property, a copy of the lease or agreement granting the OWNER right of entry to the property.

Within thirty (30) days after payment by the OWNER, the CONTRACTOR shall submit a copy of certified invoice statement for each item for which payment has been made. If this certification of payment is not presented within the thirty (30) day period, the advance payment will be deducted from future progress payments.

Title and ownership of materials for which advancements have been made by the OWNER shall not vest in the OWNER until such materials are actually incorporated in the work and the work accepted by the OWNER and the making of advancements thereof by the OWNER shall not release the CONTRACTOR from the responsibility for any portion thereof.

- (b) Fabricated Material: This shall be fabricated or manufactured materials that are purchased by the CONTRACTOR for the project and may include but is not limited to the following:

Structural steel, fabricated structural steel items, steel piling, mechanical equipment, electrical equipment, precast and precast-prestressed concrete items including pipe, fittings, piling, girders and bridge sections, structural timber, timber piling, metal and PVC pipe and fittings."

and so amended paragraph 14.02.A.1. remains in effect.

SC-14.02.C

The beginning of the first sentence of paragraph 14.02.C.1. of General Conditions shall read as follows:

"Thirty days after presentation"

and so paragraph 14.02.C. as amended above remains in effect.

SC-14.04.C

The third sentence of paragraph 14.04.C of General Conditions shall read as follows:

" There shall be attached to the certificate a tentative list of items including each item's value for labor, materials equipment, profit etc. included and attached to Certificate of Substantial Completion."

and so paragraph 14.04.C. as amended above remains in effect.

SC-14.07.A.

Add the following language after paragraph 14.07.A.3. of General Conditions:

"4. CONTRACTOR's Application for Final Payment shall also be accompanied by consent of the Surety to final payment and a clear lien and privilege certificate issued by the Clerk of Court and Ex-Officio Recorder of Mortgages for the Parish."

and so paragraph 14.07.A. as amended above remains in effect.

SC-14.07.C.

The first sentence of paragraph 14.07.C.1. of General Conditions shall be amended as follows:

Delete words "Thirty days" from beginning of first sentence of the paragraph 14.07.C.1. and insert "and in accordance with Louisiana State Public Contract Statute" before the words "will become due" in the fourth line of this paragraph.

and so paragraph 14.07.C. as amended above remains in effect.

SC-14.08.

Add the following language at the end of paragraph 14.08. of General Conditions:

"When CONTRACTOR is in default for nonperformance within the stipulated Contract Time, OWNER shall deduct the liquidated damages amount stated in the Agreement from the CONTRACTOR's payment request."

and so paragraph 14.08. as amended above remains in effect.

SC-17.07.

Add the following new paragraph at the end of paragraph 17.06. of General Conditions:

"17.07. Assignment: Neither party to this contract shall assign or sublet his interest in this contract without written consent of the other, nor shall CONTRACTOR assign

any moneys due or to become due him under this contract without previous written consent of OWNER, nor without the consent of the surety unless the Surety has waived its right to notice of assignment."

and so paragraph 17. as amended above remains in effect.

END OF SECTION

EXHIBIT A

Duties, Responsibilities and Limitations of Authority of Resident Project Representative

A. General

Resident Project Representative (RPR) is ENGINEER's agent at the site, will act as directed by and under the supervision of ENGINEER, and will confer with ENGINEER regarding RPR's actions. RPR's dealings in matters pertaining to the on-site work shall in general be with ENGINEER and Contractor, keeping OWNER advised as necessary. RPR's dealings with subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with OWNER with the knowledge of and under the direction of ENGINEER.

B. Duties and Responsibilities of RPR

1. *Schedules:* Review the progress schedule, schedule of Shop Drawing submittals and schedule of values prepared by Contractor and consult with ENGINEER concerning acceptability.
2. *Conferences and Meetings:* Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences and other project-related meetings, and prepare and circulate copies of minutes thereof.
3. *Liaison:*
 - a. Serve as ENGINEER's liaison with Contractor, working principally through Contractor's superintendent and assist in understanding the intent of Contract Documents.
 - b. Assist ENGINEER in serving as OWNER's liaison with Contractor when Contractor's operations affect OWNER's on-site operations.
 - c. Assist in obtaining from OWNER additional details or information, when required for proper execution of the Work.
4. *Interpretation of Contract Documents:* Report to ENGINEER when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by the ENGINEER.
5. *Shop Drawings and Samples:*
 - a. Record date of receipt of Shop Drawings and Samples.
 - b. Receive Samples which are furnished at the site by Contractor, and notify ENGINEER of availability of Samples for examination.
 - c. Advise ENGINEER and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal for which the RPR believes that the submittal has not been approved by ENGINEER.
6. *Modifications:* Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report with RPR's recommendations to ENGINEER. Transmit to Contractor in writing decisions as issued by ENGINEER.
7. *Review of Work, Rejection of Defective Work:*

- a. Conduct on-site observations of the Work in progress to assist ENGINEER in determining if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Report to ENGINEER whenever RPR believes that any part of Contractor's work in progress will not produce a completed Project that conforms generally to the Contract Documents or will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise ENGINEER of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.
8. *Inspections, Tests and System Start-ups:*
- a. Consult with ENGINEER in advance of scheduled major inspections, tests, and systems start-ups of important phases of the Work.
 - b. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate OWNER's personnel, and that Contractor maintains adequate records thereof.
 - c. Observe, record, and report to ENGINEER appropriate details relative to the test procedures and systems start-ups.
 - d. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections, and report to ENGINEER.
9. *Records:*
- a. Maintain at the job site orderly files for correspondence, reports of job conferences, Shop Drawings and Samples, reproductions of original Contract Documents including all Change Orders, Field Orders, Work Change Directives, Addenda, additional Drawings issued subsequent to the execution of the Contract, ENGINEER's clarifications and interpretations of the Contract Documents, progress reports, Shop Drawing and Sample submittals received from and delivered to Contractor and other Project related documents.
 - b. Prepare a daily report or keep a diary or log book, recording Contractor's hours on the job site, weather conditions, data relative to questions of Change Orders, Field Orders, Work Change Directives, or changed conditions, Site visitors, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to ENGINEER.
 - c. Record names, addresses and telephone numbers of all Contractors, subcontractors and major suppliers of materials and equipment.
 - d. Maintain records for use in preparing Project documentation.
 - e. Upon completion of the Work, furnish original set of all RPR Project documentation to ENGINEER.
10. *Reports:*
- a. Furnish to ENGINEER periodic reports as required of progress of the Work and of Contractor's compliance with the progress schedule and schedule of Shop Drawing and Sample submittals.
 - b. Draft and recommend to ENGINEER proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.
 - c. Furnish to ENGINEER and OWNER copies of all inspection, test, and start-up reports.

- d. Immediately notify Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, damage to property by fire or other causes, or the discovery of any Constituent of Concern. .
- 11. *Payment Requests:* Review Applications for Payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to ENGINEER, noting particularly the relationship of the payment requested to the schedule of values, Work completed and materials and equipment delivered at the site but not incorporated in the Work.
- 12. *Certificates, Operation and Maintenance Manuals:* During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Specifications to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to ENGINEER for review and forwarding to OWNER prior to payment for that part of the Work.
- 13. *Completion:*
 - a. Before ENGINEER issues a Certificate of Substantial Completion, submit to Contractor a list of observed items requiring completion or correction.
 - b. Observe whether Contractor has arranged for inspections required by Laws and Regulations, including but not limited to those to be performed by public agencies having jurisdiction over the work.
 - c. Participate in a final inspection in the company of ENGINEER, OWNER and Contractor and prepare a final list of items to be completed or corrected.
 - d. Observe whether all items on final list have been completed or corrected and make recommendations to ENGINEER concerning acceptance and issuance of the Notice of Acceptability of the Work.

C. Resident Project Representative shall not:

- 1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including “or-equal” items), unless authorized by ENGINEER.
- 2. Exceed limitations of ENGINEER’s authority as set forth in the Agreement or the Contract Documents.
- 3. Undertake any of the responsibilities of Contractor, Subcontractors, Suppliers, or Contractor’s superintendent.
- 4. Advise on, issue directions relative to or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction unless such advice or directions are specifically required by the Contract Documents.
- 5. Advise on, issue directions regarding or assume control over safety precautions and programs in connection with the activities or operations of OWNER or Contractor.
- 6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by ENGINEER.
- 7. Accept Shop Drawings or Sample submittals from anyone other than Contractor.
- 8. Authorize OWNER to occupy the Project in whole or in part.

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DIVISION 1

GENERAL REQUIREMENTS

SECTION 1A - PROJECT REQUIREMENTS

1A-1 GENERAL DESCRIPTION OF WORK. Without limiting the scope of work described herein, the proposed bid provides for installation of lighting pole foundations, grounding, raceway, pull boxes, excavation and backfill, removal and replacement of concrete sidewalks, removal and replacement of sod, and all other incidental work thereto.

1A-2 NOT USED

1A-3 NOT USED

1A-4 RESPONSIBILITY FOR MATERIALS AND EQUIPMENT.

1A-4.1 Items Furnished by Contractor. Contractor shall be fully responsible for all materials and equipment which he has furnished, and shall furnish necessary replacements at any time prior to expiration of the Correction Period.

1A-5 OFF-SITE STORAGE. Off-site storage arrangements for Contractor-furnished equipment shall be acceptable to Owner for all materials and equipment not incorporated into the work but included in Applications for Payment. Such off-site storage arrangements shall be presented in writing and shall afford adequate and satisfactory security and protection. Off-site storage facilities shall be accessible to the Engineer.

1A-6 EQUIVALENT MATERIALS AND EQUIPMENT. In accordance with Louisiana Public Contract Statute (LSA R.S. - 38:2295), these Contract Documents include provisions for use of equivalent materials and equipment. Requests for review of equivalency shall be submitted in accordance with the General Conditions.

A. Material and equipment incorporated into the Work:

1. Conform to applicable specifications and standards.
2. Comply with size, make, type and quality specified or as specifically approved in writing by the Engineer.
3. Do not use material or equipment for any purpose other than that for which it is designed or is specified.

4. Whenever an article, device or piece of equipment specified herein (or as indicated on the Drawings) is referred to in the singular number, such reference shall apply to as many such articles as are indicated on the Drawings or required to complete the installation within the general intent of the Contract Documents.
5. Any items damaged in removal, storage or handling through carelessness or improper procedures shall be replaced by Contractor in kind or with new items.
6. Existing materials and equipment removed by Contractor shall not be reused in the Work except where so specified or indicated.
7. All items mentioned in these Contract Documents shall be handled in conformance with this Section, instructions in the related Sections, and manufacturer's literature.
8. The security of Owner furnished equipment shall become the responsibility of the Contractor upon taking delivery of the items at the office of the Owner.

MANUFACTURER'S INSTRUCTIONS

- A. When Contract Documents require that installation of Work shall comply with manufacturer's printed instructions, obtain and distribute copies of such instructions to parties involved in the installation, including two copies to Engineer.
 1. Maintain one set of complete instructions at the job site during installation and until project completion.
- B. Handle, install, connect, clean, condition and adjust products in strict accordance with such instructions and in conformity with specified requirements.
 1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with Engineer for further instructions.
 2. Do not proceed with such Work without clear instructions.
- C. Perform Work in accordance with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

1A-7 PREPARATION FOR SHIPMENT. All materials shall be suitably packaged to facilitate handling and protect against damage during transit and storage. Coated surfaces shall be protected against impact, abrasion, discoloration, and

other damage. All coated surfaces which are damaged prior to acceptance of material shall be repaired to the satisfaction of Engineer. If the Engineer deems the damage to be too extensive for repair, the material will be rejected and disposed of by the Contractor at No Direct Pay.

Each item, package, or bundle of material shall be tagged or marked as identified in the delivery schedule. Complete packing lists and bills of material shall be included with each shipment. Arrange deliveries of products in accordance with construction schedules, coordinate to avoid conflicts and delays with Work and conditions at the site.

Deliver products in undamaged condition, in manufacturer's original containers or packaging with identifying labels intact and legible. Labels shall indicate manufacturer and product name, description, mixing and application instructions, limitations, cautions and warnings.

1A-8 SALVAGE OF MATERIALS AND EQUIPMENT. Existing materials, unless otherwise noted on the contract drawings, removed, shall not be reused, as a part of the Work and shall become the property of the Contractor. Contractor shall dispose of material at an off-site location at no direct cost to the Owner.

1A-9 NOT USED.

1A-10 NOT USED.

1A-11 NOTICES TO OWNERS AND AUTHORITIES. Contractor shall, as provided in General Conditions, notify owners of adjacent property and utilities when prosecution of Work may affect them.

When it is necessary to temporarily deny access by owners or tenants to their property, or when any utility service connection must be interrupted, Contractor shall give notices sufficiently in advance to enable the affected persons to provide for their needs. Notices shall conform to any applicable local ordinance and, whether delivered orally or in writing, shall include appropriate information concerning the interruption and instructions on how to limit their inconvenience.

Utilities and other concerned agencies shall be contacted at least 24 hours prior to cutting or closing streets or other traffic areas or excavating near underground utilities or pole lines.

1A-12 MEASUREMENT AND PAYMENT. The project shall be constructed complete as shown and indicated on the Contract Drawings and as described in the Contract Specifications.

Payment shall include all compensation to be received by the Contractor for furnishing all tools, equipment, supplies, and manufactured articles, and for all labors, operations, and incidentals as necessary to complete the various items of work all in accordance with the requirements of the Contract Documents, including all costs of compliance with the regulations of public agencies having jurisdiction. The Contractor is hereby on notice that no separate payment will be made for any item not specifically called out, but that is required to properly complete the project.

The Total Bid Price shall cover all work required by the Contract Documents. All costs in connection with the proper and successful completion of the work, including furnishing all materials, equipment, supplies, and appurtenances; providing all construction equipment, and tools; and performing all necessary labor and supervision to fully complete the work, shall be included in the unit and lump sum prices bid. All work not specifically set forth as a pay items in the Bid Form shall be considered a subsidiary obligation of the Contractor and all costs in connection therewith shall be included in the prices bid.

All estimated quantities stipulated in the Bid Form or other Contract Documents are approximate and are to be used only (a) as a basis for estimating the probable cost of the work, and (b) for the purpose of comparing the bids submitted for the work. The actual amounts of work done and materials furnished under unit price items may differ from the estimated quantities. The basis of payment for work and materials will be the actual amount of work done and materials furnished. No compensation will be given for any quantities not used.

1A-13 LINES AND GRADES. All Work shall be done to the lines, grades, and elevations shown on the Contract Drawings.

Basic horizontal and vertical control points will be established or designated by Engineer. These points shall be used as datum for the Work. All additional survey, layout, and measurement Work shall be performed by Contractor as a part of the Work (No Direct Payment).

Contractor shall provide an experienced instrument man, competent assistants, and such instruments, tools, stakes, and other materials required to complete the survey, layout and measurement Work. In addition, Contractor shall furnish, without charge, competent men from his force and such tools, stakes, and other materials as Engineer may require in establishing or designating control points, in establishing construction easement boundaries, or in checking survey, layout, and measurement Work performed by Contractor.

The Contractor shall keep Engineer informed, a reasonable time in advance, of the times and places at which he wishes to do Work, so that horizontal and vertical control points may be established and any checking deemed necessary by Engineer may be done with minimum inconvenience to Engineer and minimum delay to Contractor. The Contractor shall remove and reconstruct Work which is improperly located.

- 1A-14 EASEMENTS AND RIGHT-OF-WAY (SERVITUDE). The easements and rights-of-way for the work will be provided by the Owner, Contractor shall confine his construction operations within the limits indicated on the drawings, and shall use due care in placing construction tools, equipment, excavated materials, and pipeline materials and supplies, so as to cause the least possible damage to property and interference with traffic.

All Work performed and all operations of Contractor, his employees or Subcontractors, within the limits of rights-of-way, shall be in conformity with the requirements and be under the control (through Owner) of the authority owning, or having jurisdiction over and control of, the right-of-way.

- 1A-15 CONNECTIONS TO EXISTING FACILITIES. Unless otherwise specified or indicated, Contractor shall make all necessary connections to existing facilities including structures, drain lines and utilities such as water, sewer, gas, telephone, and electricity if required. In each case, Contractor shall receive permission from Owner or the owning utility prior to undertaking connections. Contractor shall protect facilities against deleterious substances and damage.

Connections to existing facilities which are in service shall be thoroughly planned in advance, and all required equipment, materials and labor shall be on hand at the time of undertaking the connections. Work shall proceed continuously (around the clock), if necessary, to complete connections in the minimum time. Operation of valves or other appurtenances on existing utilities, when required, shall be by or under the direct supervision of the owning utility.

Materials shall be cut and removed to the extent indicated on the Plans or as required to complete the Work. Materials shall be removed in a careful manner with no damage to adjacent facilities or materials. Materials which are not salvageable shall be removed from the site by Contractor.

All Work and existing facilities affected by cutting operations shall be restored with new materials, or with salvaged materials acceptable to Engineer, to obtain a finished installation with the strength, appearance, and functional capacity required. If necessary, entire surfaces shall be patched and refinished.

- 1A-16 UNFAVORABLE CONSTRUCTION CONDITIONS. Contractor shall confine his operations to work which will not be affected adversely by unfavorable weather, wet ground, or other unsuitable construction conditions. No portion of the Work shall proceed under conditions which would affect adversely the quality or efficiency of the Work, unless suitable special precautions or countermeasures

are taken by Contractor. These special precautions or countermeasures must be approved by the Engineer.

1A-17 CUTTING AND PATCHING.

GENERAL

- 1.01 DESCRIPTION: As provided in the General Conditions and herein, Contractor shall perform all cutting and patching required for the Work, and as may be necessary in connection with uncovering Work for inspection or for the correction of defective Work. Contractor shall perform all cutting and patching required for the installation of improperly timed Work and to remove samples of installed materials for testing.

Contractor shall not undertake any cutting or demolition which may affect the structural stability of the existing facilities without Engineer's concurrence. Contractor shall provide all shoring, bracing, supports, and protective devices necessary to safeguard all Work during cutting and patching operations.

Materials shall be cut and removed to the extent indicated on the drawings or as required to complete the Work. Materials shall be removed in a careful manner with no damage to adjacent facilities or materials. Materials which are not salvageable shall be removed from the site by Contractor.

All Work and existing facilities affected by cutting operations shall be restored with new materials, or with salvaged materials acceptable to Engineer, to obtain a finished installation with the strength, appearance, and functional capacity required. If necessary, entire surfaces shall be patched and refinished.

1A-18 PROTECTION OF SITE AND STORAGE.

- 1.0 GENERAL. The Contractor is responsible for his methods and means of construction. He shall provide all shoring, bracing, supports, and protector devices necessary to safe guard all work performed in this area.

1.01 RELATED REQUIREMENTS

None

- 1.02 DESCRIPTION. All materials shall be suitably packaged (in manufacturer's original packaging with labels and seals intact) to facilitate handling and protect against damage during storage. Painted surfaces shall be protected against impact, abrasion, discoloration, and other damage. All painted surfaces which are damaged prior to acceptance of equipment shall be repainted to the satisfaction of the Engineer.

Each item, package, or bundle of material shall be tagged or marked as identified in the delivery schedule or on the Shop Drawings. Complete packing lists and bills of material shall accompany each shipment.

2.0 PRODUCTS

Not Used

3.01 STORAGE GENERAL

- A. Store products, immediately on delivery, in accordance with manufacturer's instructions. Protect until installed.
- B. Arrange storage in a manner to provide access for maintenance of stored items and for inspection.
- C. Store and handle paints and products subject to spillage in areas where spills will not deface surfaces.
- D. Flammable or hazardous materials:
 - 1. Store minimum quantities in protected areas.
 - 2. Provide appropriate type fire extinguishers near storage areas.
 - 3. Observe manufacturer's precautions and applicable ordinances and regulations.

3.02 EXTERIOR STORAGE

- A. Provide substantial platforms, blocking, or skids, to support fabricated products above ground; slope to provide drainage. Protect products from soiling and staining.
- B. For products subject to discoloration or deterioration from exposure to the elements, cover with impervious sheet material. Provide ventilation to avoid condensation.
- C. Store loose granular materials on clean, solid surfaces such as pavement, or on rigid sheet materials, to prevent mixing with foreign matter.
- D. Provide surface drainage to prevent erosion, pollution by mixing and ponding of water.
- E. Prevent mixing of refuse or chemically injurious materials or liquids.

3.03 NOT USED

3.04 MAINTENANCE OF STORAGE

- A. Periodically inspect stored products on a scheduled basis.
- B. Verify that storage facilities comply with manufacturer's product storage requirements.
- C. Verify that manufacturer's required environmental conditions are maintained continually.
- D. Verify that surfaces of products exposed to the elements are not adversely affected; that any weathering of finishes is acceptable under requirements of Contract Documents.

1A-19 CLEANING. As required by the General Conditions and as specified herein, Contractor shall keep the premises free at all times from accumulations of waste materials and rubbish. Contractor shall provide adequate trash receptacles about the site, and shall promptly empty the containers when filled.

Construction materials, such as concrete forms and scaffolding shall be neatly stacked by Contractor when not in use. Contractor shall promptly remove splattered concrete, asphalt, oil, paint, corrosive liquids and cleaning solutions from surfaces to prevent marring or other damage.

Volatile wastes shall be properly stored in covered metal containers and removed daily.

Wastes shall not be buried or burned on the site or disposed of into storm drains, sanitary sewers, streams, or waterways. All wastes shall be removed from the site and disposed of in a manner complying with local ordinances and antipollution laws.

Adequate cleanup will be a condition for recommendation of progress payment applications.

1A-20 APPLICABLE CODES. References in the Contract Documents to local codes mean all codes enforceable in the unincorporated City of Gretna and the State of Louisiana.

Other standard codes which apply to the Work are designated in the specifications.

1A-21 REFERENCE STANDARDS AND DEFINITIONS.

1.0 GENERAL Reference to the standards of any technical society, organization, or association, or to codes of local or state authorities, shall mean the latest standard, code, specifications, or tentative standard adopted and published at the date of receipt of bids, unless specifically stated otherwise.

1.01 RELATED REQUIREMENTS

NONE

1.02 REFERENCE STANDARDS

A. Reference to the standards of any technical society, organization, or association, or to codes of local or state authorities, shall mean the latest standard, code, specification, or tentative standard adopted and published at the date of receipt of bids, unless specifically stated otherwise.

1.03 DEFINITIONS

- A. **ADVERTISEMENT.** A public announcement inviting bids for work to be performed or materials to be furnished.
- B. **BASE COURSE.** The layer or layers of specified material of designed thickness or a subbase or subgrade to support a surface course.
- C. **BIDDER.** An individual, partnership, firm, corporation, or any acceptable combination thereof, or joint venture submitting a proposal.
- D. **CALENDAR DAY.** Every day shown on the calendar, beginning and ending at midnight.
- E. **CONTRACTING AGENCY.** City, Levee Board, Parish Council or other governing authority of a Parish, State Office, Agency, Board, Commission, Public Corporation or other political subdivision of the State, in whose name the contract will be executed. The Contracting Agency is further defined in the Notice to Contractors.
- F. **CONTRACT BOND.** The approved form of security, executed by the Contractor and his surety or sureties, guaranteeing complete execution of the contract and all supplemental agreements pertaining thereto and payment of all legal debts pertaining to construction of the project.
- G. **CONTRACT ITEM (Pay Item).** A specific unit of work for which a price is provided in the contract.
- H. **EQUIPMENT.** All machinery and equipment, with the necessary supplies for upkeep and maintenance, and also tools and apparatus necessary for proper construction and acceptable completion of the work.

- I. EXTRA WORK. An item of work not provided for in the contract as awarded but found essential by the Owner for satisfactory completion of the contract within its intended scope.
- J. HIGHWAY, STREET OR ROAD. A general term denoting a public way for purposes of vehicular travel, including the entire area within the right-of-way. Recommended usage in urban areas - highway or street; in rural areas - highway or road.
- K. INSPECTOR. The Owner's authorized representative assigned to make detailed inspections of contract performance.
- L. INVITATION FOR BIDS. The advertisement for proposals for all work or materials on which bids are required. Such advertisement will indicate location and description of the work, and time and place of opening bid proposals.
- M. LABORATORY. The Owner's testing laboratory or any other testing laboratory approved by the engineer.
- N. MATERIALS. Any substances specified for use in the construction of the project and its appurtenances.
- O. PARISH. The parish in which the specified work is to be done.
- P. PLAN CHANGE. A general term denoting changes to the contract.
- Q. PLANS. The contract drawings which show location, type, and dimensions of the prescribed work and may include layouts, profiles, cross sections and other details.
- R. PROPOSAL. The offer of a bidder, on the prescribed form, to perform the stated work and to furnish the labor and materials at the prices quoted.
- S. PROPOSAL FORM. The prescribed form on which the offer of a bidder must be submitted.
- T. PROPOSAL GUARANTY. The required security furnished with a bid proposal.
- U. RIGHT OF WAY. Land, property or interest therein, reserved for use in constructing, maintaining and protecting an improvement.
- V. SPECIAL PROVISIONS. Additions and revisions to the standard and supplemental specifications covering conditions applicable to the project.

- W. SPECIFIED. Set forth or stipulated in the plans or specifications or elsewhere in the contract documents; such as materials, equipment or methods.
- X. STATE. The State which the project is being constructed or the Governing body of this state acting through its authorized representative.
- Y. STRUCTURES. Bridges, culverts, catch basins, junction boxes, retaining walls, cribbing, manholes, endwalls, buildings, sewers, dams, floodgates, plumbing stations, docks, wharves, levees, boat ramps, pile dolphins, jetties, service pipes, underdrains, foundation drains and other features encountered in the work and not otherwise classed herein.
- Z. SUBBASE. The layer or layers of specified or selected material of designed thickness placed on a subgrade to support a base course.
- AA. SUBGRADE. The surface of a foundation layer upon which the pavement structure and shoulders are constructed.
- BB. SUBSTRUCTURE. That part of the structure below the bearings of simple and continuous spans, skewbacks or arches and tops of footings or rigid frames, including backwalls, wingwalls and wing protection railings.
- CC. SUPERINTENDENT. The Contractor's authorized representative in responsible charge of the work.
- DD. SUPERSTRUCTURE. The entire structure above the substructure.
- EE. SUPPLEMENTAL AGREEMENT. A written agreement made and entered into by and between the Contractor and the Owner covering work not otherwise provided for, revisions in or amendments to terms of the contract or conditions specifically prescribed in the specifications as requiring supplemental agreements. Such supplemental agreement becomes a part of the contract when approved and properly executed.
- FF. SURETY. The corporation, partnership or individual, other than the contractor, executing a bond furnished by the contractor.

1A-22 ABBREVIATIONS AND SYMBOLS. Abbreviations used in the Contract Documents are defined as follows:

AA	Aluminum Association
AABC	Associated Air Balance Council
AAMA	American Architectural Manufacturers Association
AAN	American Association of Nurserymen

AASHTO	American Association of State Highway and Transportation Officials
ACEC	American Consulting Engineers Council
ACI	American Concrete Institute
ACPA	American Concrete Pipe Association
AFBMA	Antifriction Bearing Manufacturers Association
AGA	American Gas Association
AGC	Associated General Contractors of America
AGMA	American Gear Manufacturers Association
AHA	American Hardboard Association
AI	Asphalt Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
AMCA	Air Movement and Control Association
ANSI	American National Standards Institute
APA	American Plywood Association
API	American Petroleum Institute
APWA	American Public Works Association
ARI	Air Conditioning and Refrigeration Institute
ARIB	Asphalt Roofing Industry Bureau
ASA	American Standards Association
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASLA	American Society of Landscape Architects
ASME	American Society of Mechanical Engineers
ASSE	American Society of Sanitary Engineering
ASTM	American Society for Testing and Materials
AWG	American Wire Gauge
AWI	American Woodworking Institute
AWPA	American Wood Preservers Association
AWPA	American Wood Products Association
AWPB	American Wood Preservers Bureau
AWPI	American Wood Preservers Institute
AWS	American Welding Society
AWWA	American Water Works Association
BIA	Brick Institute of America
BHMA	Builders Hardware Manufacturers Association
BOCA	Building Officials Council of America
CE	Corps of Engineers, U.S. Army
CISPI	Cast Iron Soil Pipe Institute
CMA	Crane Manufacturing Association
CPSC	U. S. Consumer Products Safety Commission
CRSI	Concrete Reinforcing Steel Institute
CS	Commercial Standard
CSI	Construction Specifications Institute

DHI	Door and Hardware Institute
DOTD	Louisiana Department of Transportation and Development
EJCDC	Engineers Joint Contract Documents Committee
EPA	Environmental Protection Agency
Fed Spec	Federal Specifications
FDA	Food & Drug Administration
FGMA	Flat Glass Marketing Association
FM	Factory Mutual Engineering Corporation
FMA	Flat Glass Marketing Association
FS	Federal Specifications
FSS	Federal Specifications and Standards, General Services Administration
GA	Gypsum Association
HMI	Hoist Manufacturers Institute
IBBM	Iron Body, Bronze Mounted
ICBO	International Conference of Building Officials
IEEE	Institute Electrical and Electronics Engineers
IES	Illuminating Engineering Society
IFI	Industrial Fasteners Institute
IPCEA	Insulated Power Cable Engineers Association
IPS	Iron Pipe Size
ISA	Instrument Society of America
LSGA	Laminators Safety Glass Association
LSSRB	Louisiana Standard Specifications for Roads and Bridges
MBMA	Metal Building Manufacturers Association
MIL	Military Specification
ML/SFA	Metal Lath/Steel Framing Association
MSS	Manufacturers Standardization Society
NAAMM	National Association of Architectural Metal Manufacturers
NACE	National Association of Corrosion Engineers
NBC	National Building Code
NBHA	National Builders Hardware Association
NBS	National Bureau of Standards
NCMA	National Concrete Masonry Association
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NFPA	National Forest Products Association
NPA	National Particleboard Association
NPCA	National Pest Control Association
NPT	National Pipe Thread
NRCA	National Roofing Contractors Association
NSF	National Sanitation Foundation
NSPE	National Society for Professional Engineers
NWMA	National Woodwork Manufacturers Association
NWWDA	National Wood Window and Door Association

OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
PDI	Plumbing & Drainage Institute
PFI	Pipe Fabrication Institute
PPI	Plastic Pipe Institute
PS	Product Standards
RCSC	Research Council on Structural Connections
RMA	Rubber Manufacturers Association
SAE	Society of Automotive Engineers
SBCCI	Sothorn Building Code Congress International
SCPRF	Structural Clay Products Research Foundation
SCS	Soil Conservation Service, U.S. Department of Agriculture
SDI	Steel Deck Institute
SDI	Steel Door Institute
SFPA	Southern Forest Products Association
SJI	Steel Joist Institute
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SPI	Society of the Plastics Industry
SPIB	Southern Pine Inspection Bureau
SSPC	Steel Structures Painting Council
STI	Steel Tank Institute
SWI	Sealant and Waterproofers Institute
SWI	Steel Window Institute
TCA	Tile Council of America
TPI	Truss Plate Institute
UL	Underwriters' Laboratories
US	U. S. Bureau of Standards
WPRS	Water and Power Resources Service
WRI	Wire Reinforcement Institute
WWPA	Western Wood Products Association

1A-23 NOT USED

1A-24 PROJECT MEETING, PRECONSTRUCTION CONFERENCE AND PROGRESS MEETING.

1A-25A PROJECT MEETING: The Owner's Representative may schedule and administer pre-bid and pre-construction meetings, periodic progress meetings, and specially called meetings throughout the progress of the work. Specially called meetings may be held at the job site during normal working hours, as necessary to expedite the progress of the job.

A. The Owner's Representative shall direct individuals attending the meeting to:

1. Prepare agenda for meetings.
 2. Distribute written notice of each meeting.
 3. Preside at meetings.
 4. Record the minutes; include all significant proceedings and decisions.
 5. Reproduce and distribute copies of minutes.
- B. Representatives of Contractors, subcontractors and suppliers attending the meetings shall be qualified and authorized to act on behalf of the entity each represents.

1A-25B: PRE-CONSTRUCTION CONFERENCE: In accordance with the General Conditions, prior to the commencement of Work at the site, a preconstruction conference will be held at a mutually agreed time and place. The conference shall be attended by:

1. Contractor and his superintendent.
 2. Principal Subcontractors
 3. Representatives of principal suppliers and manufacturers as appropriate.
 4. Engineer and his Resident Project Representative.
 5. Representatives of Owner.
 6. Others as requested by Contractor, Owner, or Engineer.
- A. Unless previously submitted to Engineer, Contractor shall bring to the conference a tentative schedule for each of the following:
1. Schedule of Values.
 2. List of Subcontractors.
 3. List of major material suppliers
 4. Construction Schedule
 5. Procurement Schedule
 6. Shop Drawings and Submittal Schedule
 7. Excavation Plan

8. Progress.

- B. The purpose of the conference is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The agenda will include:
1. Contractor's tentative schedules.
 2. Transmittal, review, and distribution of Contractor's submittals.
 3. Processing applications for payment.
 4. Maintaining record documents.
 5. Critical Work sequencing.
 6. Field decisions and Change Orders.
 7. Use of premises, office and storage areas, security, housekeeping, and Owner's needs.
 8. Major equipment deliveries and priorities.
 9. Contractor's assignments for safety and first aid.
 10. Submitted of executed bonds and insurance certificates if not previously submitted.
- C. Engineer will preside at the conference and will arrange for keeping the minutes and distributing the minutes to all persons in attendance.

1A-25C PROGRESS MEETINGS:

- A. Progress meetings will be scheduled by the Owner's Representative or the Engineer after consulting with the Owner and the Using Agency. These meetings shall be no more often than one per week as required by progress of the work, exclusive of any other meetings scheduled by the Owner's Representative, Owner or Using Agency.
1. It shall be the responsibility of the Owner's Representative to notify the Owner, Using Agency, and the Contractor of the time, place and date of the "Progress Meeting".

2. It shall be the responsibility of the Contractor to notify all suppliers and subcontractors.
- B. The purpose of these regular meetings is to assess, realistically, the current status and progress of the work, to effect coordination, cooperation and assistance in every practical way and to discuss changes in scheduling, and to resolve other problems that may develop. This should maintain the progress of the project on schedule and complete the project within the contract time.
- C. These meetings will be called as required during progress of the work.
- D. Location of the meetings: The project field office or other location where directed by the Owner's Representative.
- E. Attendance:
1. Owner's representative.
 2. Using Agency's representative.
 3. Engineer, his professional consultants, and his Project Representative.
 1. Contractor.
 2. Contractor's Superintendent.
 3. Principal Subcontractors, and all subcontractors active on the site.
 4. Principal Suppliers and Manufacturer's Representatives.
 8. Others as appropriate.
- F. Suggested Addendum:
- 1 Review and approve minutes of previous meeting.
 - 2 Review of work progress since previous meeting.
 - 3 Note field observations, problems, or conflicts.
 - 4 Identify problems that impede Construction Schedule.
 - 5 Develop corrective measures and procedures to regain projected schedule.
 - 6 Revise Construction Schedule as required.
 - 7 Plan progress, schedule, during succeeding work period.

- 8 Coordination of schedules.
- 9 Review submittal schedules; expedite as required to maintain schedule.
- 10 Review maintenance of quality and work standards.
- 11 Review proposed changes for the effect on Construction Schedule, completion date, and coordination
- 12 Complete other current business.

1A-26 CONSTRUCTION PHOTOGRAPHS. The Contractor shall be responsible for the production of construction photographs showing the regular progress of the Work.

Before commencement of the Work and continuing through the duration of the contract, the Contractor shall take not less than ten (10) exposures consisting of different subjects or angles of view for each exposure. The exposures shall be taken from various locations on the construction site for adequate documentation of the Work. The photographer shall attempt to use the same locations for four (4) exposures at each interval. The exposures shall be taken at intervals not exceeding two (2) weeks in duration. The Contractor shall take ten (10) additional exposures at the completion of the Work as directed by the Engineer. All photographs shall be furnished to the Engineer within two (2) weeks after each exposure.

All photographs shall be produced by a competent photographer, and shall be color photographs of commercial quality. All digital image files and three 4" x 6" prints of each view shall be submitted, bound in 3-ring, hard cover, loose leaf binders. Prints shall be identified with contract number, description of view and date. Prints shall be enclosed in clear plastic sheets in binders, and marked with the name and number of the contract, name of Contractor, description and location of view, and date photographed. Photographs shall be glossy printed on single weight paper and shall be taken with a 8.0 megapixel or greater digital formatted cameras. All photography shall be at the Contractor's expense. Engineer shall transmit, suitably bound, one copy of each photograph to Owner.

1A-27 SITE ADMINISTRATION. Contractor shall be responsible for all areas of the site used by him, and all Subcontractors in the performance of the Work. He will exert full control over the actions of all employees and other persons with respect to the use and preservation of property and existing facilities, except such controls as may be specifically reserved to Owner or others. Contractor

has the right to exclude from the site all persons who have no purpose related to the Work or its inspection, and may require all persons on the site (except Owner's employees) to observe the same regulations as he requires of his employees.

The Contractor shall coordinate scheduling, submittals and work of the various sections of the Specification to assure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items to be installed later.

Each Contractor and subcontractor involved shall assume all liability, financial or otherwise, in connection with his work and shall protect and save harmless the Owner from any and all damages or claims that may arise because of inconvenience, delay or loss experienced by him because of the presence and operations of any other Contractors working within the limits of this project.

The Contractor shall arrange his work and shall place and dispose of the materials being used so as not to interfere with operations of others working in the surrounding area. He shall join his work with that of others in an acceptable manner and shall perform it in proper sequence to that of the others.

The contracting agency will not be responsible for any delays or inconvenience to the Contractor in carrying on his work while any public utility companies or agencies are making necessary adjustments of their fixtures or appurtenances, nor will the contracting agency be responsible for any cost incurred by the Contractor or utility owners for making said adjustments, by delays, etc.

1A-28 PROGRESS REPORTS: Engineer's representative shall write progress report and furnish it to Engineer with each application for progress payment. If the Work falls behind schedule, it is Contractor's responsibility to notify Engineer's representative of that delay and the Engineer's representative shall document that delay at such intervals as Engineer may request.

Each progress report shall include sufficient narrative to describe current and anticipated delaying factors, their effect on the construction schedule, and proposed corrective actions. Any Work reported complete, but which is not readily apparent to Engineer, must be substantiated with satisfactory evidence.

Each progress report shall also include three prints of the accepted graphic schedule marked to indicate actual progress.

1A-29 PROJECT CLOSEOUT.

GENERAL

1.01 REQUIREMENTS INCLUDED

1.02 RELATED WORK

- A. General and Supplementary Conditions of the Contract. Fiscal provisions, legal submittals and additional administrative requirements.

1.03 CLEANING

- A. Before final acceptance, the Contractor shall remove from the site and adjacent property all surplus materials, weeds, bushes, rubbish and temporary structures; shall satisfactorily restore all property which has been worn, rutted or damaged during the work; and shall leave the site in a presentable condition. Upon completion of work in connection with drainage structures, the Contractor shall remove all obstructions to the flow of water from inside all structures, channels, and culverts whether new or old. No direct payment will be made for this work.
- B. Remove all temporary labels.
- C. Clean site. Sweep paved areas.
- D. Remove all waste and surplus material from site.

1.04 SUBSTANTIAL COMPLETION

- A. When Contractor considers the Work is substantially complete, he shall submit to the Engineer (3 copies each):
 - 1. A written notice that the Work, or designated portion thereof, is substantially complete.
 - 2. A list of items to be completed or corrected. The punch list will include the cost estimate for the particular items of work based on mobilization, labor, material, and equipment costs for correcting each punch list item.
- B. Within a reasonable time after receipt of such notice, the Engineer will make an inspection to determine the status of completion.
- C. Should the Engineer determine that the Work is not substantially complete:
 - 1. Engineer will promptly notify the Contractor in writing, giving the reasons therefor.
 - 2. Contractor shall remedy the deficiencies in the Work, and send a second written notice of substantial completion to the Engineer.
 - 3. Engineer will re-inspect the Work.

- D. When the Engineer finds that the Work is substantially complete, he may:
1. Prepare and deliver to the Owner a notification of Substantial Completion on an appropriate form with the Contractor's list of items to be completed or corrected as verified and amended by the Engineer before final payment.
 2. After consideration of any objections made by the Owner as provided in Conditions of the Contract, and when Engineer considers that the Work is substantially complete, he will countersign and deliver to the Owner and the contractor a definite notification of Substantial Completion with a revised list of items to be completed or corrected.

1.05 FINAL INSPECTION

- A. When Contractor considers the Work is complete, he shall submit written notification that (3 copies):
1. Contract Documents have been reviewed.
 2. Work has been inspected for compliance with Contract Documents.
 3. Work has been completed in accordance with Contract Documents.
 4. Work is completed and ready for final inspection.
 5. All items noted from the Substantial Completion inspection have been completed or corrected.
- B. Engineer will make an inspection to verify the status of completion with reasonable promptness after receipt of such notification.
- C. Should Engineer consider that the Work is incomplete or defective:
1. Engineer will promptly notify the Contractor in writing, listing the incomplete or defective work.
 2. Contractor shall take immediate steps to remedy the stated deficiencies and send a second written notification to Engineer stating that the Work is complete.
 3. Engineer will reinspect the Work.
- D. When the Engineer finds that the Work is acceptable under the Contract Documents, he shall request the Contractor to make closeout submittals, including Application for Final Payment.

1.06 REINSPECTION FEES

- A. Should Engineer perform reinspection due to failure of the Work to comply with the claims of status of completion made by the Contractor:
1. Owner will compensate Engineer for such additional services.
 2. Owner will deduct the amount of such compensation from the final payment to the Contractor.

1.07 CONTRACTOR'S CLOSEOUT SUBMITTALS TO ENGINEER

- A. Project Record Documents.
- B. Warranties, Guarantees and Bonds. All warranty periods shall begin on the date of Final Acceptance.
- C. Spare parts and Maintenance Materials.
- D. Reports of all required tests and demonstrations.
- E. Evidence of Payment and Release of Liens: In accordance with requirements of General and Supplementary Conditions. Additionally, there is to be a 45 day period prior to the request for the clear lien and privilege certificate

1.08 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit a final statement of accounting to the Engineer.
- B. Statement shall reflect all adjustments to the Contract Sum:
 1. The original Contract Sum.
 2. Additions and deductions resulting from:
 - a. Previous Change Orders.
 - b. Quantity reconciliations.
 - c. Deductions for liquidated damages.
 - d. Deductions for re-inspection payments.
 - e. Deductions for overtime inspection payments.
 - f. Other adjustments.
 3. Total Contract Sum, as adjusted.

- 4. Previous payments.
- 4. Sum remaining due.
- C. Engineer will prepare a final Change Order, reflecting approved adjustments to the Contract Sum which were not previously made by Change Orders.
- D. The Contractor shall furnish a set of "As-Built" drawings upon completion of the work and prior to final inspection. These drawings shall be a legibly marked set of prints of the Contract Drawings, revised to show clearly all field changes. There shall be no direct payment for the keeping of as-built plans.

1.09 FINAL APPLICATION FOR PAYMENT

- A. Contractor shall submit the final Application for Payment in accordance with procedures and requirements stated in the General and Supplementary Conditions of the Contract.

1.10 SUPPLEMENTAL LIQUIDATED DAMAGES

After the establishment of a date of Substantial Completion, the Contractor shall have 45 days to complete any outstanding items of Work remaining to be completed or corrected as listed on a final punch list made a part of the Substantial Completion Package. If upon expiration of said 45 days the outstanding items of Work have not been completed, liquidated damages in the amount agreed to in this contract will be reinstated for every day in which the outstanding items of Work have not been completed. Furthermore, the Owner shall not release monies withheld until all outstanding items of Work have been completed.

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DIVISION 1

GENERAL REQUIREMENTS

SECTION 1B - SUBMITTALS

1B-1 CONSTRUCTION SCHEDULE. Before Work is started, Contractor shall submit to Engineer for review a schedule of the proposed construction operations. The construction schedule shall indicate the sequence of the Work, the time of starting and completion of each part, and the installation date for each major item of equipment, and the time for making connections to existing facilities.

Owner may require Contractor to add to his plant, equipment, or construction forces, as well as increase the working hours, if operations fall behind schedule at any time during the construction period.

1B-2 PROGRESS REPORTS. A progress report shall be furnished to Engineer with each application for progress payment. If the Work falls behind schedule, Contractor shall submit additional progress reports at such intervals as Engineer may request.

Each progress report shall include sufficient narrative to describe current and anticipated delaying factors, their effect on the construction schedule, and proposed corrective actions. Any Work reported complete, but which is not readily apparent to Engineer, must be substantiated with satisfactory evidence.

Each progress report shall also include three prints of the accepted graphic schedule marked to indicate actual progress.

1B-3 SCHEDULE OF VALUES. After review of the tentative schedule at the preconstruction conference, and before submission of the first application for payment, Contractor shall prepare and submit to Engineer a schedule of values covering each lump sum item. The schedule of values, showing the value of each kind of work, shall be acceptable to Engineer before any partial payment estimate is prepared. Such items as Bond premium, temporary construction facilities, and plant may be listed separately in the schedule of values, provided the amounts can be substantiated.

The sum of the items listed in the schedule of values shall equal the contract lump sum total Bid price. Overhead and profit shall not be listed as separate items.

An unbalanced schedule of values providing for overpayment of Contractor on items of Work which would be performed first will not be accepted. The schedule of values shall be revised and resubmitted until acceptable to Engineer.

1B-4 SCHEDULE OF PAYMENTS. Within 30 days after award of contract, Contractor shall furnish to Engineer a schedule of estimated monthly payments. The

schedule shall be revised and submitted each time an application for payment varies more than 10 percent from the estimated payment schedule.

1B-5 SURVEY DATA. All field books, notes, and other data developed by Contractor in performing surveys required as part of the Work shall be available to Engineer for examination throughout the construction period. All such data shall be submitted to Engineer with the other documentation required for final acceptance of the work.

1B-6 SHOP DRAWINGS AND ENGINEERING DATA. Engineering data covering all fabricated materials to be furnished under this contract shall be submitted to Engineer for review. This data shall include drawings and descriptive information in sufficient detail to show the kind, size, arrangement and operation of component materials and devices; the external connections, anchorages, and supports required; performance characteristics; and dimensions needed for installation and correlation with other materials and equipment.

All submittals, regardless of origin, shall be stamped with the approval of Contractor and identified with the name and number of this contract, Contractor's name, and references to applicable specification paragraphs and Contract Drawings. Each submittal shall indicate the intended use of the item in the work. When catalog pages are submitted, applicable items shall be clearly identified. The current revision, issue number, and date shall be indicated on all drawings and other descriptive data.

All deviations from the Contract Documents shall be identified on each submittal and shall be tabulated in Contractor's letter of transmittal. Such submittals shall, as pertinent to the deviation, indicate essential details of all changes proposed by Contractor (including modifications to other facilities that may be a result of the deviation) and all required piping and wiring diagrams.

Contractor shall accept full responsibility for the completeness of each submission, and, in the case of a resubmission, shall verify that all exceptions previously noted by Engineer have been taken into account. In the event that more than one resubmission is required because of failure of Contractor to account for exceptions previously noted, Contractor shall reimburse Owner for the charges of Engineer for review of the additional resubmissions.

Any need for more than one resubmission, or any other delay in obtaining Engineers' review of submittals, will not entitle Contractor to extension of the Contract time unless delay of the Work is directly caused by a change in the Work authorized by a Change Order or by failure of Engineer to return any submittal within a reasonable amount of time after its receipt in Engineer's office.

Engineer's review of drawings and data submitted by Contractor will cover only general conformity to the drawings and specifications, external connections and dimensions which affect the layout. Engineer's review does not indicate a thorough review of all dimensions, quantities, and details of the material, equipment, and device or item shown. Engineer's review of submittals shall not relieve Contractor from responsibility

for errors, omissions, deviations, or responsibility for compliance with the Contract Documents.

Six copies (or one reproducible copy) of each drawing and necessary data shall be submitted to Engineer. Engineer will not accept submittals from anyone but Contractor. Submittals shall be consecutively numbered in direct sequence of submittal and without division by subcontracts or trades. Resubmittals shall bear the number of the first submittal followed by a letter (A, B, etc.,) to indicate the sequence of the resubmittal.

When the drawings and data are returned marked REJECTED or REVISE AND RESUBMIT, the corrections shall be made as noted thereon and as instructed by Engineer and five corrected copies (or one corrected reproducible copy) resubmitted.

When corrected copies are resubmitted, Contractor shall in writing direct specific attention to all revisions and shall list separately any revisions made other than those called for by Engineer on previous submissions.

When the drawings and data are returned marked REVIEWED AS NOTED or REVIEWED, no additional copies need to be furnished.

1B-7 NOT USED

1B-8 LAYOUT DATA. Contractor shall keep neat and legible notes of measurements and calculations made by him in connection with the layout of the Work. Copies of such data shall be furnished to the Engineer for use in checking Contractor's layout as provided under Lines and Grades (paragraph 1A-15 in the Project Requirements). All such data considered of value to Owner will be transmitted to Owner by Engineer with other records upon completion of the Work.

1B-9 CONSTRUCTION PHOTOGRAPHS. Contractor shall be responsible for the production of construction photographs as provided herein. Engineer will designate the subject of each photograph.

Two copies each of five different photographs of the entire site, or pertinent features thereof, shall be taken before the commencement of Work at the site and promptly submitted to Engineer. The same views shall be re-photographed upon completion of all construction activities and submitted with Contractor's application for final payment. Two copies each of five different photographic views of the Work shall be made each month throughout the progress of the Work at such times as requested by Engineer, and submitted with Contractor's application for progress payment.

All photographs shall be produced by a competent photographer, and shall be color photographs of commercial quality. All digital files and two 8 x 10 prints of each view shall be submitted. Digital files shall be identified with a description of view and date photographed. Prints shall be mounted on linen with flap for binding or enclosed in clear plastic binders, and marked with the name and number of the contract, name of Contractor, description and location of view, date and time photographed. No Direct

Payment shall be made for construction photographs and associated equipment, binding, and reproduction.

Engineer will transmit digital files and one copy of each photograph to Owner.

1B-10 CUTTING AND PATCHING.

1.0 GENERAL

A. The Contractor shall submit a written request to the Owner's Representative well in advance of executing any cutting or alteration which may affect:

1. The work of the Owner or any separate contractor.
2. The structural value or integrity of any element of the Project.
3. The integrity of effectiveness of weather-exposed or moisture-resistant elements or systems.
4. The efficiency, operational life, maintenance or safety of operational elements.
5. The visual qualities of sight-exposed elements.

B. The request shall include:

1. Identification of the Project.
2. Location and description of the affected work.
3. The necessity for cutting, alteration or excavation.
4. The effect on the work of the Owner or any separate contractor, or on the structural or weatherproof integrity of the Project.
5. Description of the proposed work:
 - a. The scope of cutting, patching, alteration, or excavation.
 - b. The trades who will execute the work.
 - c. Products proposed to be used.
 - d. The extent of refinishing to be done.
6. Alternatives to cutting and patching.
7. Cost proposal, when applicable.
8. Written permission of any separate contractor whose work will be affected.

9. Date and time work will be executed.

- C. Should conditions of the work or the schedule indicate a change of products from the original installation, Contractor shall submit a request substitution.

2.0 PRODUCTS

2.01 MATERIALS

- A. Comply with specifications and standards for each specific product involved.

3.0 EXECUTION

3.01 INSPECTION

- A. The Contractor shall inspect existing conditions of the Project, including elements subject to damage or to movement during cutting and patching.
- B. After uncovering work, the Contractor shall inspect the conditions affecting the installation of products, or performance of the work. The commencement of any cutting or patching means acceptance of existing conditions.
- C. Report unsatisfactory or questionable conditions to the Owner's Representative in writing; do not proceed with the work until the Owner's Representative has provided further instructions.

3.02 PREPARATION

- A. The Contractor shall provide adequate temporary support as necessary to assure the structural value or integrity of the affected portion of the Work.
- B. Provide devices and methods to protect other portions of the Project from damage.
- C. Provide protection from the elements for that portion of the Project which may be exposed by cutting and patching work, and maintain excavations free from water.

3.03 PERFORMANCE

- A. The Contractor shall execute cutting and demolition by methods which will prevent damage to other work, and will provide proper surfaces to receive installation of repairs.
- B. Provide devices and methods to protect other portions of the Project from damage.

- C. Provide protection from the elements for that portion of the Project which may be exposed by cutting and patching work, and maintain excavations free from water.
- D. Execute excavating and backfilling by methods which will prevent settlement or damage to other work.
- E. Execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances and finishes.
- F. Restore work which has been cut or removed; install new products to provide completed Work in accordance with requirements of Contract Documents.
- G. Fit work airtight to pipes, sleeves, ducts, conduit and other penetrations through surfaces.
- H. Refinish entire surfaces as necessary to provide an even finish to match adjacent finishes:
 - 1. For continuous surfaces, refinish to nearest intersection.
 - 2. For an assembly, refinish the entire unit.

END OF SECTION

DIVISION 1

GENERAL REQUIREMENTS

SECTION 1C – MOBILIZATION AND DEMOBILIZATION

1C-1 DESCRIPTION OF WORK. The Work shall consist of the mobilization and demobilization of the Contractor's forces and equipment necessary for performing the Work required under the Agreement.

It shall include the purchase of contract bonds, transportation of personnel, equipment, and operating supplies to the site, establishment of offices, buildings, and other necessary facilities at the site; and other Work at the site.

It shall not include mobilization for any specific item of work for which payment for mobilization is provided elsewhere in the Agreement.

This specification covers mobilization for work required by the Agreement at the time of award. If additional mobilization costs are incurred during performance of the Agreement as a result of changed or added items of work for which the Contractor is entitled to an adjustment in contract price, compensation for such costs will be included in the price adjustment for the items of work changed or added.

1C-2 METHOD OF MEASUREMENT AND PAYMENT. Payment will be made monthly as the Work proceeds, after presentation of invoices by the Contractor showing his own mobilization costs and evidence of charges of suppliers, subcontractors, and others for mobilization work performed by them. If the total of such payments is less than the lump sum price for mobilization, the unpaid balance will be included in the final contract payment. Total payment will be the lump sum price for mobilization, regardless of actual cost to the Contractor.

Payment will not be made under this item for the purchase costs of materials having a residual value, the purchase costs of materials to be incorporated into the project, or the purchase costs of operating supplies.

Payment of the lump sum price for mobilization will constitute full compensation for all labor, materials, equipment, and all other items necessary and incidental to completion of the Work.

In the event this Agreement is cancelled by the Owner, the Contractor will be paid for the actual costs incurred for mobilization to the time of cancellation, which costs will not exceed the total lump sum price for the pay item "Mobilization and Demobilization".

Payment will be made under:

ITEM NO.	PAY ITEM	PAY UNIT
1	Mobilization & Demobilization	Lump Sum

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DIVISION I

GENERAL REQUIREMENTS

SECTION 1SP - SPECIAL PROVISIONS

1SP-1 DEFINITIONS. The City of Gretna is herein called the "Owner" and Burk-Kleinpeter, Inc. is herein called the "Engineer".

1SP-2 TESTING LABORATORY. An independent testing laboratory shall be employed at the Owner's option and paid by the Owner for the purpose of conducting tests for concrete bents and where testing is called for in the Technical Specifications.

The selection of the testing laboratory by the Owner shall be understood as in no way relieving the Contractor of his responsibility for satisfactory performance of the work in full conformance with the requirements of the Contract. Excluding written protest by the Contractor in advance of processing or use of materials, services of the testing laboratory shall be understood as constituting full acceptance by and approval of the Contractor.

The Contractor shall cooperate with and make available to the testing laboratory such facilities and material samples as may be necessary for the performance of these services without charge.

1SP-3 LABOR PREFERENCE. To the extent that qualified mechanics and laborers are available, employment preference shall be given to bona-fide residents of Jefferson Parish.

1SP-4 DRAINAGE. Contractor shall not be allowed to impede drainage during rainstorms or when a storm is imminent.

Contractor shall also be responsible for keeping all existing drain lines from drainage systems flowing at all times.

1SP-5 CHANGE ORDERS. All Change Orders must be approved in writing by the Owner prior to the execution of any work on same. If at any time during the performance of this contract or for a period of twelve (12) months after final acceptance of the project, defects in construction and/or workmanship should develop, the contractor shall promptly repair and/or replace the defect even though such workmanship and/or material has already passed inspection. All such repair work is an obligation of the Contractor and the cost thereof must be included in the prices bid for the various items of work.

1SP-7 TIME OF COMPLETION AND LIQUIDATED DAMAGES The Contractor will be issued a "Conditional Notice To Proceed" to acquire approvals of required drawings, brochures and other submittals, and to begin purchase and assembly of materials. The

Contractor may only mobilize enough force to verify material requirements and quantities. The "Conditional Notice To Proceed" will expire 30 calendar days after the date of contract or as necessary to obtain material deliveries. The contractor shall request, in writing, an extension of the "Conditional Notice to Proceed" as may be required.

The Contractor on this project shall complete all work outlined in the total Bid within 90 (ninety) calendar days from the date of the Full Notice to Proceed issued by the Owner or the Engineer acting on behalf of the Owner.

The stated time of completion includes an assumed percentage of inclement weather days. No consideration shall be given to a request for a contract time extension due to inclement weather, except for extraordinary conditions such as hurricanes, floods, and the like.

Liquidated damages at the rate of Five Hundred Dollars (\$500.00) per day shall be assessed against the Contractor if the work is not completed within the above specified calendar days, in accordance with paragraph SC-8 of the Supplementary Conditions.

1SP-8 UTILITY RELOCATION. The Contractor shall notify the City of Gretna, Department of Public Works, prior to commencing any work involving removal, valving-off, or relocation of sewer lines. The Contractor shall also notify the gas companies, the power company, Cable TV Company and the telephone company to coordinate relocation and construction operations.

1SP-9 PROTECTION OF TREES, PLANTS, AND SHRUBBERY. The Contractor shall be responsible for protecting all trees, plants, and ornamental shrubbery on the line of or adjacent to the proposed construction, whether these trees, plants, and shrubbery are within the servitude or not.

Contractor, after visiting the site, shall be aware of existing trees and shall not be allowed to cut or destroy any trees on private property or tree limbs overhanging project limits from private property without first obtaining written permission from the property owners. Trees within the servitude may be cut or destroyed only with the approval of the Engineer.

1SP-10 PAYMENTS TO CONTRACTOR. The Owner agrees to make payment to its Contractor promptly sums due under this contract and to retain only such amounts as may be justified by specific circumstances specifically provided for in the construction contract, to the following schedule:

- a. Retention of up to ten (10) percent of payments for projects with contract prices of less than \$500,000.
- b. Retention of five (5) percent of payments for projects with contract prices of \$500,000 or more.

Wherever an item of work to be performed under this contract is specified in any of the bid documents as being paid at an item total price, the Contractor shall be paid the entire amount that appears in his bid proposal for that item.

Wherever the estimated quantities (i.e., cubic yards of sand, shell, etc.) of materials to be furnished under this contract are shown in any of the documents, including the Proposal, they are given for use in comparing bids and are not to be construed as exact quantities. The Owner reserves the right to increase or diminish these quantities as may be necessary to complete the work contemplated by this contract. The Contractor shall be paid for the actual quantity of items or material used, and payment will be at the respective unit price bid for these items or materials.

The sum of the products of approximate quantities multiplied by the unit price bid, constitute the total base bid price or total alternate bid price which sums shall be used in comparison of bids, and the awarding of the Contract.

It shall be understood that the total base bid or alternate bid price figure, wherever specified in the bid document, may not reflect the actual amount the Contractor will receive upon completion of the work. This figure shall be adjusted in accordance with the actual quantity of unit price items used.

All payment requests or invoices must be sent first to the Engineer for review and comment on the proper forms, which are then forwarded to the appropriate department. Contractors who fail to follow this procedure will not be paid on a timely basis due to the unnecessary delays in re-routing the payment requests.

"Final payment and release of retainage will be predicated on the Contractor submitting to the City a list of outstanding insurance claims which they have incurred by the residents and homeowners along with the disposition of such claims."

1SP-11 INSURANCE CERTIFICATES The Contractor shall deliver the required insurance certificate for the project to the Engineer within seven (7) calendar days of the execution of the Agreement. Failure to comply with this requirement will delay issuance of the Notice to Proceed.

1SP-12 SAFETY AND HEALTH REGULATIONS. All work and construction practices shall conform to "Federal Register - Volume 36 - Number 105 - Part II - Department of Labor - Bureau of Standards - Safety and Health Regulations for Construction", or the latest revision thereof.

1SP-13 SANITARY FACILITIES. The Contractor shall furnish his own adequate temporary facilities for his personnel. It shall be his responsibility to maintain and dispose of wastes.

1SP-14 VISIT TO SITE. The bidder shall visit the site of the proposed work in order that he may understand the facilities, difficulties and restrictions attending the execution of the contract. He will be allowed no additional compensation for failure to be so informed.

1SP-15 PROTECTION OF INSTALLED UTILITIES. Contractor is responsible for any and all materials required for protecting the existing utilities, both underground and overhead within the limits of construction of this project as deemed necessary by his construction techniques

1SP-16 AWARD OF CONTRACT. The contract for the CITY OF GRETN, WATERLINE REPLACEMENT AT WHITNEY AVENUE CANAL shall be awarded based on the lowest responsive and responsible bidder for the total bid price as determined by the Owner and in conformance with the Contract Specifications.

1SP-18 DOCUMENTATION OF EXISTING CONDITIONS. The Contractor, prior to mobilizing onto the jobsite, shall conduct a detailed survey on the jobsite, surrounding area and access routes.

This survey is intended to document existing conditions with respect to any conditions which may be noticed after construction begins. Post construction conditions shall also be compared to this data.

This documentation shall be provided by the Contractor and submitted to the Engineer as preparation to resolve any damage claims which may arise due to the construction of this project. All costs associated with this survey shall be included in other bid items.

These records shall become property of the Owner upon delivery to the Engineer or Owner's Representative.

The Owner shall have the authority to reject all or any portion of the photographic documentation not conforming to the Specifications. Those rejected portions shall be re-photographed at no additional cost to the Owner.

Photographs shall be taken of the exterior of all public and private buildings and structures along any pipeline work and immediately adjacent to any excavation or pile driving. The photos must be of sufficient extent to cover existing conditions which may be affected by the work.

The Contractor shall make every attempt to gain permission from property owners for access to private property for documenting preconstruction conditions. If a property owner refuses access after multiple attempts, the Contractor will notify the Engineer and log all contacts with the property owner. The attempts shall include a formal letter and upon refusal, a registered or certified letter to supplement the log of verbal and/or telephone contacts.

Video tapes of the access routes shall be made to show existing street and right-of-way conditions. The camera shall be mounted on a tripod or platform upon a vehicle which places the camera approximately 10' above the path being traveled upon. The travel speed of the vehicle shall be no greater than 48 feet per minute. Photographs shall be taken to supplement the video tapes to give more detailed documentation of pre-existing conditions.

A carefully prepared log shall be maintained to show the name of the individual taking the photographs, the stationing as shown on the Plans, or as directed by the Engineer, the name of the street, easement, or building being documented, the project name, and the direction of travel and viewing side.

All still photographs shall be taken on a digital camera with minimum 8 megapixel resolution.

Photographs shall be sharp clear, bright, well focused with accurate colors free from distortion or any other form of picture imperfection.

The date, time, and identification number of each photograph shall be displayed onto the digital file and print.

The Engineer and Owner shall be furnished with three (3) contact sheets containing each exposure positioned individually in plastic pages with full descriptions of each photograph (origin, location, etc.) attached to the back of the print. Digital files shall also be submitted with descriptions matching those mentioned above. The prints and shall be bound in sets in heavy duty 3 ring binders, with digital files and delivered no later than on the date of mobilization upon the size or staging areas.

No photography shall be done during periods of significant precipitation, mist or fog.

The photography shall only be done when sufficient sunlight is present to properly illuminate the subjects of recording. Proper flash lighting shall be used inside the buildings and less lighted areas. No Direct Payment shall be made for photography, as well as associated labor, equipment, reproduction, etc. necessary to comply with the requirements above.

1SP-19 PROTECTION OF PROPERTY AND STRUCTURES. The Contractor shall, at his own expense, sustain in their places and protect from direct or indirect injury all pipes, poles, fencing, walls, utilities, and other structures or property in the vicinity of his work whether above or below the ground. He shall at all times have a sufficient quantity of timber and planks, chains, ropes, etc., on the ground and shall use them as necessary for sheathing any excavations and for sustaining or supporting any structures that are uncovered, undermined, endangered, threatened, or weakened. The Contractor shall assume all risks attending the presence or proximity of piles, poles, fencing, walls, buildings, and other structures and property of every kind and description in the vicinity of his work, whether above or below the surface of the ground, that are indicated on the Contract Drawings or may be discovered on the site by the use of reasonable investigation and caution; and he shall be responsible for all damage and assume all expense for direct or indirect injury caused by his work to any of them, or to any person or property by reason of injury to them. Contractor shall indemnify and hold harmless Owner and Engineer and their agents and employees from and against all claims, damages, losses and expenses including, but not limited to attorney's fees, arising out of or resulting from the performance of the Work, when such claim, damage, loss, or expense is caused by work of the Contractor, any sub-contractor, anyone

directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused by a party indemnified hereunder.

1SP-20 PERFORMANCE AND PAYMENT BONDS. All payment and performance bonds provided in connection with any contract let by or on behalf of the City of Gretna shall be provided by a company or companies having at least an "A" or better financial rating according to the latest A.M. Best Company ratings and shall be in an amount at least equal to the Contract Price.

1SP-21 UNDERGROUND INSTALLATIONS. Existing underground installations are indicated on the Contract Drawings only to the extent that such information was made available to or discovered by the Engineer in preparing the Contract Drawings. There is no guarantee as to the accuracy or completeness of such information, and all responsibility for the accuracy and completeness thereof is expressly disclaimed.

1SP-22 INSPECTION BY PUBLIC AGENCIES. Authorized representatives of the City of Gretna, Department of Public Utilities, shall have access to the Work wherever it is in preparation or progress. Contractor shall provide proper facilities for such access and inspection.

1SP-23 PROJECT CLEAN-UP: During construction (daily) and before final acceptance the Contractor shall be responsible for and will clean up at his own expense any streets or roadways which have debris, mud, shells, etc., as a result of construction on this project.

1SP-24 INDEMNIFICATION: Contractor shall defend, indemnify, and hold harmless Owner and Engineer and their agents, employees, related and companion corporations (collectively referred to as Owner and Engineer) from and against any and all claims, demands, in any way arising out of or resulting from, directly or indirectly, errors, omissions, or negligence related to the work performed by the Contractor or any of his subcontractors, suppliers or agents, including all damages, losses, expenses, attorney's fees and costs.

1SP-25 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER

a. This provision specifies the procedure for determination of time extensions for unusually severe weather in accordance with the contract clause in the General Conditions, Paragraph 12.2. In order for the Engineer to recommend and the Owner approve a time extension under this clause, the following conditions must be satisfied.

1. The weather experienced at the project site during the contract period must be found to be unusually severe. That is, more severe than the adverse weather anticipated for the project location during any given month.

2. The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the Contractor.

b. The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) New Orleans (Audubon) Weather Station located near the project location and will constitute the base line for monthly weather time evaluations. The Contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

MONTHLY ANTICIPATED ADVERSE WEATHER CALENDAR DELAY WORK
DAYS BASED ON (5) DAY WORK WEEK

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
(11)	(9)	(5)	(4)	(4)	(6)	(9)	(9)	(6)	(4)	(5)	(9)

c. Upon acknowledgment of the Notice to Proceed (NTP) and continuing throughout the contract, the Engineer/Owner will record on the daily report the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent or more of the Contractor's scheduled work day.

The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day of each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated in paragraph b. above, the contract time will be modified reflecting any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days, and issue a modification in accordance with the contract clause entitled "Change in the Contract Time", Article 12 of the General Conditions.

1SP-26 CONSTRUCTION SEQUENCE. The Contractor shall be responsible for developing a construction sequence to facilitate the construction of this project. The sequence must be approved by the Engineer.

1SP-27 CONSTRUCTION NOISE. The Contractor shall maintain and operate equipment in such manner as to minimize noise generation to the extent practicable. All engines used on the project shall be equipped with properly functioning mufflers.

1SP-28 COOPERATION BETWEEN CONTRACTORS. The Contractor shall be cognizant of the fact that other utilities may be under construction at the same time that this contract is active. There shall be complete cooperation with any other contractor in the area, and any unavoidable conflicts shall be immediately brought to the Engineer's attention.

1SP-29. FIELD OFFICE. NOT USED.

1SP-30 PROXIMITY TO POWER LINES. The Contractor shall take notice of the overhead power lines along the length of the project.

It shall be the Contractor's responsibility to determine the requirements of his work in the vicinity of the power lines and his ability to work safely under these conditions. Any relocation, de-energizing, etc. must be arranged with Entergy Services, Inc. by the Contractor, and it will be his responsibility for all costs associated with same.

The Contractor shall meet all applicable OSHA regulations and National Electric Safety Code requirements during the duration of this project. No equipment is to be utilized beneath transmission lines with a height greater than 15 feet.

1SP-31 GROUND FAULT PROTECTION. Electrical equipment used on this contract shall be equipped with ground fault circuit interrupters in accordance with EM 385-1-1, Section 11.C.05.

1SP-32 HAUL ROADS. NOT USED.

1SP-33 UTILITIES AND IMPROVEMENTS.

a. All known utilities within the limits of the work, such as pipes, communication lines, power lines, etc., that would interfere with construction work shall be protected, removed, modified or relocated by the appropriate utility company at no cost to the Owner unless otherwise noted in the plans and/or specifications. The Contractor, however, shall cooperate with the authorities or company representatives and shall conduct his operations in such manner as to result in a minimum of inconveniences to the owners of said utilities. The Contractor shall notify each utility owner, (Entergy Electric, Atmos Energy, BellSouth Telecommunications, and Cox Communications) by certified mail 45 days, 15 days and by telephone 72 hours prior to the date utilities need to be moved and provide a copy of these notifications to the Engineer. The contact persons and telephone numbers that should be utilized during the construction phase are listed on the drawings.

b. Notices to Owners and Authorities. The Contractor shall notify owners, Entergy Electric, BellSouth Telecommunications, Atmos Energy and Cox Communications of utilities when prosecution of the work may affect them. When it is necessary to temporarily disconnect utility services, the Contractor shall give notices sufficiently in advance to enable the affected persons to provide for their needs. Notices shall conform to any applicable local ordinance and, whether delivered orally or in writing, shall include appropriate information concerning the interruptions and instructions on how to limit their inconvenience. Utilities and other concerned agencies shall be contacted at least 48 hours (excluding Saturdays, Sundays and legal holidays) prior to cutting or closing streets or other traffic areas or excavating near underground utilities or pole lines.

c. Entergy Electric Transmission and Distribution Lines (Entergy). While constructing the project, the Contractor will be working near, and under the Entergy overhead power lines. The Contractor shall contact Entergy prior to start of construction to coordinate all construction work with Entergy in order to ensure safety.

1. All Entergy Electric relocation and de-energizing work along the route must be coordinated with the Contractor for the adjacent project. This is necessary to prevent any loss of power to the adjacent businesses, residences, and other electrical fed equipment. Existing Entergy Electric facilities that have not been completely located at the time of construction shall be closely coordinated between Entergy Electric and the Contractor.

2. The Contractor shall maintain a minimum distance from all power lines as required by NEC and Entergy. Contractor shall be responsible for determining the maximum height and reach attainable by any part of any piece of equipment, and after coordinating with Entergy to determine the height and location of the power line, shall determine if the required clearance will be violated. The Contractor shall not work within the required clearance of the lines unless the lines are de-energized. If the clearance will be violated, prior to beginning any operations in the area, the Contractor shall coordinate with Entergy to de-energize the line. If the line is to be de-energized but is to remain in place, rather than being removed, the Contractor shall establish a procedure with Entergy to ensure that the Contractor shall have sufficient notice to allow removal of all equipment which may violate the required clearance from the area prior to the line being re-energized. These procedures and requirements shall also apply to any buried power lines.

3. It shall be the Contractor's sole duty and responsibility to provide for the safety of his men, equipment, subcontractors and the general public during operations in the vicinity of overhead and underground power lines; and to assure that all of his operations and those of his employees and subcontractors comply with OSHA, EM 385-1-1, the National Electric Safety Code, and all applicable Parish, State and Federal codes and regulations.

1SP-34 EXISTING FACILITIES.

a. Protection and Relocation of Existing Structures and Utilities. The Contractor shall assume full responsibility for the protection of all structures and utilities, public or private, including poles, signs, services to building utilities, in the street, gas pipes, water pipes, hydrants, sewers, drains, and electric and telephone cables, whether or not they are shown on the drawings. The Contractor shall carefully support and protect all such structures and utilities from injury of any kind. Any damage resulting from the Contractor's negligence shall be repaired by him at his expense, prior approval from the OWNER is required.

b. The Contractor shall bear full responsibility for locating all underground structures and utilities (including existing water services, drain lines, gas lines, telephone cables, and sewers) as indicated on the plan drawings. Services to buildings shall be maintained, and all costs or charges resulting from damage thereto shall be paid by the Contractor.

c. Care and Protection of Property. The Contractor shall be responsible for the preservation of all public and private property, and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public

or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work on the part of the Contractor, such property shall be restored by the Contractor, at his expense, to a condition similar or equal to that existing before the damage was done, or he shall make good the damage in another manner acceptable to the Engineer.

d. Other Features. Along the location of this work, all fences, walks, bushes, trees, shrubbery, and other physical features noted on the drawings to remain, shall be protected and restored in a thoroughly workmanlike manner.

e. The protection, removal, and replacement of existing physical features along the line of work shall be a part of the work under the contract, and all costs in connection therewith shall be included in the applicable contract unit and/or lump sum prices for which the work is incidental thereto.

1SP-35 DAMAGED STRUCTURES AND ROADWAYS. The Contractor shall at his own expense remove and replace any damaged structures and roadways caused by the negligence of his construction work as directed by the Engineer.

The Contractor shall coordinate the work with the Engineer. The existing buildings, sidewalks, curbs, fences, pavement and other structures which are located close to the project site. Damages to these structures may occur due to construction operations, construction vehicular traffic, vibrations, excavation, etc. To minimize the possibility of damages to these structures, the Contractor shall use the following procedures and or guidance:

a. Monitoring Vibrations. Vibrations, construction equipment and vehicular traffic may affect and damage existing structures. Vibrations shall be monitored by others and limited to 0.25 inch per second at all structures including buildings and pools. Exceeding 0.5 of an inch per second may induce structural damages. The Contractor shall be informed when the vibrations from his operations have exceeded 0.25 of an inch per second and the Contractor shall take immediate action to reduce the vibrations to the acceptable limits or terminate the operation until further notice. The Contractor shall coordinate monitoring of vibrations with the Engineer.

1SP-36 SPECIAL WORK REQUIREMENTS. Construction equipment exceeding 100 horsepower shall not be allowed to work in the excavation area, since the excavation may be subject to flooding with minimal warning. The work shall be performed within, or from, City property or right-of-way. The Contractor shall be responsible for the removal of all equipment in the excavated areas and cover open trenches at the end of each workday. The Contractor shall be responsible for monitoring weather conditions to ensure that no damage occurs to his equipment or materials due to flooding. Materials shall not be stockpiled within the work area in excess of the amount that can be incorporated into the project by the end of each workday. No obstructions will be allowed at any time which reduce the normal traffic flow.

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SECTION 01010

PROJECT DESCRIPTION AND SCOPE OF WORK

1.0 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Project Information
 - 2. Work covered by Contract Documents.
 - 3. Work under separate contracts.
 - 4. Access to site and surrounding amenities.
 - 5. Coordination with occupants.
 - 6. Work restrictions.
 - 7. Specification and drawing conventions.
- B. Division 01 Section "Temporary Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.2 PROJECT INFORMATION

- A. Project Identification: HUEY P. LONG AVE., STREET LIGHTING 11TH ST.to WESTBANK EXPWY.
 - 1. Project Location: Historic Downtown Gretna
 - a. Project limits begin at the intersection of Second Street and Huey P. Long Avenue and extend to intersection of Fifth Street and Huey P. Long Avenue.
- B. Owner: City of Gretna
 - 1. Owner's Representative for Project: Amie Hebert, Project Manager, City of Gretna, 504-654-6078
- C. Prime Consultant
 - 1. Engineer: Burk Kleinpeter, Inc.
 - a. 2400 Veteran's Blvd, Suite 310 Kenner LA 70062
 - b. Project Managers: Perry P. Hogan, PE
 - c. (504) 210-5442 Cell
 - d. Project Managers: David E. Boyd, PE
 - e. (504) 975-7735 Cell

1.3 WORK COVERED BY THE CONTRACT DOCUMENTS

- A. The work of the project is defined by the Contract Documents and consists of the following:
 - 1. Without limiting the scope of work described herein, access management, installation of lighting pole foundations, grounding, raceway, excavation and backfill, removal and replacement of concrete sidewalks, removal and replacement of sod, and all other incidental work thereto.
- B. Type of Contract
 - 1. Project will be constructed under a single prime contract.

1.4 ACCESS TO THE SITE AND SURROUNDING AMENITIES

- A. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.
- B. Use of Site: Limit use of Project site to work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 - 1. Limits: Confine construction operations to work area designated on plans or by the owner.
 - 2. Driveways, Walkways and Entrances: Keep driveways parking garage, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- C. Public access to all surrounding businesses shall be maintained throughout the contract duration.
 - 1. In the event that existing access routes to these destinations is affected or blocked at any point during the contract an alternate route shall be provided.

- a. It is the contractor's responsibility to designate, maintain, and ensure clear delineation of the alternate route is provided
- b. All alternate routes shall comply with the US Department of Justice ADA 2010 Standards for accessible routes. Contractor to produce an access route maps, indicating ADA accessible routes.

1.5 COORDINATION WITH OCCUPANTS

- A. Full Owner Occupancy: Owner will occupy site and adjacent building(s) during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.
 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction. See above in paragraph 1.4.C.
 2. Notify the Owner not less than 72 hours in advance of activities that will affect Owner's operations.
- B. Partial Owner Occupancy: Owner will occupy the premises during entire construction period, with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits unless otherwise indicated.
- C. Owner Limited Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed portions of the Work, prior to Substantial Completion of the Work, provided such occupancy does not interfere with completion of the Work.

Such placement of equipment and limited occupancy shall not constitute acceptance of the total Work.

 1. Engineer will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied prior to Owner acceptance of the completed Work.
 2. Before limited Owner occupancy, electrical systems shall be complete, and required tests and inspections shall be successfully

completed. On occupancy, Owner will operate and maintain electrical systems serving occupied portions of Work.

3. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of Work.

1.6 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
 1. Comply with limitations on use of public streets and other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work in the existing site to normal business working hours of 7:00 a.m. to 5:00 p.m., Monday through Friday, except as otherwise indicated.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
 1. Notify Engineer, Owner and Residents-Business Owners not less than three days in advance of proposed utility interruptions.
 2. Obtain Owner's written permission before proceeding with utility interruptions.
- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
 1. Notify Engineer and Owner not less than two days in advance of proposed disruptive operations.
 2. Obtain Owner's written permission before proceeding with disruptive operations.
- E. Nonsmoking Building: Smoking is not permitted within buildings or within 25 feet of entrances, operable windows, or outdoor air intakes.
- F. Controlled Substances: Use of tobacco products and other controlled substances on the Project site is not permitted.

1.7 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 - 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Drawing Coordination: Requirements for materials and products identified on the Drawings are described in detail in the Specifications. One or more of the following are used on the Drawings to identify materials and products:
 - 1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 - 2. Abbreviations: Materials and products are identified by abbreviations scheduled on Drawings.
 - 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

1.8 PROPOSED ORDER OF WORK

- A. Engineer will not approve or dictate the Contractor's order of work. The Contractor shall dictate their own means and methods that adhere to the entire project specifications, specifically Section 1.6 Work Restrictions.

END OF SECTION 01010

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SECTION 01025 - MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 SUMMARY

- A. The project shall be constructed complete as shown and indicated on the Contract Drawings and as described in the Contract Specifications.
- B. Payment shall include all compensation to be received by the Contractor for furnishing all tools, equipment, supplies, and manufactured articles, and for all labors, operations, and incidentals as necessary to complete the various items of work all in accordance with the requirements of the Contract Documents, including all costs of compliance with the regulations of public agencies having jurisdiction. The Contractor is hereby on notice that no separate payment will be made for any item not specifically called out, but that is required to properly complete the project.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

PART 4 MEASUREMENT AND PAYMENT

4.01 SCOPE

- A. The Total Bid Price shall cover all work required by the Contract Documents. All costs in connection with the proper and successful completion of the work, including furnishing all materials, equipment, supplies, and appurtenances; providing all construction equipment, and tools; and performing all necessary labor and supervision to fully complete the work, shall be included in the unit and lump sum prices bid. All work not specifically set forth as a pay items in the Bid Form shall be considered a subsidiary obligation of the Contractor and all costs in connection therewith shall be included in the prices bid.

4.02 ESTIMATED QUANTITIES

- A. All estimated quantities stipulated in the Bid Form or other Contract Documents are approximate and are to be used only (a) as a basis for estimating the probable cost of the work, and (b) for the purpose of

comparing the bids submitted for the work. The actual amounts of work done and materials furnished under unit price items may differ from the estimated quantities. The basis of payment for work and materials will be the actual amount of work done and materials furnished. No compensation will be given for any quantities not used.

4.03 MOBILIZATION AND DEMOBILIZATION (ITEM NO. 1)

- A. Measurement: Measurement for payment for mobilization and demobilization will be on a lump-sum basis as specified herein.

- B. Payment: Payment for mobilization and demobilization shall cover all preparatory work, obtaining all permits, insurance and bonds, movement of personnel, equipment, supplies and incidentals to the project site, the establishment of temporary offices, project signs and other construction facilities necessary for work on this project. It shall include removal of all personnel, equipment, supplies, and incidentals from the project site, removal of temporary offices and other construction facilities necessary for work on this project, all as required for the proper performance and completion of the work.

Payment will be made at the contract lump sum price, subject to the following provisions:

Partial payments for mobilization and demobilization will be made in accordance with the following schedule up to a maximum of 5 percent of the total contract amount (including this item), and payment of any remaining amount will be made upon completion of all work under the contract.

Percent of Total Contract <u>Amount Earned</u>	Allowable Percent of the <u>Lump Sum Price for the Item</u>
1 st Partial Estimate	25%
10%	50%
25%	75%
50%	100%

No price adjustments will be made for this item due to changes in the work.

4.04 TRAFFIC CONTROL AND COORDINATION (ITEM NO. 2)

- A. Measurement: Measurement for payment for Traffic Control and Coordination will be made on a lump sum basis.
- B. Payment: Payment for this item will be made at the lump-sum bid and will constitute full compensation for the traffic control. Payment will be made at 100% of the bid amount on the estimate after this work is accomplished.

4.05 PULL BOX (ITEM NO. 3)

- A. Measurement: Measurement for payment for Pull Box will be made per each.
- B. Payment: Payment for this item will be made per each of bid item and will constitute the acquisition, excavation, installation, and backfill for installing pull box as shown on the drawings, including removal of existing pull box.

4.06 POLE FOUNDATION (ITEM NO. 4)

- A. Measurement: Measurement for payment for Pole Foundation will be made per each foundation.
- B. Payment: Payment for this item will be made for each foundation bid and shall constitute the furnishing and installation of concrete foundation with reinforcement, ground rod, grounding conductor, cadweld connection, schedule 80 PVC elbows, and anchor bolt installation as shown on Detail 1 of plan sheet E5.0.

4.07 TRENCHING (ITEM NO. 5)

- A. Measurement: Measurement for payment for Trenching will be made per linear foot.
- B. Payment: Payment for this item will be made per linear foot of bid item and will constitute the saw cutting, excavating, and backfill of 8" wide 24" deep trench.

4.08 RACEWAY (ITEM NO. 6)

- A. Measurement: Measurement for payment for Raceway will be made per linear foot.
- B. Payment: Payment for this item will be made per linear foot of bid item and will constitute furnishing and installation of 1 1/2" and 2" Schedule 40 PVC conduit with couplings, or alternatively, or in combination with directional drilled HDPE conduit. This item shall include setup and access pits for drilled segments.

4.09 CONCRETE DEMOLITION (ITEM NO. 7)

- A. Measurement: Measurement for payment for Concrete Demolition will be made per square yard.
- B. Payment: Payment for this item will be made per square yard of bid item and will constitute the removal and disposal of concrete sidewalks and driveways required for either trenching and/or directional drill/bore access pits.

4.10 CONCRETE FLATWORK (ITEM NO. 8)

- A. Measurement: Measurement for payment for Concrete Flatwork will be made per square yard.
- B. Payment: Payment for this item will be made per square yard of bid item and will constitute cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes of new 4" sidewalks and 6" driveways to replace areas demolished in item 7.

4.11 DIRECTIONAL DRILL (ITEM NO. 9)

- A. Measurement: Measurement for payment for Directional Drill will be made per linear feet.
- B. Payment: Payment for this item will be made per linear feet of bid item and will constitute of the excavation of access pits, drilling, accessories, tests, setup, and backfill for directional drill/bore.

4.12 SODDING (ITEM NO. 10)

- A. Measurement: Measurement for payment for Sodding will be made per square yard.
- B. Payment: Payment for this item will be made per square yard of bid item and will constitute the acquisition, preparation, installation and watering of sod per specifications for areas where sod has been removed for other activities.

END OF SECTION

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SECTION 01400 QUALITY CONTROL

1.0 GENERAL

1.01 QUALITY CONTROL, GENERAL

- A. Comply with industry standards except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship on this project.
- B. Perform work only by persons qualified by equivalent applicable union standards to produce workmanship of the specified quality.
- C. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.
- D. Comply with manufacturer's instructions in full detail, including each step in sequence. Should instructions conflict with Contract Documents, notify and request clarification from Engineer before proceeding.

1.02 SITE INVESTIGATION AND CONTROL

- A. The Contractor shall verify all dimensions in the field and shall check field conditions continuously during construction. The Contractor shall be solely responsible for any inaccuracies built into the Work due to his failure to comply with this requirement.
- B. The Contractor shall inspect related, adjacent, and appurtenant Work and shall report in writing to the Engineer any conditions that will prevent proper completion of the Work. Failure to report any such conditions shall constitute acceptance of all site conditions, and any required removal, repair or replacement caused by unsuitable conditions shall be performed by the Contractor at their sole cost and expense.

1.03 INSPECTION OF THE WORK

- A. The Work shall be conducted under the general observation of the Engineer and shall be subject to inspection by representatives of the Engineer acting on behalf of the Owner to insure strict compliance with the requirements of the Contract Documents. Such inspection may include mill, plant, shop or field inspection, as required. The Engineer

shall be permitted access to all parts of the Work, including plants where materials or equipment are manufactured or fabricated.

- B. The presence of the Engineer or any inspector(s), however, shall not relieve the Contractor of the responsibility for the proper execution of the work in accordance with all requirements of the Contract Documents. Compliance is a duty of the Contractor, and said duty shall not be avoided by any act or omission on the part of the Engineer or any inspector(s).
- C. All materials and articles furnished by the Contractor shall be subject to rigid inspection, and no materials or articles shall be used in the Work until they have been inspected and accepted by the Owner or his representative. No Work shall be backfilled, buried, cast in concrete, hidden or otherwise covered until it has been inspected. Any Work so covered in the absence of inspector shall be subject to uncovering. Where uninspected work cannot be uncovered, such as in concrete cast over reinforcing steel, all such Work shall be subject to demolition, removal and reconstruction under proper inspection, and no additional payment will be allowed therefor.

1.04 TIME OF INSPECTIONS AND TESTS

- A. Samples and test specimens required under these Specifications shall be furnished and prepared for testing in ample time for the completion of the necessary tests, analyses and reporting of results before said articles or materials are to be used. The Contractor shall furnish and prepare all required test specimens at its own expense. Except as otherwise provided in the Contract Documents, performance of the required tests will be by the Owner, and all costs thereof will be borne by the Owner at no extra cost to the Contractor; except, that the costs of any tests which show unsatisfactory results shall be borne by the Contractor.
- B. Whenever the Contractor is ready to backfill, bury, cast in concrete, hide or otherwise cover any Work under the Contract, the Engineer shall be notified not less than 24 hours in advance to request inspection before beginning any such Work of covering. Failure of the Contractor to notify the Engineer at least 24 hours in advance of any such inspections shall be reasonable cause for the Engineer to order a sufficient delay in the Contractor's schedule to allow time for such inspections and any remedial or corrective Work required, and all costs of such delays, including its effect upon other portions of the Work, shall be borne by the Contractor. Payment for items that are built,

uninspected, or unverified may be delayed by the Engineer until satisfactory evidence of compliance is attained.

1.05 SAMPLING AND TESTING

- A. When not otherwise specified, all sampling and testing shall be in accordance with methods prescribed in the current standards of the ASTM or related standard entity, as applicable to the class and nature of the article or materials considered; however, the Owner reserves the right to use any generally-accepted system of inspection which, in the opinion of the Engineer, will insure the Owner that the quality of the workmanship is in full accordance with the Contract Documents.
- B. Any waiver of any specific testing or other quality assurance measures, whether or not such waiver is accompanied by a guarantee of substantial performance as a relief from the specified testing or other quality assurance requirements as originally specified, and whether or not such guarantee is accompanied by a performance bond to assure execution of any necessary corrective or remedial Work, shall not be construed as a waiver of any technical or qualitative requirements of the Contract Documents.
- C. Notwithstanding the existence of such waiver, the Engineer shall reserve the right to make independent investigations and tests as specified in the following paragraph and, upon failure of any portion of the Work to meet any of the quantitative requirements of the Contract Documents, shall be reasonable cause for the Engineer to require the removal or correction and reconstruction of any such Work.
- D. In addition to any other inspection or quality assurance provisions that may be specified, the Engineer shall have the right to independently select, test and analyze, at the expense of the Owner, additional test specimens of any or all of the materials to be used. Results of such tests and analyses shall be considered along with the tests and analyses made by the Contractor to determine compliance with the applicable specifications for materials so tested or analyzed; provided that wherever any portion of the Work is discovered, as a result of such independent inspection and investigation, and all costs of removal, correction and reconstruction, or repair of any such Work shall be borne by the Contractor.

1.06 RIGHT OF REJECTION

- A. The Engineer, acting for the Owner, shall have the right, at all times and places, to reject any articles or materials to be furnished herein which, in any respect, fail to meet the requirements of the Contract Documents, regardless of whether the defects in such articles or materials are detected at the point of manufacture or after completion of the Work at the site. If the Engineer or inspector, through an oversight or otherwise, has accepted materials or Work which is defective or which is contrary to the Contract Documents, such material, no matter in what stage or condition of manufacture, delivery or erection, may be rejected by the Engineer or the Owner.
- B. The Contractor shall promptly remove rejected articles or material from the site of the Work after notification of rejection.
- C. All costs of removal and replacement of rejected articles or materials from the site of the Work after notification of rejection shall be borne by the Contractor.

1.07 TESTING LABORATORY SERVICES

- A. The Owner will select and pay for the services of an independent testing laboratory to perform specified testing quality control and services.
 - 1. Contractor shall cooperate with the laboratory to facilitate the execution of its required services.
 - 2. Employment of the laboratory shall in no way relieve Contractor's obligations to perform the Work of the Contract.
- B. Related Requirements
 - 1. Inspections and testing required by laws, ordinances, rules, regulations, orders or approvals of public authorities as mentioned in the Conditions of the Contract.
 - 2. Certification of Products indicated in respective Specification Sections.
- C. Testing laboratory inspecting, sampling, and testing is required for, but not limited to:
 - 1. Soils Compaction and Control.
 - 2. Cast-in-Place Concrete.

- D. Qualification of Laboratory
1. Meet "Recommended Requirements of Independent Laboratory Qualification," latest edition, published by American Council of Independent Laboratories.
 2. Meet basic requirements of ASTM E 329, "Standard Recommended Practice for inspection and Testing Agencies for Concrete, Steel and Bituminous Materials as Used in Construction".
 3. Authorized to operate in the State in which the Project is located.
- E. Laboratory Duties
1. Cooperate with Engineer and Contractor; provide qualified personnel after due notice.
 2. Perform specified inspections, sampling and testing and reporting of results of materials and methods of construction:
 - a. Comply with specified standards.
 - b. Ascertain compliance of materials with requirements of Contract Documents.
 - c. Tests and inspections shall be conducted in accordance with specified requirements and if not specified, in accordance with applicable standards of American Society of Testing and Materials and other recognized authorities as applicable.
 3. Promptly notify Engineer and Contractor of observed irregularities or deficiencies of work or products.
 4. Promptly submit written reports of each test and inspection; at least one copy each to Engineer, Owner, and Contractor.
 5. Perform any additional tests as required by the Engineer or Owner.
- F. Limitations of Authority of Testing Laboratory.
1. Laboratory is not authorized to:
 - a. Release, revoke, alter or enlarge any requirements of Contract Documents.
 - b. Approve or accept any portion of the Work.
 - c. Perform any duties of the Contractor.
- G. Contractor's Responsibilities

1. Cooperate with laboratory personnel, provide access to Work and to Manufacturer's operations.
2. Provide to the laboratory and to the Engineer the preliminary design mix proposed to be used for concrete and other materials and mixes which require control by the testing laboratory.
3. Furnish copies of Products test reports as requested.
4. Furnish incidental labor and facilities:
 - a. To provide access to Work to be tested.
 - b. To obtain and handle samples at the Project Site or at the source of the product to be tested.
 - c. To facilitate inspections and tests.
 - d. For protection, storage and curing of test samples.
5. Costs of tests, samples and specified material, where the substitution is requested by the Contractor and the tests are necessary in the opinion of the Engineer to establish equality qualified with specified items, shall be borne by the Contractor.
6. Notify laboratory and Owner's Representative sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.
7. Employ and pay for the services of a separate, equally qualified independent testing laboratory to perform additional inspections, sampling and testing required:
 - a. For the Contractor's convenience.
 - b. When initial tests indicate Work does not comply with Contract Documents.
 - c. When required by laws, ordinances, rules, regulations, orders or approvals of public authorities.

2.0 PRODUCTS

NOT USED

3.0 EXECUTION

NOT USED

END OF SECTION 01400

SECTION 01530 BARRIERS AND ENCLOSURES

1.0 GENERAL

1.01 RELATED WORK

- A. Furnish, install and maintain suitable barriers as required to maintain security to prevent public entry and to protect the Work and existing facilities from construction operations. Remove the barriers when no longer needed, or at completion of Work.

1.02 REQUIREMENTS OF REGULATORY AGENCIES

- A. Comply with federal, state and local codes and regulations.

1.03 BARRICADES AND LIGHTS

- A. All streets, roads, driveways and other thoroughfares which are closed to traffic shall be protected by effective barricades on which shall be placed acceptable warning signs. Barricades shall be located at the nearest intersection on each side of the blocked section.
- B. All open trenches and other excavations shall have suitable barricades, signs and lights to provide adequate protection to the public. Obstructions such as material piles and equipment shall be provided with similar warning signs and lights.
- C. All barricades and obstructions shall be illuminated with warning lights from sunset to sunrise. Material storage and conduct of the Work on or alongside streets and driveways shall cause the minimum obstruction and inconvenience to the traveling public as possible.
- D. All barricades, lights and other protective devices shall be installed and maintained in conformity with the "Louisiana Manual on Uniform Traffic Control Devices", 1978 and latest revision.

1.04 FENCES

- A. All existing fences affected by the Work shall be maintained by Contractor until completion of the Work. Fences which interfere with construction operations shall not be relocated or dismantled until written permission is obtained from the owner of the fence, and the period the fence may be left relocated and dismantled has been

agreed upon. Where fences must be maintained across the construction easement, adequate gates shall be installed. Gates shall be kept closed and locked at all times when not in use. Fences or gates which have been disturbed or which have been opened must be closed when directed by the Owner or Engineer within 12 hours of any such direction. If the Contractor fails to comply with any of this type of direction the Owner shall retain the right to remedy any fence removal with other forces and deduct monies spent from monies due the Contractor.

- B. Upon completion of the Work, Contractor shall restore all fences to their original or to a better condition and to their original location as needed.

2.0 PRODUCTS

2.01 GENERAL

- A. Materials may be new or used suitable for the intended purpose, but must not violate requirements of applicable codes and standards.

3.0 EXECUTION

Not Used

END OF SECTION 01530

SECTION 01540 SECURITY

1.0 GENERAL

1.01 RELATED WORK

None

1.02 PROTECTION OF WORK

- A. Contractor shall be responsible for protection of the site, and all work, materials, equipment and existing facilities thereon, against theft, vandals, and other unauthorized persons.
- B. No claim shall be made against Owner by reason of any act of an employee or trespasser, and Contractor shall make good all damage to Owner's property resulting from his failure to provide security measures as specified.
- C. Security measures shall be at least equal to those usually provided to protect the existing facilities during normal operation, but shall also include such additional security fencing, barricades, lighting, watchman services and other measures as required to protect the site.
- D. Maintain security of the limited access areas as required by the Owner.
- E. The work shall be under the charge and care of the Contractor until final acceptance. The Contractor shall take precautions against damages to the work by action of the elements or from other cause, and shall satisfactorily repair any damaged work at his expense. In case of suspension of work, the Contractor shall be responsible for all materials and shall properly store them if necessary, and shall erect temporary structures where necessary.

1.03 PROTECTION OF PUBLIC AND PRIVATE PROPERTY

- A. Contractor shall protect, shore, brace, support and maintain all above ground and underground pipes, conduits, drains and infrastructure items uncovered or otherwise affected by his construction operations. All pavement, surfacing, driveways, curbs, walks, buildings, utility poles, guy wires, fences and other surface structures affected by construction operations, together with all sod and shrubs in yards and parkings, shall be restored to their original conditions, whether within or outside the easement.

- B. All replacements shall be made with new materials. No trees shall be removed outside of the permanent easement, except where authorized by Engineer. Whenever practicable, Contractor shall tunnel beneath trees in yards and parking areas when on or near the line of trench. Hand excavation shall be employed as necessary to prevent injury to trees. Trees standing shall be adequately protected against damage by construction operations.
- C. Contractor shall be responsible for all damage to streets, roads, highways, shoulders, ditches, embankments, culverts, bridges and any other public or private property, regardless of location or character, which may be caused by transporting equipment, materials or men to or from the Work or any part of site thereof, whether by him or his Subcontractors. Contractor shall make satisfactory and acceptable arrangements with the owner of, or the agency or authority having jurisdiction over, the damaged property concerning its repair or replacement or payment of costs incurred in connection with the damage.
- C. All fire hydrants, water control valves, and other facilities of public use shall be kept free from obstruction and available for use at all times. Fire hydrants to be removed and relocated shall be done as quickly as possible.

2.0 PRODUCTS

Not Used

3.0 EXECUTION

3.01 PERFORMANCE OF SECURITY MEASURES

- A. If the Contractor fails to comply with the provisions of this section, the Engineer will immediately notify the Contractor, in writing, of such noncompliance. If the Contractor fails to remedy unsatisfactory maintenance within 48 hours after receipt of such notices, the Engineer may immediately proceed to maintain the project, and the cost of this maintenance will be deducted from payments for the work.
- B. If the unsatisfactory maintenance results in a condition that is hazardous to life, health or property, the Engineer will immediately effect necessary repairs and deduct the cost of such repairs from payments for the work.

END OF SECTION 01540

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SECTION 01555 - TRAFFIC CONTROL AND COORDINATION

PART 1 GENERAL

1.1 SCOPE

The work provided for in this section consists of providing and maintaining traffic control, coordination, maintenance and the preparation of a traffic control and truck haul route device plan as specified herein.

1.2 REFERENCES

The current issues of the publications listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent indicated by the references thereto:

Manual on Uniform Traffic Control Device (MUTCD) (latest edition)

Louisiana Standard Specifications for Roadway and Bridges (2016 edition and amendment thereto)

1.3 MEASUREMENT AND PAYMENT

No measurement will be made for the preparation of a traffic control device plan, nor the maintenance, control and coordination of traffic routing as specified herein. Payment will be made at the lump sum contract price for "Traffic Control and Coordination". Price and payment shall constitute full compensation for providing all plant, labor, materials and equipment to complete the work as specified herein and as shown on the drawings.

Note: One lane of traffic in both directions of Huey P. Long Ave. shall be maintained as open at all times during construction.

1.4 SUBMITTALS

The Contractor shall prepare and submit the original and six (6) copies of the Traffic Control Device Plan as specified herein.

PART 2 PRODUCTS

2.1 SIGNS AND BARRICADES

In accordance with Section 713 of the Louisiana Standard Specifications for Roads and Bridges (LSSRB), 2016 Edition, the Contractor shall provide all necessary signs, barricades, temporary pavement markings, in accordance with the Louisiana Manual on Uniform Traffic Control Devices, Construction Section as well as all signs,

barricades, blinking lights or other necessary traffic control devices required by the Parish of Jefferson or other governing specifications.

PART 3 EXECUTION

3.1 TRAFFIC CONTROL DEVICE PLAN

a. The Contractor shall develop and implement a site specific traffic control device plan (TCDP) and truck haul route plan, which shall provide for the safe and expeditious movement of traffic through construction zones. A construction zone is defined as the immediate area of actual construction, which interferes with the driving or walking public. The TCDP shall comply with the requirements set forth in the Manual on Uniform Traffic Control Devices, as revised, and with the general requirements stipulated below.

b. The TCDP for the site shall address the conditions for providing traffic flow within the zone during the influence of construction. The TCDP shall be schematically drawn on sheet(s) large enough to show adequate details and be easily readable and reproducible. If larger than eleven inches by seventeen inches (11" x 17"), the sheet(s) shall be submitted with a reproducible transparency so that the Engineer and the City of Gretna can produce additional copies as needed.

c. The TCDP shall be designed and stamped by a Professional Engineer registered in the State of Louisiana. The qualifications of the Engineer shall be submitted for review and approval of the Engineer, and where applicable Louisiana Department of Transportation and Development, Traffic Operations. Engineers for this project will be qualified by education and experience in Categories 1 and 2 as noted below. All categories require a minimum of four (4) years experience and education.

d. Category 1 - Traffic Control through Construction Zones. Urban experience in MUTCD applications, plan preparations, studies in volume, speed, and pedestrians, and tort liability.

e. Category 2 - Permanent Sign / Marking. Urban experience in MUTCD applications, studies in volume, speed, pedestrians, and accident analysis.

f. The Contractor shall submit an original and six (6) copies of the TCDP to the Engineer prior to any anticipated traffic control work for the review and approval. Adequate time (a minimum of 15 calendar days exclusive of mailing time) shall be allowed for review and approval. Such approval is required prior to start of any work, which might affect the traffic pattern in the area.

3.2 TRAFFIC CONTROL

- a. The necessary precautions shall include, but not be limited to, such items as proper construction warning signs, signals, lighting devices, battery operated flashers, markings, barricades, channelization, and hand signaling devices (flagging operations). The Contractor shall be responsible for the installation and maintenance of all devices and requirements for the duration of the construction period.
- b. All work shall be performed in accordance with the Louisiana Standard Specifications for Roads and Bridges (LSSRB), 2016 edition, except as noted. Traffic control devices shall be in accordance with the MUTCD.
- c. The Contractor shall consult with the Engineer and the City of Gretna Department of Public Works immediately on any vehicular or pedestrian safety or efficiency problem incurred as a result of construction of the project. If warranted, the Contractor's Traffic Engineer shall make adjustments to the TCDP and the Contractor shall immediately implement the revised TCDP.
- d. The Contractor shall monitor traffic control devices on a daily basis and shall make appropriate changes to correspond to conditions.
- e. The qualified Traffic Engineer shall be provided by the Contractor to inspect the job site at the beginning of the project, after significant changes, and at 30-day intervals. A written report submitted to the Engineer verifying compliance with the plan and adequacy of traffic control devices and operating conditions will be required for each inspection. All deficiencies noted by the report shall be immediately corrected by the Contractor.

3.3 PUBLIC CONVENIENCE AND SAFETY

- a. Road Closure. No road shall be closed by the Contractor to the public except by written permission of the Engineer, and except while so closed, the Contractor shall maintain traffic over, through, or around the work included in his Contract, with the maximum practical convenience, for the full twenty-four hours of each day of the Contract, whether or not work has ceased temporarily. The Contractor shall notify the Engineer at the earliest possible date after the Contract has been executed, and in any case before the starting of any construction that might in any way inconvenience or endanger traffic, so that the necessary arrangements may be determined.
- b. Fire Protection. Fire hydrants shall be accessible at all times to the Fire Department. No material or other obstructions shall be placed closer to a fire hydrant than permitted by ordinances, rules, or regulations or within fifteen (15) feet of a fire hydrant, in the absence of such ordinances, rules, or regulations.

3.4 BARRICADES, DANGER, WARNING, AND DETOUR SIGNS

a. General. The Contractor shall, at his own expense, provide, erect, paint, and maintain all construction barricades. The Contractor shall provide suitable and sufficient lights, torches, reflectors, or other danger signals and signs, provide a sufficient number of watchmen and flagmen, and take all necessary precautions for the protection of the work and safety of the public. The Contractor shall replace any permanent street signs or markers, which have to be moved to facilitate his construction with temporary signs as necessary.

b. Warning Signs, Painting, Illumination. The Contractor shall erect warning signs beyond the limits of the project, sufficiently in advance of any place on the project where operations interfere with the use of the road by traffic, including all intermediate points where the new work crosses or coincides with the existing road. Barricades shall be kept well painted and suitable warning signs shall be placed thereon. All barricades and obstructions shall be illuminated at night and all lights or devices for this purpose shall be kept burning from sunset to sunrise.

3.5 EMERGENCY CONTRACTOR DESIGNATION

The Contractor shall designate a person(s) who can be contacted and shall be available on a seven-day week, 24-hour basis through the entire period that the contract is in force. Name(s) and telephone number(s) of the individual(s) designated shall be furnished to the Engineer prior to starting work. The person contacted shall be able to respond to emergencies occurring along the length of the project during normal after work and holiday hours.

3.6 CONSULTATIONS

The Contractor shall consult with the Engineer and the City of Gretna Department of Public Works immediately on any vehicular or pedestrian safety or efficiency problems incurred as a result of construction of the project.

SECTION 01560 TEMPORARY CONTROLS

1.0 GENERAL

1.01 RELATED WORK

None

1.02 DUST CONTROL

- A. Contractor shall take reasonable measures to prevent or minimize unnecessary air-borne dust. Earth surfaces subject to dusting shall be kept moist with water or by application of a chemical dust suppressant. Dusty materials in piles or in transit shall be covered to prevent blowing.
- B. Buildings or operating facilities which may be affected adversely by dust shall be adequately protected from dust.

1.03 EROSION CONTROL

- A. Contractor shall prevent erosion of soil on the site and adjacent property resulting from his construction activities. Effective measures shall be initiated prior to the commencement of clearing, grading, excavation or other operations that will disturb the natural protection.
- B. Work shall be scheduled to expose areas subject to erosion for the shortest possible time, and natural vegetation preserved to the greatest extent practicable to minimize amount of bare soil exposed at one time. Temporary storage and construction buildings shall be located, and construction traffic routed, to minimize erosion. Temporary fast growing vegetation or other suitable ground cover shall be provided as necessary to control runoff.

1.04 NOISE CONTROL

- A. Contractor shall take reasonable measures to avoid unnecessary noise. Such measures shall be appropriate for the normal ambient sound levels in the area during working hours. All construction machinery and vehicles shall be equipped with practical sound muffling devices, and operated in a manner to cause the least noise consistent with efficient performance of the Work.

- B. During construction activities on or adjacent to occupied buildings, and when appropriate, Contractor shall erect screens or barriers effective in reducing noise in the building; and shall conduct his operations to avoid unnecessary noise which might interfere with the activities of building occupants.

1.05 POLLUTION CONTROL

- A. Contractor shall prevent the pollution of drains and watercourses by sanitary wastes, sediment, debris and other substances resulting from construction activities. No sanitary wastes will be permitted to enter any drain or watercourse other than sanitary sewers.
- B. No sediment, debris or other substance will be permitted to enter sanitary sewers and reasonable measures will be taken to prevent such materials from entering any drain or watercourse.

1.06 SURFACE WATER CONTROL

- A. The facilities to be constructed are located in an area that may be subject to heavy rainfall and flooding. During the construction period, Contractor shall provide temporary protection as necessary to prevent flood damage to new and existing facilities and shall be responsible for any damage that may result from flooding. Additionally the Contractor shall provide adequate flow area to the existing stations as to not impede its pumping capacity.
- B. Contractor shall provide for the drainage of storm-water and such water as may be applied or discharged on the site in performance of the Work. Drainage facilities (and pumping operations as necessary) shall be adequate to prevent damage to the Work, the site and adjacent property. Drains shall not be blocked by any of the Contractor's activities as flooding may be caused by any impedance to existing storm water flow.
- C. Existing drainage channels and conduits shall be cleaned, enlarged or supplemented as necessary to carry all increased runoff attributable to Contractor's operations. Dikes shall be constructed as necessary to divert increased runoff from entering adjacent property (except in natural channels), to protect Owner's facilities and the Work, and to direct water to drainage channels or conduits. Ponding shall be provided as necessary to prevent downstream flooding. The Contractor must obtain permission from the Owner before beginning any of the above mentioned work.

1.07 DEBRIS CONTROL

- A. Remove debris, empty crates, waste, etc. from building and site at the end of each day's work and leave grounds clean and orderly. Keep driveways, entrances and walks clean and clear at all times.

2.0 PRODUCTS

Not Used

3.0 EXECUTION

Not Used

END OF SECTION 01560

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SECTION 033000 CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes for the following:
 - 1. Concrete pathways
 - 2. Concrete driveways
 - 3. Pole foundations

1.2 Definitions

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture. Submit alternative design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
 - 1. Indicate amounts of mixing water to be withheld for later addition at Project site.

1.4 INFORMATIONAL SUBMITTALS

- A. Material certificates.
 - 1. Cementitious materials.
 - 2. Admixtures.
 - 3. Form materials and form-release agents.
 - 4. Steel reinforcement and accessories.

5. Bonding agents.
6. Adhesive
7. Semi-rigid joint filler.
8. Joint-filler strips.
9. Repair Materials.
10. Fiber-reinforcement for concrete.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.
- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- C. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source manufacturer.
- D. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
 1. ACI 301, "Specifications for Structural Concrete," Sections 1 through 5.
 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

1. Plywood, metal, or other approved panel materials.

2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
 - a. High density overlay, Class 1 or better.
 - b. Medium-density overlay, Class 1 or better; mill-release agent treated and edge sealed.
 - c. Structural 1, B-B or better; mill oiled and edge sealed.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Chamfer Strips: Wood, metal, PVC, or rubber strips, $\frac{3}{4}$ by $\frac{3}{4}$ inch, minimum.
- D. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.
- E. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- F. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
 1. Furnish units that will leave no corrodible metal closer than 1 inch to the plan of exposed concrete surface.
 2. Furnish ties that, when removed, will leave no holes no larger than 1 inch in diameter in concrete surface.

2.2 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.

2.3 REINFORCEMENT ACCESSORIES

- A. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in

place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete as follows:

1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.
2. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.
3. For zinc-coated reinforcement, use galvanized wire or dielectric-polymer-coated wire bar supports.

2.4 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
 1. Portland Cement: ASTM C 150, Type I/II
- B. Normal-Weight Aggregates: ASTM C 33, Class 1N coarse aggregate or better, graded. Provide aggregates from a single source.
 1. Maximum Coarse-Aggregate Size: 1-1/2 inches nominal.
 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Water: ASTM C 94/C 94M and potable.

2.5 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C 260.
- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
 1. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.

2.6 CURING MATERIALS

- A. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-

polyethylene sheet.

- B. Water: Potable.

2.7 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork.
- B. Semi-rigid Joint Filler: Two-component, semi-rigid, 100 percent solids, epoxy resin with a Type A shore durometer hardness of 80 or aromatic polyurea with a Type A shore durometer hardness range of 90 to 95 per ASTM D 2240.
- C. Bonding Agent: ASTM C 1059/C 1059M, Type II, non-re-dispersible, acrylic emulsion or styrene butadiene.
- D. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:
 - 1. Types I and II, non-load bearing or Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

2.8 CONCRETE MIXTURES

- A. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
- B. Admixtures: Use admixtures according to manufacturer's written instructions.
 - 1. Use water-reducing, high-range water-reducing, or plasticizing admixture in concrete, as required, for placement and workability.
 - 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
 - 3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.
 - 4. Use corrosion-inhibiting admixture in concrete mixtures where indicated.

2.9 CONCRETE MIXTURES FOR SITE ELEMENTS

- A. Concrete Ramps, sidewalks, and driveways: Proportion normal-weight concrete mixture as follows:
 - 1. Minimum Compressive Strength: 3500 psi at 28 days.
 - 2. Maximum Water-Cementitious Materials Ratio: 0.45.
 - 3. Slump Limit: 4 inches
 - 4. Air Content: 5.5 percent, plus or minus 1.5 percent at point of delivery for 1-1/2 inch nominal maximum aggregate size.
- B. Concrete Light Pole Foundations: Proportion normal-weight concrete mixture as follows:
 - 1. Minimum Compressive Strength: 4000 psi at 28 days.
 - 2. Maximum Water-Cementitious Materials Ratio: 0.45.
 - 3. Slump Limit: 4 inches
 - 4. Air Content: 5.5 percent, plus or minus 1.5 percent at point of delivery for 1-1/2 inch nominal maximum aggregate size.

2.10 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.11 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.
 - 1. When air temperature is between 85 and 90 degrees F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 degrees, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to

support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Limit concrete surface irregularities, designed by ACI 347 as abrupt or gradual, as follow:
 - 1. Class A, 1/8 inch for smooth-formed finished surfaces.
- D. Construct forms tight enough to prevent loss of concrete mortar.
- E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
 - 1. Install keyways, reglets, recesses, and the like, for easy removal.
 - 2. Do not use rust-stained steel form-facing material.
- F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- H. Chamfer exterior corners and edges of permanently exposed concrete.
- I. Form opening, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the work. Determine sizes and locations from trades providing such items.
- J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 REMOVING AND REUSING FORMS

- A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 degrees F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form removal operations and curing and protection operations need to be maintained.
 - 1. Leave formwork for beam soffits, joists, slabs, and other structural elements that supports weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.
 - 2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Engineer.

3.3 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

3.4 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Do not add water to concrete during deliver, at Project site, or during placement unless approved by Engineer.

- C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.
 - 1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
 - 1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
 - 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
 - 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- E. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
 - 1. When average high and low temperature is expected to fall below 40 degrees F for three successive days, maintain delivered concrete mixture temperature within the temperature ranges required by ACI 301.
- F. Hot-Weather Placement: Comply with ACI 301 and as follows:
 - 1. Maintain concrete temperature below 90 degrees F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contactor's option.
 - 2. Fog spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.5 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
 - 1. Apply to concrete surfaces not exposed to public view.
- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
 - 1. Apply to concrete surface exposed to public view, to receive a rubbed finish, to be covered with a coating, or covering a material applied directly to concrete.
- C. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.
- D. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete where indicated:
 - 1. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
 - 2. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix one-part Portland cement to one and one-half parts fine sand with a 1:1 mixture of bonding admixture and water. Add white Portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.
 - 3. Cork-Floated Finish: Wet concrete surfaces and apply a stiff grout. Mix one-part Portland cement and one part fine sand with a 1:1 mixture of bonding agent and water. Add white Portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Compress grout into voids by grinding surface. In a swirling motion, finish surface with a cork float.

3.6 FINISHING UNIFORMED SURFACES

- A. General: Comply with ACI 302.1R recommendations for screeding, re-straightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Scratch Finish: While still plastic, texture concrete surface that has been screeded and bull-floated or darbied. Use stiff brushes, brooms, or rakes to produce a profile amplitude of 1/4 inch in 1 direction.
- C. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and re-straightening until surface is left with a uniform, smooth, granular texture.
- D. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power- driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
 - 1. Finish and measure surface so gap at any point between concrete surface and an unleveled, freestanding, 10-foot-long straightedge resting on 2 high spots and placed anywhere on the surface does not exceed 3/16 inch.
- E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces indicated. While concrete is still plastic, slightly scarify surface with a fine broom.
- F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.

3.7 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.
- B. Site Furniture Base: Provide site furniture bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer providing site furniture.

3.8 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.

- B. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.
- C. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 - 1. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
 - b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
 - c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project.

3.9 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Engineer. Remove and replace concrete that cannot be repaired and patched to Engineer's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one-part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
 - 1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete. Limit cut depth to 3/4 inch. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.

2. Repair defects on surfaces exposed to view by blending white Portland cement and standard Portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
 3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Engineer.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
 2. After concrete has cured at least 14 days, correct high areas by grinding.
 3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
 4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
 5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
 6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to Engineer's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Engineer's approval.

3.10 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Contractor will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports. Reports are to be provided to the Engineer.
- B. Inspections:
 1. Steel reinforcement placement.
 2. Headed bolts and studs.
 3. Verification of use of required design mixture.
 4. Concrete placement, including conveying and depositing.
 5. Curing procedures and maintenance of curing temperature.
 6. Verification of concrete strength before removal of shores and forms from beams and slabs.
- C. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
 1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
 2. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. or fraction thereof of each concrete mixture placed each day.
 - a. When frequency of testing will provide fewer than five compressive-

strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.

3. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
4. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
5. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 degrees F and below and when 80 degrees F and above, and one test for each composite sample.
6. Unit Weight: ASTM C 567, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
7. Compression Test Specimens: ASTM C 31/C 31M.
 - a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
 - b. Cast and field cure two sets of two standard cylinder specimens for each composite sample.
8. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
 - a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
 - b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
9. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
10. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.

11. Test results shall be reported in writing to Engineer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
12. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Engineer but will not be used as sole basis for approval or rejection of concrete.
13. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Engineer. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Engineer.
14. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
15. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

PART 4 - MEASUREMENT

- A. Concrete – No direct payment will be made for this item. Concrete will be measured as part of pay items where concrete is required.

PART 5 - PAYMENT

- A. Payment for items covered by this specification will be made at the contract unit price under Pay Items 4 Pole Foundation and Item 8 Concrete Flatwork.

END OF SECTION 033000

SECTION 260553 – IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Identification for conductors.
 - 2. Underground-line warning tape.
 - 3. Miscellaneous identification products.

1.2 SUBMITTALS

- A. Product Data: For each electrical identification product indicated.

1.3 QUALITY ASSURANCE

- A. Comply with ANSI A13.1.
- B. Comply with NFPA 70.
- C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.
- D. Comply with ANSI Z535.4 for safety signs and labels.
- E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

PART 2 - PRODUCTS

2.1 CONDUCTOR IDENTIFICATION MATERIALS

- A. Color-Coding Conductor Tape: Colored, self-adhesive vinyl tape not less than 3 mils (0.08 mm) thick by 1 to 2 inches (25 to 50 mm) wide.
- B. Self-Adhesive Vinyl Labels: Preprinted, flexible label laminated with a clear, weather- and chemical-resistant coating and matching wraparound adhesive tape for securing ends of legend label.

2.2 UNDERGROUND-LINE WARNING TAPE

A. Tape:

1. Recommended by manufacturer for the method of installation and suitable to identify and locate underground electrical lines (detectable warning tape).
2. Printing on tape shall be permanent and shall not be damaged by burial operations.
3. Tape material and ink shall be chemically inert, and not subject to degrading when exposed to acids, alkalis, and other destructive substances commonly found in soils.

B. Color and Printing:

1. Comply with ANSI Z535.1 through ANSI Z535.5.
2. Inscriptions for Red-Colored Tapes: ELECTRIC LINE, HIGH VOLTAGE.

C. Tag:

1. Pigmented polyolefin, bright-colored, compounded for direct-burial service.
2. Thickness: 4 mils (0.1 mm).
3. Weight: 18.5 lb/1000 sq. ft. (9.0 kg/100 sq. m).
4. 6-Inch (75-mm) Tensile According to ASTM D 882: 30 lbf (133.4 N), and 2500 psi (17.2 MPa).

2.3 MISCELLANEOUS IDENTIFICATION PRODUCTS

- A. Paint: Comply with requirements in painting Sections for paint materials and application requirements. Select paint system applicable for surface material and location (exterior or interior).
- B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Location: Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment.

- B. Apply identification devices to surfaces that require finish after completing finish work.
- C. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.
- D. Attach signs and plastic labels that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.
- E. System Identification Color-Coding Bands for Raceways and Cables: Each color-coding band shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side. Locate bands at ends, in each box, and hanhole.
- F. Underground-Line Warning Tape: During backfilling of trenches install continuous underground-line warning tape directly above line at 6 to 8 inches (150 to 200 mm) below finished grade. Use multiple tapes where width of multiple lines installed in a common trench exceeds 16 inches (400 mm) overall.

3.2 IDENTIFICATION SCHEDULE

- A. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use color-coding conductor tape to identify the phase.
 - 1. Color-Coding for Phase and Voltage Level Identification, 600 V or Less: Use colors listed below for ungrounded service, feeder and branch-circuit conductors.
 - a. Color shall be factory applied or field applied for sizes larger than No. 8 AWG, if authorities having jurisdiction permit.
 - b. Colors for 240/120-V Circuits:
 - 1) Phase A: Black.
 - 2) Phase B: Red.
 - 3) Phase C: Blue.
 - c. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches (150 mm) from terminal points and in boxes where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding. Locate bands to avoid obscuring factory cable markings.
- B. Install instructional sign including the color-code for grounded and ungrounded conductors using adhesive-film-type labels.

- C. Conductors to Be Extended in the Future: Attach marker tape to conductors and list source.
- D. Locations of Underground Lines: Identify with underground-line warning tape for power, lighting, and control wiring.
 - 1. Install underground-line warning tape for both direct-buried cables and cables in raceway.

PART 4 - MEASUREMENT

- A. Identification for Electrical Systems: No direct payment will be made for this item, it shall be included as part of other pay items. This shall encompass all labor, materials, equipment, overhead, and profit to complete and install.

PART 5 – PAYMENT

- A. Payment for items covered by this specification will be made at the contract unit price under Pay Item 3 Pull Box, Pay Item 4 Pole Foundation per Each, and Pay Item 6 Raceway per Linear Foot.

END OF SECTION 260553

SECTION 260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.

1.2 RELATED SECTIONS:

- 1. Section 260500 Common Work Results for Electrical
- 2. Section 260533 Identification for Electrical Systems
- 3. Section 312333 Trenching and Backfilling
- 4. Section 330523 Utility Horizontal Directional Drilling

1.3 SUBMITTALS

- A. Product Data: For raceways, pull boxes, and junction boxes.
- B. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, details, and attachments to other work.

1.4 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 METAL CONDUIT AND TUBING

- A. Rigid Steel Conduit: ANSI C80.1.
- B. IMC: ANSI C80.6.

- C. Fittings for Conduit: NEMA FB 1; listed for type and size raceway with which used, and for application and environment in which installed.

2.2 NONMETALLIC CONDUIT AND TUBING

- A. RNC: NEMA TC 2 Type EPC-40-PVC or NEMA TC-7 Type HDPE unless otherwise indicated.
- B. Fittings for RNC: NEMA TC 3; match to conduit or tubing type and material.

2.3 BOXES, ENCLOSURES, AND CABINETS

- A. Nonmetallic direct burial Junction Boxes: ASTM D-2444, D-570, manufactured of polymer concrete, Quazite or equivalent. Refer to drawings for specific box requirements.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

- A. Outdoors: Apply raceway products as specified below, unless otherwise indicated:
 - 1. Exposed Conduit: Rigid steel conduit, RGSC
 - 2. Underground Conduit: RNC, Type EPC-40-PVC, Type HDPE, direct buried.
- B. Minimum Raceway Size: 2-inch trade size unless otherwise noted.
- C. Raceway Fittings: Compatible with raceways and suitable for use and location.
 - 1. Rigid Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.

3.2 INSTALLATION

- A. Comply with NECA 1 for installation requirements applicable to products specified in Part 2 except where requirements on Drawings or in this Article are stricter.
- B. Complete raceway installation before starting conductor installation.

- C. Arrange stub-ups so curved portions of bends are not visible above the finished grade.
- D. Install no more than the equivalent of three 90-degree bends in any conduit run except for communications conduits, for which fewer bends are allowed.
- E. Raceways below Slabs:
 - 1. Change from Type EPC-40-PVC to rigid steel conduit before rising above grade.
- F. Install pull lines in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb (90-kg) tensile strength. Leave at least 12 inches (300 mm) of slack at each end of pull line.
- G. Set nonmetallic junction boxes level and flush with finished grade or pavement surface.

3.3 INSTALLATION OF UNDERGROUND CONDUIT

- A. Direct-Buried Conduit:
 - 1. Excavate trench bottom to provide firm and uniform support for conduit. Prepare trench bottom with sand for pipe less than 6 inches (150 mm) in nominal diameter.
 - 2. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches (300 mm) of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction.
 - 3. Install manufactured duct elbows for stub-ups at junction boxes and equipment unless otherwise indicated. Encase elbows for stub-up ducts throughout the length of the elbow.
 - 4. Install manufactured rigid steel conduit elbows for stub-ups at power poles.
 - a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches (75 mm) of concrete.
 - 5. Install warning tape per section 26 05 53.
- B. Directional Bore:
 - 1. Directional boring/drilling should be used where open cut would require removing large areas of paving and/or sidewalks.

2. Contractor has the option to install underground conduit using directional boring/drilling methods or open cut in areas without paving. Comply with industry standard installation practices.

PART 4 - MEASUREMENT

- A. Raceways and Boxes: No direct payment will be made for this item, it shall be included as part of other pay items. This shall encompass all labor, materials, equipment, overhead, and profit to complete and install.

PART 5 – PAYMENT

- A. Payment for items covered by this specification will be made at the contract unit price under Pay Item 3 Pull Box, Pay Item 4 Pole Foundation per Each, and Pay Item 6 Raceway per Linear Foot.

END OF SECTION 260533

SECTION 260526 - GROUNDING AND BONDING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Grounding systems and equipment.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Field quality-control reports.

1.3 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.1 CONDUCTORS

- A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.
- B. Tin Coated Bare Copper Conductors:
 - 1. Solid Conductors: ASTM B 3.
 - 2. Stranded Conductors: ASTM B 8.
 - 3. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.

2.2 CONNECTORS

- A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.

- B. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

2.3 GROUNDING ELECTRODES

- A. Ground Rods: Copper-clad steel 5/8 inch diameter by 120 inches long (10').

PART 3 - EXECUTION

3.1 APPLICATIONS

- A. Conductors: Install solid conductor for No. 10 AWG and smaller, and stranded conductors for No. 8 AWG and larger unless otherwise indicated.
- B. Conductor Terminations and Connections:
 - 1. Underground Connections: Welded connectors.
 - 2. Connections to Ground Rods: Welded connectors.

3.2 EQUIPMENT GROUNDING

- A. Install insulated equipment grounding conductors as required by NFPA 70:
- B. Metal Poles Supporting Outdoor Lighting Fixtures: Install grounding electrode and a separate insulated equipment grounding conductor in addition to grounding conductor installed with branch-circuit conductors.

3.3 INSTALLATION

- A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- B. Ground Rods: Drive rods until tops are 12 inches (50 mm) below final grade unless otherwise indicated.
 - 1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.
- C. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.

1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
2. Use exothermic-welded connectors for outdoor locations.

3.4 LABELING

- A. Comply with requirements in Division 26 Section "Electrical Identification" Article for instruction signs. The label or its text shall be green.
 1. Label Text: "If this connector or cable is loose or if it must be removed for any reason, notify the facility manager."

3.5 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections and prepare test reports:
 1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
 2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.
 3. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, and at ground test wells. Make tests at ground rods before any conductors are connected.
- B. Report measured ground resistances that exceed the following values:
 1. Power and Lighting Equipment or System with Capacity of 500 kVA and Less: 25 ohms.
- C. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

PART 4 - MEASUREMENT

- A. Grounding and Bonding Pay Item. No direct payment will be made for this item, it shall be included as part of Pay Item 4 Pole Foundation. This will encompass all labor, materials, equipment, overhead, and profit to complete and install.

PART 5 – PAYMENT

- A. Payment for items covered by this specification will be made at the contract unit price under Pay Item 4 Pole Foundation per Each.

END OF SECTION 260526

SECTION 260500 - BASIC ELECTRICAL REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

- A. This section is an extension of the General Requirements (DIVISION 1 of these Specifications) and certain items of a common or administrative nature that pertain to all electrical work.
- B. The work of this section consists of furnishing materials, equipment, constant competent supervision, special tools, test equipment, technicians, and labor necessary for installation of a complete working electrical system as indicated herein and on the Drawings.
- C. The work shall include but not necessarily be limited to the following:
 - 1. Installation of lighting pole foundations
 - 2. Installation of conduit and boxes
 - 3. Electrical work incidental to the requirements of other divisions.
 - 4. Raceways and fittings.
 - 5. Grounding.

1.2 QUALITY ASSURANCE

- A. The electrical installation shall conform to the requirements of the 2020 edition of the National Electrical Code (NEC). Notify Architect/Engineer of conflicts before performance.
- B. Electrical material shall be built and tested in accordance with the applicable standards of the National Electrical Manufacturers' Association (NEMA), the American National Standards Institute (ANSI) the American Society for Testing and Materials (ASTM), and the Institute of Electrical and Electronic Engineers (IEEE)
- C. Electrical materials shall be new and unused and shall be listed and labeled for the service intended by Underwriters' Laboratories, Inc., where such labeling service is available.
- D. All electrical equipment such as switchboards, panelboards, control panels, disconnects, etc. shall be labeled to identify potential electric arc flash hazards in compliance with the requirements of NFPA 70E-2018 "standard for electrical safety in the workplace" and ANSI Z535.4.-1998 "product safety signs and labels".

- E. Applicable sections of the following codes and standards shall also be followed:
1. NFPA - National Fire Protection Association including NFPA-101, Life Safety Code.
 2. OSHA Code of Federal Regulations (for construction practices).
 3. International Building Code (latest edition) as adopted by the State of Louisiana.
 4. Applicable state and local codes/ordinances.
 5. CBM - Certified Ballast Manufacturer
 6. IPCEA - Insulated Power Cable Engineers' Association
 7. FM - Factory Mutual
 8. ETL - Electrical Testing Laboratories
 9. IES - Illuminating Engineering Society
 10. NECA – National Electrical Contractors Association
- F. Include all items of labor and materials required to comply with the above referenced codes and standards. Where quantities, sizes, or other requirements indicated on Drawings or herein specified are in excess of the requirements of the standards and codes, the Specifications or Drawings shall govern.

1.3 REGULATORY REQUIREMENTS

- A. Permits: Obtain and pay for all necessary permits, inspections, connection charges, fees, insurance, bond, licenses, and comply with all governing laws, ordinances, rules and regulations including those of the National Fire Protection Association and all municipal, state or other authority having jurisdiction over the work.
- B. Certificates of Inspection: Upon completion and before the date of substantial completion of each designated Phase, furnish a certificate of inspection issued by the proper authorities to the effect that the installation is in full conformity with all local and state requirements.

1.4 COORDINATION

- A. Lay out the work and be responsible for its correctness. Take such measurements as may be necessary to assure approved fitting and proper installation of work, and all other work depending thereon.
- B. Arrange work in a neat, well organized manner with exposed conduit and similar services running parallel with primary lines of the building construction, high as possible with a minimum of 8'-0" overhead clearance or as directed by the Architect/Engineer.
- C. Perform all work in the best and most substantial manner by workmen skilled in the work to be done. Provide adequate supervision at all times.

- D. Cooperate with other contractors to avoid complications between the installation of the various items of equipment. Advise other trades of openings required in their work for the subsequent move-in of large units of electrical equipment.
- E. Locate operating and control equipment properly to provide easy access, and arrange entire electrical work with adequate access for operation and maintenance.
- F. Where the method of installation is not certain, ask for details. Lack of details, not requested, will not be an excuse for improper installation, and any such work must be corrected at the contractor's expense.
- G. Coordination Drawings: For locations where several elements of electrical or combined mechanical and electrical work must be sequenced and positioned with precision in order to fit into the available space, prepare coordination drawings showing the actual physical dimensions (at accurate scale, minimum 1/4") required for the installation. Prepare and submit coordination drawings prior to purchase-fabrication-installation of any of the elements involved in the coordination.
- H. All Bidders shall be responsible to ensure that equipment selected, switchboards, panelboards, etc., fit in spaces selected, along with NEC compliance. If standard equipment does not fit, Contractor shall be required to utilize custom equipment as required.

1.5 DRAWINGS AND SPECIFICATIONS

- A. Contract Documents (Drawings and Specifications) are intended to convey the scope of work and indicate general arrangements of equipment, fixtures and piping, and approximate sizes and locations of equipment and outlets. Follow these documents in laying out the work, check all Drawings to become familiar with all conditions affecting the work, and verify spaces in which the work will be installed.
- B. The contract documents are diagrammatic in showing certain but not all, physical relationships which must be established within the electrical work. Its interface with other work including plumbing, fire protection and mechanical work, is the exclusive responsibility of the Contractor. The Drawings show approximate locations only of selected feeders, branch circuits, outlets, etc., except where specific routing or dimensions are indicated. The Architect/Engineer reserves the right to make reasonable changes in locations indicated before roughing-in without additional cost to the Owner.
- C. Because of the small scale of the Drawings, it is not possible to indicate all of the offsets, fittings, and accessories required. Contractor shall investigate the

structural and finish conditions affecting DIVISION 26 work and shall arrange such work accordingly, furnishing fittings, bends, junction boxes, pull boxes, access panels, and accessories required to meet such conditions.

- D. These Specifications, together with the accompanying Drawings, contemplate apparatus fully erected, and in satisfactory operating condition with the Contractor furnishing and installing everything that may be necessary to complete the job.

1.6 SUBMITTALS

- A. Refer to DIVISION 1 for Submittal Requirements. The following paragraphs are an extension of DIVISION 1 requirements.
- B. Review of shop drawings shall in no way modify the contract or relieve the Contractor from compliance with the contract.
- C. Names of manufacturers or catalog numbers are listed in the Specification in order to establish a standard for the type, general design and quality of the product required. Where "or equal" is indicated, other products similar in design and of equal quality and complying with the Drawings and Specifications will be considered for acceptance. See DIVISION 1 specifications.
- D. Any item not specified herein, but submitted as a substitute for the specified item, shall be submitted in accordance with DIVISION 1 specifications and accompanied by manufacturer's documentation stating/illustrating the following applicable information in addition to the specific information requested in other sections:
 - 1. Dimensions/weight.
 - 2. Electrical ratings-voltage, amperage, short circuit capability, etc.
 - 3. Construction - gauge of steel/aluminum, paint finish / application method, color, NEMA type, etc.
 - 4. Warranty.
 - 5. Local manufacturer's representative or nearest stocking distributor.
 - 6. Length of time the product has been available to the public.
 - 7. Any deviations.
- E. Shop Drawings:

1. Listed below are shop drawings required for transmittal. Refer to DIVISION 1 for scheduling of submittal. No time delays will be allowed for failure to be so informed.
 - a. Raceways including fittings and expansion fittings
 - b. Conductors and wire (grounding)
 - c. Conduit Layout Drawings w/ Dimensions
 - d. Pull boxes and junction boxes
 - e. Grounding components
2. Further descriptions or information required with shop drawings shall be included with the description of materials specified herein as follows:
 - a. Grounding Products: Include a complete grounding system diagram with materials and ground conductor sizes.
 - b. Housekeeping Pads: Include location and dimensions of housekeeping pads, including block outs and anchor bolts.
 - c. In preparing shop drawings, establish lines and levels for the work specified and check the drawings to avoid interference with structural features, and the work of other trades. Immediately call to the attention of the Architect/Engineer in writing any interferences for clarification.
 - d. Detailed, dimensioned shop drawing for the installation of any conduits to be installed underground. All feeder conduits, lighting conduits, power conduits and system conduits that will be sleeved through slabs. Include all proposed core drill locations for review by the Structural Engineer. These shop drawings shall be new drawings prepared by the contractor and shall show all conduit rating, locations where conduits are exiting slab. All junction boxes and concrete rings shall have dimensioned locations. Coordinate conduit "turn-up" or turn downs" with Architect/Engineer. Drawings to ensure all conduits will be concealed either in the slab or in the walls.
3. Corrections or comments made on shop Drawings during the review do not relieve the Contractor from compliance with requirements of the contract documents. Shop Drawings will be checked for general conformance with the design concept of the project and general compliance with information given in the contract documents. Review of the shop Drawings shall not relieve the Contractor from responsibility for confirming and correlating all quantities and dimensions, coordinating work with that of all other trades, and performing work in a safe and satisfactory manner. Review of shop Drawings shall not permit any deviation from Drawings and Specifications. Shop Drawings must be accompanied by signed statement from contractor, stating that he has reviewed the submittal and checked it for compliance.
4. Contractor shall provide products as specified if submittals for review of materials are not received within thirty (30) days after award of the Contract.

1.7 PROTECTION OF APPARATUS

- A. At all times the Contractor shall take precautions necessary to protect his apparatus from damage. Failure on the part of the Contractor to comply with the above to the Architect/Engineer's satisfaction shall be sufficient cause for the rejection of the particular piece of apparatus in question.

1.8 PROJECT/SITE CONDITIONS

- A. Visit the site before bidding to become familiar with conditions under which the work will be performed.
- B. No additional compensation will be allowed for failure to be so informed.

1.9 CUTTING AND PATCHING

- A. Do all cutting, fitting, and all other work that may be required to make the several parts come together and fit. Cutting for equipment entry shall be under other DIVISIONS. Do not endanger any work by cutting, digging, or otherwise, and do not cut or alter the work of any other DIVISIONS, except with the consent of the Architect/Engineer. Cutting shall be done under the supervision of the Project Superintendent. Patching, including patching of bonded roofing, shall be performed under DIVISION 1.
- B. Provide, properly located and sized, all required chases, shafts, openings, furred spaces, etc., required for the work or to conceal any of the work, in any part of the structure.
- C. It is the responsibility of this DIVISION to coordinate with other responsible DIVISIONS for required cutting and patching.

1.10 RECORD DRAWINGS

- A. Prepare Record Drawings in accordance with the requirements in DIVISION 1.
- B. In addition to the requirements specified in DIVISION 1, indicate the following installed conditions:
 - 1. Pole foundation locations dimensioned from prominent building lines, permanent benchmarks, curbs, etc.
 - 2. Approved substitutions, Contract Modifications, and actual equipment and materials installed.
 - 3. Contract Modification, actual equipment and materials installed.

4. Complete As-Built Drawings of DIVISION 26 work shown and not shown on the contract drawings in the new and existing facilities.

1.11 WARRANTY/GUARANTEE

- A. Except where longer periods of warranty are specified, guarantee all labor and materials for a period of twelve (12) months from the date of substantial completion of the particular phase of the work. Repair all defective materials and work; replace with new materials and/or equipment, any material and/or equipment failing to give satisfactory service.
- B. During the period of guarantee, promptly correct any defects in equipment, materials or workmanship without cost to the Owner.
- C. Guarantee includes equipment capacity and performance ratings specified without excessive noise levels. Any deficiencies in equipment specified shall be promptly corrected.
- D. Contractor's warranty shall include an inspection of the system one (1) week before the end of the one (1) year warranty period. Replace or repair any items found to be defective at this time.

1.12 TESTS AND BALANCING

- A. At such times as the Engineer / Owner directs, conduct operating tests to demonstrate that the electrical systems are installed and will operate properly and in accordance with the requirements of this Specification. Tests shall be performed in the presence of the Owner's representative. Furnish instruments and personnel required for such tests.
- B. Any work and materials tested and found varying from the requirements of the Drawings and Specifications shall be replaced without additional cost to the Owner.
- C. This section does not relieve the Contractor from testing equipment installed under this DIVISION but not listed in this section. Contractor is required to test all equipment, feeders, etc., installed under this DIVISION.

PART 2 PRODUCTS

2.1 GENERAL

- A. Refer to DIVISION 1 sections for general requirements on products, materials and equipment. The provisions outlined below expand or modify the

requirements as applicable to electrical work. Refer to other DIVISION 26 sections for additional requirements.

- B. Materials and equipment shall conform in all respects to the requirements set forth in these Specifications and the accompanying Drawings.
- C. Provide products which are compatible with other products of the electrical work, and with other work requiring interface with the electrical work, including electrical connections and control devices. For exposed electrical work, coordinate colors and finishes with the Architect/Engineer and as referenced elsewhere in the documents. Determine in advance of purchase that equipment and materials proposed for installation will fit into the confines indicated, leaving adequate clearance as required by applicable codes, and for adjustment, repair, or replacement.

2.2 MANUFACTURERS' NAMEPLATES

- A. Each major component of the equipment shall have the manufacturer's name, address, model number, and rating on a plate securely affixed in a conspicuous place. The nameplate of a distributing agent will not be acceptable. NEMA Code ratings, or other data which are die-stamped into the surface of the equipment shall be stamped in an easily visible location.

PART 3 EXECUTION

3.1 GENERAL

- A. Visit the building / project site before bidding to determine existing conditions and assume all responsibility and bear all expenses in allowing for these conditions in the bid.
- B. Obtain all necessary permits, pay all legal fees and charges, pay all utility charges, and comply with all state and local building codes and safety laws, ordinances and regulations relating to the building and public health and safety. Refer to DIVISION 1 for utility construction demolition, installation, and service connection charge allowances.
- C. No work shall be concealed until approved by the local inspector and all local regulations are adhered to.
- D. Upon completion, a certificate of approval from the appropriate regulatory agency shall be furnished to the Architect/Engineer.
- E. Cooperate with other trades in installing work in order that there will be no conflict of space required by conduit, piping, ducts, outlets, etc. If an interference

develops, it shall be referred to the Architect/Engineer for a decision as to which equipment, piping, conduit, etc., is to be relocated. Such relocations shall be made without additional cost to the Owner.

- F. Study all sections of the Specifications and Drawings. Notify Architect/Engineer of conflict between Drawings and Specifications before bidding. The Architect/Engineer's decision will govern.
- G. Electrical Drawings are diagrammatic except where dimensioned. Do not scale. Follow manufacturer's certified shop drawings for accuracy. Consult Architect / Engineer in cases of doubt or conflict. Unless noted as fixed, dimensions are based on the product of one (1) manufacturer. Verify dimensions with certified shop Drawings of the materials actually approved and purchased.

3.2 TEMPORARY WIRING, LIGHTING AND POWER AT THE SITE

- A. Refer to DIVISION 1 specifications for required temporary utilities and services for this project. Furnish and install provisions for required temporary utilities and services to conform with DIVISION 1 specifications and this DIVISION and these specifications.
- B. Furnish and install provisions for temporary electrical service and construction light and power during the construction period conforming to the contract documents, all local code and State labor law requirements. Temporary light and power provisions to be included shall be furnished by Contractor.
- C. Contractor is responsible for furnishing any temporary power that Contractor may need. Owner will not furnish temporary power.

3.3 WIRING FOR EQUIPMENT BY OTHERS

- A. Electrical wiring installation and connection is by others.
- B. Electrical work for equipment specified in other divisions shall be as specified.
- C. Raceways, cabinets, grounding connections, handholes, underground distribution system, and other roughing-in indicated shall be provided as work of this DIVISION.

3.4 WORKMANSHIP

- A. Install all materials and electrical components of the work in accordance with instructions of manufacturer following the best modern construction practices and conforming with the Contract Documents. Workmanship shall be first class, in both function and appearance, whether finally concealed or exposed and shall be performed by experienced workmen skilled in the type of work. As

practicable, the lines of all components of the system shall be perpendicular or parallel. In general, workmanship shall conform to guidelines set forth in N.E.C.A. manuals.

3.5 CLEANING UP

- A. Remove once per week and at the completion of the work all empty cartons, scrap wire, raceways, rubbish, etc., accumulated on the project as a result of work performed.
- B. Remove all marks, stains, fingerprints, bugs, dust and other foreign material from all electrical components. Refinish damaged surfaces and restore original finish to the satisfaction of the Architect/Engineer.

3.6 SAFETY

- A. It shall be the Contractor's responsibility to do all things necessary in the pursuit of the installation or testing to provide safe conditions in which to work.

PART 4 MEASUREMENT

- A. No direct payment will be made for items covered by this specification, it shall be included as part of other pay items. This will encompass all labor, materials, equipment, overhead, and profit to complete and install.

PART 5 PAYMENT

- A. Payment for items covered by this specification will be made at the contract unit price under Pay Item 3 Pull Box, Pay Item 4 Pole Foundation, and Pay Item 6 Raceway.

END OF SECTION 260500

SECTION 311000 - SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Lawn Removal
 - a. Clearing and grubbing
 - b. Stripping and stockpiling topsoil.
2. Protecting existing vegetation to remain.

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.3 MATERIAL OWNERSHIP

- A. Except for materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.4 FIELD CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
 1. Comply with Section 01555 "Traffic Control and Coordination".
- B. Salvageable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.
 1. Special consideration is necessary in the removal of historic components designated for reuse. This includes, but is not limited to, brass and tile street plaques present at several intersections within the project area.
- C. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.
- D. Do not commence site clearing operations until temporary erosion- and sedimentation-control and tree-protection measures are in place.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Section 329115.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Protect existing site improvements to remain from damage during construction.
 - 1. Restore damaged improvements to their original condition, as acceptable to Owner and Engineer.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.
- B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
- D. Remove erosion and sedimentation controls, and restore and stabilize areas disturbed during removal.

3.3 EXISTING UTILITIES

- A. Locate, identify, and protect underground and overhead utilities to avoid damage and interruption of services.
 - 1. Arrange with utility companies to locate utilities.

- B. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others, unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Engineer and Owner not less than two days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Owner's and Engineer's written permission.

3.4 CLEARING AND GRUBBING

- A. Remove obstructions, sod, and other vegetation to permit installation of new construction.
 - 1. Use only hand methods or air spade for grubbing within protection zones.
- B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
 - 1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to a density equal to adjacent original ground.

3.5 TOPSOIL STRIPPING

- A. Remove sod and grass before stripping topsoil.
- B. Strip topsoil to 6" in a manner to prevent intermingling with underlying subsoil or other waste materials.
- C. Stockpile topsoil away from edge of excavations without intermixing with subsoil or other materials. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.

3.6 SITE IMPROVEMENTS

- A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.

3.7 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.
- B. Separate recyclable materials produced during site clearing from other

nonrecyclable materials. Store or stockpile without intermixing with other materials, and transport them to recycling facilities. Do not interfere with other Project work.

PART 4 - MEASUREMENT

- A. Lawn Removal – No direct payment will be made for this item. Measurement will be by square yard (SY) and included as part of Pay Item 10 Sodding. This will encompass all labor, materials, overhead, and profit to complete thorough demolition and removal of existing site features required to install underground raceway.

PART 5 - PAYMENT

- A. Payment for items covered by this specification will be made at the contract unit price under Pay Item 10 Sodding.

END OF SECTION 311000

SECTION 312333 - TRENCHING AND BACKFILLING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. This WORK shall consist of all labor, equipment, and materials necessary for excavation, trenching, and backfilling for utility lines and other related WORK.

1.2 RELATED SECTIONS

- A. The following is a list of SPECIFICATIONS which may be related to this section:
 - 1. Section 311000 Site Clearing
 - 2. Section 329115 Soil Preparation
 - 3. Section 329200 Turf and Grasses
 - 4. DIVISION 26

1.3 MEASUREMENT AND PAYMENT

- A. MEASUREMENT: Trenching and Backfilling shall be measured by the Linear Foot. This Shall encompass all labor, materials, overhead, and profit to complete and install, including, but not limited to, excavation, equipment, accessories, tests, and backfill.
- B. PAYMENT: Trenching and Backfilling – Payment for items covered by this specification will be made at the contract unit price under Pay Item 5 Trenching per Linear Foot.

1.4 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
 - 1. ASTM International (ASTM):
 - a. D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft³ (600 kN-m/m³)).
 - b. D4253, Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.

2. Occupational Safety and Health Administration (OSHA).

1.5 SUBMITTALS

- A. Submit certification that bedding and pipe zone material meets SPECIFICATION.

PART 2 PRODUCTS

2.1 MATERIALS

A. Muck Excavation:

1. Muck excavation shall also include the replacement of excavated muck with uniformly graded rock ranging from three-quarter (3/4) inch to one and one-half (1-1/2) inches or as required by ENGINEER.
2. ENGINEER shall determine which type of aggregate or other material shall be used after observing the specific site conditions.

B. Bedding and Pipe Zone Materials:

1. Well-Graded Sand:

Sieve	Total Percent Passing by
$\frac{3}{8}$ - inch	100
No. 4	95 - 100
No. 8	80 - 100
No. 16	50 - 85
No. 30	25 - 60
No. 50	10 - 30
No. 100	2 - 10

2. Squeegee Sand:

Sieve	Total Percent Passing by
$\frac{3}{8}$ - inch	100
No. 200	0 - 5

- a. It shall be the responsibility of CONTRACTOR to locate material meeting the SPECIFICATIONS, to test its ability to consolidate to at least seventy- five percent (75%) relative density, and to secure approval of ENGINEER before such material is delivered to the PROJECT.
- b. Relative density shall be determined as stipulated in ASTM D4253.

C. Backfill:

1. Use only backfill for trenches which is free from rocks, large roots, other vegetation or organic matter, and frozen material.
2. No rocks greater than three (3) inches in diameter shall be allowed.

D. Cut-Off Walls:

1. Clay Cut-Off Walls: More than fifty percent (50%) shall pass a No. 200 Sieve. The plasticity index shall be greater than twelve (12).
2. Controlled Low Strength Material Backfill: (Flo-Fill, See Section 31 23 23, Flowable Fill).

PART 3 EXECUTION

3.2 GENERAL

- A. The following procedures shall be followed by CONTRACTOR in sequencing the WORK:
 1. No more than one hundred fifty (150) feet of trench shall be left open at any time.

2. The entire trench shall be backfilled to within fifty (50) feet of the open trench upon conclusion of each day's WORK.
 3. The trench shall not be backfilled until the pipe installation is found acceptable by ENGINEER.
 4. Trench shall be backfilled within one hundred (100) feet of the pipe installation at all times.
 5. Clean-up shall be maintained within four hundred (400) feet of the trench excavation.
- B. Prior to placement in the trench, all pipes, fittings, and appurtenances shall be cleaned and examined for defects by CONTRACTOR.
1. If found defective, CONTRACTOR shall reject the defective pipe, fitting, or appurtenance.
 2. CONTRACTOR shall advise ENGINEER of all defective materials.
- C. Surplus Excavation:
1. All surplus excavation shall be placed, in an orderly manner.
 2. If material is stockpiled on private property, written permission shall be obtained from the property owner and provided to ENGINEER.

3.3 OBSTRUCTIONS AND DISPOSAL OF WASTE MATERIAL

- A. CONTRACTOR shall remove obstructions that do not require replacement from within the trench or adjacent areas such as tree roots, stumps, abandoned piling, buildings and concrete structures, frozen material, logs, and debris of all types without additional compensation.
- B. ENGINEER may, if requested, make changes in the trench alignment to avoid major obstructions, if such alignment changes can be made within the WORK limits without adversely affecting the intended function of the facility.
- C. Excavated materials unsuitable for backfill or not required for backfill shall be disposed of in accordance with local regulations.

3.4 TRENCH EXCAVATION

- A. All existing asphalt or concrete surfacing shall be saw cut vertically in a straight line, and removed from the job site prior to starting the trench excavation. This material shall not be used in any fill or backfill.
- B. Clearance:
 - 1. The trench shall be excavated so that a minimum clearance of six (6) inches is maintained on each side of the pipe for proper placement and densification of the bedding or backfill material.
 - 2. The maximum clearance measured at the spring line of the pipe shall be eighteen (18) inches regardless of the type of pipe, type of soil, depth of excavation, or the method of densifying the bedding and backfill.
- C. Except as otherwise dictated by construction conditions, the excavation shall be of such dimensions as to allow for the proper pipe installation and to permit the construction of the necessary pipe connections.
- D. Care shall be taken to ensure that the excavation does not extend below established grades.
 - 1. If the excavation is made below such grades, the excess excavation shall be filled in with sand or graded gravel deposited in horizontal layers not more than six (6) inches in thickness after being compacted and shall be moistened as required to within two percent (2%) of the optimum moisture content required for compaction of that soil.
 - 2. After being conditioned to have the required moisture content, the layers shall be compacted to the required density.
- E. CONTRACTOR shall stockpile excavated materials in a safe manner. Stockpiles shall be graded for proper drainage.
- F. CONTRACTOR shall place and grade the trench base to the proper grade ahead of pipe laying. The invert of the trench shall be compacted to provide a firm unyielding support along entire pipe length.
- G. Surplus excavation shall be disposed of by CONTRACTOR at CONTRACTOR's expense.

3.5 PROTECTION

- A. Sheet piling and Shoring:

1. CONTRACTOR shall protect excavations by shoring, bracing, sheet piling, underpinning, or other methods required to prevent any excessive widening or sloughing of the trench which may be detrimental to human safety, to the pipe or appurtenances being installed, or to existing facilities or structures.
2. The latest requirements of OSHA shall be complied with at all times including trenching and confined space entry requirements.
3. CONTRACTOR shall be responsible for underpinning adjacent structures which may be damaged by excavation WORK, including service utilities and pipe chases.

B. Weather and Frost:

1. CONTRACTOR shall protect bottom of excavations and soil adjacent to and beneath foundations from frost.
2. Do not place backfill, fill, or embankment on frozen surfaces.
3. Do not place frozen materials, snow, or ice in backfill, fill, or embankments.
4. Do not deposit, tamp, roll, or otherwise mechanically compact backfill in water.

C. Drainage and Groundwater:

1. The excavation shall be graded to prevent surface water runoff into trench or excavation.
2. Maintain excavations and trenches free from water during construction.
3. Remove water encountered in trenches to the extent necessary to provide a firm subgrade, to permit joints to be made in the dry, and to prevent the entrance of water into the pipeline.
4. Divert surface runoff and use sumps, gravel blankets, well points, drain lines, or other means necessary to accomplish the above.
5. Maintain the excavation or trench free from water until the structure, or pipe to be installed therein, is completed to the extent that no damage from hydrostatic pressure, flotation, or other cause will result.

6. Prevent water from entering into previously constructed pipe.
7. Do not use the pipe under construction for dewatering.

3.6 FOUNDATIONS ON UNSTABLE SOILS

- A. If the bottom of the excavation is soft or unstable, and in the opinion of ENGINEER, cannot satisfactorily support the pipe or structure, a further depth and width shall be excavated and refilled to six (6) inches below grade with rock or other approved material, uniformly graded between three-quarter (3/4) inch and one and one-half (1-1/2) inches to provide a firm foundation for the pipe or structure. From six (6) inches below grade to grade, the appropriate bedding material shall be placed to provide support for the pipe or structure.

3.7 PIPE BEDDING

- A. After completion of the trench excavation and proper preparation of the foundation, six (6) inches of bedding material shall be placed on the trench bottom for support under the pipe.
- B. Bell holes shall be dug deep enough to provide a minimum of two (2) inches of clearance between the bell and the bedding material.
- C. All pipes shall be installed in such a manner as to ensure full support of the pipe barrel over its entire length.
- D. After the pipe is adjusted for line and grade and the joint is made, the bedding material shall be carefully placed and tamped under the haunches of the pipe.
- E. For all types of pipe, the limits of bedding shall be as shown on the trench section details on the DRAWINGS.
- F. Bedding shall be compacted to seventy five percent (75%) relative density in accordance with ASTM D4253. Care shall be exercised to ensure sufficient tamping under the pipe to achieve uniform support.

3.8 BACKFILL AND COMPACTION

- A. All muck excavation, bedding, and pipe zone material shall be imported unless otherwise designated by OWNER's geotechnical engineer.

B. Pipe:

1. The pipe trench shall be backfilled to the limits as shown on the DRAWINGS.
2. The backfill in all areas shall be compacted by vibrating, tamping, or a combination thereof to seventy five percent (75%) relative density for sand material as determined by the relative density of cohesionless soils test, ASTM D4253, or to ninety five percent (95%) of the Maximum Standard Proctor Density for cohesive soils as determined by ASTM D698.
3. All backfill shall be brought up to equal height along each side of the pipe in such a manner as to avoid displacement.
4. Bedding shall be distributed in 6-inch (6") maximum lifts over the full width of the trench.
5. Wet, soft or frozen material, asphalt chunks, or other deleterious substances shall not be used for backfill.
6. If the excavated material is not suitable for backfill, as determined by ENGINEER, suitable material shall be hauled in and utilized and the rejected material hauled away and disposed of.
7. Backfilling shall be conducted at all times in a manner to prevent damage to the pipe or its coating and shall be kept as close to the pipe laying operation as practical.
8. Backfilling procedures shall conform to the additional requirements, if any, of appropriate agencies or private right-of-way agreements.

C. Unsurfaced Areas: All surface cuts shall be, as a minimum, restored to a condition equal to that prior to construction.

D. Surfaced Areas:

1. All surface cuts shall be, as a minimum, restored to a condition equal to that prior to construction.
2. All gravel or paved streets shall be restored in accordance with the regulations and requirements of the agency having control or jurisdiction over the street, roadway, or right-of-way.

E. Grassed or Landscaped Areas:

1. In landscaped or agricultural areas, topsoil, to a depth of twelve (12) inches, shall be removed from the area of general disturbance and stockpiled.
2. After installation of all pipelines, appurtenances and structures and completion of all backfill and compaction, the stockpiled topsoil shall be redistributed evenly over all disturbed areas.
3. Care should be taken to conform to the original ground contour or final grading plans.

3.9 FIELD QUALITY CONTROL

- A. In-place moisture density tests will be performed to ensure trench backfill complies with specified requirements. The following minimum tests will be performed.
1. Trench Bedding: One per two hundred (1 per 200) feet.
 2. Backfill: One per two hundred (1 per 200) feet.
- B. Backfill Compaction Tests:
1. Backfill compaction tests will be performed until compaction meets or exceeds requirements.
 2. The cost of “passing” tests will be paid under the Trenching pay item.
 3. Costs associated with “failing” tests shall be paid by CONTRACTOR.
- C. Pipe bedding will be tested prior to placement of backfill.
- D. Testing of all bedding and backfill material will be done in compliance with Occupational Safety & Health Administration (OSHA) - Excavations.

3.10 RESTORATION

- A. Scarify surface, reshape, and compact to required density completed or partially completed areas of WORK disturbed by subsequent construction operations or by adverse weather.
- B. Maintain and correct backfill, fill, and embankment settlement and make

necessary repairs to pavement structures, seeding, and sodding which may be damaged as a result of settlement for the guarantee period.

- C. Such maintenance and correction may be performed by subcontract.
- D. Upon completion of the WORK, all plants, rubbish, unused materials, concrete forms, and other like material shall be removed from the job site.
- E. The site shall be left in a state of order and cleanliness.

END OF SECTION 312333

SECTION 329115 - SOIL PREPARATION

PART 1 - GENERAL

1.1 SUMMARY

- A. This section includes the following:
 - 1. Amended New Soils – Lawn

1.2 RELATED SECTIONS:

- 1. Section 311000 Site Clearing
- 2. Section 329200 Turf and Grasses

1.3 DEFINITIONS

- A. CEC: Cation exchange capacity.
- B. Duff Layer: A surface layer of soil, typical of forested areas, that is composed of mostly decayed leaves, twigs, and detritus.
- C. Imported Soil: Soil that is transported to Project site for use.
- D. Manufactured Soil: Soil produced by blending soils, sand, stabilized organic soil amendments, and other materials to produce planting soil.
- E. Organic Matter: The total of organic materials in soil exclusive of undecayed plant and animal tissues, their partial decomposition products, and the soil biomass; also called "humus" or "soil organic matter."
- F. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified as specified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.
- G. RCRA Metals: Hazardous metals identified by the EPA under the Resource Conservation and Recovery Act.
- H. SSSA: Soil Science Society of America.
- I. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.
- J. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.

- K. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "topsoil"; but in disturbed areas such as urban environments, the surface soil can be subsoil.
- L. USCC: U.S. Composting Council.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each bulk-supplied material in sealed containers labeled with content, source, and date obtained; providing an accurate representation of composition, color, and texture.

1.5 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.
- B. Soil Test Results

1.6 QUALITY ASSURANCE

- A. Testing Agency Qualifications: An independent, state-operated, or university-operated laboratory; experienced in soil science, soil testing, and plant nutrition; with the experience and capability to conduct the testing indicated; and that specializes in types of tests to be performed.

PART 2 - PRODUCTS

2.1 AMENDED NEW SOIL – LAWN

- A. Purchased soil; amended and modified to produce viable planting soil for trees. Using preconstruction soil analyses and materials specified in other articles of this Section, purchase soil for planting soil.
 - 1. Local Blender: Wood Materials, 504-250-7433
 - 2. Must Comply with the following requirements:
 - a. Free of live plants and/or pests
 - b. Free of seed and pest eggs
 - c. Particle Size Distribution by USDA Textures: Classified as sandy loam according to USDA textures.
 - d. Percentage of Organic Matter: Minimum 6 percent by volume
 - e. Soil Reaction: pH of 6 to 7
 - f. CEC of Total Soil: Minimum 10 meq/100 mL at pH of 7.0
 - g. Soluble-Salt Content: 5 to 10 dS/m measured by electrical

- conductivity.
- h. Bulk Density: 1.2 g/cu. cm to 1.4 g/cu. cm at 85% compaction
- i. Total Porosity: Minimum 55 percent at 85% compaction
- j. Macro Porosity: Minimum 15 percent at 85% compaction
- k. RCRA Metals: Below maximum limits established by the EPA
- l. Phytotoxicity: Below phytotoxicity limits established by SSSA

2.2 INORGANIC SOIL AMENDMENTS

- A. Lime: ASTM C 602, agricultural liming material containing a minimum of 80 percent calcium carbonate equivalent.
- B. Sulfur: Granular, biodegradable, and containing a minimum of 90 percent elemental sulfur, with a minimum of 99 percent passing through a No. 6 (3.35-mm) sieve and a maximum of 10 percent passing through a No. 40 (0.425-mm) sieve.
- C. Iron Sulfate: Granulated ferrous sulfate containing a minimum of 20 percent iron and 10 percent sulfur.
- D. Agricultural Gypsum: Minimum 90 percent calcium sulfate, finely ground with 90 percent passing through a No. 50 (0.30-mm) sieve.
- E. Sand: Clean, washed, natural or manufactured, free of toxic materials.

2.3 ORGANIC SOIL AMENDMENTS

- A. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1/2-inch (12.5-mm) sieve; soluble salt content of 5 to 10 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings.
- B. Wood Derivatives: Shredded and composted, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture and free of chips, stones, sticks, soil, or toxic materials.
- C. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, debris, and material harmful to plant growth.

2.4 FERTILIZERS

- A. Superphosphate: Commercial, phosphate mixture, soluble; a minimum of 20 percent available phosphoric acid.

- B. Bonemeal: Commercial, raw or steamed, finely ground; a minimum of 1 percent nitrogen and 10 percent phosphoric acid.
- C. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium.
- D. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium.

PART 3 - EXECUTION

3.1 GENERAL

- A. Place planting soil and fertilizers according to requirements in other Specification Sections.
- B. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in planting soil.

3.2 PLACING MANUFACTURED PLANTING SOIL OVER EXPOSED SUBGRADE

- A. General: Apply manufactured soil on-site in its final, blended condition. Do not apply materials or till if existing soil or subgrade is frozen, muddy, or excessively wet.
- B. Subgrade Preparation: Till subgrade to a minimum depth of 6 inches. Remove stones larger than 1- 1/2 inches in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
- C. Application: Spread soil to total depth indicated on Drawings, but not less than required to meet finish grades after natural settlement. Do not spread if soil or subgrade is frozen, muddy, or excessively wet.
 - 1. Lifts: Apply planting soil in lifts not exceeding more than 4 inches in loose depth for material compacted by hand-operated tampers.
- D. Compaction: Do not compact Bioretention Soil mix after it is spread.
- E. Finish Grading: Grade soil to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.
- F. Before planting, obtain Landscape Architect's acceptance of finished grading; restore areas if eroded or otherwise disturbed after finish grading.

3.3 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Soil will be considered defective if it does not pass tests listed above.
- C. Prepare test reports.
 - 1. Label each sample and test report with the date, location keyed to a site plan or other location system, visible conditions when and where test was performed, and testing depth.

3.4 PROTECTION AND CLEANING

- A. Protect areas of in-place soil from additional compaction, disturbance, and contamination. Prohibit the following practices within these areas except as required to perform planting operations:
 - 1. Storage of construction materials, debris, or excavated material.
 - 2. Parking vehicles or equipment.
 - 3. Vehicle traffic.
 - 4. Foot traffic.
 - 5. Erection of sheds or structures.
 - 6. Impoundment of water.
 - 7. Excavation or other digging unless otherwise indicated.
- B. Remove surplus soil and waste material including excess subsoil, unsuitable materials, trash, and debris and legally dispose of them off Owner's property unless otherwise indicated.
 - 1. Dispose of excess subsoil and unsuitable materials on-site where directed by Owner.

PART 4 - MEASUREMENT

- A. Soil Preparation will be measured by the cubic yard (CY). No direct payment will be made for this item, it shall be included as part of Pay Item 10 Sodding. Necessary excavation and disposal of excess excavated materials will not be measured for payment of this bid item.

PART 5 - PAYMENT

- A. Payment for items covered by this specification will be made at the contract unit price under Pay Item 10 Sodding.

END OF SECTION 329115

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SECTION 329200 - TURF AND GRASSES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Sodding

1.2 RELATED SECTIONS:

- A. 311000 Site Clearing
- B. 329115 Soil Preparation

1.3 DEFINITIONS

- A. Duff Layer: The surface layer of native topsoil that is composed of mostly decayed leaves, twigs, and detritus.
- B. Finish Grade: Elevation of finished surface of planting soil.
- C. Manufactured Topsoil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.
- D. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. This includes insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. It also includes substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.
- E. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. These include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.
- F. Planting Soil: Standardized topsoil; existing, native surface topsoil; existing, in-place surface soil; imported topsoil; or manufactured topsoil that is modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.
- G. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or top surface of a fill or backfill before planting soil is placed.

- H. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.
- I. Surface Soil: Whatever soil is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil, but in disturbed areas such as urban environments, the surface soil can be subsoil.

1.4 COORDINATION

- A. Coordinate installation of all turf with other work affected.

1.5 PREINSTALLATION MEETINGS

- A. Pre-installation Conference: Conduct conference on site.

1.6 SUBMITTALS

- A. Installation and Maintenance Data:
 - 1. Include contractor's installation schedule and weekly maintenance plan for sodding until turf is established, minimum of 8 weeks.
 - 2. Include cutting method and maximum grass height; types, application frequency, and recommended coverage of fertilizer.
- B. Qualification Data: For Landscape Contractor
- C. Material Certificates: For base course and sand fill materials
- D. Certification of grass sod: From sod vendor, stating the botanical and common name and date of harvest.
- E. Fertilizer: Soil test results, product data that would be used, and application frequency.
- F. Pesticides and Herbicides: Product label and manufacturer's application instructions specific to this Project.
- G. Temporary irrigation: Product data to include an irrigation coverage plan, and weekly schedule for addressing watering needs for establishment are also required.

1.7 QUALITY ASSURANCE

- A. Contractor or subcontractor shall have a current Louisiana Landscape Horticulturalist License as issued by the Louisiana State Horticultural Commission.
 - 1. Pesticide Applicator: State licensed, commercial.
- B. Soil Analysis: For each un-amended soil type, furnish soil analysis and a written report by a qualified soil-testing laboratory.
 - 1. Report suitability of tested soil for turf growth.
 - a. State recommendations for nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce satisfactory planting soil suitable for healthy, viable plants.
 - b. Report presence of problem salts, minerals, or heavy metals; if present, provide additional recommendations for corrective action.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of conformance with state and federal laws, as applicable.
- B. Bulk Materials:
 - 1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
 - 2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water run-off; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
 - 3. Accompany each delivery of bulk materials with appropriate certificates.

1.9 FIELD CONDITIONS

- A. Grade: As indicated on construction drawings
 - 1. Turf areas not to exceed 5:1 slope

- B. Planting Restrictions: Plant during the following periods. Coordinate planting period with initial maintenance periods to provide required maintenance from date of Final Acceptance.
 - 1. Sod Planting: When average 24 hour on site temperature exceeds 75 degrees F
- C. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

1.10 MAINTENANCE

- A. Initial Turf Maintenance Service: Provide full maintenance by skilled employees of landscape Installer. Maintain as required in Part 3. Begin maintenance immediately after each area is planted and continue until acceptable turf is established, but for not less than the following periods:
 - 1. Sodded Turf: 16 weeks from date of Final Acceptance
- B. Contractor is responsible for maintaining and mowing grass within Construction area until final acceptance.

PART 2 - PRODUCTS

2.1 INORGANIC SOIL AMENDMENTS

- A. Lime: ASTM C 602, agricultural liming material containing a minimum of 80 percent calcium carbonate equivalent and as follows:
 - 1. Class: T, with a minimum of 99 percent passing through No. 8 (2.36-mm) sieve and a minimum of 75 percent passing through No. 60 (0.25-mm) sieve.
 - 2. Class: O, with a minimum of 95 percent passing through No. 8 (2.36-mm) sieve and a minimum of 55 percent passing through No. 60 (0.25-mm) sieve.
- B. Sulfur: Granular, biodegradable, containing a minimum of 90 percent sulfur, and with a minimum of 99 percent passing through No. 6 (3.35-mm) sieve and a maximum of 10 percent passing through No. 40 (0.425-mm) sieve
- C. Iron Sulfate: Granulated ferrous sulfate containing a minimum of 20 percent iron and 10 percent sulfur.

- D. Aluminum Sulfate: Commercial grade, unadulterated.
- E. Perlite: Horticultural perlite, soil amendment grade.
- F. Agricultural Gypsum: Minimum 90 percent calcium sulfate, finely ground with 90 percent passing through No. 50 (0.30-mm) sieve.
- G. Sand: Clean, washed, natural or manufactured, and free of toxic materials.
- H. Diatomaceous Earth: Calcined, 90 percent silica, with approximately 140 percent water absorption capacity by weight.
- I. Zeolites: Mineral clinoptilolite with at least 60 percent water absorption by weight.

2.2 ORGANIC SOIL AMENDMENTS

- A. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1/2-inch (12.5-mm) sieve; soluble salt content of 5 to 10 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings.
- B. Wood Derivatives: Decomposed, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture and free of chips, stones, sticks, soil, or toxic materials.
- C. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth.

2.3 FERTILIZERS

- A. Bone meal: Commercial, raw or steamed, finely ground; a minimum of 1 percent nitrogen and 10 percent phosphoric acid.
- B. Superphosphate: Commercial, phosphate mixture, soluble; a minimum of 20 percent available phosphoric acid.
- C. Commercial Fertilizer: commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
 - 1. Composition: 1 lb/1000 sq. ft. (0.45 kg/92.9 sq. m) of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.

- D. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:
 - 1. Composition: 20 percent nitrogen, 10 percent phosphorus, and 10 percent potassium, by weight.

2.4 PLANTING SOILS

- A. Refer to Section 32 91 15 Soil Preparation (Performance Specification)

2.5 TEMPORARY IRRIGATION SYSTEMS

- A. Irrigation zone control shall be manual operation with manual valves.
- B. Maintain 100 percent irrigation coverage of sprigged areas with four (4) inch moisture depth. Make minor adjustments necessary to avoid obstructions such as signs and lights.
- C. Pre-Approved manufacturers:
 - 1. Yard Camel.
 - 2. Rain Bird Corporation.
 - 3. Hunter Industries Incorporated
 - 4. Netafim USA.
 - 5. Toro Company (The); Irrigation Division.
 - 6. Or pre-approved equal.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to be planted for compliance with requirements and other affecting installation and performance of the Work.
 - 1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil with a planting area.

2. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
 3. Uniformly moisten excessively dry soil that is not workable or which is dusty.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Engineer and replace with new planting soil.

3.2 PREPARATION

- A. Protect structure; utilities; sidewalks; pavements; and other facilities, trees shrubs, and plants from damage caused by planting operations and grass paving unit installation.
1. Protect grade stakes set by others until directed to remove them.
- B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil- bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 LAWN AREA PREPARATION

- A. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 6 inches. Remove stones larger than 1-1/2 inches in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
1. Apply superphosphate fertilizer directly to subgrade before loosening.
 2. Thoroughly blend planting soil off-site before spreading or spread topsoil, apply soil amendments and fertilizer on surface, and thoroughly blend planting soil.
 3. Spread planting soil to a depth of 6 inches, but not less than required to meet finish grades after light rolling and natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.
- B. Unchanged Subgrades: If turf is to be planted in areas unaltered or undisturbed by excavating, grading, or surface-soil stripping operations,

prepare surface soil as follows:

1. Remove existing grass, vegetation, and turf. Do not mix into surface soil.
 2. Loosen surface soil to a depth of at least 6 inches. Apply soil amendments and fertilizers according to planting soil mix proportions and mix thoroughly into top 6 inches of soil. Till soil to a homogeneous mixture of fine texture.
 - a. Apply superphosphate fertilizer directly to surface soil before loosening.
 3. Remove stones larger than 1-1/2 inches in any dimension and sticks, roots, trash, and other extraneous matter.
 4. Legally dispose of waste material, including grass, vegetation, and turf, off Owner's property.
- C. Finish grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1/2 inch of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit finish grading to areas that can be planted in the immediate future.
- D. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- E. Before planting, obtain Engineer's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.4 TURF MAINTENANCE

- A. General: Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, re-grade, and replant bare or eroded areas and re-mulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.
1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.
 2. In areas where mulch has been disturbed by winds or maintenance operations, add new mulch and anchor as required to prevent displacement.
 3. Apply treatments as required to keep turf and soil free of pests and pathogens or disease. Use integrated pest management practices

whenever possible to minimize the use of pesticides and reduce hazards.

4. Newly planted turf areas shall be protected from traffic or other use by placing a physical barrier between the area of planting and areas of foot traffic. This protection must be approved by the Engineer before installation. The protective barrier shall be inspected at the end of each working day.

B. Watering: Install and maintain temporary turf-watering equipment to convey water from sources and keep turf uniformly moist to a depth of 4 inches.

1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seeds, sprigs, or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas. Water must be evenly dispersed on site.
2. Water turf with fine spray. A minimum amount of rainfall would be two (2) one inch rainfalls per week. If more water is needed it is the responsibility of the contractor to provide it.

C. Herbicide Applications: A pre-emergent herbicide application should be completed before the dormant period to prevent weed growth. This herbicide should be specific to the types of weeds that are present on site. Notify Engineer before each application.

D. Contractor is responsible for maintaining and mowing grass within construction area until Final Acceptance by Engineer.

E. Acceptable uniform stand of grass: An acceptable uniform stand of grass is defined as a cover of living grass in which gaps larger than four inches (4") do not occur at the time of Final Acceptance by the Engineer.

F. Mowing Schedule (All grass clippings shall be removed from property with each mowing):

1. When grass reaches a height of three (3) inches, mow to $\frac{2}{3}$ height, leaving two (2) inches remaining.
2. Maintain a grass height between two (2) and two-and-one-half ($2\frac{1}{2}$) inches until final acceptance.
3. Do not cut off more than 40% of grass height in single mowing.
4. Perform mowing approximately weekly (or as required to fulfill the above criteria) for a total of not less than four (4) mowings prior to final acceptance.

G. Tests and Inspections of Temporary Irrigation System:

1. Leak Test: after installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
2. Replace damaged and malfunctioning equipment.
3. Any irrigation product will be considered defective if it does not pass tests and inspections.

3.5 SATISFACTORY TURF

A. Turf installations shall meet the following criteria as determined by Engineer:

1. Satisfactory Sodded Turf: At end of maintenance period, a healthy, uniform, close stand of grass, as defined above in Section 3.07 F, has been established.

B. Use specified materials to reestablish turf that does not comply with requirements and continue maintenance until turf is satisfactory.

PART 4 - MEASUREMENT

- A. Turf and Grasses (Sodding) shall be measured by square yard (SY). This will encompass all labor, materials, equipment, overhead, and profit to complete and install.

PART 5 – PAYMENT

- A. Payment for items covered by this specification will be made at the contract unit price under Pay Item 10 Sodding per Square Yard.

END OF SECTION 329200

SECTION 330523 - UTILITY HORIZONTAL DIRECTIONAL DRILLING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Excavation and backfill for approach trenches and pits.
 - 2. Horizontal directional drilling.
 - 3. Material.
 - 4. Equipment
 - 5. Drilling fluid system.

1.2 MEASUREMENT AND PAYMENT

- A. MEASUREMENT: Horizontal Directional Drilling shall be measured by the Linear Foot. This Shall encompass all labor, materials, overhead, and profit to complete and install, including, but not limited to, excavation, drilling, accessories, tests, and backfill.
- B. PAYMENT: Horizontal Directional Drilling – Payment for items covered by this specification will be made at the contract unit price under Pay Item 9 Directional Drill per Linear Foot.

1.3 REFERENCE STANDARDS

- A. American Association of State Highway and Transportation Officials:
 - 1. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.
- B. ASTM International:
 - 1. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft³ (600 kN-m/m³)).
 - 2. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
 - 3. ASTM D1784 - Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
 - 4. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe/conduit, Schedules 40, 80, and 120.
 - 5. ASTM D2239 - Standard Specification for Polyethylene (PE) Plastic Pipe/conduit (SIDR-PR) Based on Controlled Inside Diameter.
 - 6. ASTM D2241 - Standard Specification for Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe/conduit (SDR Series).
 - 7. ASTM D2464 - Standard Specification for Threaded Poly(Vinyl Chloride) (PVC) Plastic Pipe/conduit Fittings, Schedule 80.
 - 8. ASTM D2466 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe/conduit Fittings, Schedule 40.
 - 9. ASTM D2467 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe/conduit Fittings, Schedule 80.

10. ASTM D2683 - Standard Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe/conduit and Tubing.
11. ASTM D2837 - Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe/conduit Materials or Pressure Design Basis for Thermoplastic Pipe/conduit Products.
12. ASTM D2855 - Standard Practice for Making Solvent-Cemented Joints with Poly(Vinyl Chloride) (PVC) Pipe/conduit and Fittings.
13. ASTM D3035 - Standard Specification for Polyethylene (PE) Plastic Pipe/conduit (DR-PR) Based on Controlled Outside Diameter.
14. ASTM D3139 - Standard Specification for Joints for Plastic Pressure Pipe/conduits Using Flexible Elastomeric Seals.
15. ASTM D3261 - Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe/conduit and Tubing.
16. ASTM D3350 - Standard Specification for Polyethylene Plastics Pipe/conduit and Fittings Materials.
17. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
18. ASTM F714 - Standard Specification for Polyethylene (PE) Plastic Pipe/conduit (DR-PR) Based on Outside Diameter.
19. ASTM F1056 - Standard Specification for Socket Fusion Tools for Use in Socket Fusion Joining Polyethylene Pipe/conduit or Tubing and Fittings.
20. ASTM F1962 - Standard Guide for Use of Maxi-Horizontal Directional Drilling for Placement of Polyethylene Pipe/conduit or Conduit Under Obstacles, Including River Crossings.

C. American Water Works Association:

1. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe/conduit and Fittings.
2. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe/conduit and Fabricated Fittings, 4 In. Through 12 In. (100 mm Through 300 mm), for Water Transmission and Distribution.
3. AWWA C901 - Polyethylene (PE) Pressure Pipe/conduit and Tubing, 1/2 In. (13 mm) Through 3 In. (76 mm), for Water Service.
4. AWWA C906 - Polyethylene (PE) Pressure Pipe/conduit and Fittings, 4 In. (100 mm) Through 63 In. (1,600 mm), for Water Distribution and Transmission.

D. National Utility Contractors Association:

1. NUCA - Horizontal Directional Drilling Good Practices Guidelines.

E. Plastics Pipe/conduit Institute:

1. PPI TR-46 - Guidelines for Use of Mini-Horizontal Directional Drilling for Placement of High Density Polyethylene Pipe/conduit.

1.4 SUBMITTALS

A. Product Data:

1. Identify source of water used for drilling.
2. Submit copy of approvals and permits for use of water source.

- B. Shop Drawings:
 - 1. Submit technical data for equipment, method of installation, and proposed sequence of construction.
 - 2. Include information pertaining to pits, dewatering, method of spoils removal, and equipment size, capacity, and capabilities, including installing pipe/conduit on radius, type of drill bit, drilling fluid, method of monitoring line and grade, detection of surface movement, name plate data for drilling equipment, and mobile spoils removal unit.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- D. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
- E. Qualifications Statement:
 - 1. Submit qualifications for driller.

1.5 CLOSEOUT SUBMITTALS

- A. Project Record Documents: Record actual locations of pipe/conduit and invert elevations.
- B. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.
- C. Record actual depth of pipe/conduit.
- D. Record actual horizontal location of installed pipe/conduit.
- E. Show depth and location of abandoned bores.
- F. Record depth and location of drill bits and drill stems not removed from bore.

1.6 QUALITY ASSURANCE

- A. Perform Work according to following:
 - 1. NUCA HDD Good Practices Guidelines.
 - 2. ASTM F1962.
 - 3. PPI TR-46.

1.7 QUALIFICATIONS

- A. Driller: Company specializing in performing Work of this Section with minimum three years' experience.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Provide temporary end caps and closures on piping and fittings until pipe/conduit is installed.
- B. Protect pipe/conduit from entry of foreign materials and water by installing temporary covers, completing sections of Work, and isolating parts of completed system.

- C. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- D. Use shipping braces between layers of stacked pipe/conduit.
- E. Stack piping lengths no more than three layers high.
- F. Store field joint materials in original shipping containers in dry area indoors.
- G. Support pipe/conduits with nylon slings during handling.

1.9 EXISTING CONDITIONS

- A. Field Measurements:
 - 1. Verify field measurements prior to fabrication.
 - 2. Indicate field measurements on Shop Drawings.

PART 2 PRODUCTS

2.1 HORIZONTAL DIRECTIONAL DRILLING

- A. Performance and Design Criteria:
 - 1. Drilling Steering System: Remote with continuous electronic monitoring of boring depth and location.
 - 2. Ratio of Reaming Diameter to Pipe/conduit Outside Diameter:
 - a. Nominal Pipe/conduit Diameter Larger than 6 Inches: Submit recommended ratio and reaming procedures for review.

2.2 WATER SOURCE

- A. Water: Provided by Contractor or coordinate with local utility.

2.3 UNDERGROUND PLACEMENT MARKERS

- A. Trace Wire: Electronic detection materials for nonconductive products.
 - 1. Unshielded 10 gage copper wire.

2.4 MATERIALS

- A. Drilling Fluid:
 - 1. Liquid bentonite clay slurry; totally inert with no environmental risk
- B. High Density Polyethylene (HDPE) Piping:
 - 1. APWA 33 05 06 (PE 4710)

2.5 MIXES

- A. Submit to Engineer proposed mix designs for approval.

PART 3 EXECUTION

3.1 PREPARATION

- A. Call local utility line information service not less than three working days before performing Work.
 - 1. Request underground utilities to be located and marked within and surrounding construction areas.
- B. Maintain access to existing facilities and indicated to remain; modify pipe/conduit installation to maintain access to existing facilities.
- C. Locate and identify utilities indicated to remain and protect from damage.
- D. Identify required lines, levels, contours, and data locations.
- E. Protect benchmarks such as existing structures, fences from excavating equipment and vehicular traffic.
- F. Establish pipe/conduit elevations as shown.

3.2 INSTALLATION

- A. Dewatering:
 - 1. Intercept and divert surface drainage, precipitation, and groundwater away from excavation using dikes, curb walls, ditches, pipe/conduits, sumps, or other approved means.
 - 2. Develop and maintain substantially dry subgrade during drilling and pipe/conduit installation.
 - 3. Comply with State requirements for discharging water to watercourse, preventing stream degradation, and controlling erosion and sediment.
- B. Excavation:
 - 1. Excavate subsoil as specified in APWA 31 23 16.
 - 2. Excavate approach trenches and pits as Site conditions require; minimize number of access pits.
 - 3. Provide sump areas to contain drilling fluids.
 - 4. Install excavation supports as necessary.
 - 5. Restore areas after completion of drilling and carrier pipe/conduit installation.
- C. Drilling:
 - 1. Drill pilot bore with vertical and horizontal alignment as indicated on Drawings.
 - 2. Survey entire drill path and mark entry and exit locations with stakes. If a magnetic guidance system is used, survey drill path for surface geomagnetic variations or anomalies.
 - 3. Guide drill remotely from ground surface to maintain alignment by monitoring signals transmitted from drill bit.
 - a. Monitor depth, pitch, and position.
 - b. Adjust drill head orientation to maintain correct alignment.
 - 4. Inject drilling fluid into bore to stabilize hole, remove cuttings, and lubricate drill bit and pipe/conduit.

5. Continuously monitor drilling fluid pumping rate, pressure, viscosity, and density while drilling pilot bore, back reaming, and installing pipe/conduit to ensure adequate removal of soil cuttings and stabilization of bore.
 - a. Provide relief holes when required to relieve excess pressure.
 - b. Minimize heaving during pullback.
 6. Verification of Accuracy:
 - a. Calibrate and verify electronic monitor accuracy during first 50 feet of bore in presence of Engineer before proceeding with other drilling.
 - b. Excavate minimum of four test pits spaced along first 50 feet of bore to verify required accuracy.
 - c. If required accuracy is not met, adjust equipment or provide new equipment capable of meeting required accuracy.
 7. After completing pilot bore, remove drill bit.
- D. Drilling Obstructions:
1. If obstructions are encountered during drilling, notify Engineer immediately. Do not proceed around obstruction without Engineer's approval.
 2. For conditions requiring more than 3 feet of deviation in horizontal alignment, submit revised Shop Drawings to Engineer for approval before resuming Work.
 3. Maintain adjusted bore alignment within easement or right-of-way.
- E. Pipe/conduit:
1. Install reamer and pipe/conduit pulling head; select reamer with minimum bore diameter required for pipe/conduit installation.
 2. Attach pipe/conduit to pipe/conduit pulling head and pull reamer and pipe/conduit to entry pit along pilot bore.
 3. Inject drilling fluid through reamer to stabilize bore and lubricate pipe/conduit.
 4. Install piping with horizontal and vertical alignment as shown on Drawings.
 5. Protect and support pipe/conduit being pulled into bore such that pipe/conduit moves freely and is not damaged during installation.
 6. Do not exceed pipe/conduit manufacturer's recommended pullback forces.
 7. Trace Wire:
 - a. Install trace wire continuous with each bore.
 - b. Splice trace wire only at intermediate bore pits.
 - c. Tape or insulate trace wire to prevent corrosion and maintain integrity of pipe/conduit detection.
 - d. Terminate trace wire for each pipe/conduit run at structures along pipe/conduit system.
 - e. Provide extra length of trace wire at each structure such that trace wire can be pulled 3 feet out top of structure for connection to detection equipment.
 - f. Test trace wire for continuity for each bore before acceptance.
 8. Provide sufficient length of pipe/conduit to extend past termination point to allow connection to other pipe/conduit sections.
 9. Allow minimum of 24 hours for stabilization after installing pipe/conduit before making connections to pipe/conduit.
 10. Mark location and depth of bore with spray paint on paved surfaces and on wooden stakes on non-paved surfaces at 50-foot intervals.
- F. Slurry Removal and Disposal:
1. Contain excess drilling fluids at entry and exit points until recycled or removed from Site; provide recovery system to remove drilling spoils from access pits.

2. Drilling Spoils:
 - a. Remove, transport, and legally dispose of drilling spoils.
 - b. Do not discharge drilling spoils in sanitary sewers, storm sewers, or other drainage systems.
 - c. When drilling in suspected contaminated soil, test drilling fluid for contamination before disposal.
3. If drilling fluid leaks to surface, immediately contain leak and barricade area from vehicular and pedestrian travel before resuming drilling operations.
4. Complete cleanup of drilling fluid at end of each working day.

G. Backfilling:

1. Install backfill as specified in APWA 33 05 20.
2. Backfill approach trenches and pits with subsoil fill to contours and of surrounding existing grade.
3. Compact subsoil fill as specified in as required in drawings.

3.3 TOLERANCES

- A. Maximum Variation from Horizontal Position: 12 inches.
- B. Maximum Variation from Vertical Elevation: 6 inches.
- C. Minimum Horizontal and Vertical Clearance from Other Utilities: 18 inches.
- D. Deviation:
 1. When pipe/conduit installation deviates beyond specified tolerances, notify Engineer. If not acceptable it may be necessary to abandon bore, remove installed pipe/conduit, re-bore, and reinstall pipe/conduit in correct alignment.
 2. Fill abandoned bores greater than 3 inches in diameter with grout or flowable fill material.

3.4 FIELD QUALITY CONTROL

- A. Compaction Testing: As specified in APWA 31 23 26.
- B. If tests indicate Work does not meet specified requirements, remove Work, replace, and retest.
- C. Certify that equipment for drilling has been properly set up and is ready for drilling.

3.5 CLEANING

- A. Upon completion of drilling and pipe/conduit installation, remove drilling spoils, debris, and unacceptable material from approach trenches and pits. Clean up excess slurry from ground.
- B. Restore approach trenches and pits to original condition.
- C. Remove temporary facilities for drilling operations.

END OF SECTION 330523

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