Allen&Hoshall
engineers-architects-surveyors

January 25, 2024

Mr. Johnny Timmons, General Manager
Tupelo Water & Light
320 North Front Street
Tupelo, MS 38804

Subject: **Labor, Material, and Equipment Bid 2023-066WL**
Tupelo Water & Light (TW&L)
Jackson St. Underground Utility Relocations Overhead to Underground
and Alternate Add – Street Lights
Tupelo, MS

Dear Mr. Timmons:

After evaluation of the bids received, January 23, 2024, Allen & Hoshall recommends that TW&L accept the bid received from **Rienhold Electric Inc.** in the amount of **$5,455,103.70**. This bid amount includes Authorized Contract Amendments of $100,000.00.

Bid summary is as follows:

Linetec Services	$ 7,901,719.07
Rienhold Electric, Inc.	**$ 5,455,103.70**

See enclosed Bid Tab and Engineers Estimate.

If there are any questions, please contact us.

Sincerely,

ALLEN & HOSHALL

Bobby Davidson

Bobby Davidson
bdavidson@allenhoshall.com

Cc: Scott Burleson, Allen & Hoshall

\\AHMEM03\eu\Tupelo L&W\82030-Jackson St East UG\Corr\Jackson St - N Madison to N Front St\Contractor Recom 2023-066WL 01252024.docx

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BID TABULATION

2023-066 WL 82030 Jackson St Underground Utility Relocations
Overhead to Underground Base Bid and Alternate Add

COR	CONTRACTOR	A1	A2	TOTAL BASE BID PRICE	TOTAL BID
23003-SC	Linetec Services	☒	☒	$7,374,787.04	$7,901,719.07
				Alternate Adder $526,932,03	
	Grays Power Supply, LLC	☐	☐		
				Alternate Adder	
	Killen Contractors Inc.	☐	☐		
				Alternate Adder	
25722-MC	Reinhold Electric Inc.	☒	☒	**$4,713,193.70**	**$5,455,103.70** *
				Alternate Adder $641,910.00	
	William E. Groves Const. Inc.	☐	☐		
				Alternate Adder	
	Shelby Electric Company, Inc.	☐	☐		
				Alternate Adder	

* Apparent Low Bidder

Minute Entry Sign Up Sheet

Date: 1/24/2024

Time: 10:00

Bid # 2023-066WL

Department: WL

Project: Overhead to Underground Utility Relocations and/or Street Lighting along Jackson St between Madison and Front

Attandance	Company
Sasha Schmittgens	Reinhold Electric
Bobby Davidson	Allen + Hoskell
Ben Logan	City of Tupelo
Johnny Timmons	City of Tupelo
Stephen Reed	COT
Mac Dillard	COT

DOCUMENT 00300A
BID FORM

Project Identification: Overhead to Underground Utility Relocation and/or Street Lighting along Jackson Street between N Madison and N Front Streets., Bid-2023-066WL

Contract Identification: **2023-066WL**

This Bid is Submitted to (Name and Address of Owner):

Missy Shelton
City Purchasing Agent
City Hall
Post Office Box 1485/38802
71 East Troy Street/38804
Tupelo, Mississippi

This Bid is Submitted from (Contractor):

Reinhold Electric Inc.
2511 Lemay Ferry Road
St. Louis, MO 63125

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an agreement with Owner in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in this Bid and in accordance with other terms and conditions of the Contract Documents.

2. Bidder accepts all of the terms and conditions of the Advertisement or Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for forty-five days after the day of Bid opening. Bidder will sign and submit the Agreement with the Bonds and other documents required by the Bidding Requirements within fifteen days after the date of Owner's Notice of Award.

3. In submitting this Bid, Bidder represents, as more fully set forth in the Agreement, that:

   (a) Bidder has examined copies of all the Bidding Documents and of the following Addenda (receipt of all which is hereby acknowledged, if no addenda received, insert "None"):

Number	Date
#1	1/12/2024
#2	1/16/2024
# 2.1	1/16/2024

(b) Bidder has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.

(c) Bidder has studied carefully all reports and drawings of subsurface conditions and drawings of physical conditions which are identified in the Supplementary Conditions as provided in paragraph 4.2 of the GENERAL CONDITIONS, and accepts the determination set forth in paragraph 4.2 of the GENERAL CONDITIONS of the extent of the technical data contained in such reports and drawings upon which Bidder is entitled to rely.

(d) Bidder has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests and studies (in addition to or to supplement those referred to in (c) above) which pertain to the subsurface or physical conditions at the site or otherwise may affect the cost, progress, performance or furnishing of the Work as Bidder considers necessary for the performance or furnishing of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 4.2 of the GENERAL CONDITIONS; and no additional examinations, investigations, explorations, tests, reports or similar information or data are or will be required by Bidder for such purposes.

(e) Bidder has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities. No additional examinations, investigations, explorations, tests, reports or similar information or data in respect of said Underground Facilities are or will be required by Bidder in order to perform and furnish the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 4.3 of the GENERAL CONDITIONS.

(f) Bidder has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.

(g) Bidder has given Architect/Engineer written notice to all conflicts, errors or discrepancies that it has discovered in the Contract Documents and the written resolution thereof by Architect/Engineer is acceptable to Bidder.

(h) This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid: Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.

BID SUMMARY

4. **UNIT PRICE BID** - The BIDDER will complete the Work in accordance with the Contract Documents for the following price(s):

5. **INSERT BID UNIT ITEMS FOLLOWING THIS PAGE (CONSIST OF 9 PAGES)**

   (a) Excel File "304 Bid Form A.xlsx" is provided to fill in bid prices.

UNIT	QTY	MEAS	LABOR	MATERIAL	EXT LAB & MAT
30' CONCRETE POLE	7	EA	2,000.00	2,900.00	20,300.00
35 CONCRETE POLE	5	EA	2,400.00	3,700.00	30,500.00
40 CONCRETE POLE	3	EA		4,000.00	12,000.00
45 CONCRETE POLE	6	EA		5,000.00	30,000.00
A1.1	1	EA		500.00	500.00
A5.2	3	EA		500.00	1,500.00
C5.21 (C7)	3	EA		500.00	1,500.00
C5.21L	3	EA		1,000.00	3,000.00
C5.71L (C7A)	3	EA		500.00	1,500.00
E1.1 (E1-2)	2	EA	500.00	600.00	2,200.00
E1.1L (E1-3)	2		500.00	600.00	2,200.00
E1.1L (E1-3)	28	EA		600.00	16,800.00
E1.4L (E2-3)	2	EA	600.00	600.00	2,400.00
E1.5	28	EA		300.00	8,400.00
E3-10	1			100.00	100.00
E3-10	16	EA	100.00	100.00	3,200.00
F2.8 (F1-2S)	2	EA	600.00	500.00	2,200.00
TA-2H	1		600.00	500.00	1,100.00
TA-2H	14	EA		500.00	7,000.00
G1.6	3	EA		500.00	1,500.00
T25-CONV. (XFMR BY OWNER)	1	EA		7,000.00	7,000.00
T37.5-CONV. (XFMR BY OWNER)	2	EA		800.00	1,600.00
H1.1 (M2-11)	10	EA		500.00	5,000.00
J1.1 (J8)	1	EA	1,000.00	600.00	1,600.00
J2.1 (J10)	8	EA	600.00	300.00	7,200.00
J2.2 (J7_ J7C)	1	EA	600.00	300.00	900.00

UNIT	QTY	MEAS	LABOR	MATERIAL	EXT LAB & MAT
K1.1 (K14C)	6	EA	2,000.00	1,800.00	22,800.00
K1.2 (K11C)	12	EA	2,000.00	1,800.00	45,600.00
M26-5S	7	EA	1,000.00	2,000.00	21,000.00
OH-UG MB	5	EA	1,200.00	1,000.00	11,000.00
VS-4	2	EA	20,000.00	155,000.00	350,000.00
VS-5	1	EA	20,000.00	129,000.00	149,000.00
VS-6	2	EA	20,000.00	98,000.00	236,000.00
UA1	1	EA		2,000.00	2,000.00
UC2	8	EA		2,000.00	16,000.00
UG7-50	8	EA	3,000.00	13,000.00	128,000.00
UG7-75	1	EA	3,000.00	13,000.00	16,000.00
UK5	2	EA	1,000.00	800.00	3,600.00
UK6-L ATT	5	EA	1,500.00	3,800.00	26,500.00
UK6-L CC	5	EA	1,500.00	3,800.00	26,500.00
UK6-L TF	7	EA	1,500.00	3,800.00	37,100.00
UK6-M ATT	13	EA	1,500.00	3,800.00	68,900.00
UK6-M CC	3	EA	1,500.00	3,800.00	15,900.00
UK6-M SC	6	EA	1,500.00	3,800.00	31,800.00
UK6-M WS	8	EA	1,500.00	3,800.00	42,400.00
UK6-S SEC	3	EA	1,500.00	3,800.00	15,900.00
UM5-2S	5	EA	1,000.00	1,000.00	10,000.00
UM5-3S	8	EA	1,000.00	1,000.00	16,000.00
4 ACSR	519	LF	4.00	1.00	2,595.00
1/0 TPX	138	LF	4.00	4.00	1,104.00
2 TPX	517	LF	4.00	4.00	4,136.00
6 DPX	147	LF	40.00	40.00	11,760.00

UNIT	QTY	MEAS	LABOR	MATERIAL	EXT LAB & MAT
HDPE 9-2	23554	LF	20.00	2.00	518,188.00
HDPE 9-3	10995	LF	34.00	2.60	402,417.00
HDPE 9-4	24623	LF	35.00	4.40	970,146.20
UGP 15-C 2 FN	1739	LF	6.00	20.00	45,214.00
UGP 15-C 500 RN	15193	LF	7.50	29.00	554,544.50
UGTPX 350	310	LF	4.00	7.00	3,410.00
N UG 2/0 CU THHN	310	LF	4.00	4.00	2,480.00
N UG 4/0 CU THHN	610	LF	4.00	5.00	5,490.00
N UGTPX 2/0	1157	LF	4.00	4.00	9,256.00
ADSS 12CT TF	373	LF	7.00	2.00	3,357.00
ADSS 72CT TF	4129	LF	7.00	4.00	45,419.00
STONE COVER (MATCH EX. DEPTH)	500	SF	10.00	10.00	10,000.00
CONCRETE REPLACEMENT	100	SF	10.00	10.00	2,000.00
SOD, BERMUDA	5,000	SF	5.00	1.00	30,000.00
TRAFFIC CONTROL	1	LS	45,000.00	15,000.00	60,000.00
Total Installation (Base Bid)					**4,144,716.70**

OPTIONAL ADDITION (STREET LIGHTS)

UNIT	QTY	MEAS	LABOR	MATERIAL	EXT LAB & MAT
N LT-JB 2x3	8	EA	1,500.00	1,800.00	26,400.00
N LT-SLPA	33	EA	2,700.00	6,200.00	293,700.00
N LT-SSA	5	EA	5,000.00	4,500.00	47,500.00
N UM5-2S	2	EA	2,000.00	2,500.00	9,000.00
N UM50-P-2	4440	LF	37.00	2.50	175,380.00
N UMSW-P-2 1.5X90	26	EA	500.00	200.00	18,200.00
N UG #12 AWG THHN	4440	LF	3.50	1.00	19,980.00
N UG #6 AWG THHN	11500	LF	3.50	1.00	51,750.00
Optional Addition (Street Lights)					**641,910.00**

UNIT	QTY	MEAS	LABOR	MATERIAL	EXT LAB & MAT
R 30-5W	5	EA	500.00	300.00	4,000.00
R 30-6W	2	EA	500.00	300.00	1,600.00
R 30-7W	2	EA	500.00	300.00	1,600.00
R 35-5W	5	EA	500.00	300.00	4,000.00
R 35-6W	1	EA	500.00	300.00	800.00
R 40-3W	3	EA	500.00	300.00	2,400.00
R 40-5W	1	EA	500.00	300.00	800.00
R 45-1C	1	EA	1,000.00	600.00	1,600.00
R 45-2W	5	EA	500.00	300.00	4,000.00
R 45-3W	7	EA	500.00	300.00	5,600.00
R 45-4W	1	EA	500.00	300.00	800.00
R 50-1C	5	EA	1,000.00	600.00	8,000.00
R 50-2W	2	EA	500.00	300.00	1,600.00
R 50-3W	3	EA	500.00	300.00	2,400.00
R 55-2W	1	EA	500.00	300.00	800.00
R A1.011 (M5-5)	2	EA	500.00	300.00	1,600.00
R A1.1 (A1)	1	EA	500.00	300.00	800.00
R A5.1 (A5)	1	EA	500.00	300.00	800.00
R A5.2 (A5-2)	2	EA	500.00	300.00	1,600.00
R C1.11 (C1)	2	EA	500.00	300.00	1,600.00
R C1.11L (C1-2)	12	EA	800.00	300.00	13,200.00
R C1.41L (C9-3)	7	EA	800.00	300.00	7,700.00
R C2.21L (C1-3)	2	EA	800.00	300.00	2,200.00
R C2.51L (C9-2)	2	EA	800.00	300.00	2,200.00
R C5.21 (C7)	3	EA	500.00	300.00	2,400.00
R C5.21L	9	EA	800.00	300.00	9,900.00
R C5.71L (C7A)	1	EA	500.00	300.00	800.00
R C6.21 (C8)	1	EA	500.00	300.00	800.00
R C6.21L (C8-3)	8	EA	800.00	300.00	8,800.00
R E1.1 (E1-2)	2	EA	500.00	300.00	1,600.00
R E1.1L (E1-3)	14	EA	500.00	300.00	11,200.00

UNIT	QTY	MEAS	LABOR	MATERIAL	EXT LAB & MAT
R E1.2 (E3-3)	3	EA	500.00	300.00	2,400.00
R E1.3L	11	EA	500.00	300.00	8,800.00
R E1.4 (E2-2)	11	EA	500.00	300.00	8,800.00
R E1.5	7	EA	500.00	300.00	5,600.00
R E1-4L (E2-3)	3	EA	500.00	300.00	2,400.00
R E3-10	4	EA	500.00	300.00	3,200.00
R F2.10 (F1-3S)	6	EA	500.00	300.00	4,800.00
R F2.12 (F1-4S)	1	EA	500.00	300.00	800.00
R F2.6 (F1-1S)	3	EA	500.00	300.00	2,400.00
R F2.8 (F1-2S)	13	EA	500.00	300.00	10,400.00
R TA-2H	2	EA	500.00	300.00	1,600.00
R G1.2 (G105-_ G136-)	12	EA	500.00	300.00	9,600.00
R G1.3 (G106-)	3	EA	500.00	300.00	2,400.00
R T15-CONV.	7	EA	500.00	300.00	5,600.00
R T25-CONV.	4	EA	500.00	300.00	3,200.00
R T37.5-CONV.	3	EA	500.00	300.00	2,400.00
R T50-CONV.	1	EA	500.00	300.00	800.00
R H1.1 (M2-11)	30	EA	500.00	300.00	24,000.00
R J1.1 (J5)	2	EA	500.00	300.00	1,600.00
R J1.1 (J8)	9	EA	500.00	300.00	7,200.00
R J2.1 (J10)	44	EA	500.00	300.00	35,200.00
R J2.2 (J7_ J7C)	1	EA	500.00	300.00	800.00
R K1.0 (K1C)	1	EA	500.00	300.00	800.00
R K1.2 (K11C)	12	EA	500.00	300.00	9,600.00
R M26-5F	1	EA	500.00	300.00	800.00
R M26-5S	28	EA	500.00	300.00	22,400.00
R S2.3 (M3-3B)	2	EA	500.00	300.00	1,600.00
R S2.31 (M3-3A)	6	EA	500.00	300.00	4,800.00
R S2.32 (M3-15)	1	EA	500.00	300.00	800.00
R SR3	4	EA	500.00	300.00	3,200.00
R UC2	2	EA	500.00	300.00	1,600.00

UNIT	QTY	MEAS	LABOR	MATERIAL	EXT LAB & MAT
R UM5-2P	1	EA	500.00	300.00	800.00
R UM5-3P	2	EA	500.00	300.00	1,600.00
R 1/0 ACSR	1776	LF	2.00	1.00	5,328.00
R 2 ACSR	971	LF	2.00	1.00	2,913.00
R 336 ACSR	15778	LF	2.00	1.00	47,334.00
R 4/0 ACSR	2494	LF	2.00	1.00	7,482.00
R 6HDCU	1165	LF	2.00	1.00	3,495.00
R 1/0 TPX	955	LF	2.00	1.00	2,865.00
R 2 TPX	812	LF	2.00	1.00	2,436.00
R 4 TPX	254	LF	2.00	1.00	762.00
R 6 DPX	682	LF	2.00	1.00	2,046.00
R 6HDCU WP	2397	LF	2.00	1.00	7,191.00
R UGP 15-C 500 RN	475	LF	2.00	1.00	1,425.00
Total Removal Cost (Base Bid)					**382,477.00**

UNIT	QTY	MEAS	LABOR	MATERIAL	EXT LAB & MAT
XFR 1/0 ACSR	5	EA	2,500.00	600.00	15,500.00
XFR 2 ACSR	2	EA	2,500.00	600.00	6,200.00
XFR 336 ACSR	18	EA	2,500.00	600.00	55,800.00
XFR 4 ACSR	8	EA	2,500.00	600.00	24,800.00
XFR 4/0 ACSR	3	EA	2,500.00	600.00	9,300.00
XFR 6HDCU	5	EA	2,500.00	600.00	15,500.00
XFR 6HDCU WP	5	EA	2,500.00	600.00	15,500.00
XFR 1/0 TPX	2	EA	2,500.00	600.00	6,200.00
XFR 2 TPX	12	EA	2,500.00	600.00	37,200.00
Total Transfer Cost					**186,000.00**

SUMMARY			EXT. LAB & MAT
Installation (Base Bid)			4,144,716.70
Removal (Base Bid)			382,477.00
Transfers (Base Bid)			186,000.00
Authorized Contract Ammendments			$ 100,000.00
UNIT BID PRICE BASE BID			**4,813,193.70**
Optional Addition (Street Lights)			641,910.00
TOTAL BID PRICE			**$ 5,455,103.70**

BID SUMMARY

TOTAL OF UNIT BID PRICES – BASE BID
(Total of Extended Price - Labor and Material of Base Bid)

Four Million Seven Hundred Thirteen Thousand One Hundred Ninety-Three Dollars Seventy Cents
_____ Dollars _____ cents $ 4,713,193.70).

AUTHORIZED CONTRACT AMENDMENTS
(See Document 00700 - GENERAL CONDITIONS, Document 00800 - SUPPLEMENTARY CONDITIONS, and Section 01021 – CASH ALLOWANCES for description of ACA.)

One-Hundred Thousand Dollars Zero cents ($100,000.00).

TOTAL OF UNIT BID PRICES - OPTIONAL ADDER (Street Lighting)
The Owner request an adder for the installation of the street lighting.
(Total of Extended Price - Labor and Material of Alternate Addition)

Six Hundred Forty-One Thousand Nine Hundred Ten Dollars Dollars Zero cents ($ 641,910.00).

TOTAL BID PRICE

(Total of Total Unit Bid Prices (Base and Alternate) and Authorized Contract Amendments)

Five Million Four Hundred Fifty-Five Thousand One Hundred Three Dollars Seventy Cents
_____ Dollars _____ cents ($ 5,455,103.70).

Unit Prices have been computed in accordance with paragraph 11.7 of the General Conditions. BIDDER acknowledges that quantities are not guaranteed and final payment will be based on actual quantities determined as provided in the Contract Documents.

6. SUBCONTRACTORS LIST

DESCRIPTION	COMPANY NAME	BUSINESS ADDRESS

AIA Document A310™ – 2010

Bid Bond

CONTRACTOR:
(Name, legal status and address)
Reinhold Electric, Inc.
2511 Lemay Ferry Road
Saint Louis, MO 63125

SURETY:
(Name, legal status and principal place of business)
Travelers Casualty and Surety Company of America
One Tower Square
Hartford, CT 06183

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

OWNER:
(Name, legal status and address)
Tupelo Water & Light
333 Court St
Tupelo, MS 38804

Mail Notices To:
Travelers
Attn: Surety Claim Dept.
One Tower Square 2S1A
Hartford, CT 06183

BOND AMOUNT: Five Percent (5%) of the Amount Bid

PROJECT: 2023-052WL Bore New Conduit and Install New Street Lights

(Name, location or address, and Project number, if any)

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this 24th day of January, 2024

Reinhold Electric, Inc.

(Witness)

(Principal) *(Seal)*

(Title) pm

(Witness) Andrea McCarthy, Witness

Travelers Casualty and Surety Company of America
(Surety)

(Title) Andrew P. Thome, Attorney-in-Fact

TRAVELERS CASUALTY AND SURETY COMPANY OF AMERICA HARTFORD, CONN

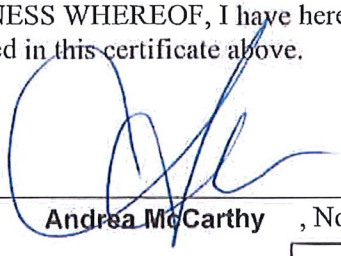
State of **Missouri**
County of **St. Louis**

On **1/24/2024**, before me, a Notary Public in and for said County and State, residing therein, duly commissioned and sworn, personally appeared **Andrew P. Thome** known to me to be Attorney-in-Fact of

Travelers Casualty and Surety Company of America

the corporation described in and that executed the within and foregoing instrument, and known to me to be the person who executed the said instrument in behalf of said corporation, and he duly acknowledged to me that such corporation executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, the day and year stated in this certificate above.



Andrea McCarthy, Notary Public

ANDREA MCCARTHY
Notary Public - Notary Seal
STATE OF MISSOURI
St. Louis County
My Commission Expires: Jul. 30, 2027
Commission # 15636518

My Commission Expires: _____

TRAVELERS

Travelers Casualty and Surety Company of America
Travelers Casualty and Surety Company
St. Paul Fire and Marine Insurance Company

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That Travelers Casualty and Surety Company of America, Travelers Casualty and Surety Company, and St. Paul Fire and Marine Insurance Company are corporations duly organized under the laws of the State of Connecticut (herein collectively called the "Companies"), and that the Companies do hereby make, constitute and appoint **ANDREW P THOME** of **CHESTERFIELD**, **Missouri**, their true and lawful Attorney(s)-in-Fact to sign, execute, seal and acknowledge any and all bonds, recognizances, conditional undertakings and other writings obligatory in the nature thereof on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

IN WITNESS WHEREOF, the Companies have caused this instrument to be signed, and their corporate seals to be hereto affixed, this **21st** day of **April, 2021.**

State of Connecticut

City of Hartford ss.

By: _____
Robert L. Raney, Senior Vice President

On this the **21st** day of **April, 2021,** before me personally appeared **Robert L. Raney,** who acknowledged himself to be the Senior Vice President of each of the Companies, and that he, as such, being authorized so to do, executed the foregoing instrument for the purposes therein contained by signing on behalf of said Companies by himself as a duly authorized officer.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

My Commission expires the **30th** day of **June, 2026**

_____
Anna P. Nowik, Notary Public

This Power of Attorney is granted under and by the authority of the following resolutions adopted by the Boards of Directors of each of the Companies, which resolutions are now in full force and effect, reading as follows:

RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President, any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary may appoint Attorneys-in-Fact and Agents to act for and on behalf of the Company and may give such appointee such authority as his or her certificate of authority may prescribe to sign with the Company's name and seal with the Company's seal bonds, recognizances, contracts of indemnity, and other writings obligatory in the nature of a bond, recognizance, or conditional undertaking, and any of said officers or the Board of Directors at any time may remove any such appointee and revoke the power given him or her; and it is

FURTHER RESOLVED, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President may delegate all or any part of the foregoing authority to one or more officers or employees of this Company, provided that each such delegation is in writing and a copy thereof is filed in the office of the Secretary; and it is

FURTHER RESOLVED, that any bond, recognizance, contract of indemnity, or writing obligatory in the nature of a bond, recognizance, or conditional undertaking shall be valid and binding upon the Company when (a) signed by the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary and duly attested and sealed with the Company's seal by a Secretary or Assistant Secretary; or (b) duly executed (under seal, if required) by one or more Attorneys-in-Fact and Agents pursuant to the power prescribed in his or her certificate or their certificates of authority or by one or more Company officers pursuant to a written delegation of authority; and it is

FURTHER RESOLVED, that the signature of each of the following officers: President, any Executive Vice President, any Senior Vice President, any Vice President, any Assistant Vice President, any Secretary, any Assistant Secretary, and the seal of the Company may be affixed by facsimile to any Power of Attorney or to any certificate relating thereto appointing Resident Vice Presidents, Resident Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such Power of Attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding on the Company in the future with respect to any bond or understanding to which it is attached.

I, **Kevin E. Hughes,** the undersigned, Assistant Secretary of each of the Companies, do hereby certify that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which remains in full force and effect.

Dated this **24th** day of **January**, **2024**

_____
Kevin E. Hughes, Assistant Secretary

To verify the authenticity of this Power of Attorney, please call us at 1-800-421-3880.
Please refer to the above-named Attorney(s)-in-Fact and the details of the bond to which this Power of Attorney is attached.

7. Bidder agrees that the Work in ***Base Bid*** will be substantially complete on or before **May 01, 2025** and completed and ready for final payment in accordance with paragraph 14.8 of the GENERAL CONDITIONS on or before **June 01, 2025**.

8. Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work on time.

9. The following documents are attached to and made a condition of this Bid:

   (a) Required Bid Security in the form of 5% Bid Bond or Bank Check in the amount of 5% of the Bid.

   (b) Bidder's Qualification Statement, Document 00420. (Include in Separate Envelope)

   (c) Drug-Free Workplace Affidavit, Document 00482.

   (d) Equal Opportunity Provisions, Document 00820.

   (e) Copies of Contractor's and Subcontractor's License Certificates, "Certificate of Responsibility".

10. Communications concerning this Bid shall be addressed to:

    The address of Bidder indicated below.

    The following address:

    Principal Contact: Bobby Davidson (bdavidson@allenhoshall.com)

    Alternate Contact: Scott Burleson PE (sburleson@allehoshall.com)

    Phone Number: 901-820-0820

    Address: 1661 International Drive, Suite 100

    Memphis, TN 38120

11. The terms used in this Bid which are defined in the GENERAL CONDITIONS or Instructions will have the meanings assigned to them in the GENERAL CONDITIONS or Instructions.

Submitted on January 24th, 20 24

Certificate of Responsibility/State Contractor License No. 25722-MC

Expiration Date: 1/17/2025

If Bidder is:

An Individual

_____(SEAL)
(Individual's Signature)

_____
(Individual's Name - Print/Type)

doing business as: _____

Business address: _____

_____

Phone No.: _____

A Partnership

_____(SEAL)
(Firm Name)

_____
(Signature of General Partner)

_____
(Print/Type)

Business address: _____

_____

Phone No.: _____

A Corporation

Reinhold Electric Inc.
(Corporation Name)

By: alexander schmittgens (Signature of person authorized to sign) Title: Project Manager

Alexander (Sasha) Schmittgens
(Print/Type name of person authorized to sign)

(Corporate Seal)

Attest: Judy Reinhold
(Secretary)

_____
(State of incorporation)

Business address: _____

_____

Phone No.: _____

A Joint Venture

_____(SEAL)
(Joint Venture)

By:_____ By:_____
(Signature of Joint Venturer) (Signature of Joint Venturer)

_____ _____
(Type/Print) (Type/Print)

_____ _____
(Address) (Address)

(Each joint venturer must sign. The manner of signing for each individual, partnership and corporation that is a party to the joint venture should be in the manner indicated above).

END OF DOCUMENT

DOCUMENT 00420
BIDDERS QUALIFICATION STATEMENT
for
Overhead to Underground Utility Relocations and/or Street Lighting along Jackson Street between Madison and Front Street, Bid-2023-066WL.

The contents of this statement are CONFIDENTIAL. This Document is to be submitted separately from the Bidding Documents. See Document 00100, INSTRUCTIONS TO BIDDERS.

Submitted by:

Name of Organization	Reinhold Electric Inc.
Name of Individual	Alexander (Sasha) Schmittgens
Title	Project Manager
Address	2511 Lemay Ferry Road
	St. Louis, MO 63125
Telephone	314-631-1158
Email Address	sasha@reinholdelectric.com

BUSINESS ORGANIZATION INFORMATION:

Check one: ☒ Corporation ☐ Partnership ☐ Joint Venture ☐ Sole Proprietorship

If Corporation:

a. Date and State of Incorporation

May 7th 1976 St. Louis, Missouri

b. List of Executive Officers

Name	Title
Gerald Reinhold	President
Chris Reinhold	Vice-Preisident
Judy Reinhold	Secretary

If Partnership:

a. Date and State of Organization

b. Name of Current General Partners

c. Type of Partnership:

☐ General ☐ Publicly Traded ☐ Limited ☐ Other (describe):

If Joint Venture:

a. Date and State of Organization

b. Name, Address, and Form of Organization of Joint Venture Partners: (indicate managing partner with an asterisk*)

If Sole Proprietorship:

a. Date and State of Organization

b. Name and Address of Owner or Owners

GENERAL BUSINESS INFORMATION:

1. Name of Surety Company and name, address, and phone number of agent.

MarshMclenna Agency
825 Maryville Center Drive
St. Louis, Missouri 63017

2. What is your approximate total bonding capacity?

☒ $500,000 to $2,000,000 ☐ $2,000,000 to $5,000,000
☐ $5,000,000 to $10,000,000 ☐ $10,000,000 or more

3. Is your organization a member of a controlled group of corporations as defined in I.R.C. Sec 1563? ☐ Yes ☒ No

If yes, show names and addresses of affiliated companies

4. Describe the permanent safety program you maintain within your organization. Use attachment if necessary.
   Attached.

5. Furnish the following information with respect to an accredited banking institution familiar with your organization.

   Name of Bank: Central Bank
   Address: 12224 Tesson Ferry Rd.
   St. Louis, MO 63128
   Account Manager: Cyndi Brockmeier
   Telephone: 314-835-3777

GENERAL PROJECT INFORMATION:

6. Value of Electric Utility Work completed during the last calendar year $ 2 Million

7. Value of all Work completed for the last calendar year $ 140 Million

8. Attach a Schedule A listing major Electric Utility projects, similar to the proposed Project, completed by this organization in the past three (3) years, with contact names and phone numbers. (If joint venture, list each participant's projects separately). List dollar value of Electric Utility Work.

9. Attach a Schedule B listing current Electric Utility projects under construction by this organization, with contact names and phone numbers. (If joint venture, list each participant's projects separately).

10. Has your organization ever failed to complete any construction contract awarded to it?

    ☐ Yes ☒ No

    If yes, describe circumstances on attachment.

11. In the last five years, has your organization ever failed to substantially complete a project in a timely manner?

    ☐ Yes ☒ No

12. Has any Corporate officer, partner, joint venture participant or proprietor ever failed to complete a project in a timely manner while an employee/officer of another firm?

    ☐ Yes ☒ No

    If yes, describe circumstances on attachment.

13. Contractor's License Number for the state(s) in which this organization is licensed to do business:

Reinhold Electric is Licenced in 20+ States. The who list is available if awarded

State of Missouri ; Chris Reinhold ; #2019030951

I hereby certify that the information submitted herewith, including any attachment is true to the best of my knowledge and belief.

By: Alexander (Sasha) Schmittgens

Title: Project Manager

Dated: 1/22/2024

END of DOCUMENT

DOCUMENT 00482 MS
DRUG-FREE WORKPLACE AFFIDAVIT
(must be attached to bid form upon submission)

STATE OF MISSISSIPPI
COUNTY OF Tupelo

DRUG-FREE WORKPLACE AFFIDAVIT
OF PRIME BIDDER

NOW COMES AFFIANT, who being duly sworn, deposes and says:

1. He/She is the principal officer for Reinhold Electric Inc. 2511 Lemay Ferry Road St. Louis, MO 63125,
(insert name and address of bidding entity)

2. That the bidding entity has submitted a bid to Tupelo, Water and Light ; 2023-066WL
(insert name of city, dept, project No.)
for the construction of Overhead to underground Utility Relocation Along Jackson Street, Madison to Front;
(insert name of project)

3. That the bidding entity employs no less than five (5) employees;

4. That Affiant certifies that the bidding entity has in effect, at the time of submission of its bid to perform the construction referred to above, a drug-free workplace program that complies with Miss. Code Ann. §71-7-1 through 71-7-33 (Rev. 1995);

5. That this affidavit is made on personal knowledge.

Further Affiant saith not.

Alexander Schuttgen
AFFIANT

SUBSCRIBED AND SWORN TO before me this 22 day of Jan, 2024.

STATE OF MISSOURI • ST. LOUIS COUNTY • MATTHEW J. LEADERS • NOTARY SEAL • NOTARY PUBLIC • My Commission Expires Nov. 15, 2026 • Commission # 16235979

NOTARY PUBLIC

My commission expires: 11-15-26

SECTION 00820
EQUAL OPPORTUNITY PROVISIONS

The Bidder represents that:

It has [X], does not have [ ], 100 or more employees, and if it has, that

It has [X], has not [ ], furnished the Equal Employment Opportunity - Employers Information Report EEO-1, Standard Form 100, required of employers with 100 or more employees pursuant to Executive Order 11246 and Title VII of the Civil Rights Act of 1964.

The Bidder agrees that it will obtain, prior to the award of any subcontract for more than $10,000 hereunder to a subcontractor with 100 or more employees, a statement, signed by the proposed subcontractor, that the proposed subcontractor has filed a current report on Standard Form 100.

The Bidder agrees that if it has 100 or more employees and has not submitted a report on Standard Form 100 for the current reporting year and that if this contract will amount to more than $10,000, the Contractor will file such report, as required by law, and notify the Owner in writing of such filing prior to the Owner's acceptance of this Proposal.

CERTIFICATION OF NONSEGREGATED FACILITIES. The Bidder certifies that it does not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The Bidder certifies further that it will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it will not permit its employees to perform their services at any location, under its control where segregated facilities are maintained. The Bidder agrees that a breach of this certification is a violation of the Equal Opportunity Clause in this contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, time clocks, 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 it has obtained identical certifications from proposed subcontractors for specific time periods) it will obtain identical certifications 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 it will retain such certifications in its files.

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

EQUAL OPPORTUNITY CLAUSE. During the performance of this contract, the Bidder agrees as follows:

(1) The Bidder will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Bidder will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to, the following: employment; upgrading; demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Bidder agrees to post, in conspicuous places available to

employees and applicants for employment, notices to be provided setting forth the provision of this Equal Opportunity Clause.

(2) The Bidder will, in all solicitations or advertisements for employees placed by or on behalf of the Bidder, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(3) The Bidder will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the Bidder's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The Bidder will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(5) The Bidder will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to its books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the Bidder's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Bidder may be declared ineligible for further contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in the said Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in the said Executive Order or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The Bidder will include this Equal Opportunity Clause in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Bidder will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance; provided, however, that in the event a Bidder becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the Bidder may request the United States to enter into such litigation to protect the interests of the United States.

END OF SECTION

DOCUMENT 00650
CERTIFICATES OF INSURANCE

Insurance Certificates shall be provided and inserted immediately following this page.

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 1/22/2024

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
J.W. Terrill, a Marsh & McLennan Agency LLC Co.
825 Maryville Centre Drive
Suite 200
Chesterfield MO 63017

CONTACT NAME: Nancy Schwer, CISR
PHONE (A/C, No, Ext): 314 594-2779 **FAX (A/C, No):** 888-307-1561
E-MAIL ADDRESS: nancy.schwer@marshmma.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : National Fire Insurance Co of Hartford	20478
INSURER B : Midwest Builders' Casualty Ins. Co.	13126
INSURER C : Continental Casualty Company	20443
INSURER D : Travelers Property Casualty Co of Amer	25674
INSURER E : Continental Insurance Company	35289
INSURER F :	

INSURED REINHELECT1
Reinhold Electric, Inc.
2511 Lemay Ferry Road
St. Louis , MO 63125

COVERAGES **CERTIFICATE NUMBER:** 1582428936 **REVISION NUMBER:**

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

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY			6050175744	8/1/2023	8/1/2024	EACH OCCURRENCE	$ 1,000,000
	CLAIMS-MADE X OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 1,000,000
							MED EXP (Any one person)	$ 15,000
							PERSONAL & ADV INJURY	$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ 2,000,000
	POLICY X PRO-JECT X LOC						PRODUCTS - COMP/OP AGG	$ 2,000,000
	OTHER:							$
A	AUTOMOBILE LIABILITY			6049994038	8/1/2023	8/1/2024	COMBINED SINGLE LIMIT (Ea accident)	$ 2,000,000
	X ANY AUTO						BODILY INJURY (Per person)	$
	OWNED AUTOS ONLY / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	X HIRED AUTOS ONLY / X NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident)	$
								$
E	X UMBRELLA LIAB X OCCUR			7015171010	8/1/2023	8/1/2024	EACH OCCURRENCE	$ 10,000,000
	EXCESS LIAB CLAIMS-MADE						AGGREGATE	$ 10,000,000
	DED X RETENTION $ 0							$
B C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N	N / A		WC10000020372023A WC678725976	8/1/2023 8/1/2023	8/1/2024 8/1/2024	X PER STATUTE / OTH-ER	
	ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBEREXCLUDED? N (Mandatory in NH)						E.L. EACH ACCIDENT	$ 1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - EA EMPLOYEE	$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	$ 1,000,000
D	Leased/Rented Equipment			QT6300R500153TIL23	8/1/2023	8/1/2024	Per Occurrence:	500,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
Re: Job #82030; Overhead to Underground Utility Relocations and/or Street Lighting along Jackson Street between N Madison and N Front Streets
Tupelo Water & Light, City of Tupelo, and Allen & Hoshall are included as Additional Insured(s) for General Liability, Automobile Liability and Umbrella/Excess Liability with respect to work performed by the Named Insured, if required by written contract, agreement or permit and subject to the provisions and limitations of the policy.
General Liability, Automobile Liability and Umbrella/Excess Liability coverages are considered primary and non-contributory, if required by written contract, agreement or permit and subject to the provisions and limitations of the policy.
A waiver of subrogation is granted for General Liability, Automobile Liability, Worker's Compensation and Umbrella/Excess Liability coverage where permitted by law and if required by written contract, agreement or permit and subject to the provisions and limitations of the policy.
See Attached...

CERTIFICATE HOLDER

Tupelo Water & Light
333 Court St
Tupelo MS 38804

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

AGENCY CUSTOMER ID: REINHELECT1

LOC #: _____

ADDITIONAL REMARKS SCHEDULE

AGENCY	NAMED INSURED
J.W. Terrill, a Marsh & McLennan Agency LLC Co.	Reinhold Electric, Inc. 2511 Lemay Ferry Road St. Louis , MO 63125
POLICY NUMBER	
CARRIER / NAIC CODE	EFFECTIVE DATE:

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,

FORM NUMBER: 25 FORM TITLE: CERTIFICATE OF LIABILITY INSURANCE

A 30 day notice of cancellation will be given to the named Certificate Holder, for reasons other than non-payment of premium or Insured's request. This 30 day notice of cancellation applies to General Liability, Automobile Liability, Worker's Compensation and Umbrella/Excess Liability coverages.

ADDENDUM NO. 1

BID 2023-066WL

SPECIFICATIONS AND CONTRACT DOCUMENTS

LABOR AND MATERIAL
FOR
OVERHEAD TO UNDERGROUND UTILITY RELOCATIONS AND/OR STREET LIGHTING
ALONG JACKSON ST. BETWEEN MADISON AND FRONT STREET

TUPELO WATER & LIGHT

DECEMBER 20, 2023

This addendum forms a part of the Contract Documents and modifies the original specifications, dated December 20, 2023 noted below. Acknowledge receipt of this Addendum by signing below and attaching to the Bid Documents. Failure to do so may subject bidder to disqualification.

Item No. 1: **Replace the Document "00304 BID FORM" with the revised Document "00304 BID FORM R1" & excel sheet "304 Bid Form R1.xlsx".**
Summary of changes:

Revised secondary underground conductors.
Added 4/0 CU THHN, 2/0 CU THHN, UGTPX2/0 and UGTPX 350

Item No. 2: **Replace Sheet EU1.00 with EU1.00 Revision 1.**
Summary of changes
:

Added Note 8. to Project Notes.

Item No. 3: **Replace Sheet EU1.0Q with EU1.0Q Revision 1.**
Summary of changes:

Revised Install Secondary Units.

Item No. 4: **Replace Sheet EU1.01 thru EU1.03 with EU1.01 Revision thru EU1.03 Revision 1.**
Summary of changes:

Revised 1 Phase routing on north side of Jackson, between Madison & Church Street.

By: Alexander (Sasha) Schmittgens

Bidder: Reinhold Electric Inc. Date: January 12th 2024

ADDENDUM NO. 2

BID 2023-066WL

SPECIFICATIONS AND CONTRACT DOCUMENTS

LABOR AND MATERIAL
FOR
OVERHEAD TO UNDERGROUND UTILITY RELOCATIONS AND/OR STREET LIGHTING ALONG JACKSON ST. BETWEEN MADISON AND FRONT STREET

TUPELO WATER & LIGHT

DECEMBER 20, 2023

This addendum forms a part of the Contract Documents and modifies the original specifications, dated December 20, 2023 noted below. Acknowledge receipt of this Addendum by signing below and attaching to the Bid Documents. Failure to do so may subject bidder to disqualification.

Item No. 1: **BID DATE CHANGE**: DOCUMENT 00021, INVITATION TO BIDDERS, 1st paragraph, 3rd line, Replace "THURSDAY, THE 18TH DAY OF JANUARY, 2024" with **"WEDNESDAY , THE 24TH DAY OF JANUARY, 2024.**

Item No. 2: **Replace the Document "00304 BID FORM R1" with the revised Document "00304 BID FORM R2" & excel sheet "304 Bid Form R2.xlsx".**

Summary of changes:

Revised secondary underground conductors.
Added 4/0 CU THHN, 2/0 CU THHN, UGTPX2/0 and UGTPX 350

Revision R1 Had pages 8 of 9 and 9 of 9 missing.

By: Alexander (Sasha) Schmittgens

Bidder: Reinhold Electric Inc. Date: January 16th 2024

REINHOLD ELECTRIC INC
2511 Lemay Ferry Rd
Saint Louis, Missouri 63125
Phone (314) 631-1158
Fax (314) 631-6750

Date 11/29/2023

From: Jeff Housmann
Safety Director

Re: Reinhold Electric Safety Division

To: Tupelo Water & Light

Company
Reinhold Electric is dedicated to the safety of our employees and that of the public. Our owners, managers and field supervisors are fully committed to our motto "Safety First, Be Alert". From our President to our new hires the first and most important discussion is Safety.

Safety Staff
The safety Division is headed our President, Safety Director, and Program Managers. We have office staff to maintain and keep records and field safety management.

Education and Training
All of our employees are trained in their specific trade and have combinations of classroom, field and hands-on instruction. Training is done by, in house OSHA authorized instructors, third party professional safety instructors, union instructors or journeyman. Employee training ranges from electrical safety, arc flash, tower climbing, bucket truck, MSHA underground mining, and equipment operations

Field Audits
All work sites are subject to random safety audits by safety or project managers. If corrective action is required, work is halted and instruction is given. All safety audits and corrective actions are shared with Reinhold employees to prevent similar occurrences.

PPE
Reinhold has a full PPE policy, all commercial, industrial and residential employees. Commercial and industrial employees are required to wear hardhats, safety glasses, Hi-Viz apparel, steel-toed boots and cut level gloves when sharp edges are present or when using powered cutting tools, at minimum.

Fiels superviors Requirements

To help reduce the injury rates all commercial and industrial work sites are required to do a daily Job Safety Analysis (JSA) to eliminate hazards and prevent injury in the work-place. All crews are also required to complete weekly Toolbox talks that pertain to the task, industry, or conditions of work sites.

Safety incintives and Disciplinary action

A safety incentive system has been implemented to provide positive feedback to jobsites that exceeded safety expectations. All safety violations are documented, and progressive disciplinary action is implemented. All incentives and disciplinary action are documented for record.

Drug and Alcohol testing

All union employees are tested for drug and alcohol usage through the union hall or by a third-party administrator for non-union employees. Testing is done for pre-employment, post-accident, for reasonable suspicion and randomly. We have both DOT testing and non-DOT testing and participate in reporting to customes quarterly on percentages.

Thank you,

11/29/23

Jeff Housmann
Reinhold Electric

REINHOLD ELECTRIC INC
2511 Lemay Ferry Rd
Saint Louis, Missouri 63125
Phone (314) 631-1158
Fax (314) 631-6750

1. Introduction

   Jerry Reinhold started Reinhold Electric, Inc in 1976 with the focus of providing quality, efficient electrical services for a fair price. Reinhold Electric is, to this day, owned and operated by Jerry Reinhold and his family. Over the 45-year history of the company, Reinhold Electric has grown to one of the largest electrical contractors in the St. Louis area. Reinhold holds business and electrical licenses in 20+ states and hundreds of counties and local municipalities. Our diversely skilled workforce allows Reinhold Electric to provide service and expertise in many subsets of the electrical industry. Below you will find information relating to our company history, skilled workforce, completed projects and references.

2. Key Personnel
   a. Jerry Reinhold
      - Jerry is owner and president of Reinhold Electric. He has 41 years' experience in the electrical field. He is a Master Electrician. He oversees day-to-day operations of Reinhold Electric.
   b. Project Managers
      - Reinhold Electric staffs 16 estimators and project managers. Included in the staff are Chris Reinhold and Mike Reinhold. Our staff carries numerous certifications, licenses, and a combined 240 years industry experience.
   c. Field Employees
      i. Electricians
         1. Reinhold Electric currently employees 198 Journeyman electricians. All Reinhold Electric's Journeymen electricians are members of Local 57 Electrical Union. Reinhold Electric's Journeymen electricians all have more than 5 years' experience and training.
         2. Electrician Breakdown
            a. 198 – Journeyman electricians
            b. 97 – Apprentice electricians
         3. Training
            a. OSHA 10
            b. Aerial Lift Operator
            c. Construction Fall Protection
            d. Journeyman Certification

4. Reinhold Electric Journeymen completed apprenticeship courses or past final test of the apprenticeship courses through the Local 57/AEC Joint Apprenticeship Program.
5. All Reinhold Electric Journeymen electricians are required to take continuing education classes annually

ii. Laborers
1. Reinhold Electric employs 27 laborers. All laborers are members of Local 110. All journeymen laborers have at least 5 years on the job experience and training.
2. Training
a. OSHA 10 and 30
b. Aerial Lift
c. Crane Rigging

iii. Carpenters/Millwrights
1. Reinhold Electric employs seven carpenters and millwrights. All carpenters and millwrights are members of the Carpenters District Council. All journeymen carpenters and millwrights have at least five years on the job experience and training.
a. OSHA 10
b. Aerial Lift Operator
c. Construction Fall Protection
d. Journeyman Certification

3. Safety and Quality Control
a. Full Time Safety Coordinator
- 35 years of industrial and construction experience ranging from telecommunications to Process Safety Management of Highly hazardous chemicals, 15 years directly in safety management. Holding a Bachelor's Degree in Industrial Technology with a minoring in Industrial electronics and an Associates of Science in Biology. He also holds the following authorizations and certifications.
- Authorized OSHA outreach trainer for General Industry and Construction
- Safety Health and Environmental Professional (SHEP)
- Certified Health and Safety Official (CHSO) in both General Industry and Construction.
- Specialist in Safety and Health (SSH) in both General Industry and Construction
- 40 hour Hazwoper Trainer

4. Locations and Coverage Area
a. Offices
i. St. Louis, MO (Headquarters)
ii. Lake St. Louis, MO
iii. Camdenton, MO
iv. Kansas City, MO (Remote)

v. Fulton, MO (Remote)

b. Coverage Area

- Reinhold has completed projects in 30 states over the last five years with at least 98% of the work majority of the work being self-performed.

5. Specific Types

i. Medium Voltage Power Supply

1. GlaxoSmithKline – St. Louis, MO
   - Replaced medium voltage substation and two feed infrastructure
2. Ice Cream Specialties – Brentwood, MO
   - Replaced 34KV substation
3. Silgan Container – Union, MO
   - Installed new 12,470KV switchgear and transformer
4. Jost Chemical – St. Louis, MO
   - Installed new 34KV substation to and (5) MV transformers to feed plant
5. US Silica – Pacific, MO
   - Install new 34KV substation to feed new section of quarry

ii. Utility/Electrical Infrastructure Installation

1. Salem Housing Authority – Salem, MO
   - Design, build, and install of 5kv loop feed for housing development
2. City of Jackson, MO
   - Installation of new underground 12,470v feed for city utility
3. Camp Clark – Nevada, MO
   - Install electrical infrastructure to 15 medium voltage transformers and 60 buildings
4. Missouri State Fair Campgrounds
   - Installation of medium voltage underground infrastructure to new to new state fair campground

iii. Standby Generators

1. Fort Leonard Wood Fire Station – Fort Leonard Wood, MO
   - Installed 450KW generator and transfer switch for new fire station
2. BNSF – Havre, MT
   - Installed 450KW generator for backup railyard power
3. Royal Banks of Missouri
   - Installed 400KW standby generator and transfer switch for bank
4. BNSF – Haslet, TX
   - Installed 500KW standby diesel generator for railyard
5. Holiday Inn – Creve Coeur, MO
   - Installed 200KW standby generator for new hotel
6. XO Communications – Maryland Heights, MO

- Installed 2MW standby generator for Midwest communications hub

iv. Multi-Story Construction
    1. Hyatt Hotel – Chesterfield, MO-
        - New construction of seven story hotel
    2. Holiday Inn – Creve Coeur, MO
        - New construction of four story hotel
    3. Hyatt Hotel – Mt. Vernon, MO
        - New construction of seven story hotel
    4. Bold on Boulevard
        - New construction of multi-story multi-building residences
    5. Vita the Jewel
        - New construction of multi-story multi-building residences
    6. Sugar Creek Apartments
        - New construction of multi-story multi-building residences

v. IT Infrastructure
    1. Cardinal Health – Earth City, MO
        - Installed low voltage cabling, fiber optics, and wireless access points through manufacturing facility including clean rooms
    2. GlaxoSmithKline – St. Louis, MO
        - Installed low voltage cabling, fiber optics, and wireless access points through manufacturing facility including clean rooms
    3. Fox School District – Jefferson County, MO
        - Installed wireless access points at all elementary, middle, and high schools in district
    4. Triad Manufacturing – St. Louis, MO
        - Installed over one mile of fiber cabling to integrate robotic machines and inventory system

vi. Card Access System
    1. Goodwill – Jennings, MO
        - Certified installer of "Key Scan" card access system
    2. Goodwill Excel School – Columbia, MO
        - Certified installer of "Key Scan" card access system
    3. 1st Phorm – Fenton, MO
        - Installation of facility card access system
    4. GlaxoSmithKline
        - Installation of facility card access system
    5. Landing of O'Fallon
        - Installation of card access throughout facility including memory care

vii. Nurse Call System
    1. Landing of O'Fallon – O'Fallon
        - Installed nurse call system for new construction of senior living campus
    2. Esse Health – St. Louis, MO

- Installed nurse call for buildout of doctors' offices

3. Garden Place – Columbia, MO
   - Installed new nurse call system in senior living center
4. Fresenius Medical Centers – Throughout Coverage Area
   - Maintain and replace nurse call systems and stations throughout all facilities
5. The Westchester House

viii. Building Automation and Equipment Control Wiring

1. Huvepharma – St. Louis, MO
   - Installation of new line and control process
2. Ouray Silver Mine – Ouray, MO
   - Installation of mine conveyor system
3. Columbia Quarry – Columbia, IL
   - Installation of rock crushing conveyor system
4. Trap Rock Granite Quarry – Ironton, MO
   - Installation of conveyor for rail load out
5. Walmart Supercenters – Throughout Midwest
   - Installation of energy management systems and refrigeration controls for new stores and remodels

ix. Lightning Protection

1. GlaxoSmithKline – St. Louis, MO
   - Installation of lightning protection for plant
2. Jost Chemical – St. Louis, MO
   - Installation of lightning protection for plant

x. Fire Alarm

1. VA – Jefferson Barracks
   - New fire alarm system for VA Hospital on Jefferson Barracks campus
2. Express Scripts – St. Louis, MO
   - New fire alarm system installed through North County offices
3. Sensient Colors – St. Louis, MO
   - New fire alarm system installed throughout plant
4. GlaxoSmithKline – St. Louis, MO
   - New fire alarm system installed throughout plant
5. Goodwill - St. Louis, MO
   - New fire alarm system in seven story downtown St. Louis offices

xi. Camera System

1. Social Security Administration – St. Louis, MO
   - Installed camera system for SSA office
2. City of Saint Louis – St. Louis, MO
   - Installed 200 cameras and fiber interconnect for St. Louis City streets and intersections
3. Carpenters District Council – St. Louis, MO

- Installed new interconnected camera system for all buildings of Hampton campus

4. Beleaf Medical – Earth City, MO
   - Installed government regulated camera system for new medical marijuana grow facility

xii. Precast Structures

1. Millstone Weber – St. Charles, MO
   - New construction of Millstone Weber offices
2. 1st Phorm – Fenton, MO
   - New construction of 1st Phorm offices
3. St. Louis Athletic Center – Fenton, MO
   - New construction of indoor athletic training and practice facility
4. Boeing – Hazelwood, MO
   - New construction of Boeing storage facility
5. Elite Packaging – Hazelwood, MO
   - New construction of offices and packaging facility

xiii. Solar Installation

1. Slidematic - Rockford, IL
   - 1800 MV – Medium Voltage, AC Power, Internal Plant interconnect, Switch Gear, 850 ft. Bore & Trench
2. Somonauk School District - Somonauk, IL
   - Overhead and Underground Medium Voltage, AC & DC Wiring, CAB System, Testing – Utility CoMed, 1950 Kw AC side
3. Landmark Solar - Belvidere, Il
   - Overhead Medium Voltage and Equipment Pad – Utility CoMed, 190 Kw AC side
4. Edwardsville Solar - Edwardsville, IL
   - 15KV Medium Voltage Overhead and Underground, 21 Poles, Testing – Utility Ameren Illinois, 2000 Kw AC side
5. Kankakee Solar - Kankakee, IL
   - 15 KV Medium Voltage & Fiber (Underground), Testing, Utility CoMed, 2000 Kw AC side

SPECIFICATIONS AND CONTRACT DOCUMENTS

FOR

LABOR AND MATERIALS
FOR
Overhead to Underground Utility Relocations and/or
Street Lighting along Jackson Street
Between
Madison and Front Street

TUPELO WATER & LIGHT
TUPELO, MISSISSIPPI

1661 INTERNATIONAL DRIVE
SUITE 100
MEMPHIS, TENNESSEE
38120

BID NO: 2023-066WL
JOB NO: 82030
DATE: December 20, 2023

DOCUMENT 00002
CERTIFICATIONS

The Plans and Specifications covered by these Contract Documents were prepared under the supervision and direction of the undersigned Registered Engineers and/or Architects, whose seals are affixed below.

Signed copy on file
Russell Scott Burleson, P.E.
Electrical Engineer

END OF DOCUMENT

DOCUMENT 00003
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END OF DOCUMENT

DOCUMENT 00021
INVITATION TO BIDDERS

Separate sealed or electronic bids for the ***Overhead to Underground Utility Relocations and/or Street Lighting along Jackson Street between N Madison and N Front Streets, BID 2023-066WL,*** will be received by the ***CITY OF TUPELO*** until ***10:00 A.M., LOCAL TIME ON THURSDAY, THE 18TH DAY OF JANUARY, 2024*** and then at said office publicly opened and read aloud. Sealed bids will be received until the designated date and time at ***TUPELO CITY HALL, 71 EAST TROY STREET, TAX OFFICE, ATTENTION: TRACI DILLARD, TUPELO, MS 38804***. Electronic bids will be received until the date and time via electronic online submission through www.tupelomsbids.com.

A prebid conference for this project will be held. Attendance is not mandatory. "Instructions to Bidders" contains information concerning prebid conference and qualifications of bidders.

The Project generally consists of the following:

Base Bid:
Furnish labor, material, and equipment to convert approximately 1/2 mile overhead 15kV 3 Phase distribution line to underground. Install new concrete poles and primary risers to terminate back to existing 15kV overhead 3 Phase. Direction bore and trench new conduit, install flush mount pull boxes/handholes, and padmount medium voltage Vista® switchgear. Install conduit duct system to accommodate primary underground, secondary, underground, fiber, AT&T, Comcast, C-Spire, Select Connect, and Windstream. AT&T, Comcast, C-Spire, Select Connect, and Windstream work will only consist of the installation of the conduit system.

Optional Adder:
Furnish labor and material for the complete installation of new street lighting.

The Contract Documents, in printed form, may be examined at the ***CITY OF TUPELO, AT CITY HALL, 71 EAST TROY STREET, TUPELO, MS 38804***.

The Contract Documents may also be purchased and downloaded electronically from www.tupelomsbids.com. Any questions about electronic bidding or purchasing bid documents should direct their questions to Planhouse at (662) 407-0193.

Bids will be accepted only under the name of the Bidder to whom contract documents have been issued, and whose name appears on the official list of Plan holders maintained by the City of Tupelo.

Each bidder must deposit with this bid, security in the amount, form and subject to the conditions provided in the Information for Bidders.

No Bidder may withdraw his bid within 45 days after the actual date of the opening thereof.

Simultaneously with his delivery of the executed contract, the Contractor shall furnish surety bonds subject to the conditions provided in the Information for Bidders.

All applicable laws, ordinances and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout.

Each Bidder is responsible for inspecting the site and for reading and being thoroughly familiar with the Contract Documents. The failure or omission of any Bidder to do any of the foregoing shall in no way relieve any Bidder from any obligation in respect to this Bid.

A conditional or qualified Bid will not be accepted. Award will be made to the lowest responsible, responsive Bidder.

The Owner reserves the right to waive any informality or to reject any or all Bids.

This is the 20th day of December 2023.

TODD JORDAN, MAYOR
CITY OF TUPELO

Publish: December 20th, December 27th, 2023

DOCUMENT 00100
INSTRUCTIONS TO BIDDERS

1. DEFINED TERMS.

1.1 Terms used in these Instructions to Bidders, which are defined in the General Conditions of the Construction Contract, have the meanings assigned to them in the General Conditions. The term "Bidder" means one who submits a Bid directly to Owner, as distinct from a sub-bidder, who submits a bid to a Bidder. The term "Successful Bidder" means the lowest, qualified, responsible and responsive Bidder to whom Owner (on the basis of Owner's evaluation as hereinafter provided) makes an award. The term "Bidding Documents" includes the Advertisement or Invitation to Bid, Instructions to Bidders, the Bid Form, and the proposed Contract Documents (including all Addenda issued prior to receipt of Bids).

2. COPIES OF BIDDING DOCUMENTS.

2.1 Complete sets of Bidding Documents for the sum stated in the Advertisement or Invitation to Bid may be obtained from Engineer. This sum is non-refundable.

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

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

3. QUALIFICATIONS OF BIDDERS.

3.1 Each Bid must contain evidence of Bidder's qualification to do business in the state where the Project is located or covenant to obtain such qualification prior to award of the contract.

3.2 Each Bidder shall submit Document 00420 - BIDDERS QUALIFICATION STATEMENT in a clearly marked separate envelope **(separate from the BID).** This document will not be made public.

4. EXAMINATION OF CONTRACT DOCUMENTS AND SITE.

4.1 It is the responsibility of each Bidder before submitting a Bid, to (a) examine the Contract Documents thoroughly, (b) visit the site to become familiar with the local conditions that may affect cost, progress, performance or furnishing of the Work, (c) consider federal, state and local Laws and Regulations that may affect cost, progress, performance or furnishing of the Work, (d) study and carefully correlate Bidder's observations with the Contract Documents, and (e) notify Engineer of all conflicts, errors or discrepancies in the Contract Documents.

4.2 Reference is made to the Supplementary Conditions for identification of:

a. Those reports of explorations and tests of subsurface conditions at the site which have been utilized by Engineer in preparation of the Contract Documents. Bidder may rely upon the accuracy of the technical data contained in such reports but not upon non-technical data, interpretations or opinions contained therein or for the completeness thereof for the purposes of bidding or construction.

b. Those drawings of physical conditions in or relating to existing surface and subsurface conditions (except Underground Facilities) which are at or contiguous to the site which have been utilized by Engineer in preparation of the Contract Documents. Bidder may rely upon the accuracy of the technical data contained in such drawings but not upon the completeness thereof for the purposes of bidding or construction.

c. Copies of such reports and drawings will be made available by Owner to any Bidder on request. Those reports and drawings are not part of the Contract Documents but the technical data contained therein upon which Bidder is entitled to rely as provided in Paragraphs 4.2(a) and 4.2(b) are incorporated therein by reference. Such technical data has been identified and established in the Supplementary Conditions.

4.3 Information and data reflected in the Contract Documents with respect to Underground Facilities at or contiguous to the site is based upon information and data furnished to Owner and Engineer by owners of such Underground Facilities or others, and Owner and Engineer do not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary Conditions.

4.4 Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders on subsurface conditions, Underground Facilities and other physical conditions, and possible changes in the Contract Documents due to differing conditions appear in Paragraphs 4.2 and 4.3 of the General Conditions.

4.5 Before submitting a Bid, each Bidder will, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests and studies and obtain any additional information and data which pertain to the physical conditions (surface, subsurface and Underground Facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance or furnishing of the Work and which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price and other terms and conditions of the Contract Documents.

4.6 On request, in advance, Owner will provide each Bidder access to the site to conduct such explorations and tests as each Bidder deems necessary for submission of a Bid. Bidder shall fill all holes, clean up and restore the site to its former condition upon completion of such explorations.

4.7 The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Contract Documents and such means, methods, techniques, sequences or procedures of construction as may be indicated in or required by the Contract Documents, and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

5. AVAILABILITY OF LANDS FOR WORK

5.1 The lands upon which the Work is to be performed, rights-of-way and easements for access thereto and other lands designated for use by Contractor in performing the Work are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by Contractor. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by Owner unless otherwise provided in the Contract Documents

6. INTERPRETATIONS AND ADDENDA.

6.1 All questions about the meaning or intent of the Contract Documents are to be directed to Engineer. Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda mailed or delivered to all parties recorded by Engineer as having received the Bidding Documents. Questions received less than seven days prior to the date for opening of Bids may not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

6.2 Addenda may also be issued to modify the Bidding Documents as deemed advisable by Owner or Engineer.

7. BID SECURITY.

7.1 Each Bid must be accompanied by Bid security made payable to Owner in an amount of five percent of the Bidder's maximum Bid price and in the form of a bank check or a Bid Bond issued by a surety meeting the requirements of Paragraph 5.1 of the General Conditions.

7.2 The Bid security of the Successful Bidder will be retained until such Bidder has executed the Agreement and furnished the required contract security, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Agreement and furnish the required contract security within fifteen days after the Notice of Award, Owner may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders whom Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of the seventh day after the Effective Date of the Agreement or the ninety-first day after the Bid opening, whereupon Bid security furnished by such Bidders will be returned. Bid security with Bids which are not competitive will be returned within ten days after the Bid opening.

8. CONTRACT TIME.

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

9. LIQUIDATED DAMAGES.

9.1 Provisions for liquidated damages are set forth in the Agreement.

10. SUBSTITUTE OR "OR EQUAL" ITEMS.

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

11. SUBCONTRACTORS, SUPPLIERS, AND OTHERS

11.1 If the Bid Form or Supplementary Conditions require the identity of certain Subcontractors, Suppliers and other persons and organizations (including those who are to furnish the principal items of material and equipment) the Bidder shall list the requested data. If requested by the Owner, the apparent Successful Bidder, and any other Bidder so requested, shall within five days after Bid opening submit to Owner an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, person or organization listed. An Owner or Engineer who after due investigation has reasonable objection to any proposed Subcontractor, Supplier, other person or organization, may before the Notice of Award is given request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder shall submit an acceptable substitute, that Bidder's Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution and Owner may consider such price adjustment in evaluating Bids and making the Contract award.

If apparent Successful Bidder declines to make any such substitution, Owner may award the contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers and other persons and organizations. The declining to make requested substitutions will not constitute grounds for sacrificing the Bid security of any Bidder. Any Subcontractor, Supplier, other person or organization 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 Owner and Engineer subject to revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 6.5 of the General Conditions

12. BID FORM.

12.1 The Bid Form is included with the Bidding Documents.

12.2 All Bids must be submitted on the bid form. The bid form is the signed form with the date, bid number and the vendor address on it.

12.3 All blanks on the Bid Form must be completed in ink or by typewriter.

12.4 Bids by corporations must be executed in the corporate name by the president or a vice-president (or other corporate officer accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation must be shown below the signature.

12.5 Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature and the official address of the partnership must be shown below the signature.

12.6 All names must be typed or printed below the signature.

12.7 The Bid shall contain an acknowledgment of receipt of all Addenda (the numbers of which must be filled in on the Bid Form).

12.8 The address and telephone number for communications regarding the Bid must be shown.

12.8 Bids must be priced on a **Unit Price** basis. The **Total of Unit Bid Prices** is the total of the unit prices multiplied by the estimated quantities of the units listed on the Bid Form. **The value of OWNER FURNISHED MATERIALS is not to be included in the Total of Unit Bid Prices.**

Provide a separate price for each Alternate described in the Specifications and as provided for in the Bid Form. The price of the Bid for each Alternate will be the amount to be added to or deducted from the price of the base Bid if Owner selects the Alternate.

The Total Bid Price shall be the sum of the extended prices for labor and/or materials of each item from the Bid Form, and all Authorized Contract Amendments or other cash allowances, if any, named with the Contract Documents as provided in paragraph 11.6 of the General Conditions.

12.9 The Bid price shall include such amounts as the Bidder deems proper for overhead and profit on account of cash allowances named in the Contract Documents as provided in paragraph 11.6 of the General Conditions.

13. SUBMISSION OF BIDS.

13.1 Bids, Bid security, and other required documents shall be submitted at the time and place indicated in the Advertisement or Invitation to Bid.

13.2 **DELIVERY ENVELOPE** shall be used for the postal/mailing/delivery service envelope when such delivery envelope is required. **Delivery Envelope shall be marked "Bid Enclosed" with Project Name, Bid time and date**. Delivery Envelope shall be separate from the Bid Envelope.

13.3 **Two copies of the BID FORM are to be completed and submitted with the Bid security and other required documents**.

13.4 Bidder's Certificate of Responsibility must be written on the outside of the bid envelope or it must be stated the total bid amount to be less than $50,000.00. Bids will be awarded to the lowest and best bidder. Bid will be valid for a twelve month period. Approved bidder must begin work within five (5) working days after notice to proceed is issued.

13.5 Document 00482 – DRUG-FREE WORKPLACE AFFIDAVIT, is to be submitted with the BID FORM.

13.6 Document 00820, EQUAL OPPORTUNITY PROVISIONS, is to be submitted with the BID FORM.

14. MODIFICATION AND WITHDRAWAL OF BIDS.

14.1 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.

14.2 If, within twenty-four hours after Bids are opened, any Bidder files a duly signed, written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid and the Bid security will be returned. Thereafter, that Bidder will be disqualified from further bidding on the Work to be provided under the Contract Documents.

15. OPENING OF BIDS.

15.1 Bids without evidence of proper qualifications as described in Paragraph 3 or not submitted as described in Paragraph 13 will be listed as **NON-RESPONSIVE** and will be returned to the Bidder unopened.

16. BIDS TO REMAIN SUBJECT TO ACCEPTANCE.

16.1 All bids will remain subject to acceptance for forty-five days after the day of the Bid opening, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to that date.

16.2 The Owner will reject any and all bids which include an escalation charge or clause (including fuel surcharges).

17. AWARD OF CONTRACT.

17.1 The Owner reserves the right to reject any and all bids, to waive any informalities in the bid, or award the bid to whomsoever they may choose.

17.2 Owner reserves the right to reject the Bid of any Bidder if Owner believes that it would not be in the best interest of the Project to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by Owner. Discrepancies in the multiplication of units of Work and unit prices will be resolved in favor of the correct multiplication of the listed units and Unit Prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.

17.3 In evaluating Bids, Owner will consider the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the Bid Form or prior to the Notice of Award.

17.4 Owner may consider the qualifications and experience of Subcontractors, Suppliers, and other persons and organizations proposed for those portions of the Work as to which the identity of Subcontractors, Suppliers, and other persons and organizations must be submitted as provided in the Supplementary Conditions. Owner also may consider the operating costs, maintenance requirements, performance data and guarantees of major items of materials and equipment proposed for incorporation in the Work when such data is required to be submitted prior to the Notice of Award.

17.5 Owner may conduct such investigations as Owner deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of Bidders, proposed Subcontractors, Suppliers and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to Owner's satisfaction within the prescribed time.

17.6 If the contract is to be awarded, it will be awarded to the lowest Bidder whose evaluation by Owner indicates to Owner that the award will be in the best interests of the Project.

17.7 If the contract is to be awarded, Owner will give the Successful Bidder a Notice of Award within forty-five days after the day of the Bid opening.

18. CONTRACT SECURITY.

18.1 Paragraph 5.1 of the General Conditions and the Supplementary Conditions describe the Owner's requirements as to performance and payment Bonds. When the Successful

Bidder delivers the executed Agreement to Owner, it must be accompanied by the required performance and payment Bonds.

19. SIGNING OF AGREEMENT.

19.1 When Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with all other written Contract Documents attached. Within (15) fifteen days thereafter Contractor shall sign and deliver the required number of counterparts of the Agreement and attached documents to Owner with the required Bonds and Insurance Certificates. Within (10) ten days thereafter Owner shall deliver one fully signed counterpart to Contractor. Each counterpart is to be accompanied by a complete set of the Drawings with appropriate identification.

20. PREBID CONFERENCE.

20.1 A prebid conference will be held at 10:00 A.M. local time on the *11TH* day of January, 2024 at Allen & Hoshall's Tupelo office, 119 Robins Street. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference.

21. SALES AND USE TAXES.

21.1 The Owner is exempt from State Sales and Use Taxes on materials and equipment to be incorporated into the Work. Contractor is responsible for sales and use tax on material and equipment and shall consider the tax as part of the cost of the material. Refer to Supplementary Conditions for additional information.

22. RETAINAGE.

22.1 Provisions concerning retainage and Contractors' rights to deposit securities in lieu of retainage are set forth in the Agreement.

23. ENGINEER.

23.1 The Engineer for this project is:

Allen & Hoshall
Engineers Architects Planners
1661 International Drive, Suite 100
Memphis, Tennessee 38120

Phone: (901) 820-0820
Fax: (901) 683-1001

Contact: Bobby Davidson
Alternate: Scott Burleson P.E.

END OF DOCUMENT

DOCUMENT 00300A
BID FORM

Project Identification: Overhead to Underground Utility Relocation and/or Street Lighting along Jackson Street between N Madison and N Front Streets., Bid-2023-066WL

Contract Identification: **2023-066WL**

This Bid is Submitted to (Name and Address of Owner):

Missy Shelton
City Purchasing Agent
City Hall
Post Office Box 1485/38802
71 East Troy Street/38804
Tupelo, Mississippi

This Bid is Submitted from (Contractor):

John Joubert
Linetec Services LLC
6411 Masonic Dr
Alexandria, LA, 71301

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an agreement with Owner in the form included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Contract Price and within the Contract Time indicated in this Bid and in accordance with other terms and conditions of the Contract Documents.

2. Bidder accepts all of the terms and conditions of the Advertisement or Invitation to Bid and Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for forty-five days after the day of Bid opening. Bidder will sign and submit the Agreement with the Bonds and other documents required by the Bidding Requirements within fifteen days after the date of Owner's Notice of Award.

3. In submitting this Bid, Bidder represents, as more fully set forth in the Agreement, that:

   (a) Bidder has examined copies of all the Bidding Documents and of the following Addenda (receipt of all which is hereby acknowledged, if no addenda received, insert "None"):

Number	Date
Addendum #1	01/22/2024
Addendum #2	01/22/2024

(b) Bidder has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.

(c) Bidder has studied carefully all reports and drawings of subsurface conditions and drawings of physical conditions which are identified in the Supplementary Conditions as provided in paragraph 4.2 of the GENERAL CONDITIONS, and accepts the determination set forth in paragraph 4.2 of the GENERAL CONDITIONS of the extent of the technical data contained in such reports and drawings upon which Bidder is entitled to rely.

(d) Bidder has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests and studies (in addition to or to supplement those referred to in (c) above) which pertain to the subsurface or physical conditions at the site or otherwise may affect the cost, progress, performance or furnishing of the Work as Bidder considers necessary for the performance or furnishing of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 4.2 of the GENERAL CONDITIONS; and no additional examinations, investigations, explorations, tests, reports or similar information or data are or will be required by Bidder for such purposes.

(e) Bidder has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities. No additional examinations, investigations, explorations, tests, reports or similar information or data in respect of said Underground Facilities are or will be required by Bidder in order to perform and furnish the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 4.3 of the GENERAL CONDITIONS.

(f) Bidder has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.

(g) Bidder has given Architect/Engineer written notice to all conflicts, errors or discrepancies that it has discovered in the Contract Documents and the written resolution thereof by Architect/Engineer is acceptable to Bidder.

(h) This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid: Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over Owner.

BID SUMMARY

4. **UNIT PRICE BID** - The BIDDER will complete the Work in accordance with the Contract Documents for the following price(s):

5. **INSERT BID UNIT ITEMS FOLLOWING THIS PAGE (CONSIST OF 9 PAGES)**

   (a) Excel File “304 Bid Form A.xlsx” is provided to fill in bid prices.

UNIT	QTY	MEAS	LABOR	MATERIAL	EXT LAB & MAT
30' CONCRETE POLE	7	EA	1,150.00	2,460.89	17,226.23
35 CONCRETE POLE	5	EA	1,250.00	2,858.59	20,542.95
40 CONCRETE POLE	3	EA		3,243.59	9,730.77
45 CONCRETE POLE	6	EA		3,542.56	21,255.36
A1.1	1	EA		51.81	51.81
A5.2	3	EA		96.91	290.73
C5.21 (C7)	3	EA		649.81	1,949.43
C5.21L	3	EA		656.08	1,968.24
C5.71L (C7A)	3	EA		641.10	1,923.30
E1.1 (E1-2)	2	EA	225.00	77.79	605.58
E1.1L (E1-3)	2		225.00	100.45	650.90
E1.1L (E1-3)	28	EA		100.45	2,812.60
E1.4L (E2-3)	2	EA	225.00	158.95	767.90
E1.5	28	EA		64.46	1,804.88
E3-10	1			5.78	5.78
E3-10	16	EA	55.00	5.78	972.48
F2.8 (F1-2S)	2	EA	225.00	159.29	768.58
TA-2H	1		225.00	518.46	743.46
TA-2H	14	EA		518.46	7,258.44
G1.6	3	EA		269.22	807.66
T25-CONV. (XFMR BY OWNER)	1	EA		269.22	269.22
T37.5-CONV. (XFMR BY OWNER)	2	EA		269.22	538.44
H1.1 (M2-11)	10	EA		119.08	1,190.80
J1.1 (J8)	1	EA	125.00	14.69	139.69
J2.1 (J10)	8	EA	125.00	16.61	1,132.88
J2.2 (J7_ J7C)	1	EA	125.00	18.59	143.59

UNIT	QTY	MEAS	LABOR	MATERIAL	EXT LAB & MAT
K1.1 (K14C)	6	EA	125.00	16.61	849.66
K1.2 (K11C)	12	EA	125.00	18.59	1,723.08
M26-5S	7	EA	255.00	9.46	1,851.22
OH-UG MB	5	EA	5,500.00	2,500.00	40,000.00
VS-4	2	EA	99,446.89	100,631.89	400,157.56
VS-5	1	EA	109,987.90	129,537.96	239,525.86
VS-6	2	EA	129,300.02	152,668.69	563,937.42
UA1	1	EA		809.27	809.27
UC2	8	EA		2,104.20	16,833.60
UG7-50	8	EA	6,500.00	12,655.62	153,244.96
UG7-75	1	EA	6,500.00	16,096.26	22,596.26
UK5	2	EA	875.00	514.90	2,779.80
UK6-L ATT	5	EA	1,500.00	9,324.70	54,123.50
UK6-L CC	5	EA	1,500.00	9,324.70	54,123.50
UK6-L TF	7	EA	1,500.00	9,324.70	75,772.90
UK6-M ATT	13	EA	1,400.00	9,324.70	139,421.10
UK6-M CC	3	EA	1,400.00	9,324.70	32,174.10
UK6-M SC	6	EA	1,400.00	9,324.70	64,348.20
UK6-M WS	8	EA	1,400.00	9,324.70	85,797.60
UK6-S SEC	3	EA	875.00	2,821.50	11,089.50
UM5-2S	5	EA	500.00	363.44	4,317.20
UM5-3S	8	EA	500.00	435.78	7,486.24
4 ACSR	519	LF	3.25	0.70	2,050.05
1/0 TPX	138	LF	3.25	1.38	638.94
2 TPX	517	LF	3.25	1.22	2,310.99
6 DPX	147	LF	3.25	0.88	607.11

UNIT	QTY	MEAS	LABOR	MATERIAL	EXT LAB & MAT
HDPE 9-2	23554	LF	53.00	1.38	1,280,866.52
HDPE 9-3	10995	LF	62.00	3.05	715,224.75
HDPE 9-4	24623	LF	68.00	4.95	1,796,247.85
UGP 15-C 2 FN	1739	LF	4.25	8.98	23,006.97
UGP 15-C 500 RN	15193	LF	6.26	32.00	581,284.18
UGQPX 1/0	310	LF	3.25	1.95	1,612.00
UGTPX 1/0	1157	LF	3.25	2.20	6,305.65
ADSS 12CT TF	373	LF	3.25	2.65	2,200.70
ADSS 72CT TF	4129	LF	3.25	4.40	31,586.85
STONE COVER (MATCH EX. DEPTH)	500	SF	12.00	15.00	13,500.00
CONCRETE REPLACEMENT	100	SF	12.00	25.00	3,700.00
SOD, BERMUDA	5,000	SF	8.25	6.38	73,150.00
TRAFFIC CONTROL	1	LS	420,000.00	5,500.00	425,500.00
Total Installation (Base Bid)					**7,028,306.79**

UNIT	QTY	MEAS	LABOR	MATERIAL	EXT LAB & MAT
N LT-JB 2x3	8	EA	850.00	2,821.50	29,372.00
N LT-SLPA	33	EA	2,500.00	5,976.99	279,740.67
N LT-SSA	5	EA	6,500.00	4,200.00	53,500.00
N UM5-2S	2	EA	355.00	363.44	1,436.88
N UM50-P-2	4440	LF	21.00	2.70	105,228.00
N UMSW-P-2 1.5X90	26	EA	25.00	12.98	987.48
N UG #12 AWG THHN	4440	LF	2.50	0.55	13,542.00
N UG #6 AWG THHN	11500	LF	2.50	1.25	43,125.00
Optional Addition (Street Lights)					**526,932.03**

UNIT	QTY	MEAS	LABOR	MATERIAL	EXT LAB & MAT
R 30-5W	5	EA	1,200.00		6,000.00
R 30-6W	2	EA	1,200.00		2,400.00
R 30-7W	2	EA	1,200.00		2,400.00
R 35-5W	5	EA	1,200.00		6,000.00
R 35-6W	1	EA	1,200.00		1,200.00
R 40-3W	3	EA	1,200.00		3,600.00
R 40-5W	1	EA	1,200.00		1,200.00
R 45-1C	1	EA	1,200.00		1,200.00
R 45-2W	5	EA	1,200.00		6,000.00
R 45-3W	7	EA	1,200.00		8,400.00
R 45-4W	1	EA	1,200.00		1,200.00
R 50-1C	5	EA	1,200.00		6,000.00
R 50-2W	2	EA	1,200.00		2,400.00
R 50-3W	3	EA	1,200.00		3,600.00
R 55-2W	1	EA	1,200.00		1,200.00
R A1.011 (M5-5)	2	EA	55.00		110.00
R A1.1 (A1)	1	EA	55.00		55.00
R A5.1 (A5)	1	EA	55.00		55.00
R A5.2 (A5-2)	2	EA	55.00		110.00
R C1.11 (C1)	2	EA	65.00		130.00
R C1.11L (C1-2)	12	EA	225.00		2,700.00
R C1.41L (C9-3)	7	EA	225.00		1,575.00
R C2.21L (C1-3)	2	EA	225.00		450.00
R C2.51L (C9-2)	2	EA	455.00		910.00
R C5.21 (C7)	3	EA	65.00		195.00
R C5.21L	9	EA	225.00		2,025.00
R C5.71L (C7A)	1	EA	65.00		65.00
R C6.21 (C8)	1	EA	225.00		225.00
R C6.21L (C8-3)	8	EA	225.00		1,800.00
R E1.1 (E1-2)	2	EA	65.00		130.00
R E1.1L (E1-3)	14	EA	65.00		910.00

UNIT	QTY	MEAS	LABOR	MATERIAL	EXT LAB & MAT
R E1.2 (E3-3)	3	EA	65.00		195.00
R E1.3L	11	EA	125.00		1,375.00
R E1.4 (E2-2)	11	EA	65.00		715.00
R E1.5	7	EA	65.00		455.00
R E1-4L (E2-3)	3	EA	65.00		195.00
R E3-10	4	EA	45.00		180.00
R F2.10 (F1-3S)	6	EA	225.00		1,350.00
R F2.12 (F1-4S)	1	EA	225.00		225.00
R F2.6 (F1-1S)	3	EA	225.00		675.00
R F2.8 (F1-2S)	13	EA	225.00		2,925.00
R TA-2H	2	EA	225.00		450.00
R G1.2 (G105-_ G136-)	12	EA	1,500.00		18,000.00
R G1.3 (G106-)	3	EA	1,500.00		4,500.00
R T15-CONV.	7	EA	1,500.00		10,500.00
R T25-CONV.	4	EA	1,500.00		6,000.00
R T37.5-CONV.	3	EA	1,500.00		4,500.00
R T50-CONV.	1	EA	1,500.00		1,500.00
R H1.1 (M2-11)	30	EA	225.00		6,750.00
R J1.1 (J5)	2	EA	95.00		190.00
R J1.1 (J8)	9	EA	95.00		855.00
R J2.1 (J10)	44	EA	95.00		4,180.00
R J2.2 (J7_ J7C)	1	EA	95.00		95.00
R K1.0 (K1C)	1	EA	125.00		125.00
R K1.2 (K11C)	12	EA	125.00		1,500.00
R M26-5F	1	EA	225.00		225.00
R M26-5S	28	EA	225.00		6,300.00
R S2.3 (M3-3B)	2	EA	555.00		1,110.00
R S2.31 (M3-3A)	6	EA	1,200.00		7,200.00
R S2.32 (M3-15)	1	EA	1,500.00		1,500.00
R SR3	4	EA	555.00		2,220.00
R UC2	2	EA	1,200.00		2,400.00

UNIT	QTY	MEAS	LABOR	MATERIAL	EXT LAB & MAT
R UM5-2P	1	EA	655.00		655.00
R UM5-3P	2	EA	655.00		1,310.00
R 1/0 ACSR	1776	LF	1.25		2,220.00
R 2 ACSR	971	LF	1.25		1,213.75
R 336 ACSR	15778	LF	1.95		30,767.10
R 4/0 ACSR	2494	LF	1.35		3,366.90
R 6HDCU	1165	LF	1.25		1,456.25
R 1/0 TPX	955	LF	1.25		1,193.75
R 2 TPX	812	LF	1.25		1,015.00
R 4 TPX	254	LF	1.25		317.50
R 6 DPX	682	LF	1.25		852.50
R 6HDCU WP	2397	LF	1.25		2,996.25
R UGP 15-C 500 RN	475	LF	3.75		1,781.25
Total Removal Cost (Base Bid)					**201,780.25**

UNIT	QTY	MEAS	LABOR	MATERIAL	EXT LAB & MAT
XFR 1/0 ACSR	5	EA	550.00	-	2,750.00
XFR 2 ACSR	2	EA	550.00	-	1,100.00
XFR 336 ACSR	18	EA	1,200.00	-	21,600.00
XFR 4 ACSR	8	EA	550.00	-	4,400.00
XFR 4/0 ACSR	3	EA	550.00	-	1,650.00
XFR 6HDCU	5	EA	550.00	-	2,750.00
XFR 6HDCU WP	5	EA	550.00		2,750.00
XFR 1/0 TPX	2	EA	550.00	-	1,100.00
XFR 2 TPX	12	EA	550.00	-	6,600.00
Total Transfer Cost					**44,700.00**

SUMMARY			EXT. LAB & MAT
Installation (Base Bid)			7,028,306.79
Removal (Base Bid)			201,780.25
Transfers (Base Bid)			44,700.00
Authorized Contract Ammendments			$ 100,000.00
UNIT BID PRICE BASE BID			**7,374,787.04**
Optional Addition (Street Lights)			526,932.03
TOTAL BID PRICE			**$ 7,901,719.07**

BID SUMMARY

TOTAL OF UNIT BID PRICES – BASE BID
(Total of Extended Price - Labor and Material of Base Bid)

Seven million three hundred seventy-four thousand seven hundred eighty-seven Dollars four cents $ 7,374,787.04).

AUTHORIZED CONTRACT AMENDMENTS
(See Document 00700 - GENERAL CONDITIONS, Document 00800 - SUPPLEMENTARY CONDITIONS, and Section 01021 – CASH ALLOWANCES for description of ACA.)

One-Hundred Thousand Dollars Zero cents ($100,000.00).

TOTAL OF UNIT BID PRICES - OPTIONAL ADDER (Street Lighting)
The Owner request an adder for the installation of the street lighting.
(Total of Extended Price - Labor and Material of Alternate Addition)

Five hundred twenty-six thousand nine hundred thirty-two Dollars three cents ($ 526,932.03).

TOTAL BID PRICE

(Total of Total Unit Bid Prices (Base and Alternate) and Authorized Contract Amendments)

Seven million nine hundred one thousand seven hundred nineteen Dollars seven cents ($ 7,901,719.07).

Unit Prices have been computed in accordance with paragraph 11.7 of the General Conditions. BIDDER acknowledges that quantities are not guaranteed and final payment will be based on actual quantities determined as provided in the Contract Documents.

6. SUBCONTRACTORS LIST

DESCRIPTION	COMPANY NAME	BUSINESS ADDRESS
Boring Underground Construction	Southern Communications	62 Clyde Hitlen Rd Purvis MS, 39475
Electrician	Taylor Electric	227 Gholston Dr Baldwyn, MS, 38824
Boring Underground Construction	GTO Drilling LLC	977 Old River Rd Petal, MS , 39465

7. Bidder agrees that the Work in ***Base Bid*** will be substantially complete on or before **May 01, 2025** and completed and ready for final payment in accordance with paragraph 14.8 of the GENERAL CONDITIONS on or before **June 01, 2025**.

8. Bidder accepts the provisions of the Agreement as to liquidated damages in the event of failure to complete the Work on time.

9. The following documents are attached to and made a condition of this Bid:

   (a) Required Bid Security in the form of 5% Bid Bond or Bank Check in the amount of 5% of the Bid.

   (b) Bidder's Qualification Statement, Document 00420. (Include in Separate Envelope)

   (c) Drug-Free Workplace Affidavit, Document 00482.

   (d) Equal Opportunity Provisions, Document 00820.

   (e) Copies of Contractor's and Subcontractor's License Certificates, "Certificate of Responsibility".

10. Communications concerning this Bid shall be addressed to:

The address of Bidder indicated below.

The following address:

Principal Contact: Bobby Davidson (bdavidson@allenhoshall.com)

Alternate Contact: Scott Burleson PE (sburleson@allehoshall.com)

Phone Number: 901-820-0820

Address: 1661 International Drive, Suite 100

Memphis, TN 38120

11. The terms used in this Bid which are defined in the GENERAL CONDITIONS or Instructions will have the meanings assigned to them in the GENERAL CONDITIONS or Instructions.

Submitted on _____, 20_____

Certificate of Responsibility/State Contractor License No. 23003

Expiration Date: December, 5, 2024

If Bidder is:

An Individual

_____(SEAL)
(Individual's Signature)

_____
(Individual's Name - Print/Type)

doing business as: _____

Business address: _____

_____

Phone No.: _____

A Partnership

_____(SEAL)
(Firm Name)

_____
(Signature of General Partner)

_____
(Print/Type)

Business address: _____

_____

Phone No.: _____

A Corporation (LLC)

Linetec Services LLC
(Corporation Name)

By: Roy Harrington Title: VP of Opeartions
(Signature of person authorized to sign)

Roy Harrigton
(Print/Type name of person authorized to sign)

(Corporate Seal) No seal for LLC

Attest: Sonya Futrell
(Secretary) "Witness"

Delaware
(State of incorporation)

Business address: 6411 Masonic Dr

Alenxandria, LA, 71301

Phone No.: 318.704.6135

A Joint Venture

(SEAL)
(Joint Venture)

By: By:
(Signature of Joint Venturer) (Signature of Joint Venturer)

(Type/Print) (Type/Print)

(Address) (Address)

(Each joint venturer must sign. The manner of signing for each individual, partnership and corporation that is a party to the joint venture should be in the manner indicated above).

END OF DOCUMENT

DOCUMENT 00420
BIDDERS QUALIFICATION STATEMENT
for
Overhead to Underground Utility Relocations and/or Street Lighting along Jackson Street between Madison and Front Street, Bid-2023-066WL.

The contents of this statement are CONFIDENTIAL. This Document is to be submitted separately from the Bidding Documents. See Document 00100, INSTRUCTIONS TO BIDDERS.

Submitted by:

Name of Organization	Linetec Services
Name of Individual	Roy Harrington
Title	VP of Operations
Address	6411 Masonic
	Alexandria, LA, 71301
Telephone	318-704-6135
Email Address	rharrington@ltspower.com

BUSINESS ORGANIZATION INFORMATION:

Check one: ☑ Corporation ☐ Partnership ☐ Joint Venture ☐ Sole Proprietorship

If Corporation: LLC

a. Date and State of Incorporation

Delaware

b. List of Executive Officers

Name	Title
Centuri Power Group	

If Partnership:

a. Date and State of Organization

b. Name of Current General Partners

c. Type of Partnership:

☐ General ☐ Publicly Traded ☐ Limited ☐ Other (describe):

If Joint Venture:

a. Date and State of Organization

b. Name, Address, and Form of Organization of Joint Venture Partners: (indicate managing partner with an asterisk*)

If Sole Proprietorship:

a. Date and State of Organization

b. Name and Address of Owner or Owners

GENERAL BUSINESS INFORMATION:

1. Name of Surety Company and name, address, and phone number of agent.

2. What is your approximate total bonding capacity?

☐ $500,000 to $2,000,000 ☐ $2,000,000 to $5,000,000

☐ $5,000,000 to $10,000,000 ☑ $10,000,000 or more

3. Is your organization a member of a controlled group of corporations as defined in I.R.C. Sec 1563? ☐ Yes ☑ No

If yes, show names and addresses of affiliated companies

4. Describe the permanent safety program you maintain within your organization. Use attachment if necessary.

Safety Program will be below.

5. Furnish the following information with respect to an accredited banking institution familiar with your organization.

Name of Bank	Wells Fargo, N.A.
Address	420 Montgomery St. San Francisco, CA 94104
Account Manager	Brenda Robinson
Telephone	(602) 378-2308

GENERAL PROJECT INFORMATION:

6. Value of Electric Utility Work completed during the last calendar year $ 460,727,000.00

7. Value of all Work completed for the last calendar year $ 460,727,000.00

8. Attach a Schedule A listing major Electric Utility projects, similar to the proposed Project, completed by this organization in the past three (3) years, with contact names and phone numbers. (If joint venture, list each participant's projects separately). List dollar value of Electric Utility Work.

9. Attach a Schedule B listing current Electric Utility projects under construction by this organization, with contact names and phone numbers. (If joint venture, list each participant's projects separately).

10. Has your organization ever failed to complete any construction contract awarded to it?

☐ Yes ☑ No

If yes, describe circumstances on attachment.

11. In the last five years, has your organization ever failed to substantially complete a project in a timely manner?

☐ Yes ☑ No

12. Has any Corporate officer, partner, joint venture participant or proprietor ever failed to complete a project in a timely manner while an employee/officer of another firm?

☐ Yes ☑ No

If yes, describe circumstances on attachment.

13. Contractor's License Number for the state(s) in which this organization is licensed to do business:

Alabama	53717	3/31/24
Arkansas	382690519	5/31/24
Florida	EC13006773	8/31/2024
Georgia	UC302521	4/30/2024
Louisiana	60986	3/6/2024
Mississippi	28003	12/5/2024
North Carolina	80938	12/31/2024
South Carolina	G121790	10/31/2024
Virginia	2705170211	11/30/2024

I hereby certify that the information submitted herewith, including any attachment is true to the best of my knowledge and belief.

By: Roy Harrington

Title: VP of Opeartions

Dated: 01/22/2024

END of DOCUMENT

DOCUMENT 00482 MS
DRUG-FREE WORKPLACE AFFIDAVIT
(must be attached to bid form upon submission)

STATE OF ~~MISSISSIPPI~~ Louisiana
COUNTY OF Rapides

DRUG-FREE WORKPLACE AFFIDAVIT
OF PRIME BIDDER

NOW COMES AFFIANT, who being duly sworn, deposes and says:

1. He/She is the principal officer for Linetec Services , 6411 Masonic Dr, Alexandria, LA, 71301 (insert name and address of bidding entity)

2. That the bidding entity has submitted a bid to Tupelo W&L- 82030 (insert name of city, dept, project No.) for the construction of Overhead to Underground Utility Relocations and/or Street Light along Jackson Street Btween Madison and Front Street (insert name of project)

3. That the bidding entity employs no less than five (5) employees;

4. That Affiant certifies that the bidding entity has in effect, at the time of submission of its bid to perform the construction referred to above, a drug-free workplace program that complies with Miss. Code Ann. §71-7-1 through 71-7-33 (Rev. 1995);

5. That this affidavit is made on personal knowledge.

Further Affiant saith not.

Bay Harrington
AFFIANT

SUBSCRIBED AND SWORN TO before me this 22 day of January, 20 24.

NOTARY PUBLIC

My commission expires: At death

HAZEL L. HOOVER - 055435 NOTARY PUBLIC MY COMMISSION IS FOR LIFE VERNON PARISH, LA

DOCUMENT 00500A
AGREEMENT

THIS AGREEMENT is entered into as of the _____day of _____, 20____ between **Tupelo Water & Light** (hereinafter called Owner) and Linetec Services (hereinafter called Contractor).

Owner and Contractor, in consideration of the mutual covenants hereinafter set forth, agree as follows:

SECTION 1. WORK

BASE BID

Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: Furnish labor, material, and equipment to convert approximately 1/2 mile overhead 15kV 3 Phase distribution line to underground. Install new concrete poles and primary risers to terminate back to existing 15kV overhead 3 Phase. Direction bore and trench new conduit, install flush mount pull boxes/manholes, padmount medium voltage Vista® switchgear. Install conduit duct system to accommodate primary underground, secondary underground, fiber, AT&T, Comcast, C-Spire, Select Connect, and Windstream. AT&T, Comcast, C-Spire, Select Connect, and Windstream work will only consist of the installation of the conduit system. The City of Tupelo will supply labor only for the Primary Distribution overhead construction.

OPTIONAL ADDER

Furnish labor and material for the complete installation of new street lighting.

SECTION 2. ENGINEER/ARCHITECT

Allen & Hoshall (hereinafter called Engineer/Architect) is to act as Owner's representative, and shall have the duties and responsibilities and the rights and authority assigned to Engineer/Architect in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

SECTION 3. CONTRACT TIME

3.1 Completion. The Base Bid Work will be substantially completed on or before **May 01, 2025**, and completed and ready for final payment in accordance with paragraph 14.8 of the General Conditions on or before **June 01, 2025**.

3.2 Liquidated Damages. Owner and Contractor recognize that time is of the essence of this Agreement and that Owner will suffer financial loss if the Work is not completed within the times specified in paragraph 3.1 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense and difficulties involved in proving in a legal proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty) Contractor shall pay Owner **Three Hundred dollars ($300.00)** for each day that expires after the time specified in paragraph 3.1 for Substantial Completion until the Work is substantially complete. After Substantial Completion if Contractor shall neglect, refuse or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner **Five Hundred dollars ($500.00)** for each day that expires after the time specified in paragraph 3.1 for

completion and readiness for final payment.

SECTION 4. CONTRACT PRICE

Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents in current funds as follows:

All specified allowances are included in the above price and have been computed in accordance with the General Conditions.

UNIT PRICE BID:

BASE BID:

_____ Dollars _____Cents (_____)

OPTIONAL ADDER:

_____ Dollars _____Cents (_____)

TOTAL OF ALL UNIT PRICES:

_____ Dollars _____Cents (_____)
Note: Amount includes Base Bid and Authorized Contract Amendment - $100,000.00.

As provided in the General Conditions estimated quantities are not guaranteed, and determinations of actual quantities and classification are to be made by the ENGINEER as provided in the General Conditions. Unit prices have been computed as provided in the General Conditions. All specified allowances are included in the above price and have been computed in accordance with the General Conditions.

SECTION 5. PAYMENT PROCEDURES

5.1 Applications for Payment. Contractor shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by Engineer/Architect as provided in the General Conditions.

5.2 Progress Payments. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment as recommended by Engineer/Architect on or about the 15th on the basis of the progress of the Work measured by the Schedule of Values established in accordance with paragraph 2.8 of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided in the General Requirements. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below, but, in each case, less the aggregate of payments previously made and less such amounts as Engineer/Architect shall determine, or Owner may withhold, in accordance with paragraph 14.3(d) of the General Conditions.

95% of Work completed. If Work has been 50% completed as determined by Engineer/Architect, and if the character and progress of the Work have been

satisfactory to Owner and Engineer/Architect, Owner on recommendation of Engineer/Architect, may determine that as long as the character and progress of the Work remain satisfactory to them, there will be no additional retainage on account of Work completed in which case the remaining progress payments prior to Substantial Completion will be in an amount equal to 100% of the Work completed.

95% of materials and equipment not incorporated in the Work (but delivered, suitably stored and accompanied by documentation satisfactory to Owner as provided in paragraph 14.2 of the General Conditions).

Upon Substantial Completion, payment will be made in an amount sufficient to increase total payments to Contractor to 97.5% of the Contract Price, less such amounts of Engineer/Architect shall determine, or Owner may withhold, in accordance with paragraph 14.3(d) of the General Conditions.

5.3 Final Payment. Upon final completion and acceptance of the Work in accordance with paragraph 14.8 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer/Architect as provided in paragraph 14.8 of the General Conditions.

SECTION 6. INTEREST

All monies not paid when due as provided in Article 14 of the General Conditions shall bear interest at the maximum rate allowed by law at the place of the Project.

SECTION 7. CONTRACTOR'S REPRESENTATIONS

In order to induce Owner to enter into this Agreement Contractor makes the following representations:

7.1 Contractor has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality, and all local conditions and all Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.

7.2 Contractor has studied carefully all reports of explorations and tests of subsurface conditions and drawings of physical conditions which are identified in the Supplementary Conditions as provided in paragraph 4.2 of the General Conditions, and accepts the determination set forth in paragraph 4.2 of the General Conditions of the extent of the technical data contained in such reports and drawings upon which Contractor is entitled to rely.

7.3 Contractor has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests, reports and studies (in addition to or to supplement those referred to in paragraph 7.2 above) which pertain to the subsurface or physical conditions at or contiguous to the site or otherwise may affect the cost, progress, performance or furnishing of the Work as Contractor considers necessary for the performance or furnishing of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 4.2 of the General Conditions; and no additional examinations, investigations, explorations, tests, reports, studies or similar information or data are or will be required by Contractor for such purposes.

7.4 Contractor has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities. No

additional examinations, investigations, explorations, tests, reports, studies or similar information or data in respect of said Underground Facilities are or will be required by Contractor in order to perform and furnish the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 4.3 of the General Conditions.

7.5 Contractor has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.

7.6 Contractor has given Engineer/Architect written notice of all conflicts, errors or discrepancies that he has discovered in the Contract Documents and the written resolution thereof by Engineer/Architect is acceptable to Contractor.

SECTION 8. CONTRACT DOCUMENTS

The Contract Documents which comprise the entire agreement between Owner and Contractor concerning the Work consist of the following:

(a) This Agreement.

(b) Performance Bond, Payment Bond and other Bonds.

(c) Notice of Award.

(d) General Conditions.

(e) Supplementary Conditions.

(f) These Specifications - See Document 00003 - TABLE OF CONTENTS.

(g) Drawings, consisting of a cover sheet and sheets numbered as listed in Document 00004 - LIST OF DRAWINGS, TABLES AND SCHEDULES of specification.

(h) Addenda numbers ___to ___, inclusive.

(i) Contractor's Bid, marked exhibit _"A"_.
[Attach Bid Form only in special circumstances, such as listing of unit prices.]

(j) The following which may be delivered or issued after the Effective Date of the Agreement and are not attached hereto: All Written Amendments and other documents amending, modifying, or supplementing the Contract Documents pursuant to paragraph 3.4 of the General Conditions.

The documents listed in paragraphs (a) through (j) above are attached to this Agreement (except as expressly noted otherwise above). There are no Contract Documents other than those listed above in this Section 8. The Contract Documents may only be amended, modified or supplemented as provided in paragraph 3.4 of the General Conditions.

SECTION 9. MISCELLANEOUS

9.1 Terms used in this Agreement which are defined in Article 1 of the General Conditions will have the meanings indicated in the General Conditions.

9.2 No assignments by a party hereto of any rights under or interest in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from duty or responsibility under the Contract Documents.

9.3 Owner and Contractor each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect of all covenants, agreements and obligations contained in the Contract Documents.

SECTION 10. OTHER PROVISIONS

Insert other provisions as may be required.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement in quadruplicate. One counterpart each has been delivered to Contractor and Engineer/Architect, and two to Owner.

This Agreement will be effective on _____, 20_____.

Owner: **Tupelo Water & Light**

By:_____
[Corporate Seal]

Attest:_____

Address for giving notice:

P.O. Box 1485

Tupelo, MS 38802-1485

Contractor: Linetec Services

By:_____
[Corporate Seal]

Attest:_____

Address for giving notice:

6411 Masonic Dr

Alexandria, LA, 71301

License No. 23003

Agent for service of process:

(If Owner is a public body attach) (evidence of authority to sign) (and resolution or other document) (authorizing execution.)

(If Contractor is a corporation) (attach evidence of authority) (to sign.)

END OF DOCUMENT

DOCUMENT 00570
WAIVER AND RELEASE OF LIEN

WHEREAS, the undersigned _____ has furnished to
(Name of Manufacturer, Materialman, or Subcontractor)
_____ material for use in the
(Name of Contractor)

Overhead to Underground Utility Relocations and/or Street Lighting along Jackson St. between N Madison and N Front Streets, Bid-2023-066WL

Project belonging to Tupelo Water & Light.

NOW THEREFORE, the undersigned _____ for and in consideration of $1.00 and other good and valuable consideration, the receipt of which is hereby acknowledged, does hereby waive and release any and all liens, or right to claim or lien, on the above described Project and premises, under any law, common or statutory, on account of labor or material, or both, heretofore or hereafter furnished by the undersigned to or for the account of said _____ for said project.
(Name of Contractor)

Given under my (our) hand(s) and seal this _____ day of _____, 20 _____

By _____

State of _____

County of _____ _____

I, _____, a notary public, in and for said State and County, hereby certify that

_____ whose name as _____ of
(Title or Office)
_____ is signed to the foregoing and who is
(Name of Manufacturer, Materialman, or Subcontractor)

known to me, acknowledged before me on this day that he, with full authority, executed the

foregoing instrument voluntarily for and as the act of said

_____
(Name of Manufacturer, Materialman, or Subcontractor)

Given under my hand and seal this _____ day of _____, 20 _____

_____
Notary Public

My commission expires _____

END OF DOCUMENT

DOCUMENT 00571
AFFIDAVIT OF CONTRACTOR

STATE OF)
) SS:
COUNTY OF)

Roy Harrington, being duly sworn according to Law, deposes and says
(Name of Affiant)
that he is the _____ of _____, the
(Title) (Name of Contractor)
Contractor, in a Construction Contract entered into between the Contractor and Tupelo Water and Light Department the Owner, for the Overhead to Underground Utility Relocations and/or Street Lighting along Jackson St. between N Madison and N Front Streets, Bid-2023-066WL, and that he is authorized to and does make this affidavit on behalf of said Contractor in order to induce the Owner to make payment to the Contractor, in accordance with the provisions of the said Construction Contract.

Affiant further says that all persons who have furnished labor in connection with the construction of the facilities have been paid in full; that the names of all Manufacturers, Materialmen, and Subcontractors that furnished any material and/or services in connection with such construction and the kind or kinds of material and/or services so furnished are as listed hereinafter; and that the Contractor has delivered to the Owner duplicate waivers and releases of liens executed by all such Manufacturers, Materialmen, and Subcontractors.

_____
(Signature of Affiant)

Sworn to and subscribed before me this _____ day of _____, 20 _____.

_____
(Notary Public)

My commission expires _____

NAME	KIND OF MATERIAL AND/OR SERVICE

END OF DOCUMENT

DOCUMENT 00610
PERFORMANCE BONDS

Contractor to provide a Performance Bond, executed on standard forms. Insert immediately following this page.

Document A310™ – 2010

Conforms with The American Institute of Architects AIA Document 310

Bid Bond

CONTRACTOR:
(Name, legal status and address)

Linetec Services, LLC
6411 Masonic Drive
Alexandria, LA 71301

OWNER:
(Name, legal status and address)

Tupelo Water & Light
71 East Troy Street
Tupelo, MS

SURETY:
(Name, legal status and principal place of business)

Fidelity and Deposit Company of Maryland
1299 Zurich Way, 5th Floor
Schaumburg, IL 60196-1056
Mailing Address for Notices
1299 ZURICH WAY, 5TH FLOOR
SCHAUMBURG, IL 60196 - 1056

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

BOND AMOUNT: 5% Five Percent of Amount Bid

PROJECT:
(Name, location or address, and Project number, if any)

Project No. 2023-066WL; Overhead to Underground Utility Relocations and/or Street Lighting along Jackson Street Between Madison and Front Street

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this 18th day of January, 2024.

Sonya Futrell
(Witness)

Linetec Services, LLC
(Principal) *(Seal)*

By: Cory Close
(Title) Cory Close, Asst. Treas.

Allie Kade
(Witness) Allie Kade

Fidelity and Deposit Company of Maryland
(Surety) *(Seal)*

By: Kathryn E. Kade
(Title) Kathryn E. Kade, Attorney-in-Fact

ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND
POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That the ZURICH AMERICAN INSURANCE COMPANY, a corporation of the State of New York, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, a corporation of the State of Illinois, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND a corporation of the State of Illinois (herein collectively called the "Companies"), by Robert D. Murray, Vice President, in pursuance of authority granted by Article V, Section 8, of the By-Laws of said Companies, which are set forth on the reverse side hereof and are hereby certified to be in full force and effect on the date hereof, do hereby nominate, constitute, and appoint **Anuj JAIN, Mona D. WEAVER, Angela M. TINDOL, Judith MUNSON, Stephnie LOGAN, Kathryn E. KADE, Sheila J. MONTOYA of Greenwood Village, Colorado,** its true and lawful agent and Attorney-in-Fact, to make, execute, seal and deliver, for, and on its behalf as surety, and as its act and deed: **any and all bonds and undertakings,** and the execution of such bonds or undertakings in pursuance of these presents, shall be as binding upon said Companies, as fully and amply, to all intents and purposes, as if they had been duly executed and acknowledged by the regularly elected officers of the ZURICH AMERICAN INSURANCE COMPANY at its office in New York, New York., the regularly elected officers of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at its office in Owings Mills, Maryland., and the regularly elected officers of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at its office in Owings Mills, Maryland., in their own proper persons.

The said Vice President does hereby certify that the extract set forth on the reverse side hereof is a true copy of Article V, Section 8, of the By-Laws of said Companies, and is now in force.

IN WITNESS WHEREOF, the said Vice-President has hereunto subscribed his/her names and affixed the Corporate Seals of the said **ZURICH AMERICAN INSURANCE COMPANY, COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and FIDELITY AND DEPOSIT COMPANY OF MARYLAND,** this 26th day of September, A.D. 2023.

ATTEST:
ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND

By: Robert D. Murray
Vice President

By: Dawn E. Brown
Secretary

State of Maryland
County of Baltimore

On this 26th day of September, A.D. 2023, before the subscriber, a Notary Public of the State of Maryland, duly commissioned and qualified, **Robert D. Murray, Vice President and Dawn E. Brown, Secretary** of the Companies, to me personally known to be the individuals and officers described in and who executed the preceding instrument, and acknowledged the execution of same, and being by me duly sworn, deposeth and saith, that he/she is the said officer of the Company aforesaid, and that the seals affixed to the preceding instrument are the Corporate Seals of said Companies, and that the said Corporate Seals and the signature as such officer were duly affixed and subscribed to the said instrument by the authority and direction of the said Corporations.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my Official Seal the day and year first above written.

Genevieve M. Maison

GENEVIEVE M. MAISON
NOTARY PUBLIC
BALTIMORE COUNTY, MD
My Commission Expires JANUARY 27, 2025

Authenticity of this bond can be confirmed at bondvalidator.zurichna.com or 410-559-8790

EXTRACT FROM BY-LAWS OF THE COMPANIES

"Article V, Section 8, Attorneys-in-Fact. The Chief Executive Officer, the President, or any Executive Vice President or Vice President may, by written instrument under the attested corporate seal, appoint attorneys-in-fact with authority to execute bonds, policies, recognizances, stipulations, undertakings, or other like instruments on behalf of the Company, and may authorize any officer or any such attorney-in-fact to affix the corporate seal thereto; and may with or without cause modify of revoke any such appointment or authority at any time."

CERTIFICATE

I, the undersigned, Vice President of the ZURICH AMERICAN INSURANCE COMPANY, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, do hereby certify that the foregoing Power of Attorney is still in full force and effect on the date of this certificate; and I do further certify that Article V, Section 8, of the By-Laws of the Companies is still in force.

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the ZURICH AMERICAN INSURANCE COMPANY at a meeting duly called and held on the 15th day of December 1998.

RESOLVED: "That the signature of the President or a Vice President and the attesting signature of a Secretary or an Assistant Secretary and the Seal of the Company may be affixed by facsimile on any Power of Attorney...Any such Power or any certificate thereof bearing such facsimile signature and seal shall be valid and binding on the Company."

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at a meeting duly called and held on the 5th day of May, 1994, and the following resolution of the Board of Directors of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at a meeting duly called and held on the 10th day of May, 1990.

RESOLVED: "That the facsimile or mechanically reproduced seal of the company and facsimile or mechanically reproduced signature of any Vice-President, Secretary, or Assistant Secretary of the Company, whether made heretofore or hereafter, wherever appearing upon a certified copy of any power of attorney issued by the Company, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seals of the said Companies, this 18th day of January, 2024,

MJ Pethick

By: Mary Jean Pethick
Vice President

TO REPORT A CLAIM WITH REGARD TO A SURETY BOND, PLEASE SUBMIT A COMPLETE DESCRIPTION OF THE CLAIM INCLUDING THE PRINCIPAL ON THE BOND, THE BOND NUMBER, AND YOUR CONTACT INFORMATION TO:

Zurich Surety Claims
1299 Zurich Way
Schaumburg, IL 60196-1056
reportsfclaims@zurichna.com
800-626-4577

Authenticity of this bond can be confirmed at bondvalidator.zurichna.com or 410-559-8790

DOCUMENT 00620
PAYMENT BONDS

Contractor to provide a Payment Bond, executed on standard forms. Insert immediately following this page.

DOCUMENT 00650
CERTIFICATES OF INSURANCE

Insurance Certificates shall be provided and inserted immediately following this page.

DOCUMENT 00700
GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT
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GENERAL CONDITIONS

ARTICLE 1. DEFINITIONS

Wherever used in these General Conditions or in the other Contract Documents the following terms have the meanings indicated which are applicable to both the singular and the plural thereof.

"Addenda" - written or graphic instruments issued prior to the opening of Bids which clarify, correct or change the bidding documents or the Contract Documents.

"Agreement" - the written agreement between the Owner and the Contractor covering the Work to be performed; other Contract Documents are attached to the Agreement and made a part thereof as provided therein.

"Application for Payment" - the form to be used by the Contractor in requesting progress or final payments and including such supporting documentation as is required by the Contract Documents.

"Bid" - the offer or proposal of the bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

"Bonds" – bid, performance and payment bonds and other instruments of security.

"Change Order" - a document signed by the Contractor and the Owner which authorizes an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Time, issued on or after the Effective Date of the Agreement.

"Contract Documents" - the Agreement, Addenda (which pertain to the Contract Documents), Contractor's Bid (including documentation accompanying the Bid and any post-Bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Bonds, these General Conditions, the Supplementary Conditions and the Specifications and Drawings as the same are more specifically identified in the Agreement, together with all amendments, modifications and supplements issued pursuant to paragraph 3.4 on or after the Effective Date of the Agreement.

"Contract Price" - the moneys payable by the Owner to the Contractor under the Contract Documents as stated in the Agreement (subject to the provisions of paragraph 11.7 in the case of Unit Price Work).

"Contract Time" - the number of days (computed as provided in paragraph 16.2) or the date stated in the Agreement for the completion of the Work.

"Contractor" - the person, firm or corporation with whom the Owner has entered into the Agreement.

"Defective" - an adjective which when modifying the word Work refers to Work that is unsatisfactory, faulty or deficient, or does not conform to the Contract Documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract Documents, or has been damaged prior to the Architect/Engineer's

recommendation of final payment (unless responsibility for the protection thereof has been assumed by the Owner at Substantial Completion in accordance with paragraph 14.4 or 14.5).
"Drawings" - the drawings which show the character and scope of the Work to be performed and which have been prepared or approved by the Architect/Engineer and are referred to in the Contract Documents.

"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.

"Architect/Engineer" - the person, firm or corporation named as such in the Agreement.

"Field Order" - a written order issued by the Architect/Engineer which orders minor changes in the Work in accordance with paragraph 9.5 but which does not involve a change in the Contract Price or the Contract Time.

"General Requirements" - sections of Division 1 of the Specifications.

"Laws and Regulations; Laws or Regulations" - laws, rules, regulations, ordinances, codes and/or orders of any governmental authority.

"Notice of Award" - the written notice by the Owner to the apparent successful bidder stating that upon compliance by the apparent successful bidder with the conditions precedent enumerated therein, within the time specified, the Owner will sign and deliver the Agreement.

"Notice to Proceed" - a written notice given by the Owner to the Contractor (with a copy to the Architect/Engineer) fixing the date on which the Contract Time will commence to run and on which the Contractor shall start to perform the Contractor's obligations under the Contract Documents.

"Owner" - the public body or authority, corporation, association, firm or person with whom the Contractor has entered into the Agreement and for whom the Work is to be provided.

"Partial Utilization" - placing a portion of the Work in service for the purpose for which it is intended (or a related purpose) before reaching Substantial Completion for all the Work.

"Project" - the total construction of which the Work to be provided under the Contract Documents may be the whole or a part, as indicated elsewhere in the Contract Documents.

"Resident Project Representative" - the authorized representative of the Architect/Engineer who is assigned to the site or any part thereof.

"Shop Drawings" - all drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for the Contractor to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams and other information prepared by a Supplier and submitted by the Contractor to illustrate material or equipment for some portion of the Work.
"Specifications" - those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.

"Subcontractor" - an individual, firm or corporation having a direct contract with the Contractor or with any other Subcontractor for the performance of a part of the Work at the site.

"Substantial Completion" - the Work (or a specified part thereof) has progressed to a point where, in the opinion of the Architect/Engineer as evidenced by the Architect/Engineer's definitive certificate of Substantial Completion, it is sufficiently complete, in accordance with the Contract Documents, so that the Work (or specified part) can be utilized for the purposes for which it is intended; or if there is no such certificate issued, when final payment is due in accordance with paragraph 14.8. The terms "substantially complete" and "substantially completed" as applied to any Work refer to Substantial Completion thereof.

"Supplementary Conditions" - the part of the Contract Documents which amends or supplements these General Conditions.

"Supplier" - a manufacturer, fabricator, supplier, distributor, materialman or vendor.

"Underground Facilities" - all pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities, which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems or water.

"Unit Price Work" - work to be paid for on the basis of unit prices.

"Work" - the entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work is the result of performing services, furnishing labor and furnishing and incorporating materials and equipment into the construction, all as required by the Contract Documents.

"Work Directive Change" - a written directive to the Contractor, issued on or after the Effective Date of the Agreement and signed by the Owner and recommended by the Architect/Engineer, ordering an addition, deletion or revision in the Work, or responding to differing or unforeseen physical conditions under which the Work is to be performed as provided in paragraph 4.2 or 4.3 or to emergencies under paragraph 6.13. A Work Directive Change may not change the Contract Price or the Contract Time, but is evidence that the parties expect that the change directed or documented by a Work Directive Change 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 Time as provided in paragraph 10.1.

"Written Amendment" - a written amendment to the Contract Documents, signed by the Owner and the Contractor on or after the Effective Date of the Agreement and normally dealing with the nonengineering or nontechnical rather than strictly Work-related aspects of the Contract Documents.

ARTICLE 2. PRELIMINARY MATTERS

2.1 Copies of Documents. The Owner shall furnish to the Contractor up to ten copies (unless otherwise specified in the Supplementary Conditions) of the Contract Documents as are reasonably necessary for the execution of the Work. Additional copies will be furnished, upon request, at the cost of reproduction.

2.2 Bonds and Insurance. When the Contractor delivers the executed Agreements to the Owner, the Contractor shall also deliver to the Owner such Bonds as the Contractor may be required to furnish in accordance with paragraph 5.1. Before any Work at the site is started, the Contractor shall deliver to the Owner, with a copy to the Architect/Engineer, certificates (and other evidence of insurance requested by the Owner) evidencing the insurance which the Contractor is
required to purchase and maintain in accordance with paragraphs 5.2, 5.3, and 5.5, and the Owner shall deliver to the Contractor certificates (and other evidence of insurance requested by the Contractor) evidencing any insurance which the Owner is required to purchase and maintain in accordance with the Supplementary Conditions.

2.3 Commencement of Contract Time; Notice to Proceed. The Contract Time 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 thirty days after the Effective Date of the Agreement. In no event will the Contract Time commence to run later than the seventy-fifth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.4 Starting the Project. The Contractor shall start to perform the Work on the date when the Contract Time commences to run, but no Work shall be done at the site prior to the date on which the Contract Time commences to run.

2.5 Preconstruction Verifications. Before undertaking each part of the Work, the Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. The Contractor shall promptly report in writing to the Architect/Engineer any conflict, error or discrepancy which the Contractor may discover and shall obtain a written interpretation or clarification from the Architect/Engineer before proceeding with any Work affected thereby; however, the Contractor shall not be liable to the Owner or the Architect/Engineer for failure to report any conflict, error or discrepancy in the Contract Documents, unless the Contractor had actual knowledge thereof or should reasonably have known thereof.

2.6 Preliminary Schedules. Within ten days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), the Contractor shall submit to the Architect/Engineer for review: (a) an estimated progress schedule indicating the starting and completion dates of the various stages of the Work; (b) a preliminary schedule of Shop Drawing submissions; and (c) a preliminary schedule of values for all of the Work which will include quantities and prices of items aggregating the Contract Price and will subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work which will be confirmed in writing by the Contractor at the time of submission.

2.7 Preconstruction Conference. Within twenty days after the Effective Date of the Agreement, but before the Contractor starts the Work at the site, a conference attended by the Contractor, the Architect/Engineer and others as appropriate will be held to discuss the schedules referred to in paragraph 2.6, to discuss procedures for handling Shop Drawings and other submittals and for processing Applications for Payment, and to establish a working understanding among the parties as to the Work.

2.8 Finalizing Schedules. If requested by the Architect/Engineer at least ten days before submission of the first Application for Payment, a conference attended by the Contractor, the Architect/Engineer and others as appropriate will be held to finalize the schedules submitted in

accordance with paragraph 2.6. The finalized progress schedule must be acceptable to the Architect/Engineer as providing an orderly progression of the Work to completion within the Contract Time, but such acceptance will neither impose on the Architect/Engineer responsibility for the progress or the scheduling of the Work nor relieve the Contractor from full responsibility for such progress and scheduling and for the completion of the Work within the Contract Time. The finalized schedule of Shop Drawing submissions must be acceptable to the Architect/Engineer as providing a workable arrangement for processing the submissions. The finalized schedule of values must be acceptable to the Architect/Engineer as to form and substance.

ARTICLE 3. CONTRACT DOCUMENTS

3.1 Intent. 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 Work, materials or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended results will be supplied whether or not specifically called for. When words which have a well-known technical or trade meaning are used to describe Work, materials or equipment, such words shall be interpreted in accordance with that meaning. Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the Laws or Regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification manual, code or Laws or Regulations in effect at the time of opening of bids, except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of the Owner, Contractor or Architect/Engineer, or any of their consultants, agents or employees, from those set forth in the Contract Documents, nor shall it be effective to assign to the Architect/Engineer, or any of the Architect/Engineer's consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.9. Clarifications and interpretations of the Contract Documents shall be issued by the Architect/Engineer as provided in paragraph 9.4.

3.2 Entire Agreement; Governing Law. The Contract Documents comprise the entire agreement between the Owner and the Contractor concerning the Work. The Contract Documents are complementary; what is called for by one is as binding as if called for by all. The Contract Documents will be construed in accordance with the law of the place of the Project.

3.3 Conflicts or Errors. If, during the performance of the Work, the Contractor finds a conflict, error or discrepancy in the Contract Documents, the Contractor shall so report to the Architect/Engineer in writing at once and, before proceeding with the Work affected thereby, shall obtain a written interpretation or clarification from the Architect/Engineer. However, the Contractor shall not be liable to the Owner or the Architect/Engineer for failure to report any conflict, error or discrepancy in the Contract Documents unless the Contractor had actual knowledge thereof or should reasonably have known thereof.

3.4 Amending and Supplementing.

(a) The Documents may be amended to provide for additions, deletions and revisions in the Work or to modify the terms and conditions thereof in one or more of the following ways: (i) a formal Written Amendment; (ii) a Change Order (pursuant to paragraph 10.1); or (iii) a Work Directive Change (pursuant to paragraph 10.1). As provided in paragraphs 11.2 and 12.1,

Contract Price and Contract Time may be changed only by a Change Order or a Written Amendment.

(b) In addition, the requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, in one or more of the following ways: (i) a Field Order (pursuant to paragraph 9.5); (ii) the Architect/Engineer's approval of a Shop Drawing or sample (pursuant to paragraph 6.14); or (iii) the Architect/Engineer's written interpretation or clarification (pursuant to paragraph 9.4).

3.5 Re-use of Documents. Neither the Contractor nor any Subcontractor or Supplier or other person or organization performing or furnishing any of the Work under a direct or indirect contract with the Owner shall 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 the

Architect/Engineer; and they shall not reuse any of them on extensions of the Project or any other project without written consent of the Owner and the Architect/Engineer and specific written verification or adaptation by the Architect/Engineer.

ARTICLE 4. LANDS; PHYSICAL CONDITIONS; REFERENCE POINTS

4.1 Availability of Lands. The Owner shall furnish, as indicated in the Contract Documents, the lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and such other lands as are designated for the use of the Contractor. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by the Owner, unless otherwise provided in the Contract Documents. If the Contractor believes that any delay in the Owner's furnishing these lands, rights-of-way or easements entitles the Contractor to any extension of the Contract Time, the Contractor may make a claim therefor as provided in Article 12. The Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.2 Physical Conditions.

(a) Reference is made to the Supplementary Conditions for identification of those reports of explorations and tests of subsurface conditions at the site that have been utilized by the Architect/Engineer in preparation of the Contract Documents. The Contractor may rely upon the accuracy of the technical data contained in such reports, but not upon non-technical data, interpretations or opinions contained therein or for the completeness thereof for the Contractor's purposes. Except as indicated in the immediately preceding sentence and in subparagraph (f) of this paragraph, the Contractor shall have full responsibility with respect to subsurface conditions at the site.

(b) Reference is made to the Supplementary Conditions for identification of those drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Facilities referred to in paragraph 4.3) which are at or contiguous to the site that have been utilized by the Architect/Engineer in preparation of the Contract Documents. The Contractor may rely upon the accuracy of the technical data contained in such drawings, but not for the completeness thereof for the Contractor's purposes. Except as indicated in the immediately preceding sentence and in subparagraph (f) of this paragraph, the Contractor shall have full responsibility with respect to physical conditions in or relating to such structures.

(c) If the Contractor believes that (i) any technical data on which the Contractor is entitled to rely as provided in subparagraphs (a) and (b) of this paragraph is inaccurate, or (ii) any

physical condition uncovered or revealed at the site differs materially from that indicated, reflected or referred to in the Contract Documents, the Contractor shall, promptly after becoming aware thereof and before performing any Work in connection therewith (except in an emergency as permitted by paragraph 6.13), notify the Owner and the Architect/Engineer in writing about the inaccuracy or difference.

(d) The Architect/Engineer will promptly review the pertinent conditions, determine the necessity of obtaining additional explorations or tests with respect thereto and advise the Owner in writing (with a copy to the Contractor) of the Architect/Engineer's findings and conclusions.

(e) If the Architect/Engineer concludes that there is a material error in the Contract Documents or that because of newly discovered conditions a change in the Contract Documents is required, a Work Directive Change or Change Order will be issued as provided in Article 10 to reflect and document the consequences of the inaccuracy or difference.

(f) In each such case, an increase or decrease in the Contract Price or an extension or shortening of the Contract Time, or any combination thereof, will be allowable to the extent that they are attributable to any such inaccuracy or difference. If the Owner and the Contractor are unable to agree as to the amount or length thereof a claim may be made therefor as provided in Articles 11 and 12.

4.3 Physical Conditions - Underground Facilities.

(a) 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 the Owner or the Architect/Engineer by the owners of such Underground Facilities or by others. Unless it is otherwise expressly provided in the Supplementary Conditions: (i) the Owner and the Architect/Engineer shall not be responsible for the accuracy or completeness of any such information or data; and, (ii) the Contractor shall have full responsibility for reviewing and checking all such information and data, for locating all Underground Facilities shown or indicated in the Contract Documents, for coordination of the Work with the owners of such Underground Facilities during construction, for the safety and protection thereof as provided in paragraph 6.12 and repairing any damage thereto resulting from the Work, the cost of all of which will be considered as having been included in the Contract Price.

(b) If an Underground Facility is uncovered or revealed at or contiguous to the site which was not shown or indicated in the Contract Documents and which the Contractor could not reasonably have been expected to be aware of, the Contractor shall, promptly after becoming aware thereof and before performing any Work affected thereby (except in an emergency as permitted by paragraph 6.13), identify the owner of such Underground Facility and give written notice thereof to that owner and to the Owner and the Architect/Engineer. The Architect/Engineer will promptly review the Underground Facility to determine the extent to which the Contract Documents should be modified to reflect and document the consequences of the existence of the Underground Facility, and the Contract Documents will be amended or supplemented to the extent necessary. During such time, the Contractor shall be responsible for the safety and protection of such Underground Facility as provided in paragraph 6.12. The Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, to the extent that they are attributable to the existence of any Underground Facility that was not shown or indicated in the Contract Documents and which the Contractor could not reasonably have been expected to be aware of. If the parties are unable to agree as to the amount or length thereof, the Contractor may make a claim therefor as provided in Articles 11 and 12.

4.4 Reference Points. The Owner shall provide engineering surveys to establish reference points for construction which in the Architect/Engineer's judgment are necessary to enable the Contractor to proceed with the Work. The Contractor shall be responsible for laying out the Work (unless otherwise specified in the General Requirements), shall protect and preserve the established reference points and shall make no changes or relocations without the prior written consent of the Owner. The Contractor shall report to the Architect/Engineer whenever any reference point 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 by professionally qualified personnel.

ARTICLE 5. BONDS AND INSURANCE

5.1 Bonds. The 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 the Contractor's obligations under the Contract Documents. These Bonds shall remain in effect at least until one year after the date when final payment becomes due, except as otherwise provided by Law or Regulation, or by the Contract Documents. The Contractor shall also furnish such other Bonds as are required by the Supplementary Conditions. All Bonds shall be in the forms prescribed by Law or Regulation or by the Contract Documents and 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 Audit Staff Bureau of Accounts, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of the authority to act. If the surety on any Bond furnished by the Contractor is declared a 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 this paragraph 5.1, the Contractor shall within five days thereafter substitute another Bond and surety, both of which must be acceptable to the Owner.

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

(a) Claims under worker's compensation and other similar employee benefit acts;

(b) Claims for damages for bodily injury, occupational sickness or disease, or death of employees of Contractor;

(c) Claims for damages because of bodily injury, sickness or disease or death of any person other than employees of the Contractor;

(d) Claims for damages insured by personal injury liability coverage which are sustained (I) by any person as a result of an offense directly or indirectly related to the employment of such person by the Contractor or (ii) by any other person for any other reason;

(e) 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;

(f) Claims arising out of operation of Laws or Regulations for damages because of bodily injury or death of any person or for damage to property; and

(g) 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.

The insurance required by this paragraph 5.2 shall include the specific coverages and be written for not less than the limits of liability and coverages provided in the Supplementary Conditions, or required by law, whichever is greater. The comprehensive general liability insurance shall include completed operations insurance. All of the policies of insurance so required to be purchased and maintained (or the certificates or other evidence thereof) shall contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least thirty days' prior written notice has been given to the Owner and the Architect/Engineer by certified mail. All such insurance shall remain in effect until final payment and at all times thereafter when the Contractor may be correcting, removing or replacing defective Work in accordance with paragraph 13.6. In addition, the Contractor shall maintain such completed operations insurance for at least two years after final payment and furnish the Owner with evidence of continuation of such insurance at final payment and one year thereafter.

5.3 Contractual Liability Insurance. The comprehensive general liability insurance required by paragraph 5.2 will include contractual liability insurance applicable to the Contractor's obligations under paragraph 6.16.

5.4 Owner's Liability Insurance. The Owner shall be responsible for purchasing and maintaining the Owner's own liability insurance and, at the Owner's option, may purchase and maintain such insurance as will protect the Owner against claims which may arise from operations under the Contract Documents.

5.5 Property Insurance on the Work.

(a) Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the site to the full insurable value thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall include the interests of the Owner, the Contractor, the Subcontractors, the Architect/Engineer and the Architect/Engineer's consultants in the Work, all of whom shall be listed as insureds or additional insured parties, shall insure against the perils of fire and extended coverage and shall include "all risk" insurance for physical loss and damage including theft, vandalism and malicious mischief, collapse and water damage, and such other perils as may be provided in the Supplementary Conditions, and shall include damages, losses and expenses arising out of or resulting from any insured loss or incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers, architects, attorneys and other professionals). If not covered under the "all risk" insurance or otherwise provided in the Supplementary Conditions the Contractor shall purchase and maintain similar property insurance on portions of the Work stored on and off the site or in transit when such portions of the Work are to be included in an Application for Payment.

(b) The 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 the Owner, the Contractor, the Subcontractors, the Engineer/ Architect and the Architect/Engineer's consultants in the Work, all of whom shall

be listed as insured or additional insured parties.

(c) All the policies of insurance (or the certificates or other evidence thereof) required to be purchased and maintained by Owner in accordance with subparagraphs (a) and (b) of this section 5.5 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least thirty days' prior written notice has been given to the Contractor and the Architect/Engineer by certified mail and will contain waiver provisions in accordance with paragraph 5.6.

(d) The Owner shall not be responsible for purchasing and maintaining any property insurance to protect the interests of the Contractor, the Architect/Engineer, the Subcontractors, or others in the Work to the extent of any deductible amounts that are provided in the Supplementary Conditions. The risk of loss within the deductible amount, will be borne by the Contractor, the Subcontractor 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 the Contractor requests in writing that other special insurance be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the costs thereof will be charged to the Contractor by appropriate Change Order or Written Amendment. 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.

5.6 Waiver of Rights.

(a) The Owner and the Contractor waive all rights against each other for all losses and damages caused by any of the perils covered by the policies of insurance provided in response to subparagraphs (a) and (b) of paragraph 5.5 and any other property insurance applicable to the Work, and also waive all such rights against the Subcontractors, the Architect/Engineer, the Architect/Engineer's consultants and all other parties named as insureds in such policies for losses and damages so caused. As required by paragraph 6.5(c), each subcontract between the Contractor and a Subcontractor will contain similar waiver provisions by the Subcontractor in favor of the Owner, the Contractor, the Architect/Engineer, the Architect/Engineer's consultants and all other parties named as insured. None of the above waivers shall extend to rights that any of the insured parties may have to the proceeds of insurance held by the Owner as trustee or otherwise payable under any policy so issued.

(b) The Owner and the Contractor intend that any policies provided in response to subparagraphs (a) and (b) of paragraph 5.5 shall protect all of the parties insured and provide primary coverage for all losses and damages caused by the perils covered thereby. Accordingly, all such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any of the parties named as insureds or additional insureds, and if the insurers require separate waiver forms to be signed by the Architect/Engineer or the Architect/Engineer's consultants, the Owner will obtain the same, and if such waiver forms are required of any Subcontractor, the Contractor will obtain the same.

5.7 Receipt and Application of Proceeds.

(a) Any insured loss under the policies of insurance required by subparagraphs (a) and (b) of paragraph 5.5 will be adjusted with the Owner and made payable to the Owner as trustee for the insureds, as their interest may appear, subject to the requirements of any applicable mortgage clause and of subparagraph (b) of this paragraph 5.7. The 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 money so received applied on account thereof and the Work and the cost thereof covered by an appropriate Change Order or Written Amendment.

(b) The Owner as trustee shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within fifteen days after the occurrence of loss to the Owner's exercise of this power. If such objection be made, the Owner as trustee shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If required in writing by any party in interest, the Owner as trustee shall, upon the occurrence of an insured loss, give bond for the proper performance of such duties.

5.8 Acceptance of Insurance. If the Owner has any objection to the coverage afforded by or other provisions of the insurance required to be purchased and maintained by the Contractor in accordance with paragraphs 5.2, 5.3, and 5.5, on the basis of its not complying with the Contract Documents, the Owner shall notify the Contractor of such objection, in writing, within ten days of the date of delivery of the certificates of insurance to the Owner in accordance with paragraph 2.2. If the Contractor has any objection to the coverage afforded by or other provisions of the policies of insurance required to be purchased and maintained by the Owner in accordance with the Supplementary Conditions on the basis of their not complying with the Contract Documents, the Contractor shall notify the Owner of such objection, in writing, within ten days of the date of delivery of the insurance certificates to the Contractor in accordance with paragraph 2.2. The Owner and the Contractor shall each provide to the other such additional information in respect of insurance provided by each as the other may reasonably request. Failure by the Owner or the Contractor to give any such notice of objection within the time provided shall constitute acceptance of such insurance purchased by the other as complying with the Contract Documents.

5.9 Partial Utilization-Property Insurance. If the Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, such use or occupancy may be accomplished in accordance with paragraph 14.5; provided that no such use or occupancy shall commence before the insurers providing the property insurance have acknowledged notice thereof and in writing effected the 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 lapse on account of any such partial use or occupancy.

ARTICLE 6. CONTRACTOR'S RESPONSIBILITY

6.1 Supervision and Responsibility.

(a) The Contractor shall supervise 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. The Contractor shall be solely responsible for the means, methods, techniques, sequences and procedures of construction but the Contractor shall not be responsible for the negligence of others in the design or selection of a specific means, method, sequence or procedure of construction which is indicated in and required by the Contract Documents. The Contractor shall be responsible to see that the finished Work complies accurately with the Contract Documents. All Work shall be performed in a finished and workmanlike manner and in accordance with the best recognized trade practices. From commencement until completion and final acceptance by the Owner, all Work shall be in the charge and control of the Contractor. The Contractor shall be responsible for the

proper care and protection of the Work and all materials and equipment therefor, and all risks in connection with the construction and preservation of the Work and the materials and equipment to be used therein shall be borne by the Contractor.

(b) The Contractor shall keep on the Work at all times during its progress a competent resident superintendent meeting the approval of the Owner and the Architect/Engineer, and who shall not be replaced without written notice to the Owner and the Architect/Engineer, except under extraordinary circumstances. The superintendent will be the Contractor's representative at the site and shall have authority to act on behalf of the Contractor. All communications given to the superintendent shall be as binding as if given to the Contractor. The Owner reserves the right to require the removal from the Project of the superintendent or any other employee of the Contractor if, in the Architect/Engineer's or the Owner's judgment, such removal is necessary to protect the Owner's interest.

6.2 Labor, Materials and Equipment.

(a) The Contractor shall provide adequate numbers of competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. The Contractor shall at all times maintain good discipline and order at the site. Except in connection with the safety and protection of persons or the Work or property at the site or adjacent thereto, and except as otherwise indicated in the Contract Documents, all work at the site shall be performed during regular working hours and the Contractor will not permit overtime work or the performance of Work on Saturday, Sunday or any legal holiday without the Owner's written consent given after prior written notice to the Architect/Engineer. The Contractor shall pay at least the minimum wage rates established by law; but the Owner will have no responsibility for any additional compensation to the Contractor by reason of payment by the Contractor of any wage rates in excess of minimum rates or by reason of any wage increases established by law during the performance of the Work.

(b) Except as otherwise specified in the Contract Documents, the Contractor shall furnish and assume full responsibility for all materials, equipment, superintendence, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary construction and facilities and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up and completion of the Work. Where specifically provided for in the Specifications, the inspection and testing of materials and finished articles to be incorporated in the Work at the site shall be made by bureaus, laboratories, or agencies approved by the Architect/Engineer. Unless otherwise expressly stated, the cost of such inspection and testing shall be paid by the Contractor. The Contractor shall furnish evidence satisfactory to the Architect/Engineer that the materials and finished articles have passed the required tests prior to the incorporation of such materials and finished articles in the Work. The Contractor shall promptly segregate and remove rejected materials and rejected finished articles from the site of the Work.

(c) All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. If required by the Architect/Engineer, the Contractor shall furnish satisfactory evidence (including the reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable Supplier except as otherwise provided in the Contract Documents; but no provision of any such instructions will be effective to assign to the Architect/Engineer, or any of the Architect/Engineer's consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of paragraph 9.9. When equipment is to be installed in

equipment rooms or other areas with restricting dimensions, all such equipment shall be installed substantially as indicated, with adequate unobstructed access space around each piece of equipment to facilitate the proper installation, operation and maintenance of the equipment. Minor revisions in the layout may be made subject to the Architect/Engineer's approval, but the Contractor shall not be entitled to changes in the layout to accommodate proposed equipment which differs substantially from the specified equipment in size and arrangement. Before submitting equipment for approval, the Contractor shall determine that it conforms with the requirements of this subparagraph (c). The Architect/Engineer's general approval of proposed equipment shall not relieve the Contractor from the responsibility of complying with the requirements of this subparagraph (c).

(d) Cutting of new construction shall be avoided wherever possible by the proper coordination between the various trades, and by the placing of proper sleeves, inserts, bolts and other items in the construction as the Work progresses. Whenever cutting of new construction or cutting of existing construction is required, it shall be done in a neat, careful and approved manner, without unnecessary or extensive damage to the construction involved, and only to such extent that is reasonably necessary for the installation of the Work. All patching, repairing and altering shall be done only by mechanics skilled in the various trades involved, using materials and workmanship to match those of the original construction in type and quality. All existing construction which is disturbed or damaged in any way by the Contractor's operations shall be restored at least to the conditions which existed before the Work was begun, unless otherwise indicated.

6.3 Adjusting Schedule. The Contractor shall submit to the Architect/Engineer for approval any adjustments in the progress schedule to reflect the impact thereon of new developments; these will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the General Requirements applicable thereto. No variation in the progress schedule submitted to or approved by the Architect/Engineer pursuant to this paragraph shall operate as an extension of the Contract Time.

6.4 Substitutes or "Or-Equal" Items.

(a) Whenever materials or equipment are specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the naming of the item is intended to establish the type, function and quality required. Unless the name is followed by words indicating that no substitution is permitted, materials or equipment of other Suppliers may be accepted by the Architect/Engineer if sufficient information is submitted by the Contractor to allow the Architect/Engineer to determine that the material or equipment proposed is equivalent or equal to that named.

(b) If a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents, the Contractor may furnish or utilize a substitute means, method, sequence, technique or procedure of construction acceptable to the Architect/Engineer, if the Contractor submits sufficient information to allow the Architect/Engineer to determine that the substitute proposed is equivalent to that indicated or required by the Contract Documents.

(c) Requests for substitutions pursuant to this paragraph 6.4 will not be accepted by the Architect/Engineer from anyone other than the Contractor. All such requests for substitutions shall be made by written application of the Contractor to the Architect/Engineer, certifying that: (I) the proposed substitution will perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified and be suited to the same use as that specified; (ii) that the evaluation and acceptance of the proposed

substitute will not prejudice the Contractor's achievement of Substantial Completion on time; (iii) whether or not acceptance of the substitute in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with the Owner for work on the Project) to adapt the design to the proposed substitute; and (iv) whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified will be identified in the application and available maintenance and repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which shall be considered by the Architect/Engineer in evaluating the proposed substitute. The Architect/Engineer may require the Contractor to furnish additional data about the proposed substitute, at the Contractor's expense.

(d) The Architect/Engineer will be allowed a reasonable time within which to evaluate each proposed substitute. The Architect/Engineer will be the sole judge of acceptability, and no substitute will be ordered, installed or utilized without the Architect/Engineer's prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. The Owner may require the Contractor to furnish at the Contractor's expense a special performance guarantee or other surety with respect to any substitute. If a proposed substitute is rejected in the initial submittal, the Contractor shall provide only the specified items in each case, unless otherwise directed by the Architect/Engineer. If a second submittal is permitted by the Architect/Engineer and if the second submittal is rejected, the Contractor shall provide only the specified items.

6.5 Subcontractors, Suppliers and Others.

(a) The Contractor shall not employ any Subcontractor, Supplier or other person or organization, whether initially or as a substitute, against whom the Owner or the Architect/Engineer may have reasonable objection. The Contractor shall not be required to employ any Subcontractor, Supplier or other person or organization to furnish or perform any of the Work against whom the Contractor has reasonable objection. Any approval (whether express or by failing to make objection thereto) of any such Subcontractor, Supplier or other person or organization, by the Owner or the Architect/Engineer, may be revoked on the basis of reasonable objection after due investigation. In any such case of revocation of approval, the Contractor shall submit an acceptable substitute, the Contract Price will be increased by the difference in cost, if any, occasioned by such substitution and an appropriate Change Order will be issued or Written Amendment signed. No acceptance or approval (whether express or by failure to object) by the Owner or the Architect/Engineer of any such Subcontractor, Supplier or other person or organization shall constitute a waiver of any right of Owner or Architect/Engineer to reject, or otherwise exercise remedies with respect to, defective Work.

(b) The Contractor shall be fully responsible to the Owner and the Architect/Engineer for all acts and omissions of the Subcontractors, Suppliers and other persons and organizations performing or furnishings any of the Work under a direct or indirect contract with the Contractor, as fully as the Contractor is responsible for the Contractor's own acts and omissions. Nothing in the Contract Documents shall create any contractual relationship between the Owner or the Architect/Engineer and any such Subcontractor, Supplier or the person or organization, nor shall it create any obligation on the part of the Owner or the Architect/Engineer to pay or to see to the payment of any monies due any such Subcontractor, Supplier or other person or organization, except as and to the extent otherwise required by Laws and Regulations.

(c) All Work performed for the Contractor by a Subcontractor will be pursuant to an appropriate agreement between the Contractor and the Subcontractor which specifically binds the Subcontractor to the applicable terms and conditions of the Contract Documents for the benefit of the Owner and the Architect/Engineer and contains waiver provisions as required by paragraph 5.6. The Contractor shall pay each Subcontractor a just share of any insurance monies received by the Contractor on account of losses under policies issued pursuant to paragraph 5.5. The failure of the Contractor to enter into a proper agreement with any Subcontractor or Supplier, or any other person or organization, shall in no way relieve the Contractor of his responsibilities and obligations to the Owner and the Architect/Engineer under the Contract Documents.

(d) The Contractor and all Subcontractors shall cooperate fully with each other to facilitate the progress of the Work and to avoid all interferences between the various parts of the Work. Whenever his work is in progress, each Subcontractor shall have present at the job site a job superintendent, foreman or other duly authorized agent, meeting the approval of the Architect/Engineer and the Owner, with authority to control the Subcontractor's part of the Work. The Owner reserves the authority to remove this superintendent or foreman or any other employees of Subcontractors, if in the Architect/Engineer's or the Owner's judgement, such removal is necessary to protect the Owner's interest.

(e) The divisions and sections of the Specifications and the identifications of any Drawings shall not control the Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade. The Contractor and each Subcontractor shall carefully examine all Contract Drawings and read all specifications. They will be bound by all things therein affecting their special work, no matter under what heading they may appear.

6.6 Patent Fees and Royalties. The Contractor shall pay all license fees and royalties and assume all costs incident to the use and 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. The Contractor shall indemnify and hold harmless the Owner and the Architect/Engineer and anyone directly or indirectly employed by either of them from and against all claims, damages, losses and expenses (including attorneys' fees and court costs) arising out of any infringement of patent rights or copyrights incident to the use and 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, and shall defend all such claims in connection with any alleged infringement of such rights.

6.7 Permits. Unless otherwise provided in the Supplementary Conditions, the Contractor shall obtain and pay for all construction permits and licenses. The Owner shall assist the Contractor, when necessary, in obtaining such permits and licenses. The 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 the Bids, or if there are no Bids, on the Effective Date of the Agreement. The Contractor shall pay all charges of utility owners for connections to the Work, and the Owner shall pay all charges of such utility owners for capital costs related thereto such as plant investment fees.

6.8 Laws and Regulations. The Contractor shall give all notices and comply with all Laws and Regulations applicable to furnishing and performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither the Owner nor the Architect/Engineer shall be responsible for monitoring the Contractor's compliance with any Laws or Regulations. Compliance with such Laws and Regulations shall be deemed minimum requirements and everything shown or specified in the Contract Documents in excess of those

minimum requirements shall be furnished or provided in accordance with the requirements of the Contract Documents. No provisions in the Contract Documents shall be construed as a direction or authorization to violate any Law or Regulation. If the Contractor observes that the Specifications or Drawings are at variance with any Laws or Regulations, the Contractor shall give the Architect/Engineer prompt written notice thereof, and any necessary changes will be authorized by one of the methods indicated in paragraph 3.4. If the Contractor performs any Work knowing or having reason to know that it is contrary to such Laws or Regulations, and without such to the Architect/Engineer, the Contractor shall bear all costs arising therefrom; however, it shall not be the Contractor's primary responsibility to make certain that the Specifications and Drawings are in accordance with such Laws and Regulations.

6.9 Taxes. The Contractor shall pay all applicable federal, state and local taxes in connection with the providing and performing of the Work.

6.10 Use of Premises.

(a) The Contractor shall confine construction equipment, the storage of materials and equipment and the operations of workers to the Project site and lands and areas identified in and permitted by the Contract Documents and other land and areas permitted by Laws and Regulations, rights of way, permits and easements, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment. The Contractor shall assume full responsibility for any damage to any such land or area, or to the Owner or occupant thereof or of any land or areas contiguous thereto, resulting from the performance of the Work. The Contractor shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold the Owner and Architect/Engineer harmless from and against all claims, damages, losses and expenses (including but not limited to fees of engineers, architects, attorneys and other professionals and court costs) arising directly, indirectly or consequently out of any claim or action, legal or equitable, brought by any such other party against the Owner or the Architect/Engineer to the extent based on a claim arising out of the Contractor's performance of the Work.

(b) During the progress of the Work, the Contractor shall keep the premises free from accumulations of waste materials, unnecessary or discarded tools and equipment, rubbish and other debris resulting from the Work. At the completion of the Work, the Contractor shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery and surplus materials, and shall leave the site clean and ready for occupancy by the Owner. The Contractor shall restore to original condition all property not designated for alteration by the Contract Documents.

(c) The Contractor shall not load or permit any part of any structure to be loaded in any manner that will endanger the structure; and the Contractor shall not subject any part of the Work or adjacent property to stresses that will endanger it.

6.11 Record Documents. The Contractor shall maintain in a safe place at the site one record copy of all Drawings, Specifications, Addenda, Written Amendments, Change Orders, Work Directive Changes, Field Orders and written interpretations and clarifications (issued pursuant to paragraph 9.4) in good order and annotated to show all changes made during construction. These record documents together with all approved samples and a counterpart of all approved Shop Drawings will be available to the Architect/Engineer for reference. Upon completion of the Work, these record documents, samples and Shop Drawings will be delivered to the Architect/Engineer for the Owner.

6.12 Safety and Protection.

(a) The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. The Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to: (I) all employees on the Work and other persons and organizations who may be affected thereby; (ii) all the Work and materials and equipment to be incorporated therein, whether in storage on or off the site; and (iii) 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. The Contractor shall comply with all applicable Laws and Regulations for the safety of persons or property or to protect them from damage, injury or loss, and shall erect and maintain all necessary safeguards for such safety and protection. The Contractor shall notify owners of adjacent property and of Underground Facilities and 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. All damage, injury or loss to any property referred to in clause (ii) or (iii), above, in this paragraph 6.12(a), caused, directly or indirectly, in whole or in part, by the Contractor, any Subcontractor, Supplier or any other person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, shall be remedied by the Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of the Owner or the Architect/Engineer or anyone employed by either of them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of the Contractor). The Contractor's duties and responsibilities for the safety and protection of the Work shall continue until such time as all the Work is completed and the Architect/Engineer has issued a notice to the Owner and the Contractor in accordance with paragraph 14.8 that the Work is acceptable (except as otherwise as expressly provided in connection with Substantial Completion).

(b) The Contractor shall designate a responsible representative at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated in writing by the Contractor to the Owner.

6.13 Emergencies. In emergencies affecting the safety or protection of persons or the Work or property at the site or adjacent thereto, the Contractor, without special instruction or authorization from the Architect/Engineer or Owner, is obligated to act to prevent threatened damage, injury or loss. The Contractor shall give the Architect/Engineer prompt written notice if the Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby. If the Architect/Engineer determines that a change in the Contract Documents is required because of the action taken in response to an emergency, a Work Directive Change or Change Order will be issued to document the consequences of the changes or variations.

6.14 Shop Drawings and Samples.

(a) After checking and verifying all field measurements and after complying with applicable procedures specified in the General Requirements, the Contractor shall submit to the Architect/Engineer for review and approval in accordance with the accepted schedule of Shop Drawing submissions (see paragraph 2.8), or for other appropriate action if so indicated in the Supplementary Conditions, five (5) copies (unless otherwise specified in the General Requirements) of all Shop Drawings, which will bear a stamp or specific written indication that the Contractor has satisfied his responsibilities under the Contract Documents with respect to the review of the submission. All submissions will be identified as the Architect/Engineer may

require. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials and similar data to enable the Architect/Engineer to review the information as required.

(b) The Contractor shall also submit to the Architect/Engineer for review and approval, with such promptness as to cause no delay in the Work, all samples required by the Contract Documents. Unless otherwise specified in the General Requirements, all samples shall be submitted in duplicate and shall be of adequate size to show quality, type, color range, finish, texture or other specified features. All samples shall have been checked by the Contractor and shall be accompanied by a specific written indication that the Contractor has satisfied his responsibilities under the Contract Documents with respect to the review of this submission and will be identified clearly as to material, Supplier, pertinent data, such as catalog numbers, and the use for which intended.

(c) Before submission of each Shop Drawing or sample, the Contractor shall have determined and verified all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar data with respect thereto and reviewed or coordinated each Shop Drawing or sample with other Shop Drawings and samples and with the requirements of the Work and the Contract Documents. At the time of each submission, the Contractor shall give the Architect/Engineer specific written notice of each variation that the Shop Drawings or samples may have from the requirements of the Contract Documents and, in addition, shall cause a specific notation of each such variation to be made on each Shop Drawing submitted to the Architect/Engineer for review and approval.

(d) The Architect/Engineer will review and approve with reasonable promptness all Shop Drawings and samples submitted, but the Architect/Engineer's review and approval will be only for conformance with the design concept of the Project and for compliance with information given in the Contract Documents and shall not extend to means, methods, techniques, sequences or procedures of construction (except where a specific means, method, technique, sequence or procedure of construction is indicated in or required 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. The Contractor shall make corrections required by the Architect/Engineer and shall return the required number of corrected copies of Shop Drawings and submit as required new samples for review and approval. The Contractor shall direct specific attention in writing to revisions other than the corrections called for by the Architect/Engineer on previous submittals.

(e) The Architect/Engineer's review and approval of Shop Drawings or samples shall not relieve the Contractor from responsibility for any variation from the requirements of the Contract Documents unless the Contractor has in writing called the Architect/Engineer's attention to each such variation at the time of submission, as required by the foregoing provisions of this paragraph, and the Architect/Engineer has given written approval of each such variation by a specific written notation thereof incorporated in or accompanying the Shop Drawing or sample approval. No approval by the Architect/Engineer shall relieve the Contractor from responsibility for errors or omissions in the Shop Drawings or from responsibility for having complied with the provisions of subparagraph (c) of this paragraph. Where a Shop Drawing or sample is required by the Specifications, any related Work performed prior to the Architect/Engineer's review and approval of the pertinent submission will be at the sole expense and responsibility of the Contractor.

6.15 Continuing Work During Disputes. The Contractor shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with the Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as

permitted by paragraph 15.4, or as the Contractor and Owner may otherwise agree in writing.

6.16 Indemnification.

(a) To the fullest extent permitted by Laws and Regulations, the Contractor shall indemnify and hold harmless the Owner and the Architect/Engineer and their consultants, agents and employees, from and against all claims, damages, losses and expenses, direct, indirect or consequential (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court costs) arising out of or resulting from the performance of the Work, provided that any such claim, damage, loss or expense (I) is attributable to bodily injury, sickness, disease or death, or to injury or destruction of tangible property (other than the Work itself) including the loss of use resulting therefrom and (ii) is caused in whole or in part by any negligent act or omission of the Contractor, any Subcontractor, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder or arises by or is imposed by Law and Regulations regardless of the negligence of any such party.

(b) In any and all claims against the Owner or the Architect/Engineer or any of their consultants, agents or employees by any employee of the Contractor, any Subcontractor, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, the indemnification obligation under this paragraph 6.16 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any such Subcontractor or other person or organization under worker's or workmen's compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 7. OTHER WORK

7.1 Related Work at Site.

(a) The Owner may perform other work related to the Project at the site by the Owner's own forces, have other work performed by utility owners or let other direct contracts for such other work. If the fact that such other work is to be performed was not noted in the Contract Documents, written notice thereof will be given to the Contractor prior to starting any such other work; and, if the Contractor believes that such performance will involve additional expense to the Contractor or requires additional time and the parties are unable to agree to the extent thereof, the Contractor may make a claim therefor as provided in Articles 11 and 12.

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

(c) If any part of the Contractor's Work depends for proper execution or results upon the work of any such other contractor or utility owner (or the Owner), the Contractor shall inspect and promptly report to the Architect/Engineer in writing any delays, defects or deficiencies in such work that render it unavailable or unsuitable for such proper execution and results. The Contractor's failure so to report will constitute an acceptance of the other work as fit and proper for integration with the Contractor's Work except for latent or non-apparent defects and deficiencies in the other work.

7.2 Coordination. If the Owner contracts with others for the performance of other work on the Project at the site, the person or organization who will have authority and responsibility for coordination of the activities among the various prime contractors will be identified in the Supplementary Conditions, and the specific matters to be covered by such authority and responsibility will be itemized, and the extent of such authority and responsibilities will be provided, in the Supplementary Conditions. Unless otherwise provided in the Supplementary Conditions, neither the Owner nor the Architect/Engineer shall have any authority or responsibility in respect to such coordination.

ARTICLE 8. OWNER'S RESPONSIBILITIES

8.1 Communications. The Owner shall issue all communications to the Contractor through the Architect/Engineer.

8.2 Replacement of Architect/Engineer. In case of termination of the employment of the Architect/Engineer, the Owner shall appoint an engineer or architect against whom the Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Architect/Engineer.

8.3 Duties and Responsibilities of Owner.

(a) The Owner shall furnish the data required of the Owner under the Contract Documents promptly and shall make payments to the Contractor promptly after they are due as provided in paragraphs 14.3 and 14.8.

(b) The Owner's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in paragraphs 4.1 and 4.4. Paragraph 4.2 refers to the Owner's identifying and making available to the Contractor copies of reports of explorations and tests of subsurface conditions at the site and in existing structures which have been utilized by the Architect/Engineer in preparing the Drawings and Specifications.

(c) The Owner's responsibilities, if any, in respect of purchasing and maintaining insurance are referred to in Article 5 and may be set forth in the Supplementary Conditions.

(d) The Owner is obligated to execute Change Orders as indicated in paragraph 10.2.

(e) The Owner's responsibility in respect of certain inspections, tests and approvals is set forth in paragraph 13.3(b).

ARTICLE 9. THE ARCHITECT/ENGINEER

9.1 Owner's Representative. The Architect/Engineer will be the Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of the Architect/Engineer as the Owner's representative are set forth in the Contract Documents

and shall not be extended without the written consent of the Owner and the Architect/Engineer.

9.2 Visits to Site. The Architect/Engineer will make visits to the site at intervals appropriate to the various stages of construction to observe the progress and quality of the executed Work and to determine, in general, if the work is proceeding in accordance with the Contract Documents. The Architect/Engineer will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect/Engineer's efforts will be directed toward providing for the Owner a greater degree of confidence that the completed Work will conform to the Contract Documents.

9.3 Project Representation. If the Owner and the Architect/Engineer agree, the Architect/Engineer will furnish a Resident Project Representative to assist the Architect/Engineer in observing the performance of the Work. The duties, responsibilities and limitations of authority of any such Resident Project Representative will be as provided in the Supplementary Conditions. If the Owner designates another agent to represent the Owner at the site who is not the Architect/Engineer's agent or employee, the duties, responsibilities and limitations of authority of such other person will be as provided in the Supplementary Conditions.

9.4 Clarifications and Interpretations. The Architect/Engineer will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents (in the form of Drawings or otherwise) as the Architect/Engineer may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents. If the Contractor believes that a written clarification or interpretation justifies an increase in the Contract Price or an extension of the Contract Time and the parties are unable to agree as to the amount or extent thereof, the Contractor may make a claim therefor as provided in Article 11 or 12.

9.5 Minor Variations. The Architect/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 Time and are consistent with the overall intent of the Contract Documents. These may be accomplished by a Field Order and will be binding on the Owner, and also on the Contractor, who shall perform the Work involved promptly. If the Contractor believes that a Field Order justifies an increase in the Contract Price or an extension of the Contract Time and the parties are unable to agree as to the amount or extent thereof, the Contractor may make a claim therefor as provided in Article 11 or 12.

9.6 Rejecting Defective Work. The Architect/Engineer will have authority to disapprove or reject Work which the Architect/Engineer believes to be defective, and will also have authority to require special inspection or testing of the Work as provided in paragraph 13.4(b), whether or not the Work is fabricated, installed or completed.

9.7 Unit Price Determinations. The Architect/Engineer will determine the actual quantities and classifications of Unit Price Work performed by the Contractor. The Architect/Engineer will review with the Contractor the Architect/Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). The Architect/Engineer's written decisions thereon will be final and binding upon the Owner and the Contractor.

9.8 Decisions on Disputes.

(a) The Architect/Engineer will be the interpreter of the requirements of the Contract Documents and the judge of the acceptability of the Work thereunder. Claims, disputes and

other matters relating to the acceptability of the Work or the interpretation of the requirements of the Contract Documents pertaining to the performance and furnishing of the Work and claims under Articles 11 and 12 in respect of changes in the Contract Price or Contract Time will be referred initially to the Architect/Engineer in writing with a request for a formal decision in accordance with this paragraph, which the Architect/Engineer will render in writing within a reasonable time. Written notice of each such claim, dispute and other matter will be delivered by the claimant to the Architect/Engineer and the other party to the Agreement promptly (but in no event later than thirty days) after the occurrence of the event giving rise thereto, and written supporting data will be submitted to the Architect/Engineer and the other party within sixty days after such occurrence unless the Architect/Engineer allows an additional period of time to ascertain more accurate data in support of the claim. The written decision of the Architect/Engineer, with respect to any such dispute, claim, interpretation or other matter, shall be final and binding upon the Owner and the Contractor.

(b) When functioning as interpreter and judge under paragraphs 9.7 and 9.8, the Architect/Engineer will not show partiality to the Owner or the Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity. The rendering of a decision by the Architect/Engineer pursuant to paragraph 9.7 or 9.8(a) with respect to any such claim, dispute or other matter will be a condition precedent to any right of the Contractor to receive payment with respect to any matter in dispute.

9.9 Limitations on Architect/Engineer's Responsibilities.

(a) Neither the Architect/Engineer's authority to act under this Article 9 or elsewhere in the Contract Documents nor any decision made by the Architect/Engineer in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of the Architect/Engineer to the Contractor, any Subcontractor, any Supplier, or any other person or organization providing or performing any of the Work, or to any surety for any of them.

(b) Whenever in the Contract Documents the terms "as ordered", "as directed", "as required", "as allowed", "as approved" or terms of like effect or import are used, or the adjectives "reasonable", "suitable", "acceptable", "proper" or "satisfactory" or adjectives of like effect or import are used to describe a requirement, direction, review or judgment of the Architect/Engineer as to the Work, it is intended that such requirement, direction, review or judgment will be solely to evaluate the Work for compliance with the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective shall not be effective to assign to Architect/Engineer any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of subsection (c) or (d) of this section 9.9.

(c) The Architect/Engineer will not be responsible for the Contractor's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, and the Architect/Engineer will not be responsible for the Contractor's failure to perform or furnish the Work in accordance with the Contract Documents.

(d) The Architect/Engineer will not be responsible for the acts or omissions of the Contractor or of any Subcontractor, any Supplier or of any other person or organization performing or furnishing any of the Work.

ARTICLE 10. CHANGES IN THE WORK

10.1 General. Without invalidating the Agreement and without notice to any surety the Owner may, at any time or from time to time, order additions, deletions or revisions in the

Work. These will be authorized by a Written Amendment, a Change Order or a Work Directive Change. Upon receipt of any such document, the 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). If the Owner and Contractor are unable to agree as to the extent, if any, of an increase or decrease in the Contract Price or an extension or shortening of the Contract Time that should be allowed as a result of a Work Directive Change, a claim may be made therefor as provided in Article 11 or 12. The Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Time with respect to any Work performed that is not required by the Contract Documents (including any authorized amendments, modifications or supplements thereto), except in the case of an emergency as provided in paragraph 6.13 and except in the case of uncovering Work as provided in paragraph 13.4(b).

10.2 Documentation. The Owner and the Contractor shall execute appropriate Change Orders (or Written Amendments) covering (a) changes in the Work which are ordered by the Owner pursuant to paragraph 10.1, are required because of the acceptance of defective Work under paragraph 13.8 or correcting defective Work under paragraph 13.9, or are agreed to by the parties; (b) changes in the Contract Price or Contract Time which are agreed to by the parties; and (c) changes in the Contract Price or Contract Time which embody the substance of any written decision rendered by the Architect/Engineer pursuant to paragraph 9.8(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 Time) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be the Contractor's responsibility, and the amount of each applicable Bond will be adjusted accordingly.

ARTICLE 11. CHANGES OF CONTRACT PRICE

11.1 General. The Contract Price constitutes the total compensation (subject to authorized adjustments) payable to the Contractor for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by the Contractor shall be at his expense without change in the Contract Price.

11.2 Claims for Change in Contract Price.. The Contract Price may only be changed by a Change Order or by a Written Amendment. Any claim for an increase or decrease in the Contract Price shall be based on written notice delivered by the party making the claim to the other party and to the Architect/Engineer promptly (but in no event later than thirty days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the amount of the claim with supporting data shall be delivered within sixty days after such occurrence (unless the Architect/Engineer allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by claimant's written statement that the amount claimed covers all known amounts (direct, indirect and consequential) to which the claimant is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Price shall be determined by the Architect/Engineer in accordance with paragraph 9.8, unless the Owner and the Contractor otherwise agree on the amount involved. No claim for an adjustment in the Contract Price will be valid if not submitted in accordance with this paragraph 11.2.

11.3 Method of Determining Value. The value of any Work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:

(a) Where the Work involved is covered by unit prices contained in the Contract Documents,

by application of unit prices to the quantities of the items involved (subject to the provisions of paragraph 11.7).

(b) By mutual acceptance of a lump sum (which may include an allowance for overhead and profit not necessarily in accordance with paragraph 11.5).

(c) On the basis of the Cost of the Work (determined as provided in paragraph 11.4) plus a Contractor's Fee for overhead and profit (determined as provided in paragraph 11.5).

11.4 Cost of the Work.

(a) The term Cost of the Work means the sum of all costs necessarily incurred and paid by the Contractor in the proper performance of the Work. Except as otherwise may be agreed to in writing by the 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 subparagraph (b) of this paragraph 11.4):

(i) Payroll costs for employees in the direct employ of the Contractor in the performance of the Work under schedules of job classifications agreed upon by the Owner and the Contractor. 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 and employment taxes. Such employees shall include superintendents and foremen at the site. The expense of performing Work after regular working hours, on Saturday, Sunday or legal holidays, shall be included in the above to the extent authorized by the Owner.

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

(iii) Payments made by the Contractor to the Subcontractors for Work performed by Subcontractors. If required by the Owner, the Contractor shall obtain competitive bids from Subcontractors acceptable to the Contractor and shall deliver such bids to the Owner who will then determine, with the advice of the Architect/Engineer, which bids will be accepted. If a 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 shall be determined in the same manner as the Contractor's Cost of the Work. All subcontracts shall be subject to the other provisions of the Contract Documents insofar as applicable.

(iv) 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.

(v) Supplemental costs including the proportion of necessary transportation, travel and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work; 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 costs less market value of such items used but not consumed which remain the property of the Contractor; rental costs for construction equipment and machinery in accordance with rental agreements approved by the Owner with the advice of the Architect/Engineer, during the period necessary for the Work, and transportation, installation and removal costs; sales, consumer, use or similar taxes related to the Work, and for which the Contractor is liable, imposed by Laws and Regulations; deposits lost for causes other than negligence of the Contractor, any Subcontractor or anyone directly or

indirectly employed by any of them or for whose acts any of the them may be liable and royalty payments and fees for permits and licenses; losses and damages (and related expenses), not compensated by insurance or otherwise, to the Work or otherwise sustained by the Contractor in connection with the performance and furnishing of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with paragraph 5.5) provided they have resulted from causes other than the negligence of the Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable (provided, no such losses, damages and expenses shall be included in the Cost of the Work for the purpose of determining the Contractor's Fee); the cost of utilities, fuel and sanitary facilities at the site; minor expenses such as telegrams, long distance telephone calls, telephone service at the site, expressage and similar petty cash items in connection with the Work; and the cost of premiums for additional Bonds and insurance required because of changes in the Work.

(b) The term Cost of the Work shall not include any of the following:

(i) Payroll costs and other compensation of the Contractor's officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, time keepers, clerks and other personnel employed by the Contractor whether at the site or in the Contractor's principal or a branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in subparagraph (a)(I) or (v), all of which are to be considered administrative costs covered by the Contractor's Fee.

(ii) Expenses of Contractor's principal and branch offices other than the Contractor's office at the site.

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

(iv) Cost of premiums for all Bonds and for all insurance whether or not Contractor is required by the Contract Documents to purchase and maintain the same (except for the cost of premiums covered by subparagraph (a)(v) above).

(v) Costs due to the negligence of the 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.

(vi) Other overhead or general expense costs of any kind and the cost of any item not specifically and expressly included in subparagraph (a) of this paragraph 11.4.

(c) Whenever the cost of any Work is to be determined pursuant to this paragraph 11.4, the Contractor will submit in form acceptable to the Architect/Engineer an itemized cost breakdown together with supporting data.

11.5 Contractor's Fee. The Contractor's Fee allowed to the Contractor shall be either a mutually acceptable fixed fee, or if none can be agreed upon, a fee based on the following percentages of the various portions of the Cost of the Work:

(a) For costs incurred under subparagraphs (a)(I) and (a)(ii) of section 11.4, the Contractor's Fee shall be 15%;

(b) For costs incurred under subparagraph (a)(iii) of paragraph 11.4, the Contractor's Fee shall be 5%; and if a subcontract is on the basis of Cost of the Work Plus a Fee, the maximum allowable to the Contractor on account of overhead and profit of all Subcontractors shall be 15%;

(c) No fee shall be payable on the basis of any costs itemized in subparagraphs (a)(iv), (a)(v) or (b) of paragraph 11.4;

(d) The amount of credit to be allowed by the Contractor to the Owner for any such change which results in a net decrease in cost will be the amount of the actual net decrease plus a deduction in the Contractor's Fee by an amount equal to 10% of the net decrease; and

(e) When both additions and credits are involved in any one change, the adjustment in the Contractor's Fee shall be computed on the basis of the net change in accordance with clauses (a) through (d), inclusive, of this paragraph 11.5.

11.6 Cash Allowances. It is understood that the Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be done by such Subcontractors or Suppliers and for such sums within the limit of the allowances as may be acceptable to the Architect/Engineer. The Contractor agrees that (a) the allowances include the cost to the 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) the Contractor's costs for unloading and handling on the site, labor, installation, overhead, profit and other expenses contemplated for the allowances have been included in the Contract Price and not in the allowances. No demand for additional payment on account of any thereof will be valid. Prior to final payment, an appropriate Change Order will be issued as recommended by the Architect/Engineer to reflect actual amounts due the Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.7 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 established unit prices for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement. 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 the Contractor will be made by the Architect/Engineer in accordance with paragraph 9.7.

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

(c) Where the quantity of any item of Unit Price Work performed by the Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement and there is no corresponding adjustment with respect to any other item of Work and if the Contractor believes that the Contractor has incurred additional expense as a result thereof, the Contractor may make a claim for an increase in the Contract Price in accordance with this Article 11 if the parties are unable to agree as to the amount of any such increase.

ARTICLE 12. CHANGE OF CONTRACT TIME

12.1 General. The Contract Time may be changed only by a Change Order or a Written Amendment. Any claim for an extension or shortening of the Contract Time shall be based on written notice delivered by the party making the claim to the other party and to the Architect/Engineer promptly (but in no event later than thirty days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the extent of the claim with supporting data shall be delivered within sixty days after such occurrence (unless the Architect/Engineer allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe that it is entitled as a result of the occurrence of said event. All claims for adjustment in the Contract Time shall be determined by the Architect/Engineer in accordance with paragraph 9.8, unless the Owner and the Contractor otherwise agree. No claim for an adjustment in the Contract Time will be valid if not submitted in accordance with the requirements of this paragraph 12.1.

12.2 Delays Beyond Contractor's Control. The Contract Time will be extended in an amount equal to time lost due to delays beyond the control of the Contractor, if a claim is made therefor as provided in paragraph 12.1, by reason of acts or neglect by the Owner or others performing additional work as contemplated by Article 7, or to fires, floods, labor disputes, epidemics, abnormal weather condition or acts of God.

12.3 Time is of the Essence. All time limits stated in the Contract Documents are of the essence of the Agreement. The provisions of this Article 12 shall not exclude recovery for damages (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court costs) for delay by either party.

ARTICLE 13. WARRANTY; TESTS AND INSPECTIONS; DEFECTIVE WORK

13.1 Warranty. The Contractor warrants and guarantees to the Owner and the Architect/Engineer that all Work will be in accordance with the Contract Documents and will not be defective. Notice of all defects shall be given to the Contractor promptly upon discovery thereof. All defective Work whether or not in place, may be rejected, corrected or accepted as provided in this Article 13.

13.2 Access to Work. The Architect/Engineer and Architect/Engineer's representatives, other representatives of the Owner, testing agencies and governmental agencies with jurisdictional interests will have access to the Work at reasonable times for their observation, inspecting and testing. The Contractor shall provide proper and safe conditions for such access.

13.3 Tests and Inspections.

(a) The Contractor shall give the Architect/Engineer timely notice of readiness of the Work for all required inspections, tests or approvals.

(b) If Laws or Regulations require any Work (or part thereof) to specifically be inspected, tested or approved, the Contractor shall assume full responsibility therefor, pay all costs in connection therewith and furnish the Architect/Engineer the required certificates of inspection, testing or approval. The Contractor shall also be responsible for and shall pay all costs in connection with any inspection or testing required in connection with the Owner's or the Architect/Engineer's acceptance of a Supplier of materials or equipment proposed to be incorporated in the Work, or of

materials or equipment submitted for approval prior to the Contractor's purchase thereof for incorporation in the Work. The costs of all inspections, tests and approvals in addition to the above which are required by the Contract Documents shall be paid by the Owner (unless otherwise specified).

(c) All inspections, tests or approvals other than those required by Laws or Regulations shall be performed by organizations acceptable to the Owner and the Contractor (or by the Architect/Engineer if so specified).

(d) If any Work (including the work of others) that is to be inspected, tested or approved is covered without written concurrence of the Architect/Engineer, it must, if requested by the Architect/Engineer, be uncovered for observation. Such uncovering shall be at the Contractor's expense unless the Contractor has given the Architect/Engineer timely notice of the Contractor's intention to cover the same and the Architect/Engineer has not acted with reasonable promptness in response to such notice.

(e) Neither observations by the Architect/Engineer nor inspections, tests or approvals by others shall relieve the Contractor from the Contractor's obligation to perform the Work in accordance with the Contract Documents.

13.4 Uncovering Work.

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

(b) If the Architect/Engineer considers it necessary or advisable that covered Work be observed by the Architect/Engineer or inspected or tested by others, the Contractor, at the Architect/Engineer's request shall uncover, expose or otherwise make available for observation, inspection or testing as the Architect/Engineer may require, that portion of the Work in question, furnishing all necessary labor material and equipment. If it is found that such Work is defective, the Contractor shall bear all direct, indirect and consequential costs of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction (including but not limited to fees and charges of engineers, architects, attorneys and other professionals), and the Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of any such decrease, the Owner may make a claim therefor as provided in Article 11. If, however, such Work is not found to be defective, the Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction; and if the parties are unable to agree as to the amount or extent thereof, the Contractor may make a claim therefor as provided in Articles 11 and 12.

13.5 Owner May Stop Work. If the Work is defective, or the Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to furnish or perform the Work in such a way that the completed Work will conform to the Contract Documents, the Owner may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated. This right of the Owner to stop the Work shall not give rise to any duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other party. Neither the existence of this right nor the exercise or the failure of exercise of this right to stop the Work shall preclude the exercise of any other rights or remedies of the Owner or the Architect/Engineer or constitute the waiver of any rights or remedies of the Owner or the Architect/Engineer.

13.6 Correction or Removal of Defective Work. If required by the Architect/Engineer, the Contractor shall promptly, as directed, either correct all defective Work, whether fabricated, installed or completed, or, if the Work has been rejected by the Architect/Engineer, remove it from the site and replace it with non-defective Work. The Contractor shall bear all direct, indirect and consequential costs of such correction or removal (including but not limited to fees and charges of engineers, architects, attorneys and other professionals) made necessary thereby.

13.7 One Year Correction Period. If within one year after the date of Substantial Completion or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee or warranty required by the Contract Documents or by any specific provision of the Contract Documents, any Work is found to be defective, the Contractor shall promptly, without cost to the Owner and in accordance with the Owner's instructions, either correct such defective Work, or, if it has been rejected by the Owner, remove it from the site and replace it with non-defective Work. If the Contractor does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, the Owner may have the defective Work corrected or the rejected Work removed and replaced, and all direct, indirect and consequential costs of such removal and replacement (including but not limited to fees and charges of engineers, architects, attorneys and other professionals) will be paid by the Contractor. 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 or by Written Amendment.

13.8 Acceptance of Defective Work. If, instead of requiring correction or removal and replacement of defective Work, the Owner prefers to accept it, he may do so with the concurrence of the Architect/Engineer. The Contractor shall bear all direct, indirect and consequential costs attributable to the Owner's evaluation of and determination to accept such defective Work (such costs to be approved by the Architect/Engineer as to reasonableness and to include and but not be limited to fees and charges of engineers, architects, attorneys and other professionals). If any such acceptance occurs prior to the Architect/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 the Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of any such decrease, the Owner may make a claim therefor as provided in Article 11. If the acceptance occurs after such recommendation, an appropriate amount will be paid by the Contractor to the Owner.

13.9 Owner May Correct Defective Work. If the Contractor fails within a reasonable time after written notice of the Architect/Engineer to proceed to correct and to complete correction of any defective Work or to remove and replace rejected Work as required by the Architect/Engineer in accordance with paragraph 13.6, or if the Contractor fails to perform the Work in accordance with the Contract Documents, or if the Contractor fails to comply with any other provisions of the Contract Documents, the Owner may, after seven days' written notice to the Contractor, correct and remedy any such deficiency. To the extent necessary to complete corrective and remedial action, the Owner may exclude the 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 the 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 the Owner has paid the Contractor but which are stored elsewhere. The Contractor shall allow the Owner and the Owner's representatives, agents and employees such access to the site as may be necessary to enable the Owner to exercise the rights and remedies under this paragraph. All direct, indirect and consequential costs of the Owner in exercising such

rights and remedies will be charged against the Contractor in an amount approved as to reasonableness by the Architect/Engineer, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and the Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of any such decrease, the Owner may make a claim therefor as provided in Article 11. Such direct, indirect and consequential costs will include but not be limited to fees and charges of engineers, architects, attorneys and other professionals, all court costs and all costs of repair and replacement of work of others destroyed or damaged by correction, removal or replacement of the Contractor's defective Work. The Contractor shall not be allowed an extension of the Contract Time because of any delay in performance of the Work attributable to the exercise by the Owner of the Owner's rights and remedies under this paragraph.

ARTICLE 14. PAYMENTS TO CONTRACTOR AND COMPLETION

14.1 Schedule of Values. The Schedule of values established as provided in paragraph 2.8 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to the Architect/Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.2 Application for Progress Payment.

(a) At least twenty days before each progress payment is scheduled (but not more often than once a month) the Contractor shall submit to the Architect/Engineer for review an Application for Payment filled out and signed by the 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 the Owner has received the materials and equipment free and clear of all liens, charges, security interests and encumbrances (which are hereinafter in the General Conditions referred to as "Liens") and evidence that the materials and equipment are covered by appropriate property insurance and other arrangements to protect the Owner's interest therein, all of which must be satisfactory to the Owner. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

(b) The 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 the Owner no later than the time of payment, free and clear of all Liens.

14.3 Review of Applications.

(a) The Architect/Engineer will, within ten days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to the Owner, or return the Application to the Contractor indicating in writing the Architect/Engineer's reasons for refusing to recommend payment. In the latter case, the Contractor may make the necessary corrections and resubmit the Application. Ten days after presentation of the Application for Payment with the Architect/Engineer's recommendation, the amount recommended will (subject to the provisions of the last sentence of paragraph 14.3(d)) become due and when due will be paid by the Owner to the Contractor.

(b) The Architect/Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by the Architect/Engineer to the Owner, based on the

Architect/Engineer's on-site observations of the Work in progress as an experienced and qualified design professional and on the Architect/Engineer's review of the Application for Payment and the accompanying data and schedules that the Work has progressed to the point indicated; that to the best of the Architect/Engineer's knowledge, information and belief, the quality of the Work is 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 9.7, and to any other qualifications stated in the recommendation); and that the Contractor is entitled to payment of the amount recommended. However, by recommending any such payment, the Architect/Engineer will not thereby be deemed to have represented that exhaustive or continuous on-site inspections have been made to check the quality or the quantity of the Work beyond the responsibilities specifically assigned to the Architect/Engineer in the Contract Documents or that there may not be other matters or issues between the parties that might entitle the Contractor to be paid additionally by the Owner or the Owner to withhold payment to the Contractor.

(c) The Architect/Engineer's recommendation of final payment will constitute an additional representation by the Architect/Engineer to the Owner that the conditions precedent to the Contractor's being entitled to final payment as set forth in paragraph 14.8 have been fulfilled.

(d) The Architect/Engineer may refuse to recommend the whole or any part of any payment if, in the Architect/Engineer's opinion, it would be incorrect to make such representations to the Owner. The Architect/Engineer may also refuse to recommend any such payment, or, because of subsequently discovered evidence or the result of subsequent inspections or tests, nullify any such payment previously recommended, to such extent as may be necessary in the Architect/Engineer's opinion to protect the Owner from loss because: (i) the Work is defective, or completed Work has been damaged requiring correction or replacement; (ii) the Contract Price has been reduced by Written Amendment or Change Order; (iii) the Owner has been required to correct defective Work or complete Work in accordance with paragraph 13.9; or (iv) of the Architect/Engineer's actual knowledge of the occurrence of any of the events enumerated in paragraph 15.2. The Owner may refuse to make payment of the full amount recommended by the Architect/Engineer because claims have been made against the Owner on account of the Contractor's performance or furnishing of the Work or Liens have been filed in connection with the Work or there are other items entitling the Owner to a set-off against the amount recommended, but the Owner must give the Contractor immediate written notice (with a copy to the Architect/Engineer) stating the reasons for such action.

14.4 Substantial Completion.

(a) When the Contractor considers the entire Work ready for its intended use, the Contractor shall notify the Owner and the Architect/Engineer in writing that the entire Work is substantially complete (except for items specifically listed by the Contractor as incomplete) and request that the Architect/Engineer issue a certificate of Substantial Completion. Within a reasonable time thereafter, the Owner, the Contractor and the Architect/Engineer shall make an inspection of the Work to determine the status of completion. If the Architect/Engineer does not consider the Work substantially complete, the Architect/Engineer will notify the Contractor in writing giving the reasons therefore. If the Architect/Engineer considers the Work substantially complete, the Architect/Engineer will prepare and deliver to the 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. The Owner shall have seven days after receipt of the tentative certificate during which to make written objection to the Architect/Engineer as to any provisions of the certificate or attached list. If, after considering such objections, the Architect/Engineer concludes that the Work is not

substantially complete, the Architect/Engineer will within fourteen days after submission of the tentative certificate to the Owner, notify the Contractor in writing, stating the reasons therefor. If, after consideration of the Owner's objections, the Architect/Engineer considers the Work substantially complete, the Architect/Engineer will within said fourteen days execute and deliver to the Owner and the 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 the Architect/Engineer believes justified after consideration of any objections from the Owner.

(b) Except to the extent otherwise provided in subparagraphs (c) and (d) of this paragraph 14.4, pending final payment to the Contractor he shall not be relieved of any responsibility with respect to security, operation, safety, maintenance, heat, utilities, insurance or warranties, except to the extent specifically agreed to in writing signed by the Owner and the Contractor.

(c) At the time of delivery of the tentative certificate of Substantial Completion, the Architect/Engineer may deliver to the Owner and the Contractor a written recommendation as to division of responsibilities pending final payment between the Owner and the Contractor with respect to security, operation, safety, maintenance, heat, utilities, insurance and warranties. Unless the Owner and the Contractor agree otherwise in writing and so inform the Architect/Engineer prior to issuance of the definitive certificate of Substantial Completion, the Architect/Engineer's aforesaid recommendation will be binding upon the Owner and the Contractor until final payment.

(d) The Owner shall have the right to exclude the Contractor from the Work after the date of Substantial Completion, but the Owner shall allow the Contractor reasonable access to complete or correct items on the tentative list. If the Owner exercises its right to exclude the Contractor from the Work in accordance with this subparagraph, the Contractor shall be relieved of any responsibilities with respect to security, operation, safety, maintenance, heat and utilities, except to the extent otherwise agreed in writing and signed by the Owner and the Contractor, but the Contractor shall not be relieved of its responsibilities with respect to insurance and warranties, except to the extent specifically agreed to in writing by the Owner.

14.5 Partial Utilization. Use by the Owner of any finished part of the Work, which has been specifically identified in the Contract Documents, or which the Owner, the Architect/Engineer and the Contractor agree constitutes a separately functioning and usable part of the Work that can be used by the Owner without significant interference with the Contractor's performance of the remainder of the Work, may be accomplished prior to Substantial Completion of all the Work subject to the following:

(a) The Owner at any time may request the Contractor in writing to permit the Owner to use any such part of the Work which the Owner believes to be ready for its intended use and substantially complete. If the Contractor agrees, the Contractor will certify to the Owner and the Architect/Engineer that said part of the Work is substantially complete and request the Architect/Engineer to issue a certificate of Substantial Completion for that part of the Work. The Contractor at any time may notify the Owner and the Architect/Engineer in writing that the Contractor considers any such part of the Work ready for its intended use and substantially complete and requests the Architect/Engineer to issue a certificate of Substantial Completion for that part of the Work. Within a reasonable time after either such request, the Owner, the Contractor and the Architect/Engineer shall make an inspection of that part of the Work to determine its status of completion. If the Architect/Engineer does not consider that part of the Work to be substantially complete, the Architect/Engineer will notify the Owner and the Contractor in writing giving the reasons therefore. If the Architect/Engineer considers that part of the Work to be substantially complete, the provisions of paragraph 14.4 shall 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.

(b) The Owner may at any time request the Contractor in writing to permit the Owner to take over operation of any such part of the Work although it is not substantially complete. A copy of such request will be sent to the Architect/Engineer and within a reasonable time thereafter the Owner, the Contractor and the Architect/Engineer shall make an inspection of that part of the Work to determine its status of completion and will prepare a list of the items remaining to be completed or corrected thereon before final payment. If the Contractor does not object in writing to the Owner and the Architect/Engineer that such part of the Work is not ready for separate operation by the Owner, the Architect/Engineer will finalize the list of items to be completed or corrected and will deliver such list to the Owner and the Contractor together with a written recommendation as to the division of responsibilities pending final payment between the Owner and the Contractor with respect to security, operation, safety, maintenance, utilities, insurance, warranties and guarantees for that part of the Work which will become binding upon the Owner and the Contractor at the time when the Owner takes over such operation (unless they shall have otherwise agreed in writing and so informed the Architect/Engineer). During such operation and prior to Substantial Completion of such part of the Work, the Owner shall allow the Contractor reasonable access to complete or correct items on said list and to complete other related Work.

(c) No occupancy or separate operation of part of the Work will be accomplished prior to compliance with the requirements of paragraph 5.9 in respect of property insurance.

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

14.7 Final Application for Payment. After the Contractor has completed all such corrections to the satisfaction of the Architect/Engineer and delivered all maintenance and operating instructions, schedules, guarantees, Bonds, certificates of inspection, marked-up record documents (as provided in paragraph 6.11) and other documents, all as required by the Contract Documents, and after the Architect/Engineer has indicated that the Work is acceptable (subject to the provisions of paragraph 14.10), the Contractor may make application for final payment following the procedure for progress payments. The final Application for Payment shall be accompanied by all documentation called for in the Contract Documents, together with complete and legally effective releases or waivers (satisfactory to the Owner) of all Liens arising out of or filed in connection with the Work. In lieu thereof and as approved by the Owner, the Contractor may furnish receipts or releases in full; an affidavit of the Contractor that the releases and receipts include all labor, services, material and equipment for which a Lien could be filed, and that all payrolls, material and equipment bills, and other indebtedness connected with the Work for which the Owner or the Owner's property might in any way be responsible, have been paid or otherwise satisfied; and consent of the surety, if any, to final payment. If any Subcontractor or Supplier fails to furnish a release or receipt in full, the Contractor may furnish a Bond or other collateral satisfactory to the Owner to indemnify the Owner against any Lien.

14.8 Final Payment and Acceptance.

(a) If, on the basis of the Architect/Engineer's observation of the Work during construction and final inspection, and the Architect/Engineer's review of the final Application for Payment

and accompanying documentation all as required by the Contract Documents, the Architect/Engineer is satisfied that the Work has been completed and that Contractor's other obligations under the Contract Documents have been fulfilled, the Architect/Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing the Architect/Engineer's recommendation of payment and present the Application to the Owner for payment. Thereupon the Architect/Engineer will give written notice to the Owner and the Contractor that the Work is acceptable subject to the provisions of paragraph 14.10. Otherwise, the Architect/Engineer will return the Application to the Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case the Contractor shall make the necessary corrections and resubmit the Application. Thirty days after presentation to the Owner of the Application and accompanying documentation, in appropriate form and substance, and with the Architect/Engineer's recommendation and notice of acceptability, the amount recommended by the Architect/Engineer will become due and will be paid by the Owner to the Contractor.

(b) If, through no fault of the Contractor, final completion of the Work is significantly delayed and if the Architect/Engineer so confirms, the Owner shall, upon receipt of the Contractor's final Application for Payment and recommendation of the Architect/Engineer, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by the 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 5.1, the written consent of each surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect/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.

14.9 Contractor's Continuing Obligation. The Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by the Architect/Engineer, nor the issuance of a certificate of Substantial Completion, nor any payment by the Owner to the Contractor under the Contract Documents, nor any use or occupancy of the Work or any part thereof by the Owner, nor any act of acceptance by the Owner nor any failure to do so, nor any review and approval of a Shop Drawing or sample submission, nor the issuance of a notice of acceptability by the Architect/Engineer pursuant to paragraph 14.8, nor any correction of defective Work by the Owner will constitute an acceptance of Work not in accordance with the Contract Documents or a release of the Contractor's obligation to perform the Work in accordance with the Contract Documents (except as provided in paragraph 14.10).

14.10 Waiver of Claims. The making and acceptance of final payment will constitute:

(a) A waiver of all claims by the Owner against the Contractor, except claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to paragraph 14.6 or from failure to comply with the Contract Documents or the terms of any special guarantees specified therein; however it will not constitute a waiver by the Owner of any rights in respect of the Contractor's continuing obligations under the Contract Documents; and

(b) A waiver of all claims by the Contractor against the Owner other than those previously made in writing and still unsettled.

ARTICLE 15. SUSPENSION OF WORK AND TERMINATION

15.1 Suspension. The Owner may, at any time and without cause, suspend the Work, or any portion thereof for a period of not more than ninety days by notice in writing to the Contractor and the Architect/Engineer which will fix the date on which Work will be resumed. The Contractor shall resume the work on the date so fixed. The Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension if the Contractor makes an approved claim therefor as provided in Articles 11 and 12.

15.2 Termination by Owner. Upon the occurrence of any one or more of the following events:

(a) if the Contractor commences a voluntary case under any Chapter of the Bankruptcy Code (Title 11, United States Code), as now or hereafter in effect, or if the Contractor takes any equivalent or similar action by filing a petition or otherwise under any other federal or state law in effect at such time relating to bankruptcy or insolvency;

(b) if a petition is filed against the Contractor under any chapter of the Bankruptcy Code as now or hereafter in effect at the time of filing or if a petition is filed seeking any such equivalent or similar relief against the Contractor under any other federal or state law in effect at the time relating to bankruptcy or insolvency;

(c) if the Contractor makes a general assignment for the benefit of creditors;

(d) if a trustee, receiver, custodian or agent of the Contractor is appointed under applicable law or under contract, whose appointment or authority to take charge of the property of the Contractor is for the purpose of enforcing a Lien against such property or for the purpose of general administration of such property for the benefit of the Contractor's creditors;

(e) if the Contractor admits in writing an inability to pay his debts generally as they become due;

(f) if the Contractor persistently fails 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 2.8 as revised from time to time);

(g) if the Contractor disregards applicable Laws or Regulations;

(h) if the Contractor disregards the authority of the Architect/Engineer; or

(i) if the Contractor otherwise violates in any material way any provisions of the Contract Documents; the Owner may, after giving the Contractor (and the surety, if there be one) seven days' written notice and to the extent permitted by Laws and Regulations, terminate the services of the Contractor, exclude the Contractor from the site and take possession of the Work and of all the Contractor's tools, appliances, construction equipment and machinery at the site and use the same to the full extent they could be used by the Contractor (without liability to the Contractor for trespass or conversion), incorporate in the Work all materials and equipment stored at the site or for which the Owner has paid the Contractor but which are stored elsewhere, and finish the Work as the Owner may deem expedient. In such case the Contractor shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds the direct, indirect and consequential costs of

completing the Work (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court costs) such excess will be paid to the Contractor. If such costs exceed such unpaid balance, the Contractor shall pay the difference to the Owner. Such costs incurred by the Owner will be approved as to reasonableness by the Architect/Engineer and incorporated in a Change Order, but when exercising any rights and remedies under this paragraph, the Owner shall not be required to obtain the lowest price for the Work performed. Where the Contractor's services have been so terminated by the Owner, the termination will not affect any rights or remedies of the Owner against the Contractor then existing or which may thereafter accrue. Any retention or payment of monies due the Contractor by the Owner will not release the Contractor from liability.

15.3 Abandonment by Owner. Upon seven days' written notice to the Contractor and the Architect/Engineer, the Owner may, without cause and without prejudice to any other right or remedy, elect to abandon the Work and terminate the Agreement. In such case, the Contractor shall be paid for all Work executed and any expense sustained plus reasonable termination expenses which will include, but not be limited to, direct, indirect and consequential costs (including but not limited to fees and charges of engineers, architects, attorneys and other professionals and court costs).

15.4 Contractor Remedies. If, through no act or fault of the Contractor, the Work is suspended for a period of more than ninety days by the Owner or under an order of court or other public authority, or the Architect/Engineer fails to act on any Application for Payment within thirty days after it is submitted, or the Owner fails for thirty days to pay the Contractor any sum finally determined to be due, then the Contractor may, upon seven days' written notice to the Owner and the Architect/Engineer, terminate the Agreement and recover from the Owner payment for all Work executed and any expense sustained plus reasonable termination expenses. In addition and in lieu of terminating the Agreement, if the Architect/Engineer has failed to act on an Application for Payment or the Owner has failed to make any payment as aforesaid, the Contractor may upon seven days' written notice to the Owner and the Architect/Engineer, stop the Work until payment of all amounts then due. The provisions of this paragraph shall not relieve the Contractor of the obligation under paragraph 6.15 to carry on the Work in accordance with the progress schedule and without delay during disputes and disagreements with the Owner.

ARTICLE 16. MISCELLANEOUS

16.1 Notices. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if 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 if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice. In lieu of the foregoing, the Supplementary Conditions may specify other requirements with respect to the giving of notices pursuant to the Contract Documents.

16.2 Computation of Time. 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.

16.3 Duties, Rights and Remedies Not Exclusive. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto, and, in particular but without limitation, the warranties, guarantees and obligations imposed

upon the Contractor by paragraphs 6.16, 13.1, 13.7, 13.9, 14.2 and 15.2 and all of the rights and remedies available to the Owner and the Architect/Engineer thereunder, 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, and 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. All representations, warranties and guarantees made in the Contract Documents will survive final payment and termination or completion of the Agreement.

END OF DOCUMENT

DOCUMENT 00800
SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the General Conditions of the Construction Contract (the "General Conditions") 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.

1. DEFINED TERMS

A. The terms used in these Supplementary Conditions which are defined in the General Conditions have the meanings assigned to them in the General Conditions.

2. PRELIMINARY MATTERS

A. Paragraph 2.1, first line delete "ten" and substitute "four" therefore.

3. CONTRACT DOCUMENTS - No Amendments

4. LANDS; PHYSICAL CONDITIONS; REFERENCE POINTS

A. Delete Paragraph 4.1 and insert in its place:

4.1 Availability of Lands. The Project Right-of-way shall consist of an area as specified in the Contract Drawings and these Specifications, or as determined by the Owner or Engineer, extending on both sides of the centerline of the route of the Project. The Owner shall furnish, as indicated in the Contract Documents, the lands upon which the Work is to be performed and such other lands as are designated for the use of the Contractor. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by the Owner, unless otherwise provided in the Contract Documents. If the Contractor believes that any delay in the Owner's furnishing these lands, rights-of-way or easements entitles the Contractor to any extension of the Contract Time, the Contractor may make a claim therefor as provided in Article 12. The Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

Access to areas outside the Project Right-of-way may be required to access Project. The Contractor shall work with each individual landowner to make necessary arrangements to gain access to the Project Right-of-way. The Contractor shall provide releases from the landowners in a form acceptable to the Engineer and Owner, substantiating that the Contractor has satisfied all requirements for damages and other arrangements. Easements may not be used until the Owner approves all releases in writing.

B. Physical Conditions:

(a) The following are identified as those reports of explorations and tests of subsurface conditions at the site that have been utilized by the Architect/Engineer in preparation of the Contract Documents:

NONE

(b) The following are identified as those drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Facilities) which are at or contiguous to the site that have been utilized by the Architect/Engineer in preparation of the Contract Documents:

NONE

5. BONDS AND INSURANCE

A. Delete Paragraph 5.4 and insert in its place:

5.4 Owner's Contractor Protective (OCP) Insurance. The contractor shall be responsible for purchasing and maintaining the Owner's Contractor Protective (OCP) Insurance to protect the Owner against claims which may arise from operations under the Contract Documents.

B. Paragraph 5.5 (a), first line, delete "Owner" and substitute "Contractor" therefore.

C. Paragraph 5.5 (b), first line, delete "Owner" and substitute "Contractor" therefore.

D. Paragraph 5.5 (c), second line, delete "Owner" and substitute "Contractor" therefore, fifth line, delete "Contractor" and substitute "Owner" therefore.

E. Delete entirely Paragraph 5.5 (e).

F. Paragraph 5.8, fifth line, delete the sentence that starts "If the Contractor has...." and the remainder of Paragraph 5.8".

G. Add a new paragraph immediately after paragraph 5.9 of the GENERAL CONDITIONS which is to be read as follows:

5.10 Insurance Coverage Information. The liability insurance to be provided pursuant to paragraphs 5.2, 5.3 and 5.4 of the General Conditions shall comply with the following as to limits of coverage and certain other special provisions (if any):

(a) Worker's Compensation - In accordance with the laws of the State.

(b) Contractor shall provide Comprehensive General Liability insurance as follows on an Occurrence Form:

General Liability -	General Aggregate:	$3,000,000
	Completed Operations:	$3,000,000
	Property Damage:	$3,000,000 each occurrence
	Personal Injury:	$3,000,000 annual aggregate
	Each Occurrence:	$3,000,000
Auto Liability -		
	Combined Single Limit:	$3,000,000
	Bodily Injury and	$ 500,000 each person
	Property Damage:	$ 500,000 each accident

$3,000,000 annual aggregate

(c) Owner's Contractor Protective (OCP) Insurance: THIS INSURANCE SHALL BE IN THE FORM OF SEPARATE POLICY WRITTEN IN THE NAME OF THE OWNER, ALLEN & HOSHALL, ARCHITECTS ENGINEERS, SHALL BE NAMED THEREIN AS ADDITIONALLY INSURED.

General Liability -	General Aggregate:	$3,000,000
	Each Occurrence:	$3,000,000

Provide the OCP policy endorsement with the certificate.
The Owner shall be listed as the insured.

(d) Pursuant to paragraph 5.5 of the General Conditions at his own expense, the Contractor shall provide and maintain during the life of this contract "All Risk Installation Floater" insurance in the full amount of the sum of (1) contract price and (2) value of the Owner Furnished Materials, to cover all work in place and/or materials stored on the project site. This insurance shall include Vandalism and Malicious Mischief coverage.

(e) Prior to commencement of any work under this contract the Contractor shall furnish to the Owner's authorized representative two copies of Certificates showing the effectiveness of the above specified insurance.

(f) Contractor's Insurance:

(i) The Contractor shall obtain and maintain during the life of this contract insurance of the various types and amounts specified above. The "life of this contract" means the time period from date of issuance by the Architect/Engineer of Authorization To Proceed, through date of issuance by the Owner of Certificate of Final Completion.

(ii) Before any work is begun by the Contractor or any of his Subcontractors, the Contractor shall furnish to the Owner's authorized representative two (2) copies of Certificates of Insurance showing the effectiveness of all required insurance for the Contractor, for each of his Subcontractors, for the Owner, and for the Architect/Engineer. No work shall begin under this contract until the Owner's authorized representative has given written approval of the insurance certificates.

6. CONTRACTOR'S RESPONSIBILITY

A. Paragraph 6.2(b), third line delete "power".

B. Add a new paragraph immediately after paragraph 6.2(b) of the GENERAL CONDITIONS which is to read as follows:

C. Add a new paragraph immediately after paragraph 6.2(d) of the GENERAL CONDITIONS which is to read as follows:

(e) Project Office and Telephone Service. Provide on the premises, in an approved location, a temporary project office. A truck or other suitable type portable office may be used, subject to approval.

(i) In this Project Office, keep on file copies of contract drawings, shop drawings, specifications, and other records pertaining to the project, in good condition, and readily accessible to the Contractor, Engineer, and all parties concerned. After project acceptance and after approval, remove the temporary project office.

(ii) Provide, maintain, and pay for telephone service in the temporary project office for the use of all persons associated with the project, until project acceptance.

D. Add a new paragraph immediately after paragraph 6.2(e) of the GENERAL CONDITIONS which is to be read as follows:

(f) Contractor will assume full responsibility for all Owner Furnished Materials upon receipt from Owner's warehouse, material vendors/suppliers, or on site. All possible methods shall be taken to ensure the care and protection of all materials from damage during handling, storage, or from weather. Materials damaged due to negligence and/or improper handling will be charged to the Contractor at the Owner's present stock value. No charge will be made for material items returned to the Owner which, in the opinion of the Owner or the Engineer, were not damaged in removal and handling even though the materials may not be reusable for reasons of obsolescence or deterioration. Do not place removed materials or equipment where it will be damaged by or cause damage to vehicular traffic, livestock, persons and property. Immediately remove from the job site.

E. Add a new paragraph immediately after paragraph 6.5 (e) of the GENERAL CONDITIONS which is to be read as follows:

(f) The Contractor is responsible for all subcontractors with respect to working on energized facilities.

F. Add to the end of paragraph 6.7 of the GENERAL CONDITIONS the following:

The Owner shall obtain the necessary permissions or permits for over or on utilities, highways, railroads, and other obstructions, or from other authorities. The Contractor shall include in the Bid Price all costs that are, or may result from, performing this work.

G. Add a new paragraph immediately after paragraph 6.9 of the GENERAL CONDITIONS which is to read as follows:

(a) The Owner is exempt from State, Sales and Use Taxes on materials, equipment, and labor to be incorporated into the Work. Said taxes shall not be included in the Contract Price. Taxes paid by the contractor shall be part of the unit cost but not passed on as an additional tax.

(b) The Contractor is responsible for all Business taxes/permits as may be required by the Jurisdiction of the Project location.

H. Delete paragraph 6.10 (b) in its entirety and insert in its place the following:

(b) During the progress of the Work, the Contractor shall keep the premises free from accumulations of waste materials, unnecessary or discarded tools and equipment, rubbish and other debris resulting from the activities of the Contractor, Contractor's subcontractors, and/or Contractor's or Owner's material vendors and suppliers associated with the Work. At the completion of the Work, the Contractor shall remove

all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery and surplus materials, and shall leave the site clean and ready for occupancy by the Owner. The Contractor shall restore to original condition all property not designated for alteration by the Contract Documents.

7. OTHER WORK - No Amendments

8. OWNER'S RESPONSIBILITIES - No Amendments

9. THE ARCHITECT/ENGINEER - No Amendments

10. CHANGES IN THE WORK - No Amendments

11. CHANGE OF CONTRACT PRICE

A. Delete paragraph 11.6 of the GENERAL CONDITIONS in its entirety and insert in its place:

11.6 Allowances.

(a) Authorized Contract Amendments. Authorized Contract Amendments allowance amount shall cover unforeseen contingencies which may arise during construction, and to cover other extra work which may be authorized by the Engineer. All work chargeable to this allowance shall be done ONLY upon Engineer's written authorization. The Contractor agrees that (a) this allowance includes the cost to the Contractor (less any applicable trade discounts) of materials and equipment required by the allowance to be delivered at the site, and all applicable taxes, and (b) the Contractor's costs for unloading and handling on the site, labor, installation, overhead, profit and other expenses contemplated for the allowance. No demand for additional payment on account of any thereof will be valid. If this allowance is not expended, the unexpended balance shall be credited to the contract. Likewise, if the authorized expenditures exceed this allowance, the Contractor will be reimbursed accordingly. Prior to final payment, an appropriate Change Order will be issued as recommended by the Architect/Engineer to reflect actual amounts due the Contractor on account of Work covered by Authorized Contract Amendments, and the Contract Price shall be correspondingly adjusted. The Unit Prices listed in the Bid Form will be used, as appropriate, in the calculation of the Change Order Amount for the Authorized Contract Amendments.

(b) Cash Allowances. When specific Cash Allowances are identified in the Contract Documents, it is understood that the Contractor has included in the Contract Price all cash allowances so named in the Contract Documents and shall cause the Work so covered to be done by such Subcontractors or Suppliers and for such sums within the limit of the allowances as may be acceptable to the Architect/Engineer. The Contractor agrees that (a) the cash allowances include the cost to the 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) the Contractor's costs for unloading and handling on the site, labor, installation, overhead, profit and other expenses contemplated for the allowances have been **included in the Contract Price and not in the cash allowances**. No demand for additional payment on account of any thereof will be valid. Prior to final payment, an appropriate Change Order will be issued

as recommended by the Architect/Engineer to reflect actual amounts due the Contractor based on the difference in the allowance unit price and actual unit price times the Contractor's stipulated quantity (BID FORM) and the Contract Price shall be correspondingly adjusted.

(c) Quantity Allowances. When specific Quantity Allowances are identified in the Contract Documents, it is understood that the Contractor has included in the Contract Price all quantity allowances so named in the Contract Documents and shall cause the Work so covered to be done by such Subcontractors or Suppliers and for such sums within the limit of the allowances as may be acceptable to the Architect/Engineer. The Contractor agrees that (a) the quantity allowances include the cost to the 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) the Contractor's costs for unloading and handling on the site, labor, installation, overhead, profit and other expenses contemplated for the allowances have been **included in the Contract Price and not in the quantity allowances**. No demand for additional payment on account of any thereof will be valid. Prior to final payment, an appropriate Change Order will be issued as recommended by the Architect/Engineer to reflect actual amounts due the Contractor on account of Work covered by quantity allowances, and the Contract Price shall be correspondingly adjusted.

C. Delete paragraph 11.7 (c) of the GENERAL CONDITIONS in its entirety and insert in its place:

(c) Where the quantity of any item of Unit Price Work performed by the Contractor is less than seventy-five (75) percent of the estimated quantity of such item indicated in the Agreement and there is no corresponding adjustment with respect to any other item of Work and if the Contractor believes that the Contractor has incurred additional expense as a result thereof, the Contractor may make a claim for an increase in the Contract Price in accordance with this Article 11 if the parties are unable to agree as to the amount of any such increase. Where the actual quantity of any item of Unit Price Work is over 100% of the estimated quantity, there will be no adjustment in the unit price of that item.

12. CHANGE OF CONTRACT TIME - No Amendments

13. WARRANTY; TESTS AND INSPECTIONS; DEFECTIVE WORK

A. Paragraph 13.3,(b), last sentence, delete "Owner" and substitute "Contractor" therefore.

14. PAYMENTS TO CONTRACTOR AND COMPLETION

A. Delete the first sentence of paragraph 14.4 (a) and substitute the following:

(a) When the substation has been energized for a period of 72 hours without load and the Contractor considers the entire Work ready for its intended use, the Contractor shall notify the Owner and the Architect/Engineer in writing that the entire Work is substantially complete (except for items specifically listed by the Contractor as incomplete) and request that the Architect/Engineer issue a certificate of Substantial Completion.

15. SUSPENSION OF WORK AND TERMINATION - No Amendments

16. MISCELLANEOUS

A. Add a new paragraph 16.4 immediately after Paragraph 16.3

16.4 Project Information. Contractor shall provide copies of all reports, surveys, field observation and similar documentation required in the Contract. These include but are not limited to: subsurface investigations, property/topo surveys, pre-blast surveys and utility locations. A list of properties to be inspected for a pre-blast survey shall be provided five (5) business days before the contractor intends to makes contact with the first property owner. Pre-blast survey report(s) shall be provided ten (10) business days before blasting begins. All cost associated with providing this information shall be included in the Contractor's bid.

The following paragraphs provide Amendments or Supplements to Document 00700 - GENERAL CONDITIONS.

17. SALVAGED MATERIALS AND EQUIPMENT

17.1 Owner-selected Materials and Equipment. The Owner may select certain removed existing materials and equipment and retain them for his future use. BEFORE removing any existing materials and equipment, determine from the Owner which of these materials and equipment (if any) he desires to retain. Remove all Owner-selected materials and equipment without unnecessary damage thereto, and safely store them at locations designated by the Owner.

18. CONTINUITY OF SERVICES AND EXISTING OPERATIONS

18.1 Interruptions. Arrange all work to interfere as little as possible with the normal existing operations. Do not interrupt any existing utility or other service or existing operation at any time without Owner's prior approval. After each interruption has been made, make all necessary connections and alterations, and restore services and avoid interferences with normal existing operations as quickly as possible.

(b) At no additional cost to Owner, provide all necessary temporary connections and temporary facilities to accomplish the required continuity of services and existing operations.

(c) Owner reserves the right to operate and maintain facilities involved in the Project during emergency operation periods.

19. CAPACITIES, RATINGS, SIZES, AND OTHER REQUIREMENTS NOT SPECIFIED

19.1 Capacities, Ratings and Sizes. For all items of material and/or equipment, the capacities, ratings, sizes, and other requirements thereof not specified shall be as indicated on the Contract drawings.

(a) Where capacities, ratings, sizes, and other requirements for materials and/or equipment may be neither specified nor indicated on the Contract drawings, refer each such case to the Engineer before ordering the materials and/or equipment involved or

proceeding with the work involved, and the Engineer's decision shall govern.

(b) All minor and necessary appurtenances items, not specified herein, that are necessary to make a complete assembly installation shall be included as though specified.

20. EQUIPMENT AND MATERIALS STORAGE AND PROTECTION

20.1 Equipment Which Will Be Installed Indoors. At all times prior to its installation, store this equipment in dry warehouses or other shelters which will protect this equipment from damage by weather and other causes. Obtain Engineer's prior approval of proposed storage facilities; plastic wrapping or covering alone will not be considered adequate protection.

(a) This includes but shall not be limited to: relay panels; control equipment; panelboards; lighting fixtures; batteries; and battery chargers.

20.2 Equipment and Materials Which Will Be Installed Outdoors. At all times prior to its installation, store this equipment and these materials on pallets, skids, runners, platforms, or other suitable supports which will hold all parts of this equipment and these materials at least six inches above ground; provide watertight coverings for those stored items which may be damaged by rain or snow; all as approved.

20.3 Payment For Stored Materials and Equipment. No payment will be made for on-site or off-site stored materials and equipment which is not stored as specified above.

21. JOINT USE CONSTRUCTION

12.1 Joint Use Facilities. Some of the work included will be on joint use poles and rights-of-way involving the:
(a) Local telephone company; AT&T,
(b) Local cable TV company; Comcast, Windstream
(c) Local gas company;
(d) Local water and sewer company; or
(e) Other

21.2 Coordination of Work. Notify and coordinate work with these joint use authorities and inform the Owner of all arrangements. Include in the Bid Price coordinating and performing work.

21.3 Topped Poles. Joint use poles may be topped during construction upon prior approval from Owner to provide safe clearances to other assemblies. In this case, no extra payment shall be allowed for topping poles.

21.4 Payment. All joint use poles indicated to be removed shall be removed before final payment is made. In the event the joint use authorities do not remove their facilities by the Substantial Completion date, Contractor shall top all joint use poles indicated to be removed, upon prior written approval from Owner; Contractor shall not be responsible for removal of these poles, and shall be allowed payment equivalent to 40% of Pole Removal unit quantity price.

END OF DOCUMENT

SECTION 00820
EQUAL OPPORTUNITY PROVISIONS

The Bidder represents that:

It has [ ], does not have [ ], 100 or more employees, and if it has, that

It has [ ], has not [ ], furnished the Equal Employment Opportunity - Employers Information Report EEO-1, Standard Form 100, required of employers with 100 or more employees pursuant to Executive Order 11246 and Title VII of the Civil Rights Act of 1964.

The Bidder agrees that it will obtain, prior to the award of any subcontract for more than $10,000 hereunder to a subcontractor with 100 or more employees, a statement, signed by the proposed subcontractor, that the proposed subcontractor has filed a current report on Standard Form 100.

The Bidder agrees that if it has 100 or more employees and has not submitted a report on Standard Form 100 for the current reporting year and that if this contract will amount to more than $10,000, the Contractor will file such report, as required by law, and notify the Owner in writing of such filing prior to the Owner's acceptance of this Proposal.

CERTIFICATION OF NONSEGREGATED FACILITIES. The Bidder certifies that it does not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The Bidder certifies further that it will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it will not permit its employees to perform their services at any location, under its control where segregated facilities are maintained. The Bidder agrees that a breach of this certification is a violation of the Equal Opportunity Clause in this contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, time clocks, 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 it has obtained identical certifications from proposed subcontractors for specific time periods) it will obtain identical certifications 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 it will retain such certifications in its files.

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

EQUAL OPPORTUNITY CLAUSE. During the performance of this contract, the Bidder agrees as follows:

(1) The Bidder will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Bidder will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to, the following: employment; upgrading; demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Bidder agrees to post, in conspicuous places available to employees and applicants for employment, notices to be provided setting forth the provision of this

Equal Opportunity Clause.

(2) The Bidder will, in all solicitations or advertisements for employees placed by or on behalf of the Bidder, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(3) The Bidder will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representative of the Bidder's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The Bidder will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(5) The Bidder will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to its books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the Bidder's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Bidder may be declared ineligible for further contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in the said Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in the said Executive Order or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The Bidder will include this Equal Opportunity Clause in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Bidder will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance; provided, however, that in the event a Bidder becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the Bidder may request the United States to enter into such litigation to protect the interests of the United States.

END OF SECTION

DOCUMENT 00900
ADDENDA

1. INTERPRETATIONS - ADDENDA

A. Interpretations and Addenda for questions concerning the meaning or intent of the Contract Documents and response of these will be made through the issuing of Addenda.

B. All Addenda are incorporated, by reference, into the Contract. Failure of any Bidder or sub-bidder to receive any addenda shall not relieve the Bidder of any obligation with respect to their Bid.

C. All Addenda and modifications to the Contract Documents shall be inserted and indexed numerically in this location behind this page and coordinated as instructed in each Addendum.

END OF DOCUMENT

SECTION 01013
SUMMARY OF WORK

PART 1. GENERAL

1.01 SUMMARY

A. The "Project," of which the "Work" of this Contract is a part, is titled "Overhead to Underground Utility Relocations and/or Street Lighting along Jackson St. between N Madison to N Front Streets, Bid-2023-066WL".

B. The "Work" of this Contract is defined in the Contract Documents to include furnishing and paying for all necessary materials, labor, tools, equipment, and other items, and constructing complete in every detail and ready for Owner's beneficial use, as specified herein, and/or indicated on the Contract Drawings listed elsewhere in these specifications. This project shall consist generally of but not be limited to the following items:

Overhead Electrical Distribution System

1. Concrete Poles.
2. Overhead Assemblies.
3. Sagging Conductors.
4. Switches.
5. Distribution Systems.
6. Seeding and Mulching.
7. Special Backfill.
8. Transformers and Service Equipment.
9. Street and Area Lighting.
10. Line Protection Equipment.
11. Temporary Construction Facilities.

Underground Electrical Distribution System

12. Primary Cables.
13. Secondary Cables.
14. Direct Buried Conduit Cable Ducts.
15. Underground Switchgear.
16. Padmount Transformers.
17. Handholes.
18. Switchgear Vaults.
19. Underground to Overhead Riser Assemblies.
20. Temporary Construction Facilities.

C. Contractor shall correct all deficiencies in "Work" by the Contractor as may be indicated by testing and as directed by the Engineer.

1.02 RELATED SECTIONS

A. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and other Sections in DIVISION 1 of these Specifications.

B. Document 00304 – BID FORM

C. Section 01027 - MEASUREMENT AND PAYMENT

D. Section 01500 – CONSTRUCTION FACILITIES AND TEMPORARY CONSTRUCTION

E. Section 16370 – OVERHEAD LINE CONSTRUCTION

F. Section 16372 – OVERHEAD LINE CONSTRUCTION MATERIALS

G. Section 16375 – UNDERGROUND ELECTRICAL DISTRIBUTION CONSTRUCTION

H. Section 16376 – UNDERGROUND ELECTRICAL DISTRIBUTION MATERIALS

1.03 WORK CONDITIONS

A. All of the work will be done with existing facilities energized.

B. The Contractor shall take all necessary precautions and use the appropriate safety work methods for working on energized facilities as may be specified by Federal, State, Local, or other appropriate regulatory authority.

1.04 TEMPORARY CONSTRUCTION FACILITIES

A. See Section 01500 – CONSTRUCTION FACILITIES AND TEMPORARY CONSTRUCTION for requirements for temporary construction facilities.

1.05 SERVICE OUTAGES

A. All Contractor requested outages shall be coordinated with the Owner. A representative of the Contractor shall be on-site during outages. Exact details of the outages, including date, time, duration and facilities involved, shall be presented to the Owner at least two Owner working days prior to proposed outage.

B. Contractor Outage Request:
Contractor shall provide written information to the Owner according to the following format:

Outage No. [Specify] Outage of [Specify] Circuit.
Time: [Date], [Day] between the hours of [Time].
Duration: Approximately [Specify] hours.
Purpose:

1.06 PROJECT SCHEDULING AND CONSTRUCTION MILESTONES

A. The following Project Schedule Milestones shall be incorporated into the Project Construction:

	DATE	MILESTONE
1.	May 01, 2025	Substantial Completion
2.	June 01, 2025	Project Completion

1.07 OWNER FURNISHED MATERIALS

A. The Table below is a tabulation of the equipment to be furnished by the Owner and/or others. Updated equipment delivery information will be provided to the Contractor when it is available. (The following transformers will be supplied as needed by owner if transformers being taken down needs updating or to help reduce outage time.)

QUANTITY	DESCRIPTION	VALUE	PROJECTED DELIVERY DATE
	25KVA TRANSFORMER	$1000.00	AS NEEDED
	37.5KVA TRANSFORMER	$1200.00	AS NEEDED
	50KVA TRANSFORMER	$2000.00	AS NEEDED
	75KVA TRANSFORMER	$2800.00	AS NEEDED

1.08 OWNER FURNISHED WORK

A. The Owner will furnish:
   1. Labor for coordination and operations of the electric system that is required by construction activities. This includes activities such as power system switching operations and controls. This also includes providing the labor only for the Primary Distribution Construction. Contractor will provide the Primary Distribution Material.

1.09 OWNER'S SALVAGE MATERIALS

A. The salvage materials listed below are to be removed by the Contractor and returned to the Owner at the location designated.

   1. All materials and hardware items removed from existing facilities shall be returned to the Owner's warehouse.

1.10 ENERGIZING FACILITIES

A. The Engineer will review Project related Test Reports and the Work. After review and acceptance of the Test Reports and Work, the Engineer and Owner will determine the suitability of the facility to be energized.

B. The facilities will not be accepted for energizing without the appropriate safe guards in place as required by Owner, Federal, State, Local, or other appropriate regulatory authority.

C. The Contractor shall be on site during the energizing of all facilities.

1.11 QUALITY ASSURANCE

A. Perform all work in accordance with applicable codes and standards.

B. Maintain at least one copy of Contract Drawings and Manufacturers' recommended installation methods on site at all times.

END OF SECTION

SECTION 01021
CASH ALLOWANCES

PART 1. GENERAL

1.01 SUMMARY

A. To provide adequate budget and bonding to cover items not precisely determined by the Owner prior to bidding, allow within the proposed Total Contract Sum the amounts described in this Section.

B. Related work:

1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Divisions 1 through 16 of these Specifications.

2. Other provisions concerning Cash Allowances also may be stated in other Sections of these Specifications.

1.02 AUTHORIZED CONTRACT AMENDMENTS

A. The Allowance amount shown in Document 00300 - BID FORM for Authorized Contract Amendments is to cover unforeseen contingencies which may arise during construction, and to cover other extra work which may be authorized by the Engineer. All work chargeable to this allowance shall be done ONLY upon Engineer's written authorization. If this allowance is not expended, the unexpended balance shall be credited to the contact. Likewise, if the authorized expenditures exceed this allowance, the Contractor will be reimbursed accordingly. Payment for work chargeable to this allowance will be computed in accordance with appropriate section of the GENERAL CONDITIONS.

B. No part of the above specified allowance shall be used to cover any work which is specified or indicated.

1.03 SCHEDULE OF CASH ALLOWANCES

A. No Specific Cash Allowance

PART 2. PRODUCTS

(NOT USED)

PART 3. EXECUTION

(NOT USED)

END OF SECTION

SECTION 01027
MEASUREMENT AND PAYMENT

PART 1. GENERAL

1.01 SECTION INCLUDES

A. Description of basic units and assemblies used in the Work.

1.02 RELATED SECTIONS

A. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in DIVISION 1 of these Specifications.

1.03 SUBMITTALS

A. As required by and described in the General Conditions, Contractor shall prepare and submit a Schedule of Values to be compatible with the Application for Payment.

B. The Schedule of Values shall include those unit items necessary for completion of the Work, as shown in Document 00300A - BID FORM.

1.04 ASSEMBLY UNIT BASIS

A. The construction assemblies are on a unit basis or as otherwise indicated below so that the Owner may authorize any combination, addition, or deletion of construction units desired.

B. The descriptions apply to those assemblies on the project drawings and assembly guide drawings and includes all necessary labor [and material] required to make the assemblies complete.

1.05 ASSEMBLY GUIDE DRAWINGS AND PROJECT CONSTRUCTION DRAWINGS

A. The assembly and guide drawings are diagrammatic indicating major items of materials and general arrangement of assemblies to establish a standard of construction.

B. Conditions encountered in the field may vary materially from those shown on the assembly guide drawings, and the construction shall be modified as required to accommodate the field conditions involved. In special cases the Engineer will determine the most suitable method of framing to be used.

1.06 UNIT PRICE METHOD OF MEASUREMENT

A. The Unit Prices, as stated in the Contract Documents, shall include all necessary labor, [material], equipment, basic supplies, overhead, profit and applicable taxes to provide a complete Unit ready for the Owners use. The Unit shall include all items and shall be measured as described below and in the appropriate detail/guide drawings.

B. Installation Assemblies

1. Pole unit shall consist of one pole in place and shall be measured on a per unit basis. The first two digits of the unit description indicate length; the third shows ASA classification. Thus 35-4 signifies a 35 foot class 4 pole. Unit consists of necessary means of excavation required by the types of soils and interferences encountered, and specified backfilling around pole. Unit price shall include any necessary repair or replacement of existing concrete, asphalt, or other manmade surfaces disturbed by excavation.

2. Pole Top Assemblies shall consist of the hardware, crossarms and their appurtenances, insulators, and connectors installed as required to support the conductors and measured on a per unit basis. Unit does include all required field drilling for installation of assembly.

3. Conductor units shall consist of 1,000 feet of single conductor, and shall be measured by the horizontal distance between conductor supports. The unit includes proper stringing and sagging, tie wires, sleeves for splicing, connectors, and armor rods; jumpers and connections at deadends, junctions and taps. Designation of each conductor shall be by the Manufacturer's industry standard designations.

4. Guy units shall consist of the necessary length of guy wire, pole attachment fittings bolts, lag screws, guy bonding bolt, guy strain insulators, guy grips, clamps, etc., and all grounding jumpers and connectors. Unit shall include the wire length between pole attachment and anchor attachment, or in the case of overhead guys, to pole attachments. Unit description is applicable to both overhead and down guys. Guy markers are not included with the guy unit, unless otherwise indicated.

5. Each anchor unit shall consist of the anchor, rod, and eye nut installed complete and ready for attaching the guy wire, and shall be measured on a per unit basis. Includes all shear pins as required for power anchor installation when specified.

6. Secondary and Service Assemblies shall consist of the hardware, insulators, tie wire, armor tape, armor rods, all appropriate size and type connectors, tying, sagging and resagging, handling, holding and splicing of all cables whether new, or existing, and those transferred from an existing position to a new position on the same pole, or to a new pole. Unit shall be measured on a per unit basis.

7. Miscellaneous Assemblies
   (List as required)

8. The following are descriptions of assemblies that are not explicit or shown on the Contract Drawings.
   a. Grounding units consist of the pole ground wire, staples, plates, wraps, or rods, all connector, clamps and associated hardware and jumper leads required to interconnect conductors and equipment that are to be grounded.
   b. Transformers
      1) Consists of the transformer, primary and secondary jumpers and leads, length and size as required, hot line clamps, connectors and mounting hardware.
      2) Protective equipment, crossarms, insulator, and steel pins are called for separately, unless designated on the assembly guide drawings.
      3) Transformers that are transferred shall be reconnected like the existing

wiring scheme using the existing size jumpers and leads as a minimum size for the new installation.

c. Line Protection Equipment
   1) Consists of the hardware, appropriate size and type of jumpers, leads and all connectors, and clamps, mounting brackets, fuse links, etc., required to install fused cutouts, lightning arresters, switches, etc.

d. Lightning Fixtures and Appurtenances
   1) Consists of the hardware, luminaries, supporting mast arms, leads, jumpers, all connectors, etc., and adjustments required.

C. Removal Assemblies

1. Removal assembly units cover the furnishing of all labor for removal of existing units of construction from existing lines, disassembling into material items, and all labor and transportation for the returning of all materials in groups of like items to the warehouse of the Owner or other location as specified in the Contract Documents.
2. Contractor shall reinstall at his own expense any other units removed by him for his own convenience.

3. Existing materials turned in to the Owner shall be verified with the inventory of unit assemblies removed. Material items not turned in will be charged to the Contractor at the Owner's present stock value. Keep accurate records of the material item breakdown turned in and have the Owner's representative verify accuracy of this inventory. A summary of this inventory, verified by the Owner, shall be given to the Engineer at the completion of the project.

4. The unit of removal shall include any holding or handling of conductors where such is involved, and re-installing as required.

5. Materials damaged due to negligence and/or improper handling will be charged to the Contractor at the Owner's present stock value. No charge will be made for material items returned to the Owner which, in the opinion of the Owner or the Engineer, were not damaged in removal and handling even though the materials may not be reusable for reasons of obsolescence or deterioration.
   a. Poles - All poles of the same height, regardless of pole class, are designated by the same unit. Do not remove ground wire or pole numbers from the pole. Where concrete, asphalt, or other man-made surfaces are encountered the replacement surface shall be that of the surrounding surface and shall be included in the bid price.
   b. Pole-top Assemblies - The unit of removal of pole-top assemblies includes all hardware, crossarms and their appurtenances, insulators, and connectors.
   c. Conductors - Removal unit for each size of conductor or cable is shown by the conductor or cable type, and consists of 1,000 feet of single conductor and is the measured horizontal distance between conductor supports. If unit is to be completely removed from Project and stored, remove in the longest practical length, preferably between deadends, without unnecessary kinking or nicking. Coil or reel all conductors for delivery to the Owner. Remove and retain possession of all tie wire, armor rods, jumpers, and miscellaneous connectors. The Owner will furnish reels if the conductor is to be returned to the Owner’s warehouse on reels. The Owner will charge $150.00 for each reel that is not returned or returned in a damaged condition.
   d. Guys - Remove and coil guy strand in the longest practical length. Dismantle all three-bolt clamps, guy attachments, bonding bolts and guy markers.

e. Anchors - Only anchor rods are to be removed in the anchor removal units. If the rod cannot be unscrewed, the end of the rod shall either be cut off or bent down so that the rod will be at least 18 inches below the ground line.
f. All other units designed for removal shall include hardware, convection, insulators, or other items of our existing assembly: and include all necessary handling or holding, untying, resagging, retiring, or re-installing conductors to remain.

D. Transferred Assemblies

1. For all transferred units, unit price measurement shall include any necessary labor and equipment to transport the unit from one site to another, or to handle the unit in place while it is detached and then reattached. If conductor is shown on Contract Drawings as transferred, unit will include moving the conductor from the aerial suspension and connection to the pole-top assembly. Unit would not include stringing, but would include sagging.

2. Consists of furnishing of all labor for removing and re-installing the unit specified from one location to another on the same or a new pole. Includes materials such as bolts, armor rods, connectors, clamps, splices, leads and jumpers, insulators, and all mounting hardware and supports the handling or holding of conductors, and untying, resagging, and retiring, all as required to re-install the unit in the new locations. Material in the transfer unit such as bolts of proper length and size, brackets, and other items may be reused if in satisfactory condition. All other items required to re-install the unit shall be included in the Bid Price.

3. Also includes the removal and reattachment of any or all conductors associated with the unit, any sagging or re-sagging, tying, untying and re-tying, armor rodding or re-armor rodding, all splices, connectors, etc., and any other labor and hardware required to make a complete assembly.

E. Easement Clearing

1. Line Easement Clearing unit shall consist of clearing an easement corridor with a [base unit measuring one (1) linear foot in length and having a width] [lump sum unit] as indicated on the Contract Drawings. Payment shall be on a [per unit basis] [lump sum basis] and shall include clearing of all foliage, underbrush, tree removal, and such tree trimming as indicated on the Contract Documents. This unit shall not include removal of any danger trees.

2. Danger trees shall be [measured on a per unit basis] [included in the line easement lump sum bid price] and shall include clearing and removal of such units as indicated [in the Contract Document] [by Owner].

F. Existing Assemblies and Conditions

1. When existing assemblies are encountered include attention and maintenance work such as re-stapling pole grounds, inspecting and tightening nuts/locknuts and grounding bonds, securing the wires, backfilling existing poles, and other work to miscellaneous item such that the integrity of the existing assembly is assured.
2. Include such work in the Bid Price. Any change or replacement to an existing assembly shall be approved prior to commencement of work on an assembly.

1.07 QUALITY ASSURANCE

A. Use required means to assure arithmetical accuracy of the sums described.

B. When so required by the Engineer/Architect, provide copies of the subcontracts or other data acceptable to the Engineer/Architect, substantiating the sums described.

PART 2. PRODUCTS

(NOT USED)

PART 3. EXECUTION

(NOT USED)

END OF SECTION

DOCUMENT 01036
CHANGE ORDER PROCEDURE

PART 1. GENERAL

1.01 SUMMARY

A. Make such changes in the Work, in the Contract Price, in the Contract Time, or any combination thereof, as are described in written Change Orders signed by the Owner and the Engineer/Architect and issued after execution of the Agreement, in accordance with the provisions of this Section.

B. Related work:

1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in DIVISION 1 of these Specifications.

2. Changes in the Work are described further in General Conditions.

3. Engineer/Architect's supplemental instructions:

a. From time to time during progress of the Work the Engineer/Architect may issue supplemental instructions which interpret the Contract Documents or order minor changes in the Work without change in Contract Sum or Contract Time.
b. Should the Contractor consider that a change in Contract Sum or Contract Time is required, he shall submit an itemized proposal to the Engineer/Architect immediately and before proceeding with the Work. If the proposal is found to be satisfactory and in proper order, the supplemental instructions in that event will be superseded by a Change Order.

4. Proposal requests:

a. From time to time during progress of the Work the Engineer/Architect may issue a proposal request for an itemized quotation for changes in the Contract Price and/or Contract Time incidental to proposed modifications to the Contract Documents.
b. This will not be a Change Order, and will not be a direction to proceed with the changes described therein.

1.02 QUALITY ASSURANCE

A. Include within the Contractor's quality assurance program such measures as are needed to assure familiarity of the Contractor's staff and employees with these procedures for processing Change Order data.

1.03 PROCESSING PROPOSAL REQUESTS

A. Make written reply to the Engineer/Architect in response to each proposal request.

1. State proposed change in the Contract Sum, if any.

2. State proposed change in the Contract Time of Completion, if any.

3. Clearly describe other changes in the Work, if any, required by the proposed change or desirable therewith.

4. Include full backup data such as subcontractor's letter of proposal or similar information.

5. Submit this response in single copy.

B. When cost or credit for the change has been agreed upon by the Owner and the Contractor, or the Owner has directed that cost or credit be determined in accordance with provisions of the General Conditions, the Engineer/Architect will issue a Change Order to the Contractor.

1.04 PROCESSING CHANGE ORDERS

A. Change Orders will be numbered in sequence, and dated.

B. The Change Order will describe the change or changes, will refer to the proposal requests or supplemental instructions involved, and will be signed by the Owner and the Engineer/Architect.

C. The Engineer/Architect will issue four copies of each Change Order to the Contractor.

1. The Contractor promptly shall sign all four copies and return three copies to the Engineer/Architect.

2. The Engineer/Architect will retain one signed copy in his file, and forward two signed copies to the Owner.

PART 2. PRODUCTS

(NOT USED)

PART 3. EXECUTION

(NOT USED)

END OF SECTION

CHANGE ORDER No._____

Project: Overhead to Underground Utility Relocations and/or Street Lighting along Jackson St. between N Madison and N Front Streets, Bid-2023-066WL

Date of Issuance: _____

Owner: Tupelo Water & Light

Name & Address:_____

Contractor: _____ Owner's Project No. _____

Engineer/Architect: Allen & Hoshall, Inc. Engineer/Architect's Project No. _____

You are directed to make the following changes in the Contract Documents.

Description:

Purpose of Change Order:

Attachments: (list documents supporting change)

CHANGE IN CONTRACT PRICE:	CHANGE IN CONTRACT TIME:
Original Contract Price $_____	Original Contract Time _____ days or date
Net Change from previous Change Orders No._____ thru No._____ $_____	Net Change from previous Change Orders No. _____ thru No._____ _____ days
Contract Price prior to this Change Order $_____	Contract Time Prior to this Change Order _____ days or date
Net Increase (Decrease) of this Change Order $_____	Net Increase (Decrease) of this Change Order _____ days
Contract price with all approved Change Orders $_____	Contract Time with all approved Change Orders _____ days or date

RECOMMENDED: APPROVED: APPROVED:

By:_____ By:_____ By:_____

Allen & Hoshall, Inc.
Engineer/Architect

Tupelo Water & Light
Owner

[Name of Contractor]
Contractor

Date:_____ Date:_____ Date: _____

End of Document

SECTION 01038
WEATHER DELAYS

PART 1. GENERAL

1.01 EXTENSIONS OF CONTRACT TIME

A. If the basis exists for an extension of time in accordance with ARTICLE 12 of the GENERAL CONDITIONS, an extension of time on the basis of weather may be granted only for the number of Weather Delay Days in excess of the number of days listed as the Standard Baseline for that month.

1.02 STANDARD BASELINE FOR AVERAGE CLIMATIC RANGE

A. The Owner/Engineer has reviewed weather data available from the National Oceanic and Atmospheric Administration and determined a Standard Baseline of average climatic range for the Project location.

B. Standard Baseline shall be regarded as the normal and anticipatable number of calendar days for each month during which construction activity shall be expected to be prevented and suspended by cause of adverse weather. Suspension of construction activity for the number of days each month as listed in the Standard Baseline is included in the Work and is not eligible for extension of Contract Time.

C. Standard Baseline is as follows:

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
12	11	8	7	7	6	7	5	4	5	6	11

1.03 ADVERSE WEATHER AND WEATHER DELAY DAYS

A. Adverse Weather is defined as the occurrence of one or more of the following conditions which prevents exterior construction activity or access to the site within twenty-four (24) hours:
   1. Precipitation (rain, snow or ice) in excess of one-tenth inch (0.10") liquid measure.
   2. Temperatures which do not rise above 32 degrees F by 10:00 a.m.
   3. Temperatures which do not rise above that specified for the day's construction activity by 10:00 a.m., if any is specified.
   4. Sustained wind in excess of twenty-five (25) m.p.h.
   5. Standing snow in excess of one inch (1.00").

B. Adverse Weather may include, if appropriate, "dry-out" or "mud" days when all the following conditions are met:
   1. For rain days above the standard baseline.
   2. Only if there is a hindrance to site access or site work, such as excavation, backfill and footings.
   3. At a rate no greater than One (1) make-up day for each day or consecutive days of rain beyond the standard baseline that total 1.0 inch or more, liquid measure, unless specifically recommended otherwise by the Owner/Engineer.

C. A Weather Delay Day may be counted if adverse weather prevents work on the project for fifty percent (50%) or more of the Contractor-s scheduled work day, including a weekend day or holiday if Contractor has scheduled construction activity that day.

D. Contractor shall take into account that certain construction activities are more affected by adverse weather and seasonal conditions than other activities, and that “dry-out” days are not eligible to be counted as a Weather Delay Day until the Standard Baseline is exceeded.

1.04 DOCUMENTATION AND SUBMITTALS

A. Submit daily jobsite work logs showing which and to what extent construction activities have been affected by weather on a monthly basis.

B. Submit actual weather data to support claim for time extension obtained from nearest NOAA weather station or other independently verified source approved by Owner/Engineer at beginning of project.

C. Use Standard Baseline data provided in this section when documenting actual delays due to weather in excess of the average climatic range.

D. Organize claim and documentation to facilitate evaluation on a basis of calendar month periods, and submit in accordance with the procedures for claims established in ARTICLE 12 of the GENERAL CONDITIONS.

E. If an extension of the Contract Time is appropriate, it shall be effected in accordance with the provision of ARTICLE 12 of the GENERAL CONDITIONS and the applicable SUPPLEMENTARY CONDITIONS.

PART 2. PRODUCTS

(NOT USED)

PART 3. EXECUTION

(NOT USED)

END OF SECTION

SECTION 01040
PROJECT COORDINATION

PART 1. GENERAL

1.01 SECTION INCLUDES

A. Coordination

B. Project Representatives and Addresses

1.02 COORDINATION

A. All work, submittals, and testing shall be coordinated with the Work listed in the Contract Documents to assure efficient progress of the Project Construction.

1.03 PROJECT REPRESENTATIVES AND ADDRESS

A. Owner: City of Tupelo Water & Light Department

MAIL: P.O. Box 1485, Tupelo, MS 38802-1485
STREET: 320 North Front Street, Tupelo, MS 38804

PHONE: 662-841-6460

Contact: Johnny Timmons, General Manager
Alternate: Norman Cruse, Engineer

B. Engineer: Allen & Hoshall
Engineers Planners

STREET: 1661 International Drive (Zip 38120)
Memphis, Tennessee

FAX: (901) 683-1001

Contact: Bobby Davidson e-mail: bdavidson@allenhoshall.com
PHONE: (901) 261-4732

Alternate: Scott Burleson P.E. e-mail: sburleson@allenhoshall.com
PHONE: (901) 261-4639

C. All correspondence to the Owner shall be addressed as in Article 1.03, A.

D. All correspondence, submittals, shop drawings, test reports, instruction manuals, operation manuals and any other pertinent Project materials shall be addressed to the Engineer as in Article 1.03, B.

E. Forward a copy of all correspondence addressed to the Owner to the Engineer.

F. Notify Owner and Engineer of the Primary Project Representative, Alternate Project Representative, mailing address, package delivery address, phone number (normal working hours), phone number (after working hours) and fax number.

G. All correspondence, submittals or other items associated with the Contract shall be identified by the Project Owner and Project name as listed in the Contract Documents.

PART 2. PRODUCTS

(NOT USED)

PART 3. EXECUTION

(NOT USED)

END OF SECTION

SECTION 01050
FIELD ENGINEERING

PART 1. GENERAL

1.01 SUMMARY

A. Provide such field engineering services as are required for proper completion of the Work including, but not necessarily limited to:

1. Establishing and maintaining lines, levels, and construction base lines.

2. Structural design of shores, forms, and similar items provided by the Contractor as part of his means and methods of construction.

1.02 RELATED SECTIONS

A. DIVISIONS 0 and 1 - CONTRACT DOCUMENTS, and GENERAL REQUIREMENTS: These shall apply to all work included in this section.

B. Additional requirements for field engineering also may be described in other Sections of these Specifications.

C. As described in the GENERAL REQUIREMENTS, the Owner will furnish survey describing the physical characteristics, legal limitations, utility locations, and legal description of the site.

1.03 SUBMITTALS

A. Upon request of the Engineer/Architect, submit:

1. Data demonstrating qualifications of persons proposed to be engaged for field engineering services.

2. Documentation verifying accuracy of field engineering work.

3. Certification, signed by the Contractor's retained field engineer, certifying that elevations and locations of improvements are in conformance or non-conformance with requirements of the Contract Documents.

4. Copy of Contractor’s survey documents.

1.04 QUALITY ASSURANCE

A. Contractor’s surveyor shall be a registered land surveyor in the state in which the Project is located.

B. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.05 PROCEDURES

A. In addition to procedures directed by the Contractor for proper performance of the Contractor's responsibilities:

1. Develop and make all detail surveys needed for construction including but not limited to: pre-blast, slope stakes, batter boards, stakes for pile locations and other working points, lines, elevations, and cut sheets.

2. The Contractor shall provide level, level rod, and tripod on the job at all times for the purpose of checking grades, as deemed necessary by the Engineer.

3. Locate and protect control points before starting work on the site.

4. Preserve permanent reference points during progress of the Work.

5. Do not change or relocate reference points or items of the Work without specific approval from the Engineer/Architect.

6. Promptly advise the Engineer/Architect when a reference point is lost or destroyed, or requires relocation because of other changes in the Work.

    a. Upon direction of the Engineer/Architect, require the field engineer to replace reference stakes or markers.
    b. Locate such replacements according to the original survey control.

END OF DOCUMENT

DOCUMENT 01060
REGULATORY REQUIREMENTS

PART 1. GENERAL

1.01 SECTION INCLUDES

A. All material, equipment and services furnished shall conform to accepted standards and practices of the electric utility industry, and the standards and codes listed in Section 01090 - REFERENCE STANDARDS.

B. Perform and construct work in accordance with all federal, state and local laws, codes, and regulations, including those regulating the environment.

C. Obtain and pay for all construction permits and licenses/certificates of responsibility.

D. Contractors shall furnish registration and license/certificate of responsibility.

PART 2. PRODUCTS

(NOT USED)

PART 3. EXECUTION

3.01 CONTRACTOR'S RESPONSIBILITY

A. Contractor shall, as a minimum requirement, construct work in accordance with all federal, state and local laws, codes, and regulations, including but not limited to environmental regulations.

B. Contractor shall determine all requirements, obtain and pay for all construction permits, including but not limited to, fire protection, environmental control permits, local construction permits and any licenses and permits not obtained by Owner.

C. Contractor shall pay all inspection fees and governmental charges necessary for execution of work.

D. Contractor shall give all notices and comply with all laws, ordinances, building and construction codes, rules and regulations applicable to work.

1. If the drawings and specifications are at variance with any federal, state or local laws, ordinances, rules or regulations, the contractor shall notify the Owner and Engineer and shall not proceed with work affected thereby until authorized.

2. If any of the work is done contrary to such laws, ordinances, rules or regulations, the contractor shall bear all expense arising therefrom.

3.02 CONTRACTOR'S REGISTRATION AND LICENSE/CERTIFICATE OF RESPONSIBILITY

A. Contractor shall possess state registration and license/certificate of responsibility in accordance with the laws of the state where project is located in effect throughout the entire period of construction and provide a copy to the Engineer.

END OF DOCUMENT

SECTION 01090
REFERENCE STANDARDS

PART 1. GENERAL

1.01 SECTION INCLUDES

A. Quality Assurance

B. Schedule of References

1.02 QUALITY ASSURANCE

A. Comply with latest revision of the standard for all equipment, materials and labor, except when more rigid requirements are specified or are required by applicable codes.

B. Request clarification from Engineer before proceeding, should specified reference standards conflict with Contract Documents.

1.03 SCHEDULE OF REFERENCE

A. Documents and/or Standards from the following agencies may be referenced in the Contract Documents:

AA	Aluminum Association
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AISC	American Institute of Steel Construction
ANSI	American National Standards Institute
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
CRSI	Concrete Reinforcing Steel Institute
CSI	Construction Specifications Institute
EEI	Edison Electric Institute
EPA	Environmental Protection Agency
ICEA	Insulated Cable Engineers' Association

IEEE	Institute of Electrical and Electronics Engineers
NEC	National Electrical Code
NEMA	National Electrical Manufacturers' Association
NESC	National Electrical Safety Code
NFPA	National Fire Protection Association
OSHA	Occupational Safety and Health Administration
SSPC	Steel Structures Painting Council
RUS	Rural Utility Service
UL	Underwriters' Laboratories, Inc.

END OF DOCUMENT

SECTION 01300
SUBMITTALS

PART 1. GENERAL

1.01 SECTION INCLUDES

A. Submittal Procedures

B. Submittal Schedule

C. Construction and Progress Schedules

1.02 RELATED SECTIONS

A. DIVISIONS 0 and 1 - CONTRACT DOCUMENTS, and GENERAL REQUIREMENTS: These shall apply to all work included in this section.

B. Section 01027 - MEASUREMENT AND PAYMENT

C. Section 01036 - CHANGE ORDER PROCEDURES

D. Section 01040 - PROJECT COORDINATION

E. Section 01340 - SHOP DRAWINGS

F. Section 01400 - QUALITY CONTROL

G. Section 01720 - PROJECT RECORD DOCUMENTS

1.03 SUBMITTAL PROCEDURES

A. Transmit each submittal with transmittal letter or Engineer accepted form. Sequentially number the transmittal forms. Resubmittals to have original number with an alphabetic suffix.

B. Submit shop drawings as specified in Section 01340 - SHOP DRAWINGS.

C. Identify Owner’s name, project title, Contractor, subcontractor or supplier; pertinent drawing sheet and detail number(s), and specification section number, as appropriate.

D. Schedule submittals to expedite the project, and deliver to Engineer with copy of transmittal letter to Owner's representative as identified in Section 01040 - PROJECT COORDINATION.

E. Subcontractor submittals shall be reviewed and approved by the Contractor before submission to the Engineer.

F. Identify variations from Contract Documents and product or system limitations which may be detrimental to successful performance of the completed Work.

G. Provide space for Contractor and Engineer review stamps.

H. Revise and resubmit submittals as required, identify all changes made since previous submittal.

I. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.

1.04 SUBMITTAL SCHEDULE

A. Provide schedule for project submittals in accordance with the specifications and as agreed to by Engineer and Contractor.

1.05 CONSTRUCTION AND PROGRESS SCHEDULE

A. Submit initial progress schedule in duplicate within 20 days after date established in Notice to Proceed for Architect/Engineer review.

B. Revise and resubmit as required.

C. Submit revised schedules with each Application for Payment, identifying changes since previous version.

D. Submit a computer generated chart with separate line for each major section of Work or operation, identifying first work day of each week.

E. Indicate estimated percentage of completion for each item of Work at each submission.

F. Indicate submittal dates required for shop drawings, product data, samples, and product delivery dates, including those furnished by Owner and under Allowances.

PART 2. PRODUCTS

(NOT USED)

PART 3. EXECUTION

(NOT USED)

END OF SECTION

SECTION 01340
SHOP DRAWINGS

PART 1. GENERAL

1.01 SECTION INCLUDES

A. Submit Shop Drawings and product data required by contract documents.

1.02 RELATED SECTIONS

A. DIVISIONS 0 and 1 - CONTRACT DOCUMENTS, and GENERAL REQUIREMENTS: These shall apply to all work included in this section.

B. Section 01300 - SUBMITTALS

C. Section 01720 - PROJECT RECORD DOCUMENTS

1.03 SHOP DRAWINGS

A. Shop drawings shall include: fabrication, erection, layout, and setting drawings; material lists; manufacturer's catalog sheets and/or descriptive data for materials and equipment showing dimensions, performance characteristics, and capacities; wiring and control diagrams; electrical characteristics, and capacities; and other pertinent information as required to obtain approval of the items involved.

B. Drawings shall be presented in a clear and thorough manner.

1. Details shall be identified by reference to sheet and detail numbers shown on Contract Drawings and Specification Sections.

C. Minimum sheet size: 8½" x 11".

D. Maximum sheet size: 22" x 34"

1.04 PRODUCT DATA

A. Preparation:

1. Clearly mark each copy to identify pertinent products or models.

2. Show performance characteristics and capacities.

3. Show dimensions and clearances required.

B. Manufacturer's standard schematic drawings and diagrams:

1. Modify drawings and diagrams to delete information which is not applicable to the Work.

2. Supplement standard information to provide information specifically applicable to the Work.

1.05 CONTRACTOR RESPONSIBILITIES

A. Designate in the construction schedule, or in a separate coordinated schedule, the dates for submission and the dates that reviewed Shop Drawings and product data will be required to maintain construction schedule.

B. Review Shop Drawings and Product Data prior to submission.

C. Contractor is responsible for review of all Subcontractor and supplier submittals.

D. Determine and verify:

1. Field measurements

2. Field construction criteria

3. Catalog numbers and similar data

4. Conformance with specifications

E. Coordinate each submittal with requirements of the Work and of Contract Documents.

F. Notify the Engineer in writing, at time of submission, of any deviations in the submittals from requirements of the Contract Documents.

G. Begin no fabrication or work which required submittals until return of submittals with satisfactory review.

1.06 SUBMISSION REQUIREMENTS

A. Make submittals promptly in accordance with approved schedule, and in such sequence as to cause no delay in the work or in the work of any other contractor.

B. Number of submittals required:

1. Shop Drawings: Submit one (1) copy of electronic data files of all drawings prepared for the project. Media shall be electronically uploaded to the Newforma Project Center.

C. Submittals shall contain:

1. Submittal identification number. Submittals shall be numbered consecutively. Re-submittals shall use the same submittal number with an alphabetic suffix added.

2. The date of submission and the dates of any previous submissions.

3. The Owner’s name, project title and number.

4. Contract identification.

5. The names of:
   a. Contractor
   b. Subcontractor

c. Supplier
d. Manufacturer

6. Identification of the project, with the specification section number.

7. Field dimensions, clearly identified as such.

8. Relation to adjacent or critical features of the work or materials.

9. Applicable standards, such as ASTM or Federal Specification numbers.

10. Identification of deviations from Contract Documents.

11. Identification of revisions on resubmittals.

12. An 8"x 3" blank space for Contractor and Engineer stamps.

13. Contractor's stamp, initialed or signed, certifying to review of submittal, verification of products, field measurements and field construction criteria, and coordination of the information within the submittal with requirements of the Work of Contract Documents.

1.07 RETURN FOR RESUBMISSION

A. The Engineer will return for resubmission all shop drawings submitted without the above specified approval and certification which in the Engineers opinion contain numerous discrepancies, have not been checked, or do not meet the requirements for submission.

1.08 REVIEW OF SUBMITTALS

A. The Engineer will review, mark and date all submitted shop drawings. One (1) electronic set will be returned to the Materialman. Contractor shall make corrections and changes as indicated.

B. Resubmit shop drawings as specified above, until satisfactory review has been obtained. Corrections and/or changes indicated on shop drawings by Engineer/Owner shall not be considered as an extra work order.

C. After satisfactory "Review" or "Furnish as Corrected" has been obtained for all shop drawings, a set of shop drawings marked "FOR CONSTRUCTION" shall be furnished to the Engineer in the format specified in Article 1.06 above. The “FOR CONSTRUCTION” drawings shall be provided within 21 days of receipt of approval drawings by Materialman.

D. Review of shop drawings by the Engineer will be general only, and such review will not relieve the Contractor of responsibility for accuracy of such shop drawings, proper fitting, coordination, construction of work, and furnishing materials required by the Specifications but not indicated on shop drawings. Review of shop drawings shall not be construed as approving departures from the Specifications.

1.09 DISTRIBUTION

A. Distribute reproductions of Shop Drawings and copies of Product Data which carry the Engineer stamp of approval to:

1. Job site file
2. Record Documents File
3. Other affected contractors
4. Subcontractors
5. Supplier or fabricator

1.10 ENGINEER DUTIES

A. Review submittals with reasonable promptness and in accordance with schedule.

B. Affix stamp and initials or signature, and indicate requirements for resubmittal, or satisfactory review of submittal.

C. Return submittals to Contractor for distribution, or for resubmission.

PART 2. PRODUCTS

(NOT USED)

PART 3. EXECUTION

(NOT USED)

END OF DOCUMENT

SECTION 01400
QUALITY CONTROL

PART 1. GENERAL

1.01 SECTION INCLUDES

A. Required inspection and testing services are intended to assist in the determination of compliance of the work with the quality standards specified or indicated.

1.02 RELATED SECTIONS

A. DIVISIONS 0 and 1 - CONTRACT DOCUMENTS, and GENERAL REQUIREMENTS: These shall apply to all work included in this section.

1.03 QUALITY OF WORK

A. Perform all work in the most workmanlike manner and according to the best standard practices. All work shall be free from faults and defects in workmanship.

B. Contractor shall be solely responsible for quality control of the work and shall maintain quality control over suppliers, manufacturers, products, services, site conditions and workmanship, to produce work of specified quality.

C. Required testing and inspection are intended to assist in determination of probable compliance of the Work with the Contract Documents, but do not relieve Contractor of responsibility for this compliance. Specified testing and inspection are not intended to limit Contractor's quality control program.

D. Contractor shall submit a Project Quality Control Plan.

PART 2. PRODUCTS

(NOT USED)

PART 3. EXECUTION

(NOT USED)

END OF DOCUMENT

SECTION 01500
CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Summary of construction facilities and temporary controls required for the Work, such as:

1. Overhead line construction guard structures
2. Environmental Controls
3. Erosion Controls
4. Construction Cleaning
5. Traffic regulation

1.02 RELATED SECTIONS

A. DIVISIONS 0 and 1 - PROPOSAL DOCUMENTS, MATERIALS CONTRACT AND GENERAL REQUIREMENTS: These shall apply to all work included in this section.

1.03 REFERENCES

A. Published Specifications, standards, tests, or recommended methods of trade, industry, or governmental organizations apply to work in this section where cited in Section 01090 - REFERENCE STANDARDS.

PART 2 PRODUCTS

(NOT USED)

PART 3 EXECUTION

3.01 TEMPORARY GUARD STRUCTURES

A. Utility and Road Crossings.

1. The contractor shall furnish and install all guard structures required for all crossings over electric supply lines, communication lines, railroads, roads, highways, and other obstructions, and for the protection of the conductors. The Owner shall obtain the necessary permissions or permits for stringing conductors over utilities, highways, railroads, and other obstructions. The Contractor shall make adequate preparations to safely cross all facilities with a minimum of inconvenience and delay to the public.

2. The Contractor shall furnish and install steel traffic plates to cover open trenches to allow vehicle traffic flow. Contractor is responsible for pinning of the plates and temporary asphalt ramp edges for plates. Plate installation shall be coordinated with local roadway authorities.

3. When guard structures are no longer needed, the Contractor shall safely remove all temporary structures and appurtenances.

B. Environmental Protection

1. Perform Work in such a manner as to maximize preservation of beauty, conservation of natural resources and minimize marring and scarring of the landscape and silting of drainage areas and streams. Do not deposit trash, herbicides, or other chemicals or their containers in or near streams, waterways, drainage areas, streets, alleys, lawns, pastures, or on the landscape.

2. Contractor shall utilize and if warranted, implement the procedures of A Guide for Environmental Protection and Best Management Practices for Tennessee Valley Authority Transmission Construction and Maintenance Activities for the duration of construction.

C. Project Clean Up

1. The site and the structures to be constructed thereon shall be maintained and kept clean and free from rubbish, unused materials, and equipment during the construction period. From time to time, remove all dirt, rubbish and surplus materials of all descriptions, including equipment not in use, and maintain the site in a neat and orderly condition. Materials or equipment known to belong to others shall not be removed from the site without duly notifying the Owner thereof.

2. Upon completion of the work the Contractor shall remove all construction equipment and unused materials provided for the Work.

D. Erosion Control

1. Prior to construction activities that will cause disturbance to storm water discharges, drainage paths, or which may cause erosion of soil and the discharge of other pollutants, the Contractor shall file a Notice of Intent (NOI) with the Department of Environment and Conservation.

2. An Erosion and Control Plan for the Project shall be developed and implemented in accordance with State regulations concerning the general permit.

3. The Contractor shall file and be the signatory principal for the NOI, and shall be solely responsible for: compliance to applicable state and federal laws, liabilities, or penalties pursuant to non-compliance.

4. Source for obtaining the NOI can be found Mississippi Department of Environmental Qualities website:

http://www.deq.state.ms.us/MDEQ.nsf/page/epd_epdgeneral?OpenDocument
or
Mississippi Department of Environmental Quality

P. O. Box *2261*
Jackson, Mississippi 39225-2261

3.02 TRAFFIC CONTROL AND WARNINGS

A. Schedule and perform all work to interfere as little as possible with vehicular traffic flow. Poor planning and gross inconsiderateness of traffic flow will be just cause for the Owner to stop the Contractor's work until the unsatisfactory conditions have been remedied.

B. Mark clearly all open ditches, soft backfill, parked equipment, etc., with signs and barricades during day hours, and in addition, with flares at night. Maintain all flares, signs, and barricaded during weekends, holidays, and at other times when work is not in progress.

C. Provide adequate signs and watchmen to comply with the requirements of all authorities having jurisdiction, and as necessary for the safety and convenience of the general public.

D. At all times while construction and maintenance of Owners facilities is in progress, the Contractor shall provide singing and if required flagging for control of traffic. Temporary Traffic Control "TTC" shall conform to Part VI of the Manual on Uniform Traffic Control Devices for Streets and Highways.

END OF SECTION

SECTION 01720
PROJECT RECORD DOCUMENTS

PART 1. GENERAL

1.01 SECTION INCLUDES

A. Record of changes

B. Final “As-Built” drawings

C. Operation and maintenance manuals

1.02 RELATED SECTIONS

A. DIVISIONS 0 and 1 - CONTRACT DOCUMENTS, and GENERAL REQUIREMENTS: These shall apply to all work included in this section.

B. Other requirements affecting Project Record Documents may appear in pertinent other Sections of these Specifications.

1.03 SUBMITTALS

A. Comply with pertinent provisions of Document 00700 - GENERAL CONDITIONS and Section 01300 - SUBMITTALS.

B. The Engineer/Architect's approval of the current status of Project Record Documents may be a prerequisite to the Engineer/Architect's approval of requests for progress payment and request for final payment under the Contract.

C. Prior to submitting each request for progress payment, secure the Engineer/Architect's approval of the current status of the Project Record Documents.

D. Prior to submitting request for final payment, submit the final Project Record Documents to the Engineer/Architect for approval.

1.04 QUALITY ASSURANCE

A. Delegate the responsibility for maintenance of Record Documents to one person on the Contractor's staff as approved by the Engineer/Architect.

B. Accuracy of records:

1. Thoroughly coordinate changes within the Record Documents, making adequate and proper entries on each page of Specifications and each sheet of Drawings and other Documents where such entry is required to show the change properly.

2. Accuracy of records shall be such that future searches for items shown in the Contract Documents may rely reasonably on information obtained from the approved Project Record Documents.

C. Make entries within 24 hours after receipt of information that the change has occurred.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Maintain the job set of Record Documents completely protected from deterioration and from loss and damage until completion of the Work and transfer of all recorded data to the final Project Record Documents.

B. In the event of loss of recorded data, use means necessary to again secure the data to the Engineer/Architect's approval.

1. Such means shall include, if necessary in the opinion of the Engineer/Architect, removal and replacement of concealing materials by Contractor at his cost.

2. In such case, provide replacements to the standards originally required by the Contract Documents by Contractor at his cost.

PART 2. PRODUCTS

2.01 RECORD DOCUMENTS

A. Job set: Promptly following the Effective Date of Agreement secure from the Engineer/Architect at no charge to the Contractor one complete set of all Documents comprising the Contract.

PART 3. EXECUTION

3.01 MAINTENANCE OF JOB SET

A. Immediately upon receipt of the job set described in Paragraph 2.01-A above, identify each of the Documents with the title, "RECORD DOCUMENTS - JOB SET."

B. Preservation:

1. Considering the Contract completion time, the probable number of occasions upon which the job set must be taken out for new entries and for examination, and the conditions under which these activities will be performed, devise a suitable method for protecting the job set to the approval of the Engineer/Architect.

2. Do not use the job set for any purpose except entry of new data and for review by the Engineer/Architect, until start of transfer of data to final Project Record Documents.

3. Maintain the job set at the site of Work as that site is designated by the Engineer/Architect.

C. Making entries on Drawings:

1. Using an erasable colored pencil (not ink or indelible pencil), clearly describe the change by graphic line and note as required.

2. Date all entries.

3. Call attention to the entry by a "cloud" drawn around the area or areas affected.

4. In the event of overlapping changes, use different colors for the overlapping changes.

D. Make entries in the pertinent other Documents as approved by the Engineer/Architect.

E. Drawings shall clearly show actual installed locations, depth, and sizes of:

1. Pipework of all descriptions below ground outside of building and structures, including locations of cleanouts, manholes, inlets, hydrants, and underground valves.

2. Electrical conduits, electrical ducts, ground grid conductors, and directly buried conductors underground outside of buildings and structures, including locations of pull and junction boxes, electric manholes and handholes, pad mounted electrical equipment, utility poles, electrical outlets, and lighting fixtures.

F. Conversion of schematic layouts:

1. In some cases on the Drawings, arrangements of conduits, circuits, piping, ducts, and similar items, is shown schematically and is not intended to portray precise physical layout.

   a. Final physical arrangement is determined by the Contractor, subject to the Engineer/Architect's approval.
   b. However, design of future modifications of the facility may require accurate information as to the final physical layout of items which are shown only schematically on the Drawings.

2. Show on the job set of Record Drawings, by dimension accurate to within one inch, the centerline of each run of items such as are described in Article 3.01-E above.

   a. Clearly identify the item by accurate note such as "cast iron drain," "galv. water," and the like.
   b. Show, by symbol or note, the vertical location of the item ("under slab," "in ceiling plenum," "exposed," and the like).
   c. Make all identification so descriptive that it may be related reliably to the Specifications.

3. The Engineer/Architect may waive the requirements for conversion of schematic layouts where, in the Engineer/Architect's judgment, conversion serves no useful purpose. However, do not rely upon waivers being issued except as specifically issued in writing by the Engineer/Architect.

G. Review and submittal:

1. Submit the completed set of Project Record Documents to the Engineer/Architect as described in Paragraph 1.03-D above.

2. Participate in review meetings as required.

3. Make required changes and promptly deliver the Project Record Documents to the

Engineer/Architect.

3.02 FINAL DRAWINGS

A. At completion of project, the Contractor shall incorporate all revisions into the shop drawings to provide a complete set of final drawings. The drawings shall be marked as "Final-As Constructed".

B. One (1) copy of electronic data files of all drawings prepared for the project. Format shall be AutoCAD 2000 or later, vector based (.DWG or .DXF) files. Raster based scans (e.g., TIF, .PCX, or .GIF) files of manual drawings are not acceptable. Media shall be CD-ROM or via email.

3.03 OPERATION AND MAINTENANCE MANUALS

A. The Contractor shall provide three (3) complete sets of Operations and Maintenance Manuals covering all equipment furnished for the project.

B. Contents of Operations and Maintenance Manuals

1. Manufacturer's technical literature; descriptive bulletins; installation, operation and maintenance instructions; and parts list.

2. As-Constructed shop drawings.

3. Certified factory test results.

C. Format

1. All Operations and Maintenance Manuals shall be bound in an ultra-heavy duty, three-ring binder of suitable size (maximum 2") for the material to be inserted. Binder rings will be Slant-D using a gap free design. Binders will be Wilson Jones® Ultra Duty Binders or an Engineer approved substitute.

2. CDs, DVDs or USB Flash Drives containing electronic data files shall be placed in poly sleeve three-ring binder page and inserted in manual binder.

3. Binders shall be white in color with clear jacket for the insertion of printed cover and edge identification sheets.

4. Instruction manuals for microprocessor based relays shall be provided in:

   a. The manufacturers' original binding or

   b. A three-ring binder produced by the Contractor with dividers identical to the relay manufacturers' manual. The provided binder shall be ultra-heavy duty using gap free Slant-D rings. Binders will be Wilson Jones® Ultra Duty Binders or an Engineer approved substitute.

5. All information bound shall be 8½" x 11" or accordion folded to this size.

6. Page dividers with plastic reinforced holes and tabs shall be used to organize Operations and Maintenance Manuals.

7. Binder cover and edge inserts shall contain Owner's name, project title, date and subject matter of the manual.

D. Organization

1. Table of Contents shall list all information contained.

2. Contact information for all major equipment suppliers, Contractor, and subcontractors.

3. Organize manual by equipment item. Contents as specified above.

3.04 FINAL SUBMITTAL

A. All Record Documents including, job set, final drawings and Operation and Maintenance Manuals shall be submitted to Engineer prior to submitting final payment request.

3.05 CHANGES SUBSEQUENT TO ACCEPTANCE

A. The Contractor has no responsibility for recording changes in the Work subsequent to Final Completion, except for changes resulting from work performed under Warranty.

END OF DOCUMENT

SECTION 02110
CLEARING AND GRUBBING

PART 1. GENERAL

1.01 SECTION INCLUDES

A. Clearing and Cleaning Site of Plant Life, Grass, and Debris.

1.02 RELATED SECTIONS

A. DIVISIONS 0 and 1 - PROPOSAL DOCUMENTS, MATERIALS CONTRACT AND GENERAL REQUIREMENTS: These shall apply to all work included in this section.

B. Document 00200 - INFORMATION AVAILABLE TO BIDDERS.

C. Section 02200 - EARTHWORK.

D. Section 02900 - LANDSCAPING.

E. Section 02930 - LAWNS AND GRASSES.

PART 2. PRODUCTS

(NOT USED)

PART 3. EXECUTION

3.01 CLEARING AND GRUBBING

A. Clear and Grub the Following Areas:

1. All areas which will be covered by buildings, structures, paving, or other construction, as required to clear the construction, and/or to the limits indicated.

2. Other areas, to the limits indicated.

B. In all areas requiring clearing and grubbing, completely remove all trees, stumps, roots, buried logs, brush, grass, weeds, vegetation, and other unsuitable materials. Refill to proper elevation all holes resulting from the grubbing operations, and compact the fill as specified in other sections.

C. Dispose of all spoil materials by removal to approved disposal areas away from the project site.

D. Clean and clear out undergrowth and dead wood, without disturbing compaction of subsoil.

E. Burning of debris on the site shall NOT BE PERMITTED.

3.02 PROTECTION

A. Protect plant growth and features remaining as final landscaping.

B. Protect bench marks and existing work from damage or displacement.

C. Maintain designated site access for vehicle and pedestrian traffic.

END OF SECTION

SECTION 02200
EARTHWORK

PART 1. GENERAL

1.01 SECTION INCLUDES

A. Remove surface debris.

B. Remove of topsoil and subsoil.

C. Excavation, Embankment, and Backfill.

D. Clear site of plant life and grass.

E. Grading.

F. Remove trees and shrubs.

1.02 RELATED SECTIONS

A. DIVISIONS 0 and 1 - PROPOSAL DOCUMENTS, MATERIALS CONTRACT AND GENERAL REQUIREMENTS: These shall apply to all work included in this section.

B. Document 00200 - INFORMATION AVAILABLE TO BIDDERS.

C. DIVISION 2 - SITEWORK.

D. Section 02110 - CLEARING AND GRUBBING.

E. Section 02230 - CRUSHED LIMESTONE AGGREGATE BASE COURSE.

F. Section 02513 - CRUSHED LIMESTONE SURFACE COURSE

G. DIVISION 3 - CONCRETE.

1.03 UNIT PRICE - MEASUREMENT AND PAYMENT

A. See Section 01025 - MEASUREMENT AND PAYMENT

1.04 REFERENCES

A. Published Specifications, standards, tests, or recommended methods of trade, industry, or governmental organizations apply to work in this section where cited in Section 01090 - REFERENCE STANDARDS and in the listing below:

1. ASTM C136 - Method of Sieve Analysis for Fine and Coarse Aggregates.

2. ASTM D2487 - Classifications of Soils for Engineering Purposes.

3. OSHA – "Occupational Safety and Health Act", Latest Revision, State and Federal Governments.

1.05 SUBMITTALS

A. Shop drawings shall be submitted for approval in accordance with Section 01300 - SUBMITTALS and Section 01340 - SHOP DRAWINGS.

B. Submit test reports certifying that fill materials comply with specifications.

1.06 QUALITY ASSURANCE

A. Requirements of Regulatory Agencies:

1. Work shall comply with rules and regulations of local and state agencies having jurisdiction.

2. State and local code requirements shall control disposal of debris and excess materials.

1.07 JOB CONDITIONS

A. Existing Conditions:

1. Carefully maintain bench marks, monuments, and survey control references.

2. Verify or determine locations of underground utilities and avoid damage. Should damage occur, notify the Owner and repair at no additional cost to the Contract.

3. Restore grades disturbed by this contract activity or other causes to elevations indicated or noted on drawings or as required to provide proper drainage.

4. In areas of excavations in public dedicated right-of-way or construction easements through private property adjacent to or adjoining existing buildings or structures including manholes, junction boxes, or storm drain catch basins or in paved streets or alleys, Contractor shall provide sheeting, shoring and bracing of the sides of the excavation to prevent undermining, settlement, cave-ins or sliding to protect persons and property from injury or damage. No separate pay item shall be established for this Work

5. Protect all existing pipes, poles, overhead wires, cables, fences and other facilities located in public dedicated right-of-way, construction easements, adjoining private property. In case of damage, Contractor shall immediately notify the City or County Engineer, the Engineer, and the respective utility company to repair or replace the damaged structure so that service can be restored to affected property owners. Repair work costs are the responsibility of the Contractor.

6. The Contractor shall obtain pre-blast surveys of adjoining properties to verify conditions prior to blasting operations.

1.08 ENVIRONMENTAL REQUIREMENTS

A. When rainy weather conditions necessitate interrupting filling and grading operations, grade and compact the surface to avoid collection of water. Provide adequate temporary drainage to prevent erosion. After interruption, re-establish compaction specified in last layer before resuming work.
B. Conduct earthwork operations so as to prevent windblown dust and dirt and waterborne silt from interfering with the Owner's and adjacent property owners' normal operations. Assume liability for all claims related to windblown dust, and dirt caused by this Contractor's work.

1.09 ARCHEOLOGICAL REQUIREMENTS

A. When the Contractor's excavating operations encounter artifacts of historical or archaeological significance, the operations shall be temporarily discontinued. At the direction of the Engineer, the Contractor shall excavate the site in such a manner as to preserve the artifacts encountered and allow for their removal. Such excavation will be paid for as extra work.

1.10 SEQUENCING

A. Sequence operations so as to maintain safe working conditions and preserve existing work which is to remain.

PART 2. PRODUCTS

2.01 MATERIALS

A. Contractor-Furnished Borrow Material.

1. Comply with ASTM D2487 Soil Classification groups GW, GP, GM, SM, SP, ML, and CL.

2. Plasticity Index 20 or less and liquid limit 50 or less.

B. Contractor-Furnished Topsoil Material -Topsoil shall be the surface layer of soil with no admixture of refuse or any material toxic to plant growth, and it shall be free from subsoil and stumps, roots, brush, stones (2 inches or more in diameter), clay lumps or similar objects. Brush and other vegetation which will not be incorporated with the soil during handling operations shall be cut and removed. Ordinary sods and herbaceous growth such as grass and weeds are not to be removed but shall be thoroughly broken up and intermixed with the soil during handling operations. The topsoil or soil mixture, unless otherwise specified or approved, shall have a pH range of approximately 5.5 Ph to 7.6 Ph, when tested in accordance with the methods of testing of the Association of Official Agricultural Chemists in effect on the date of invitation of bids. The organic content shall be not less than 3% nor more than 20% as determined by the wet-combustion method (chromic acid reduction). There shall be not less than 20% nor more than 80% of the material passing the 200 mesh sieve as determined by the wash test in accordance with ASTM C 117. Natural topsoil may be amended by the Contractor with approved materials and methods to meet the above specifications.

C. Fill Materials: Fill materials shall be selected earth excavated from the project site, borrow material, or granular backfill material.

D. Granular Backfill Material

1. Crushed Rock:
   a. Clean mineral aggregate (broken stone, crushed or uncrushed gravel, or combination thereof).
   b. Absorption of water in saturated surface dry condition shall not exceed 3 percent of oven dry weight of sample.

   c. Graded (Laboratory sieves, US Series) to following:

Sieve Size	Percentage Passing Sieve
3/4 inch	100
No. 2008-15	

2. Sand: Clean dry concrete sand of no special grading.

3. Drainage Rock (Gravel): Clean river wash rock; graded minimum 3/8 inch to maximum 3/4 inch, no fines.

E. All fine materials shall be free of wood, rubbish, vegetable materials, topsoil, and other unsuitable materials.

F. Geotextile Fabric: This shall be a woven or nonwoven synthetic, permeable barrier sheet, as manufactured by Mirafi, Inc., 140N unless otherwise indicated, or equal, which is resistant to soil, chemicals, and mildew, stable under freeze-thaw cycles, will not shrink or expand under wet conditions and will not unravel or become clogged during use. The filter cloth shall have a minimum grab tensile strength of 120 pounds in air accordance with ASTM D-1682. Fabric furnished shall be specifically selected to prevent existing soil from inter-mixing with the granular backfill material but will allow ground water to enter the granular backfill material.

2.02 CLASSIFICATION

A. Unclassified Excavation. Unclassified excavation shall consist of the excavation and disposal of all material, regardless of its nature, shall be used in fill areas only when approved as suitable by the Engineer and shaped and compacted as specified herein. Excess material shall be disposed of off the job site at Contractor's expense.

B. Undercut Excavation. This item shall include the excavation of unsuitable subgrade material as determined by the Engineer. It shall be the Contractor's responsibility to perform compaction efforts on the top 24 inches of existing subgrade prior to authorization for undercutting. Material used to replace "undercut" areas shall be obtained from the grading operations or borrow areas or replaced with granular backfill material as directed by the Engineer.

C. Borrow Excavation. Borrow excavation shall consist of approved material required for the construction of subgrade when insufficient quantity or quality of onsite excavation is available or when unsuitable material is encountered and undercutting is authorized. Borrow materials shall be obtained from Contractor-furnished Borrow area located off the job site.

D. Rock Undercut Excavation. This item shall be the excavation of rock below subgrade (undercut) to a depth as determined by the Engineer. Rock excavation quantities and limits shall be authorized by the Engineer prior to excavation. Material used to replace "undercut" areas shall be obtained from the grading operations or borrow areas or replaced with granular backfill material as directed by the Engineer.

E. Rock Excavation. This item shall be the excavation of rock to a depth as determined by the Engineer. Rock excavation quantities and limits shall be authorized by the Engineer prior to excavation.

PART 3. EXECUTION

3.01 INSPECTION

A. The Contractor shall inspect the site and inform himself of actual grades, levels, and other conditions under which work is to be performed.

3.02 EXCAVATION

A. General Requirements:

1. Excavation shall consist of removal of material for preparing the structures and foundations to the lines and grades indicated, removal of objectionable material, and removal to obtain fill materials for embankments.

2. Excavate to the dimensions and elevations indicated or noted.

3. Excavated material which, in the opinion of the Engineer, is suitable for incorporation in the site and road embankments or other backfills shall be placed directly therein or stockpiled for future use.

4. Materials which are unsuitable as foundation, or site and road embankment or other backfill material, in the opinion of the Engineer, will be ordered wasted and shall be disposed of in approved areas.

5. Shore, brace, sheet, and slope excavations as required to prevent caving, erosion, danger to persons and structures, or interference with construction operations and as required to comply with safety laws.

6. Keep excavations free of water at all times. Grade excavated areas to prevent ponding of water.

B. Provisions for Formwork Construction:

1. Extend excavations sufficient distance from walls and footings to permit replacing and removal of forms, installation of services, and inspection.

2. Trim excavation walls and bottoms to reasonable smooth lines and grades.

C. Earth Forms: Requirements for earth forms for foundations are stated in CONCRETE FORMWORK Section.

D. Over-Depth Excavations: Care shall be exercised not to excavate below the grades shown on the drawings, or as directed by the Engineer. Any such excessive excavation shall be backfilled to grade with suitable earth thoroughly compacted, and by and at the expense of the Contractor.

E. Removal of Below-Grade Construction or Obstructions: Remove all existing construction or obstructions wherever they occur below new grade within immediate area of new construction, new paving, or new planting areas.

F. Undercutting: Hardpan, loose rock, or other material unsatisfactory for subgrades, roads, shoulders, or any areas intended for turfing shall be excavated to a minimum depth of 12 inches (300 mm), or to the depth specified by the Engineer, below the subgrade. Muck, peat, matted roots, or other yielding material, unsatisfactory for subgrade foundation, shall be removed to the depth specified. Unsuitable materials shall be disposed of at locations off site. This excavated material shall be paid for at the contract unit price per cubic yard for undercut. The excavated area shall be refilled with suitable material, obtained from the grading operations or borrow areas or replaced with granular backfill as directed and thoroughly compacted by rolling.

G. Rock Excavating: Rock, shale, boulders, or other rock type material unsatisfactory for subgrades, roads, shoulders, or any areas intended for turfing shall be excavated to a minimum depth of 12 inches (300 mm), or to the depth specified by the Engineer, below the subgrade. Unsuitable materials shall be disposed of at locations off site. This excavated material shall be paid for at the contract unit price per cubic yard for rock excavation. The excavated area shall be refilled with suitable material, obtained from the grading operations or borrow areas or replaced with granular backfill as directed and thoroughly compacted by rolling.

3.03 TOPSOIL REMOVAL

A. After cleaning and grubbing and prior to all other earthwork, in all areas to be cut or filled including the borrow area, remove all of the existing topsoil and soil containing organic matter regardless of the depth, but in no event less than 6 inches below existing ground surface.

B. Stockpile the removed topsoil in an approved location on the project site where the stockpile will not interfere with the project construction, and protect the stockpile from erosion.

3.04 STRIPPING

A. Cut Areas: Before excavating in areas (including borrow areas) from which excavated materials will be used as fill materials, strip all grass, weeds, vegetation, roots, trash, and other unsuitable materials from the existing surfaces to the areas to be cut. Remove all unsuitable materials down to the depths required to reach suitable materials, but at least 6-inch depth.

B. Filled Areas: Before placing fill, strip all grass, weeds, vegetation, roots, trash, and other unsuitable materials from the existing surfaces of the areas to be filled. Remove all unsuitable materials down to the depths required to reach suitable subgrade, but at least to 6 inch depth.

3.05 EMBANKMENT AND BACKFILLING

A. General Requirements:

1. Do not place fill or backfill until forms, rubbish and other deleterious materials have been removed, waterproofing measures completed, and areas have been approved by the Engineer.
2. Scarify surface of area to receive embankment or backfill to a six inch depth. Disc or blade surface until free from large clods. If for any reason this broken surface becomes compacted in such a manner that, in the opinion of the Engineer, a plane of seepage or weakness might be introduced, it shall be thoroughly broken before depositing any material. All scarifying, breaking and compacting of ground surface shall be done parallel to centerline of the site.

3. Bring scarified material to proper moisture content and compact to specified density.

4. Spread fill material in layers not to exceed 6 inch depth before compaction unless compaction of thicker layers is approved by the Engineer. Sprinkle material without sufficient moisture to compact properly; permit material with excess moisture to dry to proper water content. Thoroughly mix soil and water by blading and discing before compacting.

5. Adequately brace and shore footings, walls, etc. against which backfill is to be placed to prevent displacement or damage during placement.

6. Import approved fill if site excavations do not produce sufficient quantity or approved quality.

7. There shall be NO separate payment for suitable materials removed, manipulated, and replaced in order to obtain the required depth of density and all costs shall be considered a subsidiary obligation of excavation. No extra payment will be made for reworking material to obtain specified density even in the event that areas which have been initially accepted for compaction require reworking due to rainfall, drying out or other reasons.

8. No material shall be classified as unsuitable for embankment or backfill solely because of excess moisture. Contractor shall dry such material by scarifying and discing until the proper moisture content is obtained.

9. Compact layer to the specified density. Layers shall be started full out to the slope stakes and shall be carried substantially horizontal with sufficient crown or slope to provide satisfactory drainage during construction.

10. When, in the opinion of the Engineer, the surface of any compacted layer is too smooth to bond properly with the succeeding layer, it shall be scarified and recompacted before the succeeding layer is placed thereon.

11. No embankment or backfill shall be placed on frozen ground.

12. No frozen earth, snow, ice, or other frozen materials shall be placed in the embankment or backfill.

13. All partially completed embankment and backfill shall be kept thoroughly drained and dry.

B. Materials:

1. The embankment and backfill shall be constructed of material excavated from within the project site, borrow material, or granular backfill material.

2. In general, the embankment section shall be homogeneous. However, where materials of varying permeabilities are encountered in the excavation the more impervious material shall be placed towards the interior of the embankment and the more pervious material towards the exterior.

3. In the event a pervious layer of material is encountered in a liquid retaining structure at the indicated bottom elevations the Contractor shall excavate the objectionable material, place it in a suitable location within the embankment, and backfill the structure bottom with suitable material, all as authorized by the Engineer.

4. The pervious materials shall consist of sands and silty sands.

5. The impervious materials shall consist of finer grained materials having a correspondingly lower permeability factor than the pervious material defined above. Soils classified as SC, ML, CL, OL with a plasticity index of 20 or less and a liquid limit of 50 or less.

C. Minimum Compaction Requirements:

1. Compact non-granular fill materials to the density specified below as determined by ASTM D698 (Standard Proctor).
   a. Fill under foundations and concrete floors on grade: 95 percent of optimum.
   b. Fill under paving: 95 percent of optimum.
   c. General Site Fill: 90 percent of optimum.
   d. Other backfill: 90 percent of optimum.

2. Compact granular fill materials for which impact compaction will produce a well-defined moisture-density relationship curve to the density specified below as determined by ASTM D698 (Standard Proctor).
   a. Fill under foundation and concrete floors on grade: 100 percent of optimum.
   b. Fill under paving: 97 percent of optimum.
   c. General site fill: 90 percent of optimum.
   d. Other backfill: 90 percent of optimum.

3. Compact granular fill materials of a free-draining type for which impact compaction will not produce a well-defined moisture-density relationship curve to the density specified below as determined by ASTM D 4253 and D4254.
   a. Fill under foundations and concrete floors on grade: 80 percent of relative density.
   b. Fill under paving: 80 percent of relative density.
   c. General site fill: 70 percent of relative density.
   d. Other backfill: 70 percent of relative density.

4. Do not compact soil in planting areas.

5. If proper compaction techniques or adequate moisture control are not maintained by the Contractor, compactive efforts shall be repeated until satisfactory results are obtained.

D. Compacting:
1. Compact by power tamping, rolling, or combinations thereof as required to meet the compaction specified and as approved by the Architect/Engineer. Where impractical to use rollers in close proximity to structures, pipes, etc., compact by mechanical tamping. Scarify and recompact any layer not attaining compaction until required density is obtained.

3.06 BORROW MATERIALS

A. Borrow Excavation: At Contractor's expense obtain suitable borrow materials from approved sources off of the project site. Before excavating in borrow areas, strip the area as specified hereinbefore. Borrow materials shall be free of wood, rubbish, vegetable matter, topsoil, and other unsuitable and/or non-compactible materials. All borrow pits shall be opened up to expose the vertical face of various strata of acceptable material to enable obtaining a uniform product. Borrow pits shall be excavated to regular lines and they shall be drained and left in a neat, presentable condition with all slopes dressed uniformly.

3.07 MISCELLANEOUS EARTHWORK

A. Spreading Topsoil and Finish Grading:

1. After completion of rough grading and after substantial completion of other construction operations, spread the stockpiled topsoil to a 4 inch uniform depth over all filled areas and all cut areas, except areas which are covered by buildings, structures, or paving.

2. Before placing the topsoil, remove all construction debris, wood, concrete, and masonry materials, and other unsuitable materials, and scarify the underlying surfaces to at least 2 inch depth. Then spread the topsoil and perform all finish grading to the indicated lines and elevations, to provide smooth and uniform final surfaces.

B. Unsuitable Subgrade:

1. Where the required subgrade elevations are uncompactable or otherwise unstable and will not provide satisfactory support for the structure at the indicated soil bearing values, extend the excavations to depths as required to reach a subgrade having at least the indicated soil bearing value. Before placing concrete, backfill the excavations up to the indicated subgrade elevations with one of the granular backfill materials specified in Article 2.01 D, compacted as specified hereinbefore or filled with concrete, all as authorized by the Architect/Engineer.

3.08 EROSION CONTROL

A. Provide temporary silt fences with hay bales between the project site, including borrow areas, and the adjacent drainage system for the purpose of erosion control. Erosion control structures shall conform to applicable local City, County, State and Federal regulations.

B. The temporary silt fence shall consist of woven wire fence attached to posts with geotextile fabric attached to the upper grade side of the fence. The geotextile fabric shall be anchored into the soil.

C. Hay bales shall be placed along the upper grade side of the silt fence for the entire length of the fence. Bales shall be either hay or straw containing a minimum of five cubic feet of material. Bales shall be anchored securely to the ground with wooden stakes driven through the bales into the ground.

D. Maintain the erosion control structure in satisfactory condition until an approved cover of grass is established to prevent erosion, for the duration of the project, or until removal is approved, whichever occurs first.

3.09 GRADING

A. Begin grading only after debris and construction materials are removed from area concerned.

B. Grade areas to conform to contour lines and elevations indicated. Round abrupt changes in slopes. Regrade any areas that have settled to the required levels.

C. Insure finished grades and surfaces drain to area drain, gutters, etc.

D. Prevent erosion of freshly graded areas during construction and until permanent drainage and erosion control measures are installed.

3.10 PREPARATION OF EMBANKMENT AREA

A. Where an embankment is to be constructed to a height of 4 feet (120 m) or less, all sod and vegetable matter shall be removed from the surface upon which the embankment is to be placed, and the cleared surface shall be completely broken up by plowing or scarifying to a minimum depth of 6 inches (150 mm). This area shall then be compacted as indicated in paragraph 3.05,C. When the height of fill is greater than 4 feet (120 m), sod not required to be removed shall be thoroughly disked and recompacted to the density of the surrounding ground before construction of embankment.

B. No direct payment shall be made for the work performed under this section. The necessary clearing and grubbing and the quantity of excavation removed will be paid for under the other items of work.

3.11 FORMATION OF EMBANKMENTS

A. Embankments shall be formed in successive horizontal layers of not more than 8 inches (200 mm) in loose depth for the full width of the cross section, unless otherwise approved by the Engineer.

B. The grading operations shall be conducted, and the various soil strata shall be placed, to produce a soil structure as shown on the typical cross section or as directed. Materials such as brush, hedge, roots, stumps, grass and other organic matter, shall not be incorporated or buried in the embankment.

C. Operations on earthwork shall be suspended at any time when satisfactory results cannot

be obtained because of rain, freezing, or other unsatisfactory conditions of the field. The Contractor shall drag, blade, or slope the embankment to provide proper surface drainage.

D. The material in the layer shall be within +/-2 percent of optimum moisture content before rolling to obtain the prescribed compaction. In order to achieve a uniform moisture content throughout the layer, wetting or drying of the material and manipulation shall be required when necessary. Should the material be too wet to permit proper compaction or rolling, all work on all of the affected portions of the embankment shall delayed until the material has dried to the required moisture content. Sprinkling of dry material to obtain the proper moisture content shall be done with approved equipment that will sufficiently distribute the water. Sufficient equipment to furnish the required water shall be available at all times. Samples of all embankment materials for testing, both before and after placement and compaction, will be taken for each 500 square yards. Based on these tests, the Contractor shall make the necessary corrections and adjustments in methods, materials or moisture content in order to achieve the correct embankment density.

E. Under all areas to be paved, the embankments shall be compacted to a depth of 6 inches and to a density of not less than 97 percent of the maximum density as determined by ASTM D698.

F. The in-place field density shall be determined in accordance with ASTM D1556 or ASTM D2167 or ASTM D2922 and ASTM D3017.

G. Compaction areas shall be kept separate, and no layer shall be covered by another until the proper density is obtained.

H. During construction of the embankment, the Contractor shall route his/her equipment at all times, both when loaded and when empty, over the layers as they are placed and shall distribute the travel evenly over the entire width of the embankment. The equipment shall be operated in such a manner that hardpan, cemented gravel, clay, or other chunky soil material will be broken up into small particles and become incorporated with the other material in the layer.

I. In the construction of embankments, layer placement shall begin in the deepest portion of the fill; as placement progresses, layers shall be constructed approximately parallel to the finished pavement grade line.

J. When rock and other embankment material are excavated at approximately the same time, the rock shall be removed from the project site and the other material shall be used as fill or removed from the site as applicable. Stones or fragmentary rock larger than 4 inches (100 mm) in their greatest dimensions will not be allowed in the top 6 inches (150 mm) of the subgrade. Rock or boulders shall be removed from the site at Contractor's expense.

K. When the excavated material consists predominantly of rock fragments of such size that the material cannot be placed in layers of the prescribed thickness without crushing, pulverizing or further breaking down the pieces, such material shall be removed from the job site.

L. Frozen material shall not be placed in the embankment nor shall embankment be placed upon frozen material.

M. There will be no separate measurement of payment for compacted embankment, or

subgrade and all costs incidental to placing in layers, compacting, disking, watering, mixing, sloping, and other necessary operations for construction of embankments will be included in the contract price for other items.

3.12 FINISHING AND PROTECTION OF SUBGRADE

A. After the subgrade has been substantially completed the full width shall be conditioned by removing any soft or other unstable material which will not compact properly. The resulting areas and all other low areas, holes or depressions shall be brought to grade with suitable select material. Scarifying, blading, rolling and other methods shall be performed to provide a thoroughly compacted subgrade shaped to the lines and grades shown on the plans.

B. Grading of the subgrade shall be performed so that it will drain readily. The Contractor shall take all precautions necessary to protect the subgrade from damage. He/she shall limit hauling over the finished subgrade to that which is essential for construction purposes.

C. All ruts or rough places that develop in a completed subgrade shall be smoothed and recompacted.

D. No subbase, or surface course shall be placed on the subgrade until the subgrade has been approved by the Engineer.

3.13 HAUL

A. All hauling will be considered a necessary and incidental part of the work. Its cost shall be considered by the Contractor and included in the contract unit price for the pay of items of work involved. No payment will be made separately or directly for hauling on any part of the work.

3.14 TOLERANCES

A. General Excavation

1. Excavations shall not exceed 1/10 foot variation from dimensions and elevations shown or noted.

2. Embankment and backfill shall be placed within tolerance of plus or minus 1/10 foot.

3. Grading shall be done within plus or minus 1/10 foot typically.

B. Pavement Bases and Subbases. In those areas upon which a subbase or base course is to be placed, the top of the subgrade shall be of such smoothness that, when tested with a 16-foot (4.8 m) straightedge applied parallel and at right angles to the centerline, it shall not show any deviation in excess of 1/2-inch (12 mm), or shall not be more than 0.05-foot (.015 m) from true grade as established by grade hubs or pins. Any deviation in excess of these amounts shall be corrected by loosening, adding, or removing materials; reshaping; and recompacting by sprinkling and rolling.

3.15 FIELD QUALITY CONTROL

A. Make required inspections and tests including, but not necessarily limited to:

1. Visually inspect on-site and imported fill and backfill, making such tests and retests as are necessary to determine compliance with the Contract requirements and suitability for the proposed purpose.

2. Make field density tests on samples from in-place material as required.

3. As pertinent, inspect and test the scarifying and recompacting of cleaned subgrade; inspect the progress of excavating, filling, and grading; make density tests at fills and backfills; and verify compliance with provisions of the Contract Documents and governmental agencies having jurisdiction.

B. Make and distribute necessary reports and certificates.

C. At Contractor's expense remove, replace, and recompact all embankment and backfill which fails to comply with the specified compaction density requirements.

D. The Contractor Shall Provide the Following:

1. Notify the Engineer 24 hours prior to any excavation, embankment, or backfill operations.

2. Pay costs for additional inspections and tests due to initial noncompliance with Contract Documents.

END OF SECTION

SECTION 02220
TRENCHING AND BACKFILLING

PART 1. GENERAL

1.01 SECTION INCLUDES

A. Section includes materials, equipment, excavation, and installation for the following:

1. Trench Excavation

2. Backfill and Compaction

1.02 RELATED SECTIONS

A. DIVISIONS 0 and 1 - CONTRACT DOCUMENTS AND GENERAL REQUIREMENTS: These shall apply to all work in this section.

B. Section 16112 - UNDERGROUND DUCTS

1.03 REFERENCES

A. Published Specifications, standards, tests, or recommended methods of trade, industry, or governmental organizations apply to work in this section where cited in Section 01090 - REFERENCE DOCUMENTS, and as listed below:

1. IEEE Std 525 - IEEE Guide for the Design and Installation of Cable Systems in Substations.

PART 2. PRODUCTS

2.01 MATERIALS

A. Granular Backfill Materials

1. Material of predominately natural sand or natural sand containing minor amounts of fine gravel, crushed gravel, or stone. Materials shall contain no topsoil, silty or potentially swelling clay, organic material, trash, lumber and sticks.

2. Material shall not contain sharp or angular stone material, and any other rock, stone or foreign material that might damage buried pipe, cable, or similar materials.

3. Use for base for pullboxes, handholes, vaults, etc., or other areas specified by the Contract Drawings as necessary for bedding material for buried equipment.

B. Common Backfill

1. Excavated material developed in the work, containing no topsoil, organic material,

trash, lumber or stick, stones, broken concrete or brick of such size as to damage the Work specified or shown on the Contract Drawings and Specifications.

PART 3. EXECUTION

3.01 EXAMINATION

A. Verify that required trenching has been completed and trenches are clear of obstacles and ready for duct installation.

B. Verify location of all underground piping, substation grounding grid, or other materials within the area to be trenched.

3.02 INSTALLATION

A. Trench Excavation

1. Where well established sod can be removed, it shall be carefully stripped and properly stored away from trenching area so as to prevent damage.

2. Trenches for cables, duct, or grounding grid conductors may be excavated manually or with mechanical trenching equipment. Trenching needed close to existing structures or foundations where damage can occur shall be done manually.

3. Unless otherwise indicated in the Contract Drawings and Specifications, conduit and duct trenches shall be excavated to a minimum depth of twenty-four (24) inches below finished grade.

4. Excavate all cable trenches for single-duct lines to a width of not less than six (6) inches nor more than twelve (12) inches or as shown in the Contract Drawings and Specifications. The trench for 2 or more ducts installed at the same level shall be proportionately wider or as shown in the Contract Drawings.

5. Trench bottoms for ducts without concrete encasement or grounding grid conductors shall be made to conform accurately to grade so as to provide uniform support for the duct along its entire length. The bottom surface of trenches shall be essentially smooth and free from coarse aggregate.

6. Trenches shall be opened the complete length before duct is installed so that if any obstructions are encountered, proper provisions can be made to avoid them.

7. If perched water is encountered, inform Engineer and Owner immediately. Construct trenches or drain system as directed in field by Engineer.

8. For ducts without concrete encasement, a layer of fine earth material as specified in Article 2.01 A of this Document, at least 4 inches thick shall be placed in the bottom of the trench as bedding for the duct. The bedding material shall be tamped and compacted to 100 percent of optimum density and as determined by ASTM D698 (Standard Proctor).

B. Backfilling

1. Compact all materials to 95 percent density as determined by ASTM D698 (Standard Proctor), and 80 percent relative density as determined by ASTM D4253 and D4254 for the granular soils which are of the free-draining type for which impact will not produce a well-defined moisture-density relationship curve.

2. Compact by power tamping, rolling, or combinations thereof as approved by the Engineer. Where impractical to use rollers in close proximity to foundations compact by mechanical tamping. Scarify and recompact any layer not attaining compaction until required density is obtained.

3. Do not allow compaction equipment to come in contact with pipes, conduit, cables, cable trenches, ductbanks, or concrete.

4. Trenches shall not be excessively wet and shall not contain pools of water during backfilling operations.

5. The trench shall be completely backfilled and tamped level with the adjacent surface; except that, when sod is to be placed over the trench, the backfilling shall be stopped at a depth equal to the thickness of the sod to be used, with proper allowance for settlement.

6. Any excess excavated material shall be removed and disposed of in accordance with instructions issued by the Engineer.

7. Where sod has been removed, it shall be replaced as soon as possible after the backfilling is completed. All areas disturbed by the trenching, storing of materials, cable laying, and other work shall be restored to its original condition. The restoration shall include any necessary top soiling, fertilizing, liming, seeding, sprigging, or mulching. The Contractor shall be held responsible for maintaining all disturbed surfaces and replacements until final acceptance.

END OF SECTION

SECTION 02930
LAWNS, GRASSES AND SOD

PART 1. GENERAL

1.01 SECTION INCLUDES

A. Provide all labor, materials, equipment, installation, and tests for all seeding and mulching and/or hydro-seeding/mulching and sodding in accordance with all applicable codes.

1.02 RELATED SECTIONS

A. DIVISIONS 0 and 1 - PROPOSAL DOCUMENTS, MATERIALS CONTRACT AND GENERAL REQUIREMENTS: These shall apply to all work included in this section.

B. DIVISION 2 - SITEWORK.

1.03 DEFINITIONS

A. Finish Grade: Elevation of finished surface of planting soil.

B. Manufactured Soil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.

C. Planting Soil: Native or imported topsoil, manufactured topsoil, or surface soil modified to become topsoil; mixed with soil amendments.

D. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill immediately beneath planting soil.

1.04 PERFORMANCE REQUIREMENTS

A. Areas Requiring Seeding and Mulching, or Sodding:

1. Seeding: all ground surfaces which have been filled, or otherwise disturbed by the work under this contract, and other areas as indicated on the drawings, except types covered by paving, structures, Rip-Rap, or sodding.

2. Mulching: all seeded areas.

B. Seeding and mulching may be accomplished by hydro-seeding/mulching meeting the slope limits at the Contractor’s discretion.

1.05 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Seed Mix recommendations by the State Agriculture Department for the Project Location and date of seeding.

C. Certification of Grass Seed: From seed vendor for each grass-seed mono-stand or mixture

station the botanical and common name and percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.

D. Product Certificates: For soil amendments and fertilizers, signed by product manufacturer.

E. Soil Test Reports: For existing surface soil and imported topsoil.

F. Planting Schedule: Indicating anticipated planting dates for each type of planting

G. Maintenance Instructions: Recommended procedures to be established by Owner for Maintenance of lawns during a calendar year. Submit before expiration of required maintenance periods.

1.06 QUALITY ASSURANCE

A. Test top soil in accordance with the requirements of the local Agricultural Department to evaluate the required and recommended fertilizer to properly germinate the seeding process.

1. Supply written analysis stating N, P, and K requirements, organic matter content, and pH value or soil.

B. The selection of all materials and execution of all preparation required under the Drawings and Specifications shall be subject approval of the Engineer. The Engineer shall have the right to reject any and all materials, all work, which is in his opinion does not meet the requirements Specifications or Drawings at any stage of the operations. Rejected materials shall be removed from the site and shall not be discarded on adjacent sites.

C. The Contractor shall notify the Engineer least 48 hours in advance of the time he intends to begin sowing seed and shall not proceed with such work until permission to do so has been granted. Before starting operation on any area, final dressing shall have been completed in accordance with the provisions of Section 02200 - EARTHWORK. All seeding and related operation shall be continuous operations.

D. Maintenance of Site during Planting: Sidewalks, roads, and other pavement adjacent to planting operation shall be kept clean and free of obstructions, mud and debris at all times. Wheels of vehicles used in work shall be cleaned if necessary. Flushing of streets or disposal of dirt or debris into sewers or drainage ditches will not be permitted. Dust shall be controlled by approved means to the satisfaction of the Engineer.

1.07 DELIVERY, HANDLING, STORAGE

A. Deliver grass seed in original containers showing analysis of seed mixture, percentages of pure seed, year of production, net weight, date of packaging and location of packaging. Damaged packages shall NOT be acceptable on site.

B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

C. Deliver straw or mulch in original bales or bags properly stored in original bags or containers.

D. Deliver sodding on pallets as recommended by ASPA.

1.08 WARRANTY

A. One year after final completion of project, or one year after work on this Section, whichever is the earliest date, lawn shall be solid color well-sodded mat, reasonably free from weeds.

B. Inspection for Beginning of Warranty Period:

1. Inspection of the planting work, to determine its completion for beginning the guarantee period, will be made by the Engineer, and given approval in writing upon notice requesting such inspection by the Contractor.

2. All planting must be alive and healthy in order to be considered complete.

C. Final Inspection and Replacements: Inspection of the planting to determine its final acceptance will be made at the conclusion of the guarantee period. No grassing shall be accepted unless alive and healthy.

PART 2. PRODUCTS

2.01 GROWING MEDIA

A. Topsoil: Natural, fertile, agricultural soil typical of the locality, capable of sustaining vigorous plant growth, from a well drained site free of flooding, not in frozen or muddy condition, not less than 6 percent organic matter, and Ph value of 5.9 to 7.0. Free from subsoil, slag, clay, stones, lumps, live plants, roots, sticks, crabgrass, couch grass, noxious weeds, and foreign matter.

B. Peatmoss: Horticultural grade Class A decomposed plant material, elastic and homogeneous. Free of decomposed colloidal residue, wood, sulphur, and iron. Peatmoss: pH value to 5.9 to 7.0, 60 percent organic matter by weight, moisture content not exceeding 15 percent and water absorption capacity of not less than 300 percent by weight on oven dry basis.

C. Sand: Hard, granular, natural, beach sand, washed, free of impurities, chemical, or organic matter.

D. Fertilizer: 6-12-12 grade Commercial type with 6 percent nitrogen 12 percent P205, and 12 percent K20 or as required by the testing specified hereinbefore, Article 1.03 - QUALITY ASSURANCE. Apply at the rate of not less than ten pounds per 1000 S.F.

E. Lime: Standard agricultural type containing at least 85 percent total carbonates applied at a rate of 4000 pounds per acre (92 pounds per 1,000 square feet) or as required by the test results and recommendation as specified hereinbefore.

2.02 SEED

A. Seed Mix recommendation for the location of the Project, slope of the seeded area, and date of seeding shall be obtained from the State Department of Agriculture. This recommendation shall be submitted to the Engineer for approval.

B. After review of the State Department of Agriculture recommendations, the Engineer may select the following Seed Mix:

1. Seed shall be uniform mixtures of the following kinds and properties:

	GROUP A		GROUP B		GROUP C	
KIND	%BY WT.	LBS/ ACRE	% BY WT.	LBS/ ACRE	% BY WT.	LBS/ ACRE
Hulled Bermuda	20	17	30	25.5	-	-
Kentucky 31 Fescue	40	34	45	38.25	15	12.7
English Rye	20	17	25	21.25	50	42.5
Lespedeza, Common or Korean	20	17	--	--	35	29.75
TOTAL	100	85	100	85	100	85

2. Times of sowing and seed mixtures required:

a. February 1 to August 1: use Group A only.

b. Month of August only: use either Group A or Group B.

c. September 1 to December 1: use Group B only.

d. December 1 to February 1: Use Group C only.

2.03 MULCHES

A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley. Hay or chopped cornstalks are not acceptable.

B. Fiber Mulch: Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic; free plant-growth or germination inhibitors; with maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.

C. Nonasphaltic Tackifier: Colloidal tackifier recommended by fiber-mulch manufacturer for slurry application; nontoxic and free of plant-growth or germination inhibitors.

2.04 EROSION CONTROL MATERIALS

A. Erosion Control Blankets: Biodegradable wood excelsior, straw, or coconut-fiber mat enclosed in a photodegradable plastic mesh. Include manufacturer's recommended staples/stakes, 6 inches long.

1. For Slopes 4:1 to 3:1: North American Green S75 or Engineer approved equal.
2. For Slopes 3:1 to 2:1: North American Green S150 or Engineer approved equal.
3. For Slopes 2:1 to 1:1: North American Green SC150 or Engineer approved equal.

D. Erosion-Control Fiber Mesh: Biodegradable twisted jute or spun-coir mesh, a minimum of 0.92 lb/sq. yd. with 50 to 65 percent open area. Include manufacturer's recommended staples, 6 inches long.

E. Hydro-Mulch: Biodegradable mixture of all natural fibers, tackifiers, and other additives suitable for incorporation of seed and fertilizer mixtures.

1. For Slopes 4:1 to 3:1: North American Green HydroCM or Engineer approved equal.
2. For Slopes 3:1 to 2:1: North American Green HydroCX2 or Engineer approved equal.

2.05 SODDING MATERIALS

A. Obtain sod from reasonable fertile loamy topsoil areas where the sod has a good cover of living or growing Bermuda grass; sod shall be free of weeds, rocks, roots, and other materials which could interfere with the sod development and its future maintenance. Remove sod in conveniently handled equal width rectangular sections, with native soil retained on roots.

B. Water: clean, fresh, and free of substances or matter which would inhibit vigorous growth of grass.

PART 3. EXECUTION

3.01 PREPARATION

A. Protect existing underground improvements from damage.

B. Remove foreign materials, plants, roots, stones, and debris, from site. Do not bury foreign material.

C. Remove contaminated subsoil.

D. Cultivate to depth of 3 inches, area to receive topsoil. Repeat cultivation areas where equipment has compacted subgrade.

3.02 SPREADING TOPSOIL

A. Spread topsoil to depth of 4 inches over all areas to be seeded or sodded. Place during dry weather, and on dry unfrozen subgrade.

B. Cultivate topsoil to depth of 4 inches with mechanical tiller. Cultivate inaccessible areas by hand. Rake until surface is smooth.

C. Remove from site, foreign materials collected during cultivation.

D. Grade to eliminate rough spots and low areas where ponding may occur. Maintain smooth, uniform grade as indicated.

3.03 FERTILIZING

A. Apply fertilizer at a rate of not less than ten pounds per 1000 square feet in formulation and quality required by soil analysis or to the above minimum requirements.

B. Apply after fine grading, mix thoroughly into upper 2 inches (50 mm) of topsoil.

C. Lightly water to aid the breakdown of fertilizer.

D. Apply fertilizer within 48 hours before laying sod.

3.04 SEEDING

A. Apply seed at a rate of 1.95 pounds per 1,000 square feet or 85 pounds per acre.

B. Broad cast half the seed with a mechanical spreader and then broadcast the remaining half of the seed at right angles to the first seeding pattern using a mechanical spreader.

C. Cover seed to a depth of 1/8" by raking or harrowing.

D. Do not sow immediately following rain, when ground is too dry, or during windy periods.

E. Roll seeded area with roller not exceeding 112 pounds (50 kg).

F. Apply water with fine spray immediately after each area has been sown.

3.05 MULCHING

A. Mulching: Cover the seeded areas specified below with a one inch minimum thickness layer of weed-free straw or other approved mulch, and wet the mulch thoroughly.

B. Watering and Maintenance: Water and maintain the seeding until satisfactory grass growth has been established, and at least until final project acceptance.

C. Protect seeded areas by mulching and/or erosion control blankets as required:
   1. For Slopes not exceeding 6:1: Straw mulch spread uniformly to form a continuous blanket 1-1/2” to 2” thick.
   2. For Slopes 6:1 to less than 4:1: Straw mulch with fiber mesh as required.
   3. For Slopes 4:1 to less than 3:1: Erosion control blanket or hydro-mulch.
   4. For Slopes 3:1 to less than 2:1: Erosion control blanket or hydro-mulch.
   5. For Slopes 2:1 to less than 1:1: Erosion control blanket.

D. Hydro-Mulch and seeding: Mix specified seed, fertilizer, and fiber mulch in water in accordance with manufacturer’s instructions. Equipment shall be approved by the hydro-mulch manufacturer for the application of the materials.

3.06 CUTTING AND LAYING SOD

A. Cut sod using an approved method, in accordance with local governing American Sod Producers Association. Cut sod in pieces not exceeding one square yard, with minimum 2 inch and maximum one inch soil portion. Transport sod within 24 hours after it is

stripped.

B. Lay sod closely knit together with no open joints visible and pieces not overlapped. Lay smooth and flush with adjoining grass areas, paving, and top surfaces of curbs.

C. On slopes 2:1 and steeper, lay sod perpendicular to slope and secure every row with wooden pegs at maximum 2 feet on center. Drive pegs flush with soil portion of sod.

D. Immediately water sodded areas after installation. Water in sufficient amounts to saturate sod and upper 4 inches of soil.

E. After sod and soil has dried sufficiently to prevent damage, roll sodded areas to insure good bond between sod and soil and to remove minor depressions and irregularities. Insure rolling equipment weight not over 250 pounds (113 kg) or less than 150 pounds (68 kg).

F. Maintain sodded areas immediately after placement until grass is well established and exhibits a vigorous growing condition and until acceptance by the Owner or the Owner's Representative.

3.07 MAINTENANCE PERIOD

A. Maintain surfaces and supply additional topsoil where necessary, including areas affected by erosion.

B. Water to insure uniform seed germination and to keep surface of soil damp.

C. Water sod when required and in sufficient quantities to prevent grass and underlying soil from drying out.

D. Apply water slowly so that surface of soil will not puddle and crust.

E. Replant damaged grass areas showing root growth failure, deterioration, bare or thin spots, and eroded areas.

F. Control growth of weeds. When using herbicides, apply in accordance with manufacturer's recommendations. Remedy damage resulting from negligent or improper use of herbicides.

3.08 RESTORATION

A. Restore pavement, concrete, grassed areas, planted areas, and structures damaged during execution of work, of this section.

3.09 ACCEPTANCE

A. Seeded and mulched areas will be accepted at end of maintenance period when seeded areas are properly established and otherwise acceptable.

B. If in the opinion of the Engineer that any seeded areas do not show a uniform or healthy stand of grass, the Contractor shall reseed and/or re-fertilize those areas as directed without any additional cost to the Owner.

END OF SECTION

SECTION 16112
UNDERGROUND DUCTS

PART 1. GENERAL

1.01 SECTION INCLUDES

A. Section includes materials, equipment, fabrication, and installation for the following:

1. Underground Conduit & Duct Systems.

1.02 RELATED SECTIONS

A. DIVISIONS 0 AND 1 – CONTRACT DOCUMENTS AND GENERAL REQUIREMENTS: These shall apply to all work in this section.

B. Section 02200 – EARTHWORK

C. Section 02220 – TRENCHING AND BACKFILLING

D. Section 16114 – MANHOLES AND HANDHOLES

1.03 REFERENCE STANDARDS

A. Published Specifications, standards, tests, or recommended methods of trade, industry, or governmental organizations apply to work in this section where cited in Section 01090 – REFERENCE STANDARDS and listed below:

1. IEEE Std. 525 – IEEE Guide for the Design and Installation of Cable Systems in Substations.

1.04 DEFINITIONS

A. National Electric Safety Code (2002), Section 32: "NOTE 1: While it is often the practice to use **duct** and **conduit** interchangeably, **duct**, as used herein, is a single enclosed raceway for conductors or cable; **conduit** is a structure containing one or more ducts; and conduit system is the combination of conduit, conduits, manholes, handholes, and/or vaults joined to form an integrated whole."

1.05 SUBMITTALS

A. Shop drawings and manufacturer's literature shall be submitted for approval in accordance with Section 01300 – SUBMITTALS and Section 01340 – SHOP DRAWINGS.

B. Submittals shall consist of, but not limited to the following:

1. Manufacturer Catalog Data Sheets.

2. Contractor shall prepare and submit for approval preliminary mix design for each class of concrete specified and used under this section.

3. Contractor shall prepare and submit for approval duct/conduit system backfill mix design used under this section

4. Contractor shall name his source of supply for concrete materials and submit cement and reports of quality tests for approval, as required in Section 03300 – CAST-IN-PLACE CONCRETE and Section 03800 – CONCRETE TEST AND INSPECTIONS.

C. Final Drawings shall be provided prior to shipment in accordance with Section 01720 – PROJECT RECORD DOCUMENTS.

D. As-Built Record Drawings: As-Built Record Drawings include coordinates (same reference coordinate system as incorporated into the Contract Drawings) of point of tangent, end points of ducts, duct banks, and conduit systems, beginning and end points deviations from a straight line, several mid points of long sweep turns, and top of duct or duct bank elevations. Measurements within the substation fence may be referenced to the center of a minimum of two foundations or survey coordinate system referenced to the permanent construction benchmark. Ducts and duct banks located outside of the substation shall be referenced to appropriate state plane coordinate system and permanent construction benchmark within the substation.

PART 2. PRODUCTS

2.01 MATERIALS

A. Ducts:

1. General:

a Conduits shall be complete with all couplings, adaptors, bends, and supports as required or shown on the Contract Drawings. All couplings and fittings shall be the products of the conduit manufacturer and shall be secured to the conduit with an adhesive in strict accordance with the manufacturer's recommendations.

b Conduit shall be straight and true and shall be furnished in lengths of 20 feet. A cross section taken at any point perpendicular to duct shall not vary more than 1/8 inch from a true circle.

2. Control and Low Voltage (600 volts and below) Ducts:

a Ducts for direct burial Control and Low Voltage underground duct bank/conduit systems shall be electrical grade PVC Schedule 40. The conduit size shall be as indicated on the Contract Drawings.

3. Medium Voltage Ducts:

a Ducts for direct burial Medium Voltage underground duct bank/conduit systems shall be electrical grade PVC Schedule 80 and Schedule 40. The conduit size shall be as indicated on the Contract Drawings. Schedule 80 shall be used from 18" below grade up to termination of vertical riser.

B. Direct Burial Duct/Conduit System Backfill:

1. Control and Low Voltage (600 volts and below) Ducts: Use Natural Earthen Backfill.

2. Medium Voltage Ducts: Use Natural Earthen Backfill.

2.02 ACCESSORIES

A. End bells are required to provide smooth and rounded surfaces at the edge of the duct to prevent injury to the cable during normal movement. End bells shall also be provided where conduits enter manholes or building walls.

B. Non-metallic duct spacers shall be used for the construction of the duct bank.

PART 3. EXECUTION

3.01 EXAMINATION

A. Verify that required trenching has been completed and trenches are clear of obstacles and ready for duct installation.

3.02 PREPARATION

A. All field cuts of PVC ducts shall be made with a saw or other tool designed for the purpose. Cuts shall be smooth and square to conduit axis. The cut end of conduit shall be reamed smooth. Field-cut conduits shall be joined with double-ended couplings designed for the purpose.

B. Each threaded joint shall be cleaned to remove all of the cutting oil before the application of a thread compound.

3.03 INSTALLATION

A. General:

1. As-Built record drawings shall be kept current during the construction work. Drawing data shall include: end points of ducts, duct banks, and conduit systems, beginning and end points deviations from a straight line, several mid points of long sweep turns, and top of duct or duct bank elevations.

2. Conduit system and ducts shall be installed as indicated on Conduit and Cable Plan Drawings and Conduit and Cable Schedule.

3. Conduit shall be installed in not less than 20-foot lengths, except at the ends of runs or at bends. Conduit shall be free of cracks and chipped ends.

4. Duct bank shall be laid in such a manner as to allow any water in duct system to drain to one of the adjacent manholes.

5. Conduit shall be installed with a minimum continuous slope of 3 inches per 100 feet. Conduit shall slope downward from one manhole to the next or in both directions

from a high point between the manholes. Pockets or traps where moisture may accumulate shall be avoided.

6. Top of Control and Low Voltage power (600 volt and below) conduit shall be a minimum of eighteen (18) inches below subgrade or twenty-four (24) inches below final grade or as shown on Contract Drawings.

7. Top of Medium voltage power (601 volt and above) conduit shall be a minimum of forty-two (42) inches below subgrade or forty-eight (48) inches below final grade or as shown on Contract Drawings.

8. All ducts shall be tightly joined and sealed with PVC rated sealer/cement to be approved by the Engineer. Joints shall be staggered approximately 12 inches with spacers approximately 6 feet apart. Any duct section having a defective joint shall not be installed.

9. Duct bank/conduit systems composed of multiple ducts shall be constructed with non-metallic spacers manufactured for the purpose. Contractor shall request specific approval from the Engineer for alternate construction methods.

10. Duct bank/conduit systems to be concrete encased shall be secured to the bottom/sides of the trench to prevent movement or floating during placement of concrete.

11. Any use of rebar, wire ties, or other metallic materials to construct or secure the duct bank shall not form any metallic loop around one (1) or more ducts of a multiple duct conduit system.

12. Contractor shall request specific approval from the Engineer of the use of metallic duct fittings, couples, sections, elbows, etc. unless required by the Contract Drawings.

13. Duct bank/conduit system shall be direct buried with the specified backfill or concrete encased as indicated on the Contract Drawings. Backfill within the ducts is specified in this Section 16112. Backfill **over** the Duct Bank/Conduit System shall be as specified in Section 02220 – TRENCHING AND BACKFILLING or as indicated in the Contract Drawings.

14. All duct encased in concrete shall have their ends plugged or capped.

15. Spare ducts, as shown on Contract Drawings, shall be sealed with plugs manufactured by the conduit vendor for this purpose.

16. All ducts installed shall be provided with a nylon pull rope for pulling cables to be installed.

17. Conduits terminating in equipment, enclosures, and control house shall be sealed with appropriated duct seal material to prevent condensation.

18. Medium voltage distribution circuit duct lines shall be installed in separated trenches except where duct lines enter or exit manholes. Maintain a minimum of twenty-four (24) inches between duct banks/conduit systems or as shown on the Contract Drawings.

19. Horizontal or vertical changes in direction, within duct runs, exceeding a total of 15 degrees shall be accomplished by long sweep bends having a minimum radius of curvature of 60 inches, or as shown on the Contract Drawings.

20. Control and low voltage power conduits/ducts shall use manufactured elbows having a minimum radius of 36 inches, or as shown on the Contract Drawings, for the vertical run at the end of the conduit run. Standard radius bends or elbows of smaller radius or other fittings shall not be used.

21. Medium voltage power conduits/ducts shall use manufactured elbows having a minimum radius of 42 inches, or as shown on the Contract Drawings, for the vertical run and the end of the conduit run (e.g. equipment foundation or riser pole). Standard radius bends or elbows or smaller radius or other fittings shall not be used.

3.04 ADJUSTING

A. When changes in the formation of a bank of conduits within a duct run are necessary, the transition shall be accomplished in as straight alignment as possible, maintaining continuous earth support under the conduits.

3.05 CLEANING

A. After the installation is complete, a flexible duct rodding device shall be passed through each completed conduit to check for continuity and cleanliness.

B. Following the duct rodding device, a mandrel not loess than ¼ inch smaller than the inside diameter of the conduit preceded by a wire brush tied to the same string shall be pulled through the conduit once in each direction.

C. If difficulty is encountered in passage of the duct rodding device or mandrel, a series of wire brushes shall be drawn through the conduit, once in each direction, using a trailing line. The wire brushes shall be 1/8 inch less in diameter than the diameter of the conduit, and if the correct size cannot be passed through on the initial attempt, the operation must be repeated until accomplished as specified.

D. When the conduit is partially or fully obstructed with mud, dirt, or gravel, the duct shall be flushed clean by use of water from a long flushing nozzle attached to a water hose, which shall be pushed into the conduit and applied until the conduit is clear. After cleaning, the procedure outlined above for rodding and wire brushing shall be followed.

E. Any damaged conduit shall be replaced with a new conduit.

END OF SECTION

SECTION 16114
ELECTRIC MANHOLES AND HANDHOLES

PART 1. GENERAL

1.01 SECTION INCLUDES

A. All materials, equipment, fabrication, and installation as required for the following:

1. Precast Concrete Electric Manholes.

2. Precast Manhole Components and Accessories.

1.02 RELATED SECTIONS

A. DIVISION 2 – SITEWORK (All Sections as applicable)

B. DIVISION 3 – CONCRETE (All Sections as applicable)

C. Section 01300 – SUBMITTALS

D. Section 01340 – SHOP DRAWINGS

E. DIVISION 16 - ELECTRICAL

1.03 REFERENCES

A. The latest revisions, unless specified, of the Published Specifications, standards, tests, or recommended methods of trade, industry, or governmental organizations apply to work in this section where cited in Section 01090 – REFERENCE STANDARDS and listed below:

1. ANSI C2 – National Electric Safety Code (NESC).

2. NFPA 70 - National Electrical Code (NEC).

3. AASHTO - American Association of State Highway and Transportation Officials

1.04 SUBMITTALS

A. Manufacturer's Catalog Data: Provide catalog cuts, brochures, circulars, specifications, product data, and printed information in sufficient detail and scope to verify compliance with Project requirements. Specifically provide information on accessories, attachments, racks, inserts, etc.

B. Shop Drawings: Submit certified Shop Drawings for **each type of manhole and/or handhole** from the Manufacturer. The Shop Drawings shall include all equivalent details and information required to verify compliance with Specifications and Contract Drawings. List any deviations, modifications, or proposed changes, however minor. Drawings shall detail salient manhole accessories and appurtenances such as inserts, pulling irons, hangers, cable racks, sump holes, etc. Contractor shall submit two copies of such Shop Drawings to the Engineer/Architect.

PART 2. PRODUCTS

2.01 PRECAST CONCRETE MANHOLE/HANDHOLE

A. All precast concrete products shall be manufactured in a plant especially designed for that purpose. All units shall conform to the specific design characteristics outlined in the Contract Drawings and Specifications, and all manufacturing work shall be done under strict plant controlled supervision.

B. Traffic Rated Manholes/Handholes, as indicated by the Specifications and Drawings shall comply with the HS20-44 per AASHTO Standard Specifications for Highway Bridges, as amended. Design wheel load shall be 16,000 lbs per set of dual wheels (32,000 lbs per axle). The live load shall be that loading which produces the maximum shears and bending moments in the structure.

C. Precast concrete manholes shall have the required strength as established by ASTM C478.

D. Precast concrete manholes shall be constructed with 4500-PSI concrete.

E. Manhole Casting/Frames and Covers shall be supplied by the precast manhole manufacturer at strength and loadings equivalent to those specified for the precast manhole.

F. Precast Concrete Riser Rings (Donuts): Precast concrete riser rings shall be manufactured by the precast manhole manufacturer at strength and loadings equivalent to those specified for the precast manhole.

G. Removable manhole deck lids shall have the weight of the deck lid imprinted into the deck lid adjacent to the cast manhole cover.

2.02 ACCESSORIES

A. Precast electric manholes shall be equipped with pull irons, inserts, hangers, anchor bolts, etc., as shown on the Contract Drawings.

B. Precast electric handholes shall be equipped with covers, pull eyes, and knockouts, as indicated within the Contract Drawings.

C. Pulling irons: Providing pulling irons as installed by the precast manhole manufacturer and shall be equal to P1-1 (HYTREL™) by Pennsylvania Insert Corporation. Pulling irons shall be located opposite all manhole faces with duct entrances or locations identified in the Contract Drawings and Details. Pulling irons shall be capable of supporting 5,000 pounds tension load.

D. Sump Hole Frame and Cover: Metal grille type frame and cover as provided by the manhole manufacturer or as shown on the Contract Drawings and Details.

E. Duct Terminators: Duct terminators shall be PVC, pre-manufactured for the specific purpose and pre-cast into the walls of the manholes as shown on the Contract Drawings.

F. Cable Support: Contractor shall provide and install Non-metallic Underground Devices CR36 series cable support brackets with RA series support arms.

PART 3. EXECUTION

3.01 GENERAL INSTALLATION REQUIREMENTS

A. Equipment, materials, and devices shall be installed in accordance with the Manufacturer's published instructions and the requirements of the Contract Documents and Contract Drawings. Except as covered herein, excavation, trenching, and backfilling shall conform to the Specifications and Contract Drawings.

B. Verification of Dimensions: The Contractor shall become familiar with the details of the Work, shall verify dimensions in the field, and shall advise the Owner of any discrepancy before performing the Work. Verify that required excavation has been completed and excavation is clear of obstacles and ready for manhole and/or handhole installation.

3.02 PRECAST ELECTRIC MANHOLES

A. General Requirements: Manholes shall be located approximately where shown on the Contract Drawings. The exact location of each manhole shall be determined after careful consideration has been given to the location of other utilities, existing appurtenances, ground elevations, etc. The Engineer/Architect shall approve the location of the manhole before excavation is started. **At no time shall a manhole be installed outside of OWNER acquired easements or road right-of-way.** Manhole entryways and excavations shall be properly roped/taped off and/or barricaded to prevent entry or access by the public.

B. Installation (unless otherwise indicated in Drawings): The Contractor shall excavate a hole large enough to accommodate the outside dimensions of the manhole plus a minimum of 12 inches of clearance on every side. Remove unstable soil that is incapable of supporting the structure to an over-depth of at least one foot and refill with bedding material. Stabilize soft, weak, or wet excavations. Prior to setting manhole, the Contractor shall provide a minimum of six inches of stone bedding as base to receive the manhole. The base material shall be compacted to 90% of ASTM D1557 and graded level at the proper elevation to set the manhole in relation to duct bank grade and ground cover requirements. Manholes shall be set in place with the manufacturer's boom equipped truck or with a crane in a manner which will prevent damage and chipping/cracking of the precast concrete. The top surface of the manhole shall be a minimum of 24 inches below finished grade. The top surface of the manholes at switchgear locations shall be 4" above finish grade. Earth cover over the manhole shall not exceed 4 feet of soil. Precast riser rings (donuts) shall be installed to elevate the manhole frame and cover to the required finish grade. The top of the manhole frame and cover shall be approximately ½ inch above the finished grade and in no instance will surface water stand on the manhole cover. Manhole frame shall be set in a suitable bed of mortar. Where duct lines enter manholes, a terminator bank provided by the manhole manufacturer shall be utilized to provide a watertight seal for each conduit. A cast metal grille type frame and cover shall be provided and installed over the sump hole.

C. In the case of two piece manholes, provide and install sealant between the two pieces. Use flexible Butyl Rubber sealant #SS-S-00210 or other sealant as recommended by the manhole manufacturer.

D. Removable concrete manhole deck lids shall be installed with a non-adhesive sealer to allow easy removal of the deck lid.

E. Backfilling:

1. Roadways and other traffic ways.
   a Area around manhole shall be backfilled with No. 67 stone (AASHTO Table M-23) in 12″ lifts. Compact all backfill surrounding ducts, conduits, and other structures to 90 percent of ASTM D1557 maximum density except compact the top 12″ of subgrade to 95 percent of ASTM D1557 maximum density. Backfill to permit the rolling and compacting of the completed excavation with the adjoining material, providing the specified density necessary to enable paving of the area immediately after backfilling has been completed. Compaction requirements for materials in pavement sections above the subgrade level shall be as specified in the appropriate pavement Specification Section.
   b Roadway or traffic area base section shall be matched as to gradation, compaction, and grades for pavement or pavement repair.

2. Earth areas and non-traffic areas.
   a Area around manhole/handhole shall be backfilled in layers not to exceed eight inches in thickness with excavated material developed in the work, containing no topsoil, organic material, trash, lumber or stick, stones, broken concrete or brick or as shown on the Contract Drawings and Specifications.
   b Compact all materials to 95 percent density as determined by ASTM D698 (Standard Proctor), and 80 percent relative density as determined by ASTM D4253 and D4254 for the granular soils which are of the free-draining type for which impact will not produce a well-defined moisture-density relationship curve.
   c Compact by power tamping, rolling, or combinations thereof as approved by the Engineer. Where impractical to use rollers in close proximity to foundations compact by mechanical tamping. Scarify and re-compact any layer not attaining compaction until required density is obtained.
   d Do not allow compaction equipment to come in contact with pipes, conduit, cables, cable trenches, ductbanks, or concrete.
   e Backfill shall be completed to the lines and grades shown on the Contract Drawings and Specifications.
   f Backfill areas shall not be excessively wet and shall not contain pools of water during backfilling operations.
   g The manhole shall be completely backfilled and tamped level with the adjacent surface; except that, when sod is to be placed over the trench, the backfilling shall be stopped at a depth equal to the thickness of the sod to be used, with proper allowance for settlement.
   h Any excess excavated material shall be removed and disposed of in accordance with instructions issued by the Engineer.
   i Where sod has been removed, it shall be replaced as soon as possible after the backfilling is completed. All areas disturbed by the manhole, handhole, trenching, storing of materials, cable laying, and other work shall be restored to its original condition. The restoration shall include any necessary top soiling, fertilizing, liming, seeding, sprigging, or mulching. The Contractor shall be held responsible for maintaining all disturbed surfaces and replacements until final acceptance.

F. Interior Requirements: Once manholes are set in place they shall be kept free of trash, debris, concrete, soil, etc. Contractor will be responsible for cleaning out manholes and removing trash, debris, concrete, soil, etc., before beginning cable-pulling operations. The

Contractor shall keep manhole pumped free of standing water before, during, and after cable pulling operations until such time as watertight cable splices, joints, terminations are completed and accepted by the Engineer. Cable shall be securely supported from the walls of the manhole by cable supports and insulated cable clamps as specified herein. Cable supports shall be mounted to the manhole walls at points provided by the manhole manufacturer. When specified, junction racks shall be installed at points provided by the manhole manufacturer or with anchors recommended by the manhole manufacturer and at locations detailed but the Drawing or as otherwise provided by the Engineer/Architect and/or Resident Project Representative.

G. When duct terminators for non-encased duck banks are field installed in the Manhole "window", concrete forms shall be used on both interior and exterior of the manhole wall to provide a smooth exterior wall for possible future core drilling.

H. Each shall have a suitable opening for a ground rod. Conduit, ground rod entrances, and unused openings shall be properly sealed to prevent moisture entrance. Contractor shall install ground rod as shown on the Contract Drawings.

3.03 HANDHOLES AND PULLBOXES

A. Handholes and/or pullboxes: Handholes and/or pullboxes shall be located approximately as shown. Handholes and pullboxes shall be provided and shall be installed by the Contractor in accordance with Contract Drawings and as otherwise detailed. Handhole and pullbox tops shall be flush with sidewalks or curbs or placed ½ inch above surrounding finish grades when remote from curbed roadways or pavements. Each shall have a suitable opening for a ground rod. Conduit, ground rod entrances, and unused openings shall be properly sealed to prevent moisture entrance.

B. Interior Requirements: Once handholes and/or pullboxes are set in place they shall be kept free of trash, debris, concrete, excess soil, etc. Contractor will be responsible for cleaning out handholes and pullboxes and removing trash, debris, concrete, excess soil, etc., before beginning cable pulling operations. The Contractor shall keep handhole and pullboxes pumped free of standing water before, during, and after cable pulling operations until such time as watertight cable splices, joints, or terminations are completed.

C. Coordinate handhole and pullbox cover logos with owner, AT&T, Comcast, C-Spire, Select Connect, Windstream, and Tupelo Water & Light.

END OF SECTION

SECTION 16370
OVERHEAD LINE CONSTRUCTION

PART 1. GENERAL

1.01 SECTION INCLUDES

A. Overhead electric system line construction.

B. Furnishing necessary equipment and incidental materials to install the specified assemblies in the quantities required by the Contract Drawings and these Specifications to provide a complete and working installation.

C. Basic methods and test reports.

D. Installation of suitable aggregate, concrete, or earth backfill.

E. Removals of existing facilities as shown in the Contract Drawings.

1.02 RELATED SECTIONS

A. DIVISIONS 0 and 1 – CONTRACT DOCUMENTS AND GENERAL REQUIREMENTS: These shall apply to all work included in this section.

B. Section 01013 – SUMMARY OF WORK.

C. Section 01027 – MEASUREMENT AND PAYMENT.

D. Section 16372 – OVERHEAD LINE MATERIALS

1.03 REFERENCES

A. Published Specifications, standards, tests, or recommended methods of trade, industry, or governmental organizations apply to work in this section where cited in Section 01090 – REFERENCE STANDARDS and in the listing below:

1. "The Lineman's and Cableman's Handbook", McGraw-Hill Publishing Company.

2. "National Electric Safety Code", ANSI – C2 (NESC).

3. "NFPA 70 National Electrical Code – 2002 Edition", National Fire Protection Association.

4. "Guide to Transmission and Distribution Standards and Specifications", Tennessee Valley Public Power Association.

5. "Specifications and Drawings for 12.47/7.2 kV Line Construction", Rural Utilities Service Bulletin 1728F-804.

6. Alabama Highway Department Standard Specification for Highways and Bridges,

Section 825, Crushed Aggregate Base Materials, Type A.

7. Mississippi Standard Specification Road and Bridge Construction, Section 703.062 Dense-Graded Crushed Stone.

8. Tennessee Department of Transportation Standard Specifications for Road and Bridge Construction, Section 903.05, Aggregate for Mineral Base and Surface Courses, Grading D.

9. ASTM C29 Unit Weight of Aggregate
   ASTM C33 Standard Specification for Concrete Aggregates
   ASTM C136 Sieve or Screen Analysis of Fine and Coarse Aggregate

1.04 SUBMITTALS

A. Submittal information and shop drawings shall be submitted for approval in accordance with Section 01300 – SUBMITTALS and Section 01340 – SHOP DRAWINGS.

1. Sagging method chosen, proposed procedure, and test results.
2. Aggregate gradation purchase document.

1.05 ASSEMBLY GUIDE DRAWINGS AND PROJECT CONSTRUCTION DRAWINGS

A. The Construction Drawings are diagrammatic indicating major items of materials and general arrangement of assemblies to establish a standard of construction.

B. Conditions encountered in the field may vary from those shown on Contract Drawings, and the construction shall be modified as required to accommodate the field conditions involved. The general arrangement of circuits and clearances indicated on the assembly guide drawings shall be maintained. The Engineer shall approve any deviation from Contract Drawings prior to construction.

1.06 ASSEMBLY UNIT BASIS

A. The Construction assemblies are on a unit basis so that the Owner may authorize any combination, addition or deletion, or construction units desired.

B. The descriptions apply to those assemblies on the project drawings and assembly guide drawings and includes all necessary labor and incidental installation materials required to install the assemblies complete. Unit descriptions are provided in Section 01027 – MEASUREMENT AND PAYMENT.

1.07 WARRANTY

A. All labor, materials, and equipment supplied under this specification shall be warranted as outlined in the GENERAL CONDITIONS.

PART 2. PRODUCTS

2.01 COARSE AGGREGATES

A. ASTM C33 No. 67 gradation.

B. If filler, in addition to that naturally present in the aggregate material, is necessary for satisfactory compaction, it shall be uniformly blended with the aggregate material at the crushing plant.

C. If the additional filler is composed of sand, the amount of sand shall not exceed 20 percent by weight of the total combined aggregate.

2.02 CONCRETE

A. Portland Cement ASTM C150: Type 1.

B. Coarse and Fine Aggregates: ASTM C33.

C. Water: Clean and free of injurious amounts of oil, alkali, organic matter, or other deleterious materials.

D. Mix: Compressive Strength (7 day) 2100 psi.
Compressive Strength (28 day) 4000 psi.

E. Provide air entraining admixture conforming to ASTM C260.

F. Slump: Three inch maximum, one inch minimum.

2.03 WETHERING SEVERITY

A. Provide materials in accordance with ASTM C33 table 3 to the requirements for Class 3S weathering regions.

B. Do not use crushed concrete or recycled concrete for materials.

PART 3. EXECUTION

3.01 GENERAL

A. Existing Underground Installations:

1. Existing underground installations such as water lines, gas mains, and sewers in the vicinity of pole foundation drilling locations are indicated on the Drawings only to the extent that such information has been made available to or discovered by the Owner/Engineer in preparing the 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.

2. The Contractor shall be solely responsible for locating all existing underground installations prior to drilling pole holes. The Contractor shall use his own information as shall not rely upon any information indicated on the Drawings concerning existing underground installations.

3. The Contractor will be held responsible for any interruption in the service of underground facilities resulting from his operations, unless the facilities owner has given specific approval for the interruption in each case.

4. Except where the damaged parties desire to conduct their own repair and restoration work, the Contractor shall repair and fully restore any underground facility damaged during the construction period to a condition equal to or better than that which existed at the time of damage. All repair and restoration work shall be done to the complete satisfaction of the damaged parties and the Owner.

5. The Contractor shall make his own arrangements with any jurisdictional authority requiring inspection of repaired or reconditioned utility facilities. All inspection fees applicable shall be pain by the Contractor.

6. Where the damaged parties desire to conduct their own repair and restoration work, the Contractor shall render all assistance to facilitate this corrective work. The Contractor shall assume all just and reasonable expenses thus incurred by the damaged parties.

7. Each underground facility encountered shall be accurately located on the Project Record Drawings, indicating the original location and relocation, if any. When all work is completed, the marked copy of the Drawings shall be submitted to the Owner as part of the field records.

3.02 POLE INSTALLATION

A. Handle poles carefully. Do not drop them from transportation vehicles. Use appropriate slings. Steel tongs or other grips that cause damage to pole surfaces are not acceptable.

B. The diameter of each pole hole shall be as required for compaction of backfill around the pole, but not less than the pole diameter at the butt plus 6 inches.

C. Pole hole excavation shall include removal of stumps, roots, and other obstructions as necessary to provide a clean hole to the required depth.

D. Poles shall be immediately set and plumbed after hole excavation.

E. The minimum setting depth shall be as follows:

Length of Pole, feet	Setting Feet	Length of Pole, Feet	Setting Feet	Length of Pole, Feet	Setting Feet
25	5.0	55	7.5	85	10.5
30	5.5	60	8.0	90	11.0
35	6.0	65	8.5	95	11.5
40	6.0	70	9.0	100	12.0
45	6.5	75	9.5	105	12.5
50	7.0	80	10.0	110	13.0

1. On a sloping ground, measure the depth of the hole from the low side of the slope.

2. Each pole in single-pole structures and in multi-pole structures on level ground surfaces shall be set no greater than 3 inches of the depth specified in the preceding table. When conditions are encountered that warrant setting depths in excess thereof the Engineer shall be notified prior to setting the pole.

F. Pole hole excavation by hand digging, [blasting,] or other means shall be at the option of

the Contractor.

G. Tamp thoroughly by mechanical method with earth backfill around the poles for the full depth of the hole. Mechanical tamping shall be in maximum 6-inch layers. Bank excess dirt up around the pole. Refill and thoroughly tamp to the ground line any settlement that occurs until completion of the Contract.

H. Poles shall be set in alignment and plumb with and across the line, except at angles where vertical suspension insulators or offset framing is used. Poles set on these type angles unless otherwise indicated shall be offset on the bisector of the angle so that the conductors shall hang directly over the point of intersection and in line with the poles in both directions either side of the angle.

I. Where rocks and gravel larger than 2 inches and without at least 50 per cent soil composition, and where swampy type soils are encountered in hole digging, this shall not be used as backfill. Do not use sod or grassy soil or place foreign objects in the backfill.

J. Each pole shall be set within "1-1/2 inches transversely of the location indicated on the Drawings. Longitudinal location shall be within "1 foot. Vertical alignment of all poles shall be within 3 inch of plumb.

K. When raking is specified, poles shall be raked one inch for each 10 feet of pole out of the ground. Poles shall be raked only upon prior approval from the Engineer.

3.03 WOOD POLES

A. Do not cut the top of poles except under very exceptional conditions and upon prior approval by the Engineer. If the top is cut, cover with an approved pole cap. Do not, under any circumstances, cut off the butt of any pole.

B. Do not frame poles that have sweeps or crooks across the line.

C. Plug all unused holes prior to pole erection using treated wood dowel pins. When holes are enlarged treat the hole with preservative compound of the same type as the pole treatment.

D. The Contractor shall field drill all bolt holes which are required for a complete installation. Where single members are bolted to more than two poles, holes in the center poles shall be drilled only after poles are set. Field drilled bolt holes shall be drilled using a bit with a diameter not larger than 1/16 inch the diameter of the bolt to be inserted.

E. Field drilled holes shall be in line with the strain or at right angles to the assembly they support. Assemblies mounted on uneven pole surfaces shall be adjusted with metal shims or gaining of poles as approved by the Engineer. All field drilled holes, gains, and cut surfaces shall be treated with a preservative compound of the same type as the pole treatment or a liberal amount of 5 percent [pentachlorophenol] [coppernaphthanate compound solution].

F. Gaining of poles, where required, shall be perpendicular to bolt holes and shall not exceed ¼-inch in depth.

G. All structures shall be framed and assembled as indicated on the drawings. Assembly procedures shall minimize the amount of pole climbing that must be done after the

structure is set. Any pole which is badly spurred shall be shaved and brushed with a preservative acceptable to the Engineer.

3.04 TUBULAR STEEL AND CONCRETE POLES

A. All structure components shall be handled with care to prevent damage to the finish. Padded cradles and nylon slings shall be used when handling the structures.

B. Poles shall be lifted by appropriate lifting rigs, utilizing a two point pickup when required. When lifting poles it is important to use lift points indicated by the manufacturer to prevent pole cracking or structural damage.

C. Tubular shafts which are shipped in more than one piece shall be assembled using two jacks placed on opposite sides of the shaft. Shaft assembly shall be performed according to the Manufacturer's instructions, drawings and recommendations.

D. Bolts:

1. Tightening of galvanized bolts shall be done by the "turn-of-nut" method only. A washer shall be used under the element to be turned in tightening.

2. Bolt installation and bolting tools and equipment shall be in accordance with the structure Manufacturer's recommendations. Nuts and bolts shall be handled and installed in a manner that will not damage the galvanized finish. Wrenches which deform the nut or bolt head or which mar the galvanized finish shall be replaced by wrenches acceptable to the Engineer. The Contractor shall replace, without cost to the Owner, all bolts and nuts damaged during installation with new, undamaged bolts and nuts of the same type, size, and quality as the original bolts.

3. Bolted connections shall be drifted to proper position and the holes inspected to ensure that bolt threads will not be damaged by forcing the bolts in place.

4. The Contractor shall make a thorough inspection to ensure that all bolts are tightened and that a locknut has been installed and tightened on each bolt where required.

5. Any structure bolt which has been tightened shall not be loosened and re-tightened. Bolts which have been loosened after tightening shall be discarded and new bolts used in their place. New bolts shall be furnished by the Contractor at no cost to the Owner.

E. All damaged galvanized surfaces shall be cleaned of grease, scale, and all foreign matter and repaired with "AMCO 322 Galvanizing Sticks" or "AMCO 321 Galvanizing Powder" as manufactured by Force Chemicals Division of American Solder and Flux Co., Inc. of Paoli, Pennsylvania, or an acceptable equal material. The touchup galvanizing material shall be applied in strict accordance with the manufacturer's application instructions to provide a uniformly coated surface. The Contractor shall furnish and apply the touchup galvanizing material to any surface where the galvanizing coating is broken or removed. Where practical, the galvanizing repair shall be done before the structures are set. Repair to galvanized surfaces damaged by the Contractor shall be at no cost to the Owner.

F. Where ground-line protection sleeves are furnished, they shall be centered at the

standard depth that allows this protection sleeve to extend below and above the ground-line on individual poles. If the setting dimension or side hill slope causes the sleeve not to be 6" above or below the ground-line, the pole shall have a coating of bitumastic applied at ground-line to extend 1 foot above and below the ground-line.

G. Aggregate Placement:

1. Backfill aggregate shall be placed in compacted 6 inch lifts by means of mechanical or hydraulic tamping.

2. Bank aggregate around the structure to a height 6 inches above existing grade and taper to the edges of the backfilled hole. Refill and thoroughly tamp any settlement that occurs until completion of the contract.

3. Do no place foreign objects in backfill.

H. Concrete Placement:

1. Earthen form work is to be used in stable soils. Where soils are unsuitable, use forms for round columns spirally constructed of laminated plies of fiber similar to Sonotube Fiber Forms, or an approved equal.

2. Where round form work cannot be utilized, Contractor, at his option, may use form work of No. 2 common lumber or better. The form work may be square, but encompass as a minimum the circular diameter indicated in the Contract Drawings. Square form work shall penetrate below grade at least 2 feet, to a depth reached as suitable soils. The square adjoinment to circular shall be a monolithic pour.

3. Slope the exposed concrete to drain away from structure with at least ½ inch of slope reaching to the outer limit of the filled area.

4. Form-work shall not be removed for 24 hours after placement.

I. Structure Stabilization:

1. Structures shall be stabilized by holding, guying, or bracing until placement of special backfill has been completed.

2. When concrete backfill is used the structure shall be supported for at least 72 hours, and no external loads shall be subsequently applied for at least [3] [5] [7] [other] days.

3.05 POLE-TOP ASSEMBLIES

A. Crossarms shall be installed as per the Manufacturer’s installation instructions.

B. Level all support crossarms and conductor supports. Those on tangent construction shall be at right angles to the conductors they support. Balance the conductor loading equally between the supports

C. Field drilled holes shall be in line with the strain or at right angles to the assembly they support. Assemblies mounted on uneven pole surfaces shall be adjusted with metal shims where practical.

D. Install assemblies and equipment rigid and secure, plumb and level, and in alignment with related and adjoining work. Welding or cutting of materials or deviation from Manufacturer recommendations for attachment or support shall be prohibited.

E. Where subsequent alteration, adjustment, or reworking of existing assemblies is required, it shall be performed using materials and workmanship to match those of the original installation; and restored at least to the conditions which existed, unless otherwise indicated.

F. Install new materials and equipment and connect to existing installations, where indicated, with minimum interference to existing facilities.

G. Align suspension units with the bisector of the line angle on vertical angle construction. Insure all cotter keys are in place in suspension units.

H. Extra care shall be exercised during all phases of construction to prevent scarring or abrading the surface of any assembly item. Ladders may be hung from assembly to simplify clipping-in operations; however, the ladder hooks shall be covered with a rubber hose or otherwise padded to prevent damage to the protective coating.

3.06 INSULATORS

A. Exercise care in handling and installing insulators and in assembling suspension units.

B. Each insulator unit shall be inspected and when installed shall be free of cracks, chips, bent pins, and other defects. Defective insulators shall be removed from the work site immediately.

C. All insulators installed shall have surfaces cleaned of all foreign material and porcelain insulators shall be wiped to a bright finish.

D. Install horizontal mounted insulators at right angles to the conductors they support.

E. Deadend insulator strings, when completely assembled, shall have all cotter pins fully seated. Deadend insulator strings must be attached to the structure after setting the poles. The insulator strings shall be hoisted into position with slings or wires in a manner so as not to cause damage.

F. When material items are mounted on each structure prior to setting the poles, the structures shall be supported off the ground before pole setting to maintain clean surfaces and to avoid damage to the assemblies.

3.07 CONDUCTORS AND APPURTENANCES

A. Stringing

1. All poles shall be plumb before stringing conductors.

2. Carefully handle conductors. Do not drag them over sharp objects nor allow them to be stepped upon or run over by vehicles. Avoid kinking, twisting or abrading the conductors in any manner. Inspect the conductor as it is unreeled for cuts, abrasions, and other injuries. Cut out the faulty sections and splice the conductor as

required.

3. Install the conductors and accessories in accordance with Manufacturer's recommendation. Pull the conductors over suitable rollers or stringing blocks. Properly mount on the pole or crossarm to insure proper sagging. Prevent binding while stringing.

4. Conductors shall be strung by controlled-tension method using proper stringing blocks. Conductors larger than 1.0 inches in diameter and ACSR conductors of multiple stranded steel cores shall be strung using neoprene lined or similar type blocks. The stringing equipment shall have groove sizes that will in no way damage the conductor, and capable of maintaining preset tensions and pulling speed. Maintain sufficient continuous tension to keep conductors clear of the ground or obstructions that could cause damage to or by the conductor.

5. The tension on any conductor during stringing shall not exceed 50 percent of the ultimate strength of the conductor at the temperature existing at the time of stringing.

6. When, during the stringing operation, a conductor contacts another conductor, the ground, or some other object which might cause damage, the conductor shall be lowered, wiped clean, and closely inspected by the Engineer to determine the extent of damage. Depending on the severity of damage and the length of the damaged section, repairs shall be made by smoothing of the conductor with fine sandpaper or by cutting out the damaged section and splicing.

7. Locate the cable pullers, tensioners and pulling machines as near midspan as possible. In no case shall the slope of the conductor between the machine and the stringing block at the first structure be steeper than three horizontal to one vertical.

B. Sag Operations and Tests

1. The length of conductor sagged in one operation shall be limited to the length that can be sagged satisfactorily, or as approved by the Engineer.

2. Sag in as level and as average a ground span as possible.

3. Sag all conductors in accordance with Sag Tables that will be furnished by the Engineer. Where new and existing conductors are strung together, sag both conductors with the sag tables, unless otherwise specified by the Engineer.

4. The Contractor may select one of three methods to sag conductor:

a. Transit Method - Use of a transit to accurately measure the sag by calculated angle of sight method, calculated target method, or horizontal line of sight method.

b. Dynamometer Method - Insertion of a dynamometer in line with the sagging equipment to verify actual tension of the line.

c. Stopwatch or Time-Wave Method - measurement of return waves after striking or jerking the conductor to produce an initial wave.

5. In sagging one reel length, the sag of two spans shall be checked. In sagging lengths of more than one reel, the sag of three or more spans near each end and the middle of the length being sagged shall be checked. The length of the spans used for checking shall be approximately equal to the ruling span. At the option of the Engineer,

all spans which exceed the ruling span by 25 percent or more shall be checked for sag; and, at sharp vertical angles, the sag shall be checked on both sides of the angle. The following spans are unacceptable for sagging tests: Inclined spans, tangent to vertical configurations, deadends, tangent to angles, spans with splices,

6. Sagging shall not be performed when wind or other adverse weather conditions prevent satisfactory sagging. Sagging shall not be performed at temperatures below 20 degrees Fahrenheit.

7. The air temperature at the time and place of sagging shall be determined by a certified etched-glass or a highly accurate bimetal thermometer. Record the temperature at which the conductor is sagged and the spans in which sags are measured and furnish this information to the Engineer.

8. The Contractor shall verify the electrical clearances to foreign wire crossings or other supports after sagging operation is complete. Record clearances and submit to Engineer.

C. Clipping In

1. Clipping may begin as soon as the conductor has been sagged. Tape or ink mark a reference point on the conductor measured from the center of the stringing block location. After clipping-in verify that the conductor has not moved from its sagging point. Clipping should progress so as to avoid trapping uneven sags between clipped sections.

2. Long spans, inclined spans, and deadend spans shall be clipped in first, so as to minimize conductor movement. At the option of the Engineer, the Contractor may be directed to also clip in at the mid-point and one-quarter points of sagging operation.

3. Lifting of the conductors shall be done with a hoist and lifting hook that will not notch or severely bend the conductors. The conductor lifting hook should have an elastomer cover so as not to damage the surface of the conductors. The conductors shall not be lifted high enough such that the conductor will creep in adjacent spans.

4. Bundled conductors may be lifted simultaneously be the use of a yoke arrangement supporting the hooks and a single method of lifting.

5. Conductors shall NOT remain in lifting blocks for more than 72 hours to avoid damage to conductors or sheaves.

6. If shown on the Contract Drawings, dampers shall be installed immediately after clipping to prevent possible wind vibration damage.

D. Conductors shall be cut out and spliced in any location where damage on the cable has occurred. Repair sleeves may be used to repair damaged conductor when the damage is concentrated in a small area or when the number of broken strands is less than 10% of the strands on the outer layer. Any damaged location shall be reported to and reviewed by the Engineer, prior to repair.

3.08 SPLICES AND TIES

A. New conductors shall not have more than one splice per conductor in any span. Do not locate splices in new conductor within 10 feet of any conductor support. Cut out

and re-splice improperly located splices, injured portions, crooked or imperfect splices. Do not leave bent or curved splices in the conductors.

B. Where existing conductors are reworked, splices may be located less than 10 feet from a support or hardware, if sufficient distance is provided for future maintenance; but in no case shall a splice be located within 2 feet of conductor hardware or supports.

C. Splices in new conductors shall not be located in NESC defined Grade B crossing spans. No extra pay will be made for any splices that may be required for any reason in existing conductors left in place.

D. Clean the contact surfaces thoroughly before splicing and carefully follow Manufacturer's recommendations. Use the proper die and crimping tool that is mated to the splice. Insure that the proper spacing and number of crimps are made.

E. Use the Manufacturer’s recommended inhibitor when splicing and installing connectors to aluminum conductors. Use a pressure gun with tapered nozzle to inject the inhibitor into splicing sleeves.

F. Splices and compression connectors on conductors larger than 0.60 inches diameter shall be hydraulically crimped. Automatic splices may be used, as approved, but only in full tension conductors.

G. When a bow (non-hex) die is used, the crimping tool is to be rotated 90 degrees between crimps in order to avoid banana bowing of the splice. If a connector bows it shall be cut out and replaced. It shall not be repaired by hammering on it.

H. Ties shall be of the type and configuration as required for the conductor and support used, and in accordance with the Contract Drawings. Tie wire shall be tightly drawn around the conductor support and armor rod so that no slack space occurs. Tie wires around insulators shall not be cris-crossed.

I. Pre-formed conductor ties may be used for re-working of energized conductors if approved. Hot line ties shall not be used.

3.09 CLAMPS, JUMPERS, AND CONNECTORS

A. Use proper size connections and only those which will not cause galvanic action where conductors are of dissimilar metals. The contact surfaces of clamps and conductors shall be cleaned and bright using a steel brush as the principal cleaning medium. Where bolted connectors are approved the bolts shall be brought down hard, but the threads shall not be overstressed. Use a suitable inhibitor on aluminum surfaces for all connectors, hot-line clamps, etc.

B. Exercise utmost care when installing parallel groove clamps where specified. Clean the contact surface of the clamp and the wire. Bolts shall be brought down hard, but the threads shall not be over stressed. Bolted clamps shall not be used on grounding connections.

C. Install hot-line clamps so that they are permanently bonded to the load side of the line, allowing the jumper to be de-energized when the clamp is disconnected from the supply line.

D. Allow sufficient, but not excessive slack in jumpers and other leads. Make them neat and uniform in appearance and in general run in horizontal and vertical planes with rounded turns. Support all jumpers to prevent excessive movement between supports and to clear all conflicts and maintain clearances as required by NESC. Do not use broom-stick coils in any jumpers.

E. At points of deadends, taps and take-offs of the main supply line, conductor tails shall be left long enough to be used as jumpers and such that splices or connections shall be limited to one per phase.

F. Existing conductors to be connected to transformers, line equipment, or other conductors shall be thoroughly cleaned and connections made as would be for new conductors.

G. Size each jumper, whether existing or new, to be at least as large as the conductor on the load side.

H. All line and service connections shall be made with compression connectors. Use of bolted connection shall have prior approval from the Engineer. Aluminum to copper connections shall be made with connectors suitable for use with dis-similar metals.

I. Service connections, with the exception of the neutral connection, shall be covered at the point of connection with black all-weather vinyl electrical tape, or if approved, a polyethylene plastic cover.

3.10 GROUNDS

A. Where ground rods are specified, drive ground rods the full length in undisturbed earth a minimum of 2'-0" from the surface of the pole, with the top of the rod and the grounding jumper a minimum of 1'-0" below natural grade. Install ground rods at all transformer and equipment locations and as shown in the Contract Drawings.

B. Interconnect all equipment grounds, neutral wires, and protective equipment and attach to a common pole ground wire. Make at least two (2) continuous connections on all equipment from the equipment frame or case of equipment tank to the multi-grounded system.

C. Leave each ground rod uncovered from the rod clamp to the pole until the Engineer authorizes backfilling. DO NOT LEAVE HOLES EXPOSED THAT WILL ENDANGER THE PUBLIC.

D. Alternative ground rod installation locations and arrangements shall be approved by the Engineer on a case by case basis.

E. On transmission lines where distribution underbuild is present the underbuild system neutral shall be interconnected with the transmission line pole ground wire. In cases where separate pole ground wires are used for the two systems they shall be interconnected both above and below ground.

F. Sufficiently tighten offset downlead wires to make a secure assembly of uniform appearance. Maintain evenly spaced distance between the offset downlead wire and the adjacent phase conductors.

3.11 GUYS

A. Provide guys at all points of unbalanced strain in conductor and structures at corners, junctions and deadends as shown on the Contract Drawings. Attach guys to poles at the load centers.

B. Provide span guys at all locations where down guys cannot be used, at all unbalanced loads on crossarms, and use stub poles where required to obtain proper guying clearance requirements. Do not install any guy in violation with NESC requirements.

C. Install each guy centered on the pole without pulling to either side or causing an unequal strain on guy hooks, clamps, or sections of the guy and hardware. Neatly sever or cut all guy tails.

D. Unless specified elsewhere, install down guys with a one-to-one (45 degree) lead-to-height ratio.

E. All guys shall be bonded to the pole grounding system unless otherwise directed by the Engineer. Grounding jumpers shall be of minimum conductivity equivalent to the pole ground wire. Grounding connectors to the guy and the system ground wire shall be compression type suitable for dissimilar metals.

F. Guys shall be placed before the conductors are strung. Insure proper adjustment of guys when stringing operations are being performed so that loading on structures will be balanced.

G. Unless specified otherwise, guy attachment, hooks or plates shall only have one guy attached.

H. Guy primaries and secondaries separately.

3.12 ANCHORS

A. Anchors shall be installed according to Manufacturer’s instructions.

B. Locate anchors as far as practical from street crossings, driveways, crosswalks, and foot paths.

C. Install all anchor rods in line with the strain and the guy slope. DO NOT INSTALL ANCHOR RODS VERTICALLY AND THEN BEND OR TRENCH THEM INTO POSITION. Leave no more than 6 inches of the rod exposed above ground. In cultivated fields, or disturbed soils where the rod might become covered, leave no more than 12 inches of the rod exposed above ground. In no case shall the eye of the rod be covered by soil.

D. On expanding anchors or rock anchors use an auger that will excavate a hole just large enough to accommodate the unexpanded anchor, such that, upon installation and expansion of the anchors the maximum holding capacity can be obtained. DO NOT USE A LARGE AUGER SUCH AS THE POLE AUGER.

E. The backfill for the anchor hole shall be thoroughly tamped with suitable soil the full length of the anchor hole.

F. Anchors shall be installed to sufficient depth and with sufficient torque such that each

installation shall hold a total guy load of 30,000 pounds maximum.

G. Where power installed screw anchors are specified they shall be installed using a pre-determined value of torque which gives a positive indication of the holding capacity required. Install additional extension rods as necessary to obtain the required holding value for the depth installed. Keep records of the installing torque for each anchor and make available to Engineer upon request. In no case shall the installing torque be less than 1500 pounds or three (3) shear pins.

H. For power installed screw anchors, a double helix anchor shall be installed at a depth no greater than 14 feet. If the required torque is not achieved, the anchor shall be removed and a double-helix square shaft or other multi-helix square shaft anchor shall be installed.

I. If difficulty is encountered in installing anchors, the Engineer shall be contacted to recommend additional installation methods.

3.13 HARDWARE AND BOLTS

A. Securely tighten all hardware.

B. Provide a washer at each point where a bolt head or nut bears on the surface of a pole or crossarm.

C. Provide a locknut with each nut, eyenut, or other fastener on all bolts or threaded hardware.

D. Carefully select bolts for proper length. Bolts shall extend at least ½ inch and not more than two (2) inches beyond nuts or locknuts. Eyebolts shall be in line with the strain at all deadends, and shall bisect the line angle and at all angles made that are not deadends. All bolts shall be in a level plane to the hardware attached.

E. DO NOT CUT OFF BOLTS THAT ARE TOO LONG - REPLACE THEM WITH PROPER LENGTH BOLTS.

F. All connections shall be bearing type connections. Bolt length shall provide for nuts, locknuts, and washer.

G. High strength bolts and their installation and bolting tools and equipment shall be in accordance with the structure manufacturer's recommendations and the "Specifications for Structural Joints Using ASTM A325 or A490 Bolts" including the commentary given therewith, as approved by the Research Council on Riveted and Bolted Structural Joints of the Engineering Foundation and endorsed by AISC, except as otherwise modified or supplemented herein. Bolt length shall be selected in accordance with the Research Council specification. The Research Council specification is dated August 14, 1980. All methods, tools, and equipment shall be subject to the acceptance of the Engineer.

3.14 SWITCHES

A. Use proper size compression spades for terminal pads.

B. Adjust switches to Manufacturer recommendations. Switch operation shall be subject to inspection prior to energizing.

C. On pipe operated switches the set screws shall not be punched in until the switch is inspected.

D. Provide two connections to ground on metal support frames.

3.15 MISCELLANEOUS

A. Phase to Phase Conductor Spacers
   1. Install at mid-span unless otherwise indicated.

   2. Where heights or tension limit access for installation, spacers may be installed if conductors are pre-sagged, marked, and lowered to accomplish the attaching of spacers. Conductors shall then be raised and placed in the pre-sagged position.

   3. Alternate installation methods are acceptable and shall be submitted for review in accordance with Section 01300 - SUBMITTALS.

B. Pole Caps:
   1. Where specified, pole caps shall be formed to fit securely to the contours of the pole surface. Each edge shall extend at least two (2) inches down the side of the pole.

   2. Nail each overlapping folded edge using a minimum of eight (8) nails.

C. Grounding Platform Installations:
   1. For grounding platform installations at overhead line switches, install an area of 4" deep crushed aggregate extending a minimum of 1' beyond the edges of the grounding platform. Grade area to ensure proper drainage and to keep adjoining soil from washing into the aggregate.

3.16 PHASING OF CONDUCTORS

A. Phasing shall be in accordance with the Contract Drawings where indicated. Where phasing is not indicated the phasing placement and connection shall be as approved by the Engineer.

B. Verify phasing, whether indicated or not, by site review of each source connection at substation. Final phase rotation and placement is the responsibility of the Contractor.

3.17 REMOVALS

A. Keep careful and accurate records of all materials removed or reused as specified.

B. When backfilling holes at pole removal locations do not dig holes in the landscape to obtain backfill. Obtain backfill dirt by scooping or scraping within the designated right-of-way or by fill dirt obtained locally. Do not dig seeded areas within highway or public rights-of-way. Do not place foreign objects in backfill.

C. Reuse only those materials as specified or as indicated that are equivalent in size, rating, capacity and other requirements of new materials and not damaged or deteriorated. Reuse of any other materials shall have prior approval by the Engineer. Upon this approval

careful and accurate records shall be kept and submitted to the Engineer itemizing the particular materials reused and the location of their use.

D. Immediately remove from the job site any materials that are removed from existing assemblies.

END OF SECTION

SECTION 16372
OVERHEAD LINE MATERIALS

PART 1. GENERAL

1.01 SECTION INCLUDES

A. Overhead electric system construction

B. Materials and Equipment

1.02 RELATED SECTIONS

A. DIVISIONS 0 and 1 – CONTRACT DOCUMENTS AND GENERAL REQUIREMENTS: These shall apply to all work included in this section.

B. Section 16370 – OVERHEAD LINE CONSTRUCTION

1.03 REFERENCES

A. Published Specifications, standards, tests, or recommended methods of trade, industry, or governmental organizations apply to work in this section where cited in Section 01090 – REFERENCE STANDARDS and in the listing below:

1. RUS Bulletin 1728F-701
2. RUS Bulletin 1728F-700
3. ANSI Standard C29.7
4. ANSI/IEEE Standard C62.11
5. ASTM A-475
6. ASTM A-153
7. ANSI C135.1
8. RUS Bulletin 1724E-153

1.04 SUBMITTALS

A. Shop drawings shall be submitted for approval in accordance with Section 01300 – SUBMITTALS and Section 01340 – SHOP DRAWINGS.

B. Final Drawings, Manuals, and Test Reports shall be provided prior to shipment on accordance with Section 01720– PROJECT RECORD DRAWINGS.

1.05 QUALITY ASSURANCE

A. All materials, equipment and appurtenances used in construction of this project shall be new and shall conform to those acceptable by standard publications used in line construction, unless otherwise specified herein.

B. Supply all equipment and accessories new and free from defects.

C. Supply all equipment and accessories in compliance with applicable standards and with all applicable national, state, and local codes.

D. All items of a given type shall be the products of the same Manufacturer.

PART 2. PRODUCTS

2.01 ACCEPTABLE MATERIALS

A. All materials, equipment and appurtenances used in construction of this project shall be new, carry a minimum 1 year warranty for a period beginning with acceptance of the project by the Owner, and shall conform to those as specified herein.

2.02 CONCRETE POLES

A. Poles: StressCrete Group – Curtis H. Stout, Standard City of Tupelo Drilling Pattern and Specifications, (No exceptions).

1. 35’ Concrete, Round, 7.75” Top, 14.1” Butt, 35’-0” Length, 2’ Tip Load = 3,000lbs, Ult GLM = 82.5 kip-ft, Cat# E350-GPR-G-M00

2. 40’ Concrete, Round, 7.75” Top, 15.0” Butt, 40’-0” Length, 2’ Tip Load = 3,000lbs, Ult GLM = 96.0 kip-ft, Cat# E400-GPR-G-M00

3. 45’ Concrete, Round, 7.75” Top, 15.9” Butt, 45’-0” Length, 2’ Tip Load = 3,000lbs, Ult GLM = 109.5 kip-ft, Cat# E450-GPR-G-M00

4. 50’ Concrete, Round, 7.75” Top, 16.75” Butt, 50’-0” Length, 2’ Tip Load = 3,000lbs, Ult GLM = 123.0 kip-ft, Cat# E500-GPR-G-M00

5. 55’ Concrete, Round, 7.75” Top, 17.7” Butt, 55’-0” Length, 2’ Tip Load = 3,000lbs, Ult GLM = 136.5 kip-ft, Cat# E550-GPR-G-M00

6. 60’ Concrete, Round, 7.75” Top, 18.5” Butt, 60’-0” Length, 2’ Tip Load = 3,000lbs, Ult GLM = 150.0 kip-ft, Cat# E600-GPR-G-M00

2.03 CROSSARMS

A. Fiberglass:
   1. Tangent: Alumaform FTA25496A
      a. Alumaform
      b. PUPI

   2. Deadend: Alumaform FDA25396EBFG
      a. Alumaform
      b. PUPI

2.04 INSULATORS

A. Distribution:
   1. Pin: ANSI Class 55-4 F-neck with 1” pinhole and cantilever strength capacity of 3000lbs, Hendrix HPI-55-4.

2. Suspension/Strain: ANSI Class 52-9, 15kV porcelain disc type, 10,000 lb. specified mechanical load, or as approved. Victor Cat. No. 817 or as approved.

3. Neutral/Secondary: ANSI class 53-2 porcelain manufactured to conform to ANSI Standard C29.7, type, 3000lb. working load spool type or as approved

2.05 CONDUCTORS

A. Primary:
1. 336 ACSR, 18/1, Merlin
2. 4/0 ACSR, 6/1, Penguin
3. 1/0 ACSR, 6/1, Raven
4. #2 ACSR, 7/1, Sparate

B. Secondary:
1. #6 Duplex, 7 Strand, Shephard
2. #2 Triplex, 7 Strand, Conch
3. 1/0 Triplex, 9 Strand, Cenia
4. #2 Quadruplex, 7 Strand, Palomino
5. 1/0 Quadruplex, 9 Strand, Costena
6. 3/0 Quadruplex, 17 Strand, Suffolk
7. #2 ACSR, 7/1, Sparate
8. #4 ACSR, 7/1, Swanate

C. Grounding:
1. #6 Solid Copper (general use)
2. #4 Solid Copper (pole grounding)
3. #2 Stranded Copper, 7 Strand, (switch/Riser grounding)

2.06 APPURTENANCES

A. All distribution material insulation shall meet 110BIL for 13kV applications.

B. Lightning Arresters:
1. Class Heavy Duty: Cooper UltraSIL VariSTAR, Cat #UHS10050A1A1A1A

C. Fused Cutouts:
1. Non-loadbreak type, 27kV, 100A with NEMA type B bracket,

D. Riser Switches:

1. Distribution overhead underslung hookstick switch shall be capable of mounting on single or double crossarm configuration and be rated for 900A continuous current. Switch insulators shall be porcelain type.

2. Type C Standard Porcelain Cutout, 27kV 125kV BIL, with 300 amp solid blade.

E. Street Lights:
1. Stresscrete Group, King Luminaire 60 watt fixture: the catalog number will be K445R-T1GR-IV-60(SSL)-4004-120:277V-K23-PR7-BK. (No exceptions).

2. Street Light Pole will be Stresscrete Group, King Luminaire, (No exceptions).
Catalogue: KCH16-BA-GFI-T-E11
Section: Octagonal

Color: Eclipse, etched finish
Pole Top: 5' FL/FL
Pole Butt: 9-1/4"ø
Pole Height, A.G.: 16'-0"
Approx. Weight: 950 lbs

F. Ground Rods:
   1. 5/8" x 10', Copper Clad

2.7 LINE HARDWARE

A. Distribution Conductor clamps:
   1. Deadend clamps:
      a. Bolted Type to be straight line type, sized appropriately, and of the proper material for the conductor used. Deadend clamps shall include a pulling or lifting eye.
         a. ADEZ-57N – Small Conductor
         b. ADEZ-88N – Large Conductor

B. Conductor Splices:
   1. Splices shall be of the appropriate size and material. All full tension splices shall be of the Automatic type. Reduced tension places shall be either compression or bolted type. Automatic splices shall not be used in reduced tension spans.

C. Stirrups:
   1. Stirrups shall be mechanical type of the appropriate material with two clamping eyes at a 30 degree angle from the stirrup. Compression type stirrups may be used with Engineers permission only.

D. Hot line tap clamps:
   1. Hot line clamps shall be aluminum or bronze with keeper made of the appropriate material or tin plated.

E. Connectors:
   1. Compression H-Tap Connectors, Type WR – Wide Range Aluminum Tap Connectors only. (Wedge type are not acceptable).

F. Line Guards:
   1. Line Guard shall be of high strength aluminum alloy and sized appropriately.

G. Brackets:
   1. Single Phase Cutout/Arrester Combo Bracket:
      MacLean Part #G1HDA118AD or as approved.

   2. Three Phase Cutout Bracket shall be a curve equipment mount of aluminum with end fittings allowing the mounting of combination cutout/lightning arrester.

   3. Three Phase Terminator/Equipment Mount shall be of high strength aluminum alloy and have 26 degree angle offsets and mounts for terminators and arresters.

   4. Conduit Standoff Bracket shall be of high strength aluminum alloy and be capable of mounting up to six 6" conduits.

5. Three phase transformer brackets shall be of steel or aluminum, have positions for 1, 2, or 3 transformers and accommodate NEMA A or B transformer lugs. They shall include a ground lug and have a minimum capacity of one and twenty percent of the expected weight load of the transformers being mounted.

H. Nuts and Bolts:
1. All bolts, washers, nuts and any other miscellaneous fasteners shall meet all ASTM standards for fasteners.
2. All bolts of any type shall include a washer of the appropriate type/size, nut and locknut.
3. All bolts, washers, nuts and other miscellaneous hardware shall be galvanized per ASTM A-153.
4. All bolts shall have the following strength requirements:

Diameter	Single Shear Through Threads	Single Shear Through Shaft	Minimum Tensile Strength
5/8"	8,330 lbs.	12,420 lbs.	12,400 lbs.
3/4"	12,440 lbs.	17,890 lbs.	18.350 lbs.
1"	22,690 lbs.	31,800 lbs.	33,500 lbs.

5. All locknuts to be MF concave type.

2.8 GUYS AND ANCHORS

A. Guy Strand:

1. Guy strand shall have Class A galvanizing and meet ASTM A-475 specifications.

2. The following sizes and materials are acceptable for this project:
a. 3/8″ extra high strength steel

B. Guying Tee:
1. Guying tee's shall be of high strength steel be galvanized. Guying tees shall have a minimum of two holes for attachment to the pole. Tee's to be used on multi-sided metal poles shall have flat bases and those for use on round metal or wood poles shall have curved bases. Tees for use with multiple attachments shall have the attachment holes offset so the attached guys will not interfere with each other.

C. Guy Hook:
1. Guy hooks shall be of ductile cast iron per ASTM-546 and be galvanized per ASTM A-153. Guy hooks shall have a minimum of two holes for attachment to the pole and when used on metal or concrete poles shall have a smooth back. Guy hooks shall use bolts that comply with ANSI C135.1.

D. Guy Deadend Grip:
1. Guy deadend grips shall be pre-formed type for use with galvanized steel guy strand and shall be rated for 100% of the rated strength of the guy strand in use. Wrapped 3-bolt type deadends and strandvise type automatic deadends are not acceptable.

E. Guy Bonding Clamp:
   1. Guy bonding clamps for anchor rod eyes shall be galvanized malleable iron or aluminum and sized to the anchor eye and guy strand being used.

F. Guy Marker:
   1. Guy markers shall be UV resistant PVC material, 8’ in length, yellow and have a spiral grip.

G. Guy Strain Insulator:
   1. Guy strain insulators shall be of fiberglass construction with ductile iron end fittings that are galvanized per ASTM A-153. The fiberglass rod shall be smooth and UV resistant. The ultimate strength shall be 100% of the rated strength of the associated guy strand with a minimum dry flashover rating of 300kV. End fittings shall be of the appropriate type for the connection type. See project drawings for length to be used.

H. Anchors:
   1. Screw Type lead sections shall be single 15” helix configuration with 1” rod as defined by the contract drawings and be sized for an installed holding power to meet or exceed the total rated strength of all the attached guy strands in an average class 5 soil as defined by RUS Bulletin 1724E-153 with a minimum of 24,000lbs.

   2. Eyenuts / Guy Adapters shall be sized and shaped to mate with the extensions and lead sections being used and shall have a double eye configuration.

PART 3. EXECUTION

(NOT USED)

END OF SECTION

SECTION 16375
UNDERGROUND ELECTRICAL DISTRIBUTION CONSTRUCTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Underground electric system construction.

B. The Contractor shall furnish all necessary equipment and incidental installation material to install the stated materials and any other miscellaneous materials in the quantities required by the Contract Drawings and these Specifications to provide a complete and working installation.

C. Field testing of underground electrical system.

1.02 RELATED SECTIONS

A. DIVISIONS 0 and 1 - CONTRACT DOCUMENTS AND GENERAL REQUIREMENTS: These shall apply to all work included in this section.

B. Section 01013 - SUMMARY OF WORK.

C. Section 01027 - MEASUREMENT AND PAYMENT.

D. Section 02220 - TRENCHING AND BACKFILLING.

E. Section 16112 - UNDERGROUND DUCTS.

F. Section 16114 - MANHOLES AND HANDHOLES.

G. Section 16376 - UNDERGROUND DISTRIBUTION MATERIALS.

1.03 REFERENCES

A. Published Specifications, standards, tests, or recommended methods of trade, industry, or governmental organizations apply to work in this section where cited in Section 01090 - REFERENCE STANDARDS and in the listing below:

1. IEEE Standard 48 - Standard for Test Procedures and Requirements for Alternating Current Cable Terminations Used on Shielded Cables Having Laminated Insulation Rated 2.5 kV Through 765 kV or Extruded Insulation Rated 2.5 kV Through 500 kV.
2. IEEE Standard 400 - IEEE Guide for Field Testing and Evaluation of the Insulation of Shielded Power Cable Systems Rated 5 kV and Above.
3. IEEE Standard 404 - IEEE Standard for Extruded and Laminated Dielectric Shielded Cable Joints Rated 2.5 kV to 500 kV
4. IEEE Standard 576 - IEEE Recommended Practice for Installation, Termination and Testing of Insulated Power Cable as Used in Industrial and Commercial Applications
5. “The Lineman’s and Cableman’s Handbook”, McGraw-Hill Publishing Company.
6. ANSI C2 - National Electrical Safety Code (NESC).
7. NFPA 70 - National Electrical Code (NEC).

8. "Guide to Transmission and Distribution Standards and Specifications", Tennessee Valley Public Power Association.
9. "Specifications and Drawings for Underground Electric Distribution", Rural Utilities Service Bulletin 1728F-806.
10. "Underground Distribution System Design and Installation Guide – RER Project 90-8", National Rural Electric Cooperative Association.
11. ICEA S-94-649 - Concentric Neutral Cables Rated 5 Through 46 kV.
12. ICEA S-93-639/NEMA WC74 - 5-46 kV Shielded Power Cable for Use in the Transmission and Distribution of Electric Energy.

1.04 DEFINITIONS

A. In the text of this section, the words "conduit" and "duct" are used interchangeably and have the same meaning.

B. Low Voltage refers to systems and equipment of less than 600 volts.

C. Medium Voltage refers to equipment and systems of 601 volts to 75,000 volts.

D. Shielded medium voltage power cable shall refer to cable with a tape, foil, or shield wire system designed to provide shielding of the cable insulation.

E. Concentric Neutral Medium Voltage Power Cable shall refer to cable with conductors/wires surrounding the cable insulation with an ampacity suitable for a power system neutral and providing the shielding of the cable insulation.

F. In the text of this section, "medium voltage cable splices," and "medium voltage cable joints" are used interchangeably and have the same meaning.

G. Grounding Electrode System: The complete grounding system comprised of a single ground rod, multiple ground rods connected together, and/or a ground mat comprised of buried conductor.

H. Grounding Conductor: Conductor connecting the Grounding Electrode System to the power system equipment and system neutral.

1.05 SUBMITTALS

A. All submittals shall be submitted for approval in accordance with Section 01300 – SUBMITTALS.

B. Shop drawings shall be submitted for approval in accordance with Section 01340 - SHOP DRAWINGS.

C. Submittals Required:

1. Manufacturer's Cable Installation Instructions. The Contractor shall submit the Manufacturer's installation instructions which address all aspects of the cable installation including cable construction, insulation type, cable diameter, maximum allowable bending radius, allowable pulling lubricants, coefficient of friction, required method of conduit cleaning, storage procedures, moisture seals, testing for and purging moisture, etc.

2. Cable Installation Plan and Calculations. Contractor shall submit a Cable Installation Plan with calculated cable pulling tensions for approval at least seven working days prior to initiation of cable pulling activities on the project. Contractor shall not install cable without written authorization from the Engineer. The Cable Installation Plan shall contain as a minimum the following information with all sheets signed and dated by the person supervising the calculations:

    a. Site layout drawing with all cable pulls numerically identified detailing length of pull, pull sequence and direction of pull.

    b. Cable pulling tension calculation of all cable pulls.

    c. Percentage of conduit fill.

    d. Cable sidewall pressure.

    e. Cable jam ratio.

    f. Cable minimum bend radius and minimum diameter of pulling wheels of equipment used.

    g. Method used to calculate tensions.

    h. Maximum allowable pulling tension on each different type and size of conductor.

3. Cable Installation Reports: Contractor shall submit three copies of the Cable Installation Reports in 8 1/2 by 11-inch binders. The reports shall contain as a minimum the following information with all sheets signed and dated by the person supervising the cable pull.

    a. Site layout drawing with all cable pulls numerically identified.

    b. A list of all pulling equipment used, with calibration certifications.

    c. The Manufacturer of and quantity of lubricant used on pull.

    d. The cable Manufacturer and lot number of the cable used for each specific pull.

    e. The date of the pull, time of day, and ambient temperature.

    f. The length of pulls and calculated cable pulling tensions.

    g. The actual cable pulling tensions encountered during the pull.

4. Cable Splice/Termination Qualifications. Contractor shall provide certification that contains the names and qualifications of the personnel recommended to perform splicing and termination of medium voltage cable to be installed under this Contract. The certification shall indicate that any person recommended to perform actual splicing and terminations has been adequately trained in the proper techniques and has had at least five years of recent experience in splicing and terminating the type of cables used in this installation. In addition, any person recommended for such work may be required to perform a practice splice and termination for the Owner and/or Engineer.

5. Cable Test Data: Cable test data shall be submitted to the Engineer for approval, as specified in Section 16975 - MEDIUM VOLTAGE POWER CABLE TESTING, before the power cables are connected to the power system or any components thereof. **Failure to submit the required cable test data may, at the engineer's direction, require the Contractor to disconnect cables, re-test, and reconnect cables at no additional cost**

to the Owner.

6. As-built drawings. Contractor shall submit a record of the Work as installed. The drawings shall include all the information as shown on the Project Drawings as well as any deviations, modifications, and changes to the Project Drawings, however minor. Contractor shall submit one full sized set of marked up prints fully detailing the as-built conditions.

7. Final Shop Drawings, Manuals, and Test Reports shall be provided prior to Project closeout in accordance with Section 01720 - PROJECT RECORD DOCUMENTS.

1.06 ASSEMBLY GUIDE DRAWINGS AND PROJECT CONSTRUCTION DRAWINGS

A. The Construction Drawings are diagrammatic indicating major items of materials and general arrangement of assemblies to establish a standard of construction.

B. Conditions encountered in the field may vary from those shown on Contract Drawings, and the construction shall be modified as required to accommodate the field conditions involved. The general arrangement of circuits and clearances indicated on the assembly guide drawings shall be maintained. The Engineer shall approve any deviation from Contract Drawings prior to construction.

1.07 WARRANTY

A. All materials and equipment supplied under this specification shall be warranted as outlined in the GENERAL CONDITIONS.

PART 2 PRODUCTS

(NOT USED)

PART 3 EXECUTION

3.01 GENERAL INSTALLATION REQUIREMENTS

A. The life of an underground cable system is directly related to the quality of the installation process. Installation procedures used by the Contractor that do not follow the intent of these specifications may result in the removal of installed cable and the re-installation of new cable at no additional cost to the Owner. The cable removal and replacement decision will be solely by the Owner and Engineer. Improper installation procedures will not be tolerated. These procedures include, but are not limited to, pulling tensions, proper bending radii, cable handling, duct cleaning, and moisture control. The Contractor may submit alternate installation procedures, prior to installation, for approval by the Engineer.

B. Equipment, materials, and devices shall be installed and energized in accordance with the Manufacturer's published instructions and the requirements of the Contract Documents. Installation shall comply with the requirements of the Codes/Standards referenced in Paragraph 1.03 - REFERENCES, of this Section, as applicable; and all other applicable codes, regulations, and standard industry practices.

C. Verification of Dimensions: The Contractor shall become familiar with the details of the

Work, shall verify dimensions in the field, and shall advise the Engineer of any discrepancy before performing the Work.

D. Where referenced, Medium Voltage includes the material and installation for 5kV – 46kV insulated cable and terminations.

3.02 MEDIUM VOLTAGE CABLE INSTALLATION

A. Cable Installation Plan and Procedure: Cable shall be installed in strict accordance with the approved Cable Installation Plan and cable manufacturer's recommendations.

B. Cable Inspection: The cable reel shall be inspected for correct storage position, signs of physical damage, and broken end seals. If the end seal is broken, moisture shall be removed from the cable in accordance with the cable manufacturer's recommendations. Cable ends shall be kept sealed at all times during storage and installation, to prevent entrance of moisture, until final termination is made. The Engineer shall be notified of any cable contaminated with moisture. The Contractor shall replace or purge the cable of any moisture as directed by the Engineer at no additional cost to the Owner.

C. Duct Cleaning: Prior to pulling cable all ducts shall be cleaned with an assembly that consists of a flexible mandrel that is ¼ inch less than the size of the duct, stiff bristle brush. The cleaning assembly shall be pulled through the conduit a minimum of two times or until all dirt and debris is sufficiently removed.

D. Cable Pulling:

1. The Contractor shall utilize a cable feeding truck or trailer and a cable-pulling winch.

2. Contractor shall use the necessary guides, pulleys, rollers, sheaves and other installation and pulling aids to prevent abrasion, elongation and other damage to cables during installation. A cable feeder tube with a bell end shall be used during installation to avoid abrasion of the cable against the edge of the conduit end.

3. The Contractor shall provide a pulling eye in accordance with the cable manufacturer's recommendation. Attach pulling eye directly to the cable conductor. The pulling eye shall be attached to polypropylene or manila rope followed by lubricant front-end packs, and then by power cables. Woven pulling (kellum) grips shall not be used to grip the cable insulation to pull the cable.

4. Lubricants shall be used to lower pulling tensions and to minimize stress on cables. Lubricant manufacturer shall be POLYWATER or as approved by the Engineer. The lubricant shall be approved by the Engineer for the specific cable jacket materials and weather conditions at the time of installation. Conduit shall be lubricated prior to cable installation with lubricant Front End Packs and cable shall be lubricated during installation. Lubricate according to lubricant manufacturer's recommendations.

5. A dynamometer or other tension-measuring device shall be used to monitor pulling tensions. Pulling tension shall not exceed cable Manufacturer's recommendations.

6. Contractor shall not allow cables to cross over while cables are being fed into the duct.

7. Cable shall not be installed when ambient air temperature falls below the

manufacturer's limits.

8. Do not subject cable to an inside-bending radius less than that recommended by the cable Manufacturer.

9. Cable shall be properly supported during and after installation.

E. Electric Manholes, Handholes, and Vaults: Cables shall be routed around the perimeter of the interior wall and securely supported from walls on cable racks. Cables shall be secured to cable racks with insulated cable clamps. Permanent supports shall be installed at all cable joints and terminations so that any strain will not be transferred to the connection or termination. Cable routing shall maximize "spare" cable, minimize cable crossover, and provide access space for maintenance and installation for future expansion. In existing manholes, handholes, and vaults where new ducts are to be terminated or where new cables are to be installed, modify the existing installation of cables (without cutting or damaging existing cables), cable supports and grounding as required for a uniform installation with cables carefully arranged and supported in the same manner as specified for the new installation. Maintain cable separation in accordance with National Electrical Safety Code, ANSI C2.

F. Cable shall be installed continuously between cable termination points and/or manholes/handholes without intermediate splices or taps.

G. Cable ends shall be sealed at all times with coated heat shrink end caps to prevent the entrance of moisture. Cable ends shall be sealed when the cable is delivered to the job site, during cable storage, immediately after cutting, and during installation of the cable. Sealing compounds and tape are not acceptable substitutes for heat shrink end caps.

H. Cable tags shall be installed on all cables at all manholes, handholes, and vaults. Tags shall identify the cable circuit, phase, and voltage level. Tags shall be located to be visible without disturbing the cable placement. Provide identification format according to Contract Drawings.

I. All ducts entering power system equipment shall be sealed with suitable duct sealer after cables are installed and/or terminated.

3.03 MEDIUM VOLTAGE CABLE JOINTS/TERMINATIONS:

A. Installation of cable joints/terminations shall follow joint kit/termination manufacturer's instructions in every detail.

B. Cable joints shall be made in manholes, or at locations shown on the Contract Drawings.

3.04 CIRCUIT FAULT INDICATOR:

A. A fault indicator shall be installed on each cable at locations as shown on the Contract Drawings.

3.05 CONNECTIONS BETWEEN AERIAL AND UNDERGROUND SYSTEMS:

A. Connections between aerial and underground systems shall be at locations as indicated

on the drawings. Underground cables shall be extended up poles in conduit to cable terminations. Conduits shall be secured to the poles with attachments as approved by the Engineer. Conduit attachments shall be spaced not more than 6 feet apart and not more than 12 inches from any bend or termination. Conduit shall be equipped with bushings to protect cables and minimize water entry.

3.06 CONNECTIONS TO POWER SYSTEM EQUIPMENT:

A. Connection to power system equipment shall be in accordance with manufacturer's instructions and the Contract Documents. Specified cable system testing shall be completed prior to cable connections to power system equipment. **Failure to submit the required cable test data may, at the engineer's direction, require the Contractor to disconnect cables, re-test, and reconnect cables at no additional cost to the Owner**.

3.07 GROUNDING:

A. Grounding electrode system is comprised of copper conductor and/or driven ground rods as shown on the Contract Drawings. Equipment frames of metal enclosed equipment and other non-current carrying metal parts such as cable shields, cable sheathes, and metallic conduit shall be grounded. A minimum of two connections, or as shown on the Contract Drawings, shall be provided from a transformer or switchgear ground bus to the ground electrode.

B. Jacketed Concentric Neutral (JCN) Cable: Concentric neutrals for JCN cables shall be solidly grounded at both ends of the cable, or as shown on the Contract Drawings. JCN cable shall be grounded at intermediate grounding points at intervals of 1320 feet minimum, or as shown on the Contract Drawings. Grounding kits for JCN cable shall be used for all intermediate grounding points.

C. Grounding Electrodes: Grounding electrodes shall be installed as follows at points as required by the appropriate codes and as shown on the Contract Drawings:

1. Driven rod electrodes-Unless otherwise indicated in a detail drawing, ground rods shall be driven into the earth until the tops of the rods are approximately 1 foot below finished grade. Install rods by driving and not drilling or jetting.

2. Additional electrodes-Whenever the required ground resistance is not achieved, provide additional electrodes interconnected with grounding conductors to achieve the required ground resistance. The additional electrodes will be 10-foot rods spaced a minimum of 10 feet apart unless otherwise directed by the Engineer.

D. Grounding and Bonding Conductors: Grounding and bonding conductors include all conductors used to bond equipment frames to the grounding electrode system. Bends greater than 45 degrees in grounding conductors are not permitted. Routing of grounding conductors through concrete shall be avoided. When concrete penetration is necessary, nonmetallic conduit sleeves shall be cast flush with the points of entry and exit so as to provide an opening for the ground conductor and the opening shall be sealed with a suitable sealant after installation.

E. Grounding and Bonding Connectors: Connections above grade shall be made by the exothermic welding process or with bolted, solderless, connectors in compliance with UL 467. Connections below grade shall be made by a exothermic welding process. When grounding conductors are connected to aluminum composition conductors, specially

treated or lined copper to aluminum connectors suitable for this purpose shall be used.

F. Manhole, Handhole, and Vault Grounding: Ground rods installed in manholes, handholes, and vaults shall be connected to cable racks, cable pulling irons, cable shielding, metallic sheath, and armor at each cable joint or splice by means of a bare copper wire. Connections to metallic (lead) cable sheathes shall by means of tin terminals soldered to ground wires and to cable sheathes. Ground rods shall be protected with double wrapping of pressure sensitive tape for a distance of 2 inches above and 6 inches below concrete penetrations. Grounding electrode conductors shall be neatly and firmly secured to manhole or handhole walls and the amount of exposed bare wire shall be held to a minimum.

G. Riser Pole Grounding: A single continuous vertical grounding electrode conductor shall be installed on each riser pole and connected directly to grounding electrode(s). All equipment, system neutrals, surge arresters, and items required to be grounded shall be connected directly to this grounding electrode conductor. Grounding electrode conductors shall be stapled to wood poles and strapped or bolted to concrete and steel poles at 2-foot intervals

3.08 BURIED WARNING, IDENTIFICATION, AND LOCATING TAPE:

A. Warning, identification and locating tape shall be installed 12" below finished grade of all duct bank/conduit trenches.

3.09 FIELD TESTING:

A. General: The Contractor shall notify the Engineer 5 calendar days prior to Electrical Field Testing to allow witnessing of the testing by the Owner and/or the Engineer. The Contractor shall furnish all labor, equipment, and incidentals as required to conduct field tests. The Contractor shall maintain a written record of all tests which includes date, test performed, test procedure, personnel involved, devices tested, serial number and name of test equipment, and test results. All field test results shall be signed and dated by the Contractor. The Contractor shall replace any devices or equipment damaged due to improper test procedure, handling during testing, or failing to pass test requirements. Contractor shall retest replaced devices or equipment at no additional cost to the Owner.

B. Safety: All applicable federal, state, and local safety regulations and procedures shall be implemented. The Contractor shall be responsible for the safety of all personnel on site during testing. The Contractor shall provide and use necessary safety devices including, but not limited to, rubber gloves, protective barriers, and danger signs to protect and warn personnel in the test vicinity.

C. Ground Resistance Tests: The resistance of each grounding electrode system shall be measured using the fall-of-potential defined in IEEE Standard 81. Ground resistance measurements shall be made before the new electrical distribution system is connected to the existing system or energized and shall be made in normally dry conditions not less than 48 hours after the last rainfall. Resistance measurements of separate grounding electrode systems shall be made before the systems are bonded together below grade. Each grounding electrode system resistance shall be less than or equal to 25 ohms.

D. Medium-Voltage Cable Testing shall be completed as specified in Section 16975 - MEDIUM VOLTAGE POWER CABLE TESTING.

3.10 ENERGIZING THE WORK:

A. After the work is completed, and at such times as the Engineer may request, the Contractor shall assist Owner personnel with the energizing of the Work. The Contractor shall promptly repair any deficiencies, which occur in the Work during the energization process.

END OF SECTION

SECTION 16376
UNDERGROUND ELECTRICAL DISTRIBUTION MATERIALS

PART 1. GENERAL

1.01 SECTION INCLUDES

A. Materials and Equipment

1.02 RELATED SECTIONS

A. DIVISIONS 0 and 1 – CONTRACT DOCUMENTS AND GENERAL REQUIREMENTS: These shall apply to all work included in this section.

B. Section 01300 – SUBMITTALS

C. Section 01340 – SHOP DRAWINGS

D. Section 16112 – UNDERGROUND DUCTS

E. Section 16375 – UNDERGROUND ELECTRICAL DISTRIBUTION CONSTRUCTION

F. Project Drawings

1.03 REFERENCES

A. The latest revisions, unless specified, of the Published Specifications, standards, tests, or recommended methods of trade, industry, or governmental organizations apply to work in this section where cited in Section 01090 – REFERENCE STANDARDS and in the listing below:

1. ICEA S-93-639 - Shielded Power Cable 5-46 kV.

2. ANSI/ICEA S-94-649 – Concentric Neutral Cables Rated 5-46 kV.

3. ICEA S-97-682 - Utility Shielded Power Cable Rated 5-46 kV.

4. IEEE Standard 404-2000 – IEEE Standard for Extruded and Laminated Dielectric Shielded Cable Joints Rated 2,500 to 500,000 V.

5. IEEE Standard 525-1992 – IEEE Guide for the Design and Installation of Cable Systems in Substations.

6. "List of Materials Acceptable for use on Systems of RUS Borrowers, Rural Utilities Service Publication 202-1, latest Edition.

1.04 SUBMITTALS

A. Submittals shall be provided for Engineer's approval in accordance with Section 01300 – SUBMITTALS:

B. Medium Voltage Cable; the following submittals shall be provided for Engineer's Approval prior to shipment:

1. Manufacturer's Installation Instructions – Per Section 16375 – UNDERGROUND ELECTRICAL DISTRIBUTION CONSTRUCTION.
2. Conductor Materials.
3. Jacketing Materials.
4. Insulation Materials.
5. Concentric Neutral Materials.
6. Cable test data:
   a Manufacturer's proof tests.

C. Shop drawings in accordance with Section 01340 – SHOP DRAWINGS.

D. Contractor shall provide to Engineer a binder listing all materials to be provided by Contractor. Information for each material item shall include:

1. Manufacturer
2. Manufacturer's catalog number
3. Manufacturer's catalog cut(s) detailing reliability, type, size, rating or capacity, design, dimensions, or other features of the material, as applicable.
4. RUS item number, as applicable.

Binder shall be submitted for Engineer's written approval, prior to placing orders for material. Contractor shall allow seven working days for approval, from date of delivery to Engineer.

1.05 QUALITY ASSURANCE

A. All materials, equipment and appurtenances used in construction of this project shall be new and shall conform to those acceptable by standard publications used in line construction, unless otherwise specified herein.

B. Supply all equipment and accessories new and free from defects.

C. Supply all equipment and accessories in compliance with applicable standards and with all applicable national, state, and local codes.

D. All items of a given type shall be the products of the same Manufacturer.

PART 2. PRODUCTS

2.01 ACCEPTABLE MATERIALS

A. All materials, equipment and appurtenances used in construction of this project shall be new, carry a minimum 1 year warranty for a period beginning with acceptance of the project by the Owner, and shall conform to those as specified herein.

B. Manufacturer's names and catalog numbers are specified to establish the reliability, type, size, rating or capacity, design, or other features of the materials required. A closed specification is not intended and duplicate items of other reputable manufacturers will be acceptable upon the Engineer's approval, unless otherwise specified.

2.02 PADMOUNT TRANSFORMER

A. Single Phase Pad Mount Distribution Transformer
1. Phases: One (1)
2. No. of Windings: Two (2)
3. Winding Material for Primary & Secondary: Must be Copper
4. Frequency: 60 Hertz
5. Temperature Rise: 65 Degrees Celsius @ rated capacity
6. Voltage Rating:
   a H winding – 12470GRDY/7200, 95kV BIL
   b X winding – 240/120
7. Cooling Class: OA
8. KVA Rating: 25 & 50
9. Taps: Full Capacity Taps @ 7,560, 7,380, 7,200, 7,020, and 6,840.
10. Impedance: ANSI standard (to be supplied with bid documents)
11. Bushings:
    a H Bushing – dead front, loop feed, universal bushing wells with removable studs, with 15kV 200 Amp LB bushing inserts installed.
    b X Bushing – NEMA 4-hole pad, tinned.
12. Bay-O-Net oil fuse
13. Accessories: Standard NEMA and ANSI accessories.
14. In addition to standard NEMA and ANSI accessories, the transformer unit shall have the following:
    a Pressure Relief Valve
    b Tank Ground
    c One inch oil drain valve and sampling device
15. Test: Transformer shall be tested as per ANSI standards latest revisions
16. The following data shall be enclosed with bid documents:
    a Outline drawing
    b Transformer dimensions and weights
    c Impedance value
17. Standard tank with Penta head bolt for locking.
18. Provisions for padlocking unit with access doors in closed position.

2.03 SWITCHGEAR

A. S&C VISTA 4 WAY (No Exceptions)
1. Switch No. 600: Cat No. 934222R1-P4-T1-L2-M3-0-SXXX
2. Switch No. 700: Cat No. 934222R1-P4-T1-L2-M3-0-SXXX

B. S&C VISTA 5 WAY (No Exceptions)
1. Switch No. 500: Cat No. 935232R1-P6-T2-L2-M3-0-SXXX

C. S&C VISTA 6 WAY (No Exceptions)
1. Switch No. 300: Cat No. 936242R1-P6-T3-L2-M3-0-SXXX
2. Switch No. 400: Cat No. 936242R1-P6-T3-L2-M3-0-SXXX

D. CONCAST FIBERCRETE VISTA BOX PADS (No Exceptions)
1. FC-69-83-36-V (For 4-Way Vista Switchgear)
2. FC-69-106-36-V (For 5 & 6-Way Vista Switchgear)

2.04 MEDIUM VOLTAGE CABLE

A. Power cables by the following Manufacturers are approved for this project, no exceptions:

1. Kerite
2. Okonite

B. Medium voltage cable shall be Type MV-90, single conductor (stranded), jacketed concentric neutral (JCN) cable with 15 kV voltage rating.

C. Conductor Material shall be:

1. 500 kcmil – Copper (CU)
2. 2 AWG – Copper (CU)

D. Insulation shall be Ethylene-Propylene Rubber (EPR) rated for 90ºC continuous operation, suitable for direct buried, conduit, or cable tray applications. Insulation level shall be 133%, 220 mil.

E. Cable jacket shall be sunlight resistant polyethylene (PE).

F. Concentric neutral shall be annealed, coated copper. Concentric neutral rating shall be;

1. 500 kcmil CU – 1/3 Neutral,17-#10Awg Minimum
2. 2 AWG CU – Full Neutral, 16-#14Awg Minimum

2.05 CABLE TERMINATIONS

A. Cable terminations by the following manufacturers are approved for this project:

1. ELASTIMOLD.
2. 3M.
3. Or as approved.

B. Terminations shall be in accordance with IEEE Std. 48, Class 1 requirements suitable for outdoor use.

C. Cable terminations shall be cold-shrink, track resistant, silicone rubber suitable for outdoor use. Termination shall have silicone rubber skirts to provide appropriate creepage distance for the voltage rating of the cable. Terminations shall have a minimum of 4 skirts for 15 kV cable and 6 skirts for 25 kV cable.

D. Termination shall be suitable for the medium voltage power cable supplied under these specifications.

2.06 SPLICES/JOINTS

A. Cable splices by the following manufacturers are approved for this project:

1. ELASTIMOLD.
2. 3M.
3. Or as approved.

B. Jacketed concentric neutral (JCN) power cable joint shall meet the requirements of IEEE Std. 404 for a 15 kV rating and be rated by the Manufacturer for use on 15 kV class feeder cable systems.

C. Joint must be rated for continuous operation at 90ºC with an emergency overload temperature rating of 130ºC.

D. The joint shall be capable of splicing the cable(s) previously specified in this Section.

E. The joint shall be suitable for vault, manhole and submersible service applications. Construction shall either be a cold shrink splice body of a molded design made from silicon rubber or a one piece molded rubber device where rubber is EPDM using a peroxide cure. Joint shall be completely sealed with a moisture resistant peroxide cured EPDM cold shrink jacket.

2.07 GROUNDING KITS

A. The grounding kit must provide a reliable method for electrically grounding the neutral of jacketed concentric neutral (JCN) power cables.

B. The grounding connector must be a mechanical, solderless type.

C. The kit shall provide for jacket resealing suitable for vault, manhole and submersible service applications

2.08 SEPARABLE CONNECTORS

A. Separable insulated connectors shall comply with IEEE Std. 386 and IEEE Std. 592 and shall be of suitable construction or standard splice kits shall be used. Separable insulated connectors are acceptable for voltages up to 35 kV. Connectors shall be of the loadbreak type as indicated, of suitable construction for the application and the type of cable connected, and shall include cable shield adapters. Separable insulated connectors shall not be used as substitutes for conventional permanent splices. Eternal clamping points and test points shall be provided.

B. Separable insulated connections shall be rated 15kV 200 amp loadbreak and 600 amp non-loadbreak.

2.09 FAULT INDICATORS

A. Circuit fault indicators shall comply with IEEE Standard 495, and shall be of suitable construction for use with the padmounted switchgear and medium voltage cable selected for use in this project. This shall include, but not be limited to, a 3-phase remote visual display, inrush restraint, and low pass filter to allow for cable discharge. Fault indicators shall be suitable for three phase application, have auxiliary contacts, be powered by line current and be reset by a line current no greater than three (3) amps.

B. Circuit fault indicators shall be suitable for use in a 15 kV system and trip current should pick up at a maximum of 1200 amps.

C. Fault indicators shall be installed at each switchgear site, as well as at each downstream padmounted transformer service fed from the switchgear. Each Vista Switchgear will have 3Ø fault indicators installed on both incoming and outgoing load interrupters, a total of 6

indicators per Vista Switchgear. Single phase, padmount transformers shall have fault indicators installed on the incoming and outgoing circuits at each transformer site. End of line transformers shall only have fault indicators installed on the incoming circuits.

D. Circuit fault indicators by the following manufacturers are acceptable for this project:

1. Cooper
2. Fisher Pierce
3. Schweitzer
4. Or as approved

2.010 APPURTENANCES

A. Lubricant:

1. Cable pulling lubricant shall be Polywater J for installation temperatures of 20º F to 120ºF or Polywater WJ for installation temperatures of -20ºF to 120ºF.

B. Miscellaneous Conductors:

1. Miscellaneous sizes and types as required for jumpers, connections, ties, etc., and handling, holding, tying, re-tying, sagging, etc.

C. Connectors:

1. All terminal connections to current carrying conductors shall be compression type only with NEMA standard 2-hole pad. Once properly crimped, connector must have the same or greater current carrying capacity as the conductor it is crimped.

2. Connectors to grounding conductors (except underground conductors) shall be bronze bolted type.

3. All terminals and connectors to aluminum buswork shall be bolted type.

4. Transition plates shall be used at all aluminum to copper (or bronze) connections, unless tinned connectors are supplied.

D. Surge Arresters:

1. Surge arresters shall be polymer-housed Distribution Class, Riser Pole metal-oxide surge arresters Class manufactured by Ohio Brass (Hubbell Power Systems) or as approved.

E. Cable Tags:

1. Aluminum Cable Tags:
   a Provide tags of aluminum, one-piece wraparound strap type, write on, slotted on one end for attaching the strap. Minimum size of tags shall be one inch wide by 3/64 inch thick and length sufficient for die stamping the identification on one line and banding around the cable or wire, but not less than 10 inches long. Tags shall be die stamped with numbers, letters, and symbols not less than 0.25 inch high and approximately 0.015 inch deep in normal block style.

F. Warning Tape:

1. Warning tape shall be 3 inches wide (minimum) plastic, shall be bright, fade-resistant, red in color, and shall include an imprinted message, CAUTION BURIED ELECTRIC LINE BELOW, repeated continuously throughout the entire length. Tape shall be manufactured specifically for warning and identification of underground cable and conduit and shall be detectable by an electronic detection instrument.

G. Conduit Sealing Compound:

1. Compounds for sealing ducts and conduit shall have a putty-like consistency workable with the hands at temperatures as low as 2ºC (35ºF), shall neither slump at a temperature of 150ºC (300ºF), nor harden materially when exposed to the air. Compounds shall adhere to clean surfaces of plastic ducts; metallic conduits or conduit coatings; concrete, masonry, or lead; any cable sheaths, jackets, covers, or insulation materials; and the common metals. Compounds shall form a seal without dissolving, noticeably changing characteristics, or removing any of the ingredients. Compounds shall have no injurious effect upon the hands of workmen or upon materials.

2.011 POLE LINE HARDWARE

A. All hardware shall be hot-dip galvanized.

B. Locknuts type MF.

C. Miscellaneous:

1. Cable guide bracket, Alumaform CS-800 Series or as approved.

2.012 GROUNDING AND JUMPER CONDUCTORS

A. Conductors shall be soft-drawn copper, unless otherwise noted on Contract Drawings.

B. Connectors larger than No. 4 AWG shall be stranded.

C. Ground rods copper clad 5/8" X 10'-0".

D. Ground rod clamps, hex head set screw, Joslyn Type AB or as approved.

2.013 CONDUIT HARDWARE

A. Conduit sealing bushing for conduit riser shall be OZ Gedney type CSB or as approved.

PART 3. EXECUTION

(NOT USED)

END OF SECTION

ADDENDUM NO. 1

BID 2023-066WL

SPECIFICATIONS AND CONTRACT DOCUMENTS

LABOR AND MATERIAL
FOR
OVERHEAD TO UNDERGROUND UTILITY RELOCATIONS AND/OR STREET LIGHTING ALONG JACKSON ST. BETWEEN MADISON AND FRONT STREET

TUPELO WATER & LIGHT

DECEMBER 20, 2023

This addendum forms a part of the Contract Documents and modifies the original specifications, dated December 20, 2023 noted below. Acknowledge receipt of this Addendum by signing below and attaching to the Bid Documents. Failure to do so may subject bidder to disqualification.

Item No. 1: **Replace the Document "00304 BID FORM" with the revised Document "00304 BID FORM R1" & excel sheet "304 Bid Form R1.xlsx".**
Summary of changes:

Revised secondary underground conductors.
Added 4/0 CU THHN, 2/0 CU THHN, UGTPX2/0 and UGTPX 350

Item No. 2: **Replace Sheet EU1.00 with EU1.00 Revision 1.**
Summary of changes
:

Added Note 8. to Project Notes.

Item No. 3: **Replace Sheet EU1.0Q with EU1.0Q Revision 1.**
Summary of changes:

Revised Install Secondary Units.

Item No. 4: **Replace Sheet EU1.01 thru EU1.03 with EU1.01 Revision thru EU1.03 Revision 1.**
Summary of changes:

Revised 1 Phase routing on north side of Jackson, between Madison & Church Street.

By: Ray Harrington

Bidder: Linetec Sevices Date: 01/22/2024

ADDENDUM NO. 2

BID 2023-066WL

SPECIFICATIONS AND CONTRACT DOCUMENTS

LABOR AND MATERIAL
FOR
OVERHEAD TO UNDERGROUND UTILITY RELOCATIONS AND/OR STREET LIGHTING ALONG JACKSON ST. BETWEEN MADISON AND FRONT STREET

TUPELO WATER & LIGHT

DECEMBER 20, 2023

This addendum forms a part of the Contract Documents and modifies the original specifications, dated December 20, 2023 noted below. Acknowledge receipt of this Addendum by signing below and attaching to the Bid Documents. Failure to do so may subject bidder to disqualification.

Item No. 1: **BID DATE CHANGE**: DOCUMENT 00021, INVITATION TO BIDDERS, 1st paragraph, 3rd line, Replace "THURSDAY, THE 18TH DAY OF JANUARY, 2024" with **"WEDNESDAY , THE 24TH DAY OF JANUARY, 2024.**

Item No. 2: **Replace the Document "00304 BID FORM R1" with the revised Document "00304 BID FORM R2" & excel sheet "304 Bid Form R2.xlsx".**

Summary of changes:

Revised secondary underground conductors.
Added 4/0 CU THHN, 2/0 CU THHN, UGTPX2/0 and UGTPX 350

Revision R1 Had pages 8 of 9 and 9 of 9 missing.

By: Ray Harrington

Bidder: Linetec Services Date: 01/22/2024

State of Mississippi

BOARD OF CONTRACTORS

ACTIVE

LINETEC SERVICES, LLC
19820 N 7TH AVE STE. 120
PHOENIX, AZ 85027-4739

is duly registered and entitled to perform

TRANSMISSION/DISTRIBUTION LINES (ELECTRICAL)

We have hereunto set our hand and caused the Seal of the Mississippi Board of Contractors to be affixed this 5 day of Dec., 2023

BOARD OF CONTRACTORS
STATE OF MISSISSIPPI

CERTIFICATE OF RESPONSIBILITY
No. 23003-SC
Expires Dec. 5, 2024

Joel A. Carroll

CHAIRMAN OF THE BOARD