CONTRACT DOCUMENTS

AND

SPECIFICATIONS

FOR

ASHLAND MUNICIPAL COMPLEX BUILDING (REBID)

FOR THE

TOWN OF ASHLAND, MISSISSIPPI

Project No. ASH-21001
August, 2021

Prepared by:

WARD ENGINEERING
CIVIL ENGINEERING & SURVEYING SERVICES
Ripley, Mississippi
662-837-8545

08/25/2021

TOWN OF ASHLAND, MISSISSIPPI

MUNICIPAL OFFICIALS

MAYOR:
MITCH CARROLL

ALDERMAN:
SANDRA GRESHAM, VICE MAYOR
DON DANIEL
MARK EHRIE
BRIAN JEANS
GREG THOMPSON

TOWN CLERK:
TRINA THOMPSON

TOWN ATTORNEY:
FARESE, FARESE AND FARESE, PA

CONTRACT DOCUMENTS AND ASSEMBLY OF SPECIFICATIONS
ASHLAND MUNICIPAL COMPLEX BUILDING (REBID)
TOWN OF ASHLAND, MISSISSIPPI

ADVERTISEMENT FOR BIDS

Sealed bids for the construction of **MUNICIPAL COMPLEX BUILDING (REBID)** for the TOWN OF ASHLAND, MS will be received by the Town of Ashland, Mississippi at the Town Municipal Building, 16 Fourth Street, Ashland, MS 38603, Attn: Trina Thompson, until **10:00 a.m., Tuesday, September 28th, 2021** and then at said office publicly opened and read aloud.

Contract Documents, including Drawings and Specifications, can be viewed and/or purchased at Ward Engineering, Inc. plan room at www.wardengplans.com. All plan holders are required to have a valid email address for registration. Bid documents are non-refundable and must be purchased through the website. This project is available for electronic bid submittals. Should a bidder choose to submit a bid electronically in place of a sealed bid, it may be submitted at www.wardengplans.com. Any questions regarding website registration, online plan and document(s) purchase, or electronic bidding, should be directed to Plan House Printing at (662) 407-0193.

The work shall consist of: **Furnish and Installation of a Pre-engineered Metal Building and associated site work.**

Each bid submitted must be in a sealed envelope addressed to the Town of Ashland, and clearly marked on the outside "**Bid for: MUNICIPAL COMPLEX BUILDING-REBID, Town of Ashland, MS"**. Any bid in excess of $50,000 must contain on the outside of the envelope the contractor's current certificate of responsibility number, and no bid shall be opened or considered unless this number appears on the outside of the envelope or unless a statement is included on the outside of the envelope indicating that the bid enclosed does not exceed $50,000.

When bidders choose to submit bids electronically, the requirement for including a certificate of responsibility, or a statement that the bid enclosed does not exceed Fifty Thousand Dollars ($50,000.00), on the exterior of the bid envelope shall be deemed in compliance by including the same information as an attachment with the electronic bid submittal. The Bidder is fully responsible for on time delivery of bids regardless of bid submittal method chosen.

A satisfactory Bid Bond executed by the Bidder or an accepted Surety, a certified check, or bank draft payable to the TOWN OF ASHLAND, MISSISSIPPI, on negotiable U.S. Government Bonds (at par value), shall be submitted with each bid in an amount equal to five percent (5%) of the total bid.

Bids may be held up to 30 days from the date of opening for review of bids and qualifications of bidders prior to Contract award. The TOWN OF ASHLAND, MISSISSIPPI reserves the right to reject any or all bids or to waive any informality in the bidding.

Mitch Carroll, Mayor
Town of Ashland

Publish Dates:
August 25, 2021 and September 1, 2021

INFORMATION FOR BIDDERS

1. RECEIPT AND OPENING OF BIDS

The Town of Ashland, Mississippi, (hereinafter called the "OWNER"), invites Bids on the forms attached hereto. Bids will be received by the OWNER at Town Hall, 16 Fourth Street, Ashland, MS 38603 until the time specified in the ADVERTISEMENT FOR BIDS, and then at said office publicly opened and read aloud. The envelope containing the Bids must be sealed and addressed to: TOWN OF ASHLAND, MISSISSIPPI, and designated as Bid for: ASHLAND MUNICIPAL COMPLEX BUILDING (REBID) along with the additional required information as set forth in the Preparation of Bid section contained herein.

The OWNER may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all Bids. Any Bid may be withdrawn prior to the above-scheduled time for the opening of Bids or authorized postponement thereof. Any Bid received after the time and date specified shall not be considered. No Bidder may withdraw a Bid within sixty (30) days after the actual date of the opening thereof.

When a non-resident contractor submits a Bid for a Mississippi public project, he shall attach thereto a copy of his resident State's current law pertaining to such State's treatment of non-resident contractors as required by House Bill Number 850, Chapter Number 527, Laws of 1988. Bidders residing in the states having no contractor preference law shall so state in a letter on contractor's letterhead attached to his bid.

2. PREPARATION OF BID

Each bid must be submitted on the prescribed form. All blank spaces for Bid prices must be filled in (in ink or typewritten) and the foregoing certification must be fully completed when submitted. Should the Bidder fail to correctly submit a Unit Price for Each item, his Bid will be classed as irregular. Failure to properly sign Proposals shall disqualify same.

Each Bid must be submitted in a sealed envelope bearing on the outside the name of the Bidder, his address, his Certificate of Responsibility Number, his State License Number, and the name of the Project for which the Bid is submitted. If forwarded by mail, the sealed envelope containing the Bid must be enclosed in another envelope addressed to the OWNER as specified herein.

3. REJECTION OF PROPOSAL

Proposals may be rejected in the case of any omission, alterations of forms, additions or conditions not called for, unauthorized alternate Bids, incomplete Bids, erasures or irregularities of any kind. CONDITIONAL BIDS WILL NOT BE ACCEPTED. Proposals in which the prices obviously are unbalanced may be rejected. The Owner reserves the right to waive any informality or reject any and all bids.

4. TELEGRAPHIC MODIFICATION

Any Bidder may modify his Bid by telegraphic communication at any time prior to the scheduled closing time for receipt of Bids, providing such telegraphic communication is received by the OWNER prior to the closing time, and provided further, the OWNER is satisfied that a written confirmation of the telegraphic modification over the signature of the Bidder was mailed prior to the closing time. The telegraphic communication should not reveal the Bid Price, but should provide the addition or subtraction or other modification so that the final prices or terms will not be known by the OWNER until the sealed Bid is opened. If written confirmation is not received within two (2) days from the closing time, no consideration will be given to the telegraphic modification.

5. METHOD BIDDING

The OWNER invites only one Bid with alternates thereto, if any. Each Bidder must present a complete Proposal for all of the work as only one Contract will be awarded.

6. QUALIFICATIONS OF BIDDER

The OWNER may make such investigation as he deems necessary to determine the ability of the Bidder to perform the work, and the Bidder shall furnish to the OWNER all such information and data for this purpose as the OWNER may request. The OWNER reserves the right to reject any Bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the OWNER that such Bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplate therein.

7. BID SECURITY

Each Bid must be accompanied by cash, Certified Check of the Bidder, or a Bid Bond prepared on the form of Bid Bond attached hereto, duly executed by the Bidder as principal and having as surety thereon a surety company approved by the Owner, in the amount of five percent (5%) of the Bid. Such cash, checks or Bid Bond will be returned to all except the three lowest Bidders after the opening of Bids. The remaining cash, checks or Bid Bonds will be returned after the OWNER and accepted Bidder have executed the Contract. If no award has been made within thirty (30) days after the date of the opening of Bids, upon demand of the Bidder at any time thereafter, his Bid will be returned by the OWNER so long as the Bidder has not been notified of the acceptance of his Bid.

8. LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO CONTRACT

The successful Bidder, upon his failure or refusal to execute and deliver the Contract and Bonds required within (15) days after he has received notice of the acceptance of his Bid, shall forfeit to the OWNER (as liquidated damages for such failure or refusal) the security deposited with his Bid.

9. TIME OF COMPLETION AND LIQUIDATED DAMAGES

The Bidder must agree to commence work on or before a date to be specified in a written NOTICE TO PROCEED of the OWNER and to fully complete the project within the Contract Time stated in the Agreement and/or Bid Proposal. The Bidder must also agree to pay (as liquidated damages) the sum stated in the Bid Proposal for each working day thereafter as hereinafter provided in the General Conditions.

10. CONDITIONS OF WORK

Each Bidder must inform himself fully of the conditions relating to the construction of the project and employment of labor thereon by conducting site visits and becoming thoroughly familiar with the Contract Documents. Failure to do so will not relieve a successful Bidder of his obligation to furnish all materials and labor necessary to carry out the provisions of his Contract. Insofar as possible, the Contractor, in carrying out his work, must employ such methods or means as will not cause any interruption of or interference with the work of any other contractor.

11. ADDENDA AND INTERPRETATIONS

No interpretations of the meaning of the Plans, Specifications or other pre-bid documents will be made to any Bidder orally.

Every request for such interpretations should be in writing, addressed to:

> WARD ENGINEERING, INC., 1713A City Avenue North, Ripley, MS 38663 or
> Email Mark Ward at mark@wardenginc.com.

and, to be given consideration, must be received at least five (5) days prior to the date fixed for the opening of Bids. Any and all such interpretations and any supplemental instructions will be in the form of written Addenda to the Specifications, which, if issued, will be mailed, to all prospective Bidders (at the respective addresses furnished for such purposes) prior to the date fixed for the opening of Bids. Failure of any Bidder to receive any such Addenda of interpretation shall not relieve such Bidder from any obligation under his Bid as submitted. All addenda so issued shall become part of the Contract documents.

12. SECURITY FOR FAITHFUL PERFORMANCE

Simultaneously with his delivery of the executed Contract, the Contractor shall furnish a Surety Bond or Bonds as security for faithful performance of this Contract and furnishing materials in compliance with this Contract as specified in the General Conditions included herein. The surety on such Bond or Bonds shall be a duly authorized surety company satisfactory to the OWNER.

13. POWER OF ATTORNEY

Attorneys-in-fact who sign Bid Bonds or Contract Bonds must file with each Bond a certified and effectively dated copy of their Power of Attorney.

14. LAWS AND REGULATIONS

The Bidder's attention is directed to the fact that all applicable State laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the Contract throughout, and they will be deemed to be included in the Contract the same as though written out in full.

15. METHOD OF AWARD

If, at the time this Contract is to be awarded, the lowest Base Bid or combination of Base Bid and Alternates submitted by a responsible Bidder and deemed to be in the best interest of the OWNER does not exceed the amount of funds then estimated by the OWNER as available to finance the Contract, the Contract will be awarded to the lowest qualified Bidder. If such Bid exceeds such amount, the OWNER may reject all Bids.

16. OBLIGATION OF BIDDER

BIDDERS must satisfy themselves of the accuracy of the estimated quantities in the BID Schedule by examination of the site and a review of the drawings and specifications including ADDENDA. After BIDS have been submitted, the BIDDER shall not assert that there was a misunderstanding concerning the quantities of WORK or of the nature of the WORK to be done. At the time of the opening of Bids, each Bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the Plans and Contract Documents (including all Addenda). The failure or omission of any Bidder to examine any form, instrument or document shall in no way relieve any Bidder from any obligation in respect to his Bid.

17. SAFETY STANDARDS AND ACCIDENT PREVENTION

With respect to all work performed under this contract, the Contractor shall

A. Comply with the safety standards provisions of applicable laws, building and construction codes.

B. Exercise every precaution at all times for the prevention of accidents and protection of persons (including employees) and property.

C. Maintain at his/her office or other well-known place at the job site, all articles necessary for giving first aid to the injured, and shall make standing arrangements for the immediate removal to a hospital or a doctor's care of persons (including employees), who may be injured on the job site.

18. SCOPE OF WORK

The Bidder agrees to perform all the work described in the Contract Documents and to construct the work, complete in place and ready to use.

19. PRECEDENCE OF DOCUMENTS

The various Contract Documents shall be given precedence, in case of conflict, error or discrepancy in the following order: Addenda, General Specifications, Technical (Item) Specifications, Construction Plans, Information for Bidders, Special Conditions and General Conditions

20. FUEL ADJUSTMENTS

There will be no fuel adjustments for this project.

ASHLAND MUNICIPAL COMPLEX BUILDING (REBID)
TOWN OF ASHLAND, MISSISSIPPI

BID PROPOSAL

Proposal of _____ (hereinafter called "BIDDER"), organized and existing under the laws of the State of Mississippi, doing business as _____.*

To the TOWN OF ASHLAND, MISSISSIPPI, (hereinafter called "OWNER").

In compliance with your Advertisement for Bids, BIDDER hereby proposes provide all materials and to perform all work for ASHLAND MUNICIPAL COMPLEX BUILDING (REBID) within the time set forth herein, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the CONTRACT DOCUMENTS of which this Proposal is a part.

By submission of this BID, each BIDDER certifies, and in the case of a joint BID, each party thereto certifies as to his own organization, that this BID has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this BID with any other BIDDER or with any competitor.

BIDDER hereby agrees to commence work under this contract on or before a date specified in the NOTICE TO PROCEED and to fully complete the PROJECT within 180 consecutive calendar days. BIDDER further agrees to pay as liquidated damages, the sum of $250 for each working day thereafter as provided in the General Conditions.

BIDDER acknowledges receipt of the following ADDENDUM:

_____
_____
_____
_____

*Insert "a corporation", "a partnership", or "an individual" as applicable

BID PROPOSAL

The BIDDER agrees to perform all WORK for the construction of

ASHLAND MUNICIPAL COMPLEX BUILDING (REBID)
TOWN OF ASHLAND, MISSISSIPPI

as described in the CONTRACT DOCUMENTS and shown on the CONSTRUCTION PLANS for the following Unit Prices within the times specified in the Contract Agreement subsequent to the date specified in the NOTICE TO PROCEED.

NOTE: BIDS shall include sales tax, bonds, insurance and all other applicable taxes and fees.

ITEMIZED UNIT PRICES

(Write Unit Prices in Words and Figures---Words govern)

BASE BID ITEMS					
Item	**Item Description**	**Quantity**	**Unit**	**Unit Price**	**Total Item Amount**
1	40’ x 75’ Building over existing slab complete with perimeter foundations, electrical and plumbing as shown.	1	LS		$
					(unit price words)
TOTAL BASE BID (To Be Read Aloud)					$

ADD ALTERNATE NO. 1					
Item	**Item Description**	**Quantity**	**Unit**	**Unit Price**	**Total Item Amount**
1	50’ Roof structure only over existing slab with pier foundations as shown.	1	LS		$
					(unit price words)
TOTAL ADD ALTERNATE (To Be Read Aloud)					$

In case of discrepancies between unit price words and figures, words shall govern. In the case of discrepancies between the total price listed and the total price computed using Quantity multiplied by Unit Price (in words), the computed price as tabulated by the Engineer shall govern in determining the lowest base bid.

Bidder agrees that Bids may not be withdrawn within thirty (30) days after the actual date of the opening thereof. Should there be reasons why the contract cannot be awarded within the specified period; the time may be extended by mutual agreement between the Owner and the Bidder.

RESPECTFULLY SUBMITTED:

Company _____
Attest: _____

SEAL (if Bid is by a Corporation)

Signature _____

Title _____

Address _____

_____

ASHLAND MUNICIPAL COMPLEX BUILDING (REBID)

TOWN OF ASHLAND, MISSISSIPPI

BID BOND

Know all men by these presents, that we, the undersigned, _____,
as Principal, and _____ as
Surety, are hereby held and firmly bound unto THE TOWN OF ASHLAND, MISSISSIPPI, as OWNER in the
Penal sum of _____for the payment
of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors and assigns.

Signed, this _____ day of _____, 20____.

The Condition of the above obligation is such that whereas the Principal has submitted to THE TOWN OF ASHLAND, MISSISSIPPI, a certain Bid, attached hereto and hereby made a part of to enter into contract in writing, for the construction of:

ASHLAND MUNICIPAL COMPLEX BUILDING (REBID)

Now, therefore,

(a) If said BID shall be rejected, or in the alternate,

(b) If said BID shall be accepted and the Principlal shall execute and deliver a contract in the Form of contract attached hereto (properly completed in accordance with said BID) and shall furnish a bond for his faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection there with, and shall in all other respects perform the agreement created by the acceptance of said BID,
then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the OWNER may accept such BID; and said Surety does hereby waive notice of any such extension.

In Witness whereof, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

_____ (L.S.)
(Principal)

_____
(Surety)

By: _____

IMPORTANT - Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

ASHLAND MUNICIPAL COMPLEX BUILDING (REBID)

TOWN OF ASHLAND, MISSISSIPPI

PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS that

_____

_____

a _____, hereinafter called PRINCIPAL

and _____(Name of Surety)

hereinafter called SURETY, are held and firmly bound unto THE TOWN OF ASHLAND, MISSISSIPPI, 16 Fourth Street, Ashland, MS 38603, hereinafter called OWNER, and unto all persons, firms, and corporations, who or which may furnish labor, or who furnish materials to perform as described under the contract and to their successors and assigns in the total aggregate penal sum of _____ _____in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the PRINCIPAL entered into a certain contract with the OWNER, dated the _____ day of _____, 20____, a copy of which is hereto attached and made part hereof for the construction of:

ASHLAND MUNICIPAL COMPLEX BUILDING (REBID)

NOW, THEREFORE, if the PRINCIPAL shall promptly make payment to all persons, firms, and corporations furnishing materials for or performing labor in the prosecution of the WORK provided for in such contract, and any authorized extensions or modifications thereof, including all amounts due for materials, lubricants, oil, gasoline, coal, and coke, repairs on machinery, equipment, and tools, consumed or used in connection with the construction of such WORK, and for all labor cost incurred in such WORK including that by a SUBCONTRACTOR, and to any mechanic or material man lien holder whether it acquired its lien by operation of State or Federal law; then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED, that beneficiaries or claimants hereunder shall be limited to the SUBCONTRACTORS, and persons, firms, and corporations having a direct contract with the PRINCIPAL or its SUBCONTRACTORS.

PROVIDED, FURTHER, that the said SURETY for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the WORK to be performed there under or the SPECIFICATIONS accompanying the same shall in any way effect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of this contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no suit or action shall be commenced hereunder by any claimant: (a) Unless claimant, other than one having a direct contract with the PRINCIPAL, shall have given written notice to any two of the following: the PRINCIPAL, the OWNER, or the SURETY above named within ninety (90) days after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the PRINCIPAL, OWNER, or SURETY, at any place where an office is regularly maintained for the transaction of business, or served in any manner which legal process may be served in the state in which the aforesaid project is located, save that such service need not be made by a public officer. (b) After the expiration of one (1) year following the date of which PRINCIPAL ceased work on said CONTRACT, it being understood, however, that if any limitation embodied in the BOND is prohibited by any law controlling the construction hereof, such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

PROVIDED, FURTHER, that it is expressly agreed that this BOND shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment to the Contract not increasing the contract price more than 20 percent, so as to bind the PRINCIPAL and the SURETY to the full and faithful performance of the Contract as so amended. The term "Amendment", wherever used in this BOND and whether referring to this BOND, the contract, or the Loan Documents shall include any alteration, addition, extension, or modification of any character whatsoever.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in FOUR (4) counter parts, each one of which shall be deemed an original, this the _____ day of _____, 20___.

ATTEST:

_____	_____
(Principal) Secretary	Principal
(SEAL)	By: _____
_____	_____
Witness as to Principal	Address
_____	_____
Address	
_____	_____
	Surety
ATTEST:	
_____	By: _____
Witness as to Surety	Attorney-In-Fact
_____	_____
Address	Address
_____	_____

NOTE 1: Date of Bond must not be prior to date of Agreement. If Contractor is Partnership, all partners should execute Bond. Surety Companies executing bonds must appear on the Treasury Department's Circular 570 (most current) and be authorized to transact business in the state where the project is located.

ASHLAND MUNICIPAL COMPLEX BUILDING (REBID)

TOWN OF ASHLAND, MISSISSIPPI

PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS that

_____

_____

a _____, hereinafter called PRINCIPAL

and _____(Name of Surety) hereinafter called SURETY, are held and firmly bound unto THE TOWN OF ASHLAND, MISSISSIPPI, 16 Fourth Street, Ashland, MS 38603, hereinafter called OWNER, in the total aggregate penal sum of

_____ in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the PRINCIPAL entered into a certain contract with the OWNER, dated the _____ day of _____, 20____, a copy of which is hereto attached and made part hereof for the construction of:

ASHLAND MUNICIPAL COMPLEX BUILDING (REBID)

NOW, THEREFORE, if the PRINCIPAL shall well, truly, and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the OWNER with or without notice to the SURETY and during one year guaranty period and if the PRINCIPAL shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void, otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said security, for value receive hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the contract or the WORK to be performed thereunder or the SPECIFICATIONS accompanying same shall in any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that it is expressly agreed that this BOND shall be deemed amended automatically and immediately, without formal and separate amendments hereto, upon amendment to the Contract not increasing the contract price more than 20 percent, so as to bind the PRINCIPAL and the SURETY to the full and faith full performance of the Contract as so amended. The term "Amendment", wherever used in this BOND and whether referring to this BOND, the contract, or the Loan Documents shall include any alteration, addition, extension, or modification of any character whatsoever.

PROVIDED, FURTHER, that no final settlement between the OWNER and the PRINCIPAL shall abridge the right of the other beneficiary hereunder, whose claim may be unsatisfied. The OWNER is the only beneficiary hereunder.

IN WITNESS WHEREOF, this instrument is executed in FOUR (4) counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20____.

ATTEST:

_____	_____
(Principal) Secretary	Principal
(SEAL)	By: _____
_____	_____
Witness as to Principal	Address
_____	_____
_____	_____
	Surety
ATTEST:	
_____	By: _____
Witness as to Surety	Attorney-In-Fact
_____	_____
Address	Address
_____	_____

NOTE 1: Date of Bond must not be prior to date of Agreement. If Contractor is Partnership, all partners should execute Bond. Surety Companies executing bonds must appear on the Treasury Department's Circular 570 (most current) and be authorized to transact business in the state where the project is located.

COUNTERSIGNED BY:

_____

Resident Mississippi Agent

ASHLAND MUNICIPAL COMPLEX BUILDING (REBID)
TOWN OF ASHLAND, MISSISSIPPI

AGREEMENT

This AGREEMENT, made this _____ day of _____, 2021 by and between THE TOWN OF ASHLAND, MISSISSIPPI, hereinafter called "OWNER" and _____, doing business as (an individual,) or (a partnership,) or (a corporation,) hereinafter called "CONTRACTOR".

WITNESSETH: That for and consideration of the payments and agreements hereinafter mentioned:

1. The CONTRACTOR will commence and complete the construction of ASHLAND MUNICIPAL COMPLEX BUILDING (REBID).
2. The CONTRACTOR will furnish all of the material, supplies, tools, equipment, labor and other services necessary for the construction and completion of the project described herein.
3. The CONTRACTOR will commence the work required by the CONTRACT DOCUMENTS on or before the date of the NOTICE TO PROCEED and will complete the same within 180 consecutive calendar days unless the period for completion is extended otherwise by the CONTRACT DOCUMENTS.
4. The CONTRACTOR agrees to perform all of the WORK described in the CONTRACT DOCUMENTS for the sum of _____, being the amount of the accepted proposal and subject to proper additions and/or deductions at the unit prices as stated in the proposal or otherwise provided for by modification.
5. The term "CONTRACT DOCUMENTS" means and includes the following:

   (A) Advertisement for Bids
   (B) Information for Bidders
   (C) Bid Proposal
   (D) Bid Documents
   (E) Bid Bond
   (F) Agreement
   (G) Certificate of Owner's Attorney
   (H) General Conditions
   (I) Special Conditions
   (J) Payment Bond
   (K) Performance Bond
   (L) Notice of Award
   (M) Notice to Proceed
   (N) Change Order
   (O) Drawings, specifications, and addenda prepared by Ward Engineering, Inc.

6. The OWNER will pay to the CONTRACTOR in the manner and at such times as set forth in the General Conditions such amounts as required by the CONTRACT DOCUMENTS.

AGREEMENT (CONT.)

7. This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns. IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this agreement in four copies, each of which shall be deemed an original on the date first written.

OWNER:

TOWN OF ASHLAND, MISSISSIPPI

BY:_____
Name: _____
Title: _____

ATTEST:

BY:_____
Name: _____
Title: _____ **OWNER'S SEAL**

CONTRACTOR:

BY:_____
Name: _____
Title: _____

ATTEST:

BY:_____
Name: _____
Title: _____ **CORPORATE SEAL**

NOTE: If CONTRACTOR is a corporation, secretary should attest.

ASHLAND MUNICIPAL COMPLEX BUILDING (REBID)

TOWN OF ASHLAND, MISSISSIPPI

CERTIFICATE OF OWNER'S ATTORNEY

I, the undersigned, _____, the duly authorized and acting legal representative of THE TOWN OF ASHLAND, MISSISSIPPI, do hereby certify as follows:

I have examined the attached contract(s) and performance and payment bond(s) and the manner of execution thereof, and I am of the opinion that each of the aforesaid agreements has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties named thereon; and that the foregoing agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with terms, conditions, and provisions thereof.

NAME: _____

DATE: _____

NOTE: Delete phrase "performance and payment bond(s)" when not applicable.

GENERAL CONDITIONS

1. Definitions
2. Additional Instructions and Detail Drawings
3. Schedules, Reports, and Records
4. Drawings and Specifications
5. Shop Drawings
6. Materials, Services, and Facilities
7. Inspection and Testing
8. Substitutions
9. Patents
10. Surveys, Permits, Regulations
11. Protection of Work, Property, Persons
12. Supervision by Contractor
13. Changes in Work
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18. Suspension of Work, Termination, and Delay
19. Payments to Contractor
20. Acceptance of Final Payment as Release
21. Insurance
22. Contract Security
23. Assignments
24. Indemnification
25. Separate Contracts
26. Subcontracting
27. Engineer's Authority
28. Land and Rights-of-Way
29. Guaranty
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31. Taxes
32. Environmental Requirements
33. Record Drawings
34. Claims for Delays
35. Fuel, Energy, and Water
36. Street Maintenance
37. Cleaning Up

DEFINITIONS

1.1 Wherever used in the CONTRACT DOCUMENTS, the following terms shall have the meanings indicated and shall be applicable to both the singular and plural thereof:

1.2 ADDENDA - Written or graphic instruments issued prior to the execution of the Agreement which modify or interpret the CONTRACT DOCUMENTS, DRAWINGS and SPECIFICATIONS, by additions, deletions, clarifications, or corrections.

1.3 BID - The offer or proposal of the BIDDER submitted on the prescribed form setting forth the prices for the WORK to be performed.

1.4 BIDDER - Any person, firm or corporation submitting a BID for the WORK.

1.5 BONDS - Bid, Performance, and Payment Bonds and other instruments of surety, furnished by the CONTRACTOR and the CONTRACTOR'S surety in accordance with the CONTRACT DOCUMENTS.

1.6 CHANGE ORDER - A written order to the CONTRACTOR authorizing an addition, deletion, or revision in the WORK within the general scope of the CONTRACT DOCUMENTS, or authorizing an adjustment in the CONTRACT PRICE or CONTRACT TIME.

1.7 CONTRACT DOCUMENTS - The contract, including Advertisement for BIDS, Information for BIDDERS, BID, BID BOND, Agreement, Payment BOND, Performance BOND, NOTICE OF AWARD, NOTICE TO PROCEED, CHANGE ORDER, DRAWINGS, SPECIFICATIONS, and ADDENDA.

1.8 CONTRACT PRICE - The total monies payable to the CONTRACTOR under the conditions and terms of the CONTRACT DOCUMENTS.

1.9 CONTRACT TIME - The number of calendar days stated in the CONTRACT DOCUMENTS for the completion of the WORK.

1.10 CONTRACTOR - The person, firm, or corporation with whom the OWNER has executed the Agreement.

1.11 DRAWINGS - The parts of the CONTRACT DOCUMENTS which show the characteristics and scope of the WORK to be performed and which have been prepared or approved by the ENGINEER.

1.12 ENGINEER - The person, firm, or corporation named as such in the CONTRACT DOCUMENTS.

1.13 FIELD ORDER - A written order effecting a change in the WORK not involving an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, issued by the ENGINEER to the CONTRACTOR during construction.

1.14 NOTICE OF AWARD - The written notice of the acceptance of the BID from the OWNER to the successful BIDDER.

1.15 NOTICE TO PROCEED - Written communication issued by the OWNER to the CONTRACTOR authorizing him/her to proceed with the WORK and establishing the date for commencement of the WORK.

1.16 OWNER - A public or quasi-public body or authority, corporation, association, partnership, or an individual for whom the WORK is to be performed.

1.17 PROJECT - The undertaking to be performed as provided in the CONTRACT DOCUMENTS.

1.18 RESIDENT PROJECT REPRESENTATIVE - The authorized representative of the OWNER who is assigned to the PROJECT site or any part thereof.

1.19 SHOP DRAWINGS - All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the CONTRACTOR, a SUBCONTRACTOR, manufacturer, SUPPLIER or distributor, which illustrate how specific portions of the WORK shall be fabricated or installed.

1.20 SPECIFICATIONS - A part of the CONTRACT DOCUMENTS consisting of written descriptions of a technical nature of materials, equipment, construction systems, standards and workmanship.

1.21 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.

1.22 SUBSTANTIAL COMPLETION – Substantial Completion shall be defined as when all portions of the Contract are completed in accordance with all requirements of the Contract Documents.

1.23 SPECIAL CONDITIONS – Information or conditions imposed as a part of the Contract Documents, or requirements that may be imposed by applicable state laws at the time of Project letting.

1.24 SUPPLIER - Any person or organization who supplies materials or equipment for the WORK, including that fabricated to a special design, but who does not perform labor at the site.

1.25 WORK - All labor necessary to produce the construction required by the CONTRACT DOCUMENTS, and all materials and equipment incorporated or to be incorporated in the PROJECT.

1.26 WRITTEN NOTICE - Any notice to any party of the Agreement relative to any part of this Agreement in writing and considered delivered and the service thereof completed, when posted by certified or registered mail to the said party at their last given address, or delivered in person to said party or their authorized representative on the WORK.

1.27 STANDARDS - The following words, symbols, letters, or abbreviations shall be deemed to have the following meaning and shall refer to the latest current revision of said standard or specification applicable in effect of the date of opening bids:

AASHTO-American Association of State Highway and Transportation Officials
ACI -American Concrete Institute
AIA -American Insurance Association (formerly National Board of Fire Underwriters)
ANSI -American National Standards Institute
ASME -American Society of Mechanical Engineers
ASTM -American Society for Testing and Materials
AWWA -American Water Works Association
NEMA -National Electrical Manufacturer's Association
SBH -State Board of Health
MDOT -Mississippi Department of Transportation

2.0 ADDITIONAL INSTRUCTIONS AND DETAIL DRAWINGS

2.1 The CONTRACTOR may be furnished additional instructions and detail drawings, by the ENGINEER, as necessary to carry out the WORK required by the CONTRACT DOCUMENTS.

2.2 The additional drawings and instructions thus supplied will become a part of the CONTRACT DOCUMENTS. The CONTRACTOR shall carry out the WORK in accordance with the additional detail drawings and instructions.

3.0 SCHEDULES, REPORTS AND RECORDS

3.1 The CONTRACTOR shall submit to the OWNER such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data where applicable as are required by the CONTRACT DOCUMENTS for the WORK to be performed.

3.2 Prior to the first partial payment estimate the CONTRACTOR shall submit construction progress schedules showing the order in which the CONTRACTOR proposes to carry on the WORK, including dates at which the various parts of the WORK will be started, estimated date of completion of each part and, as applicable:

3.2.1 The dates at which special detail drawings will be required; and

3.2.2 Respective dates for submission of SHOP DRAWINGS, the beginning of manufacture, the testing and the installation of materials, supplies and equipment.

3.3 The CONTRACTOR shall also submit a schedule of payments that the CONTRACTOR anticipates will be earned during the course of the WORK.

4.0 DRAWINGS AND SPECIFICATIONS

4.1 The intent of the DRAWINGS and SPECIFICATIONS is that the CONTRACTOR shall furnish all labor, materials, tools, equipment, and transportation necessary for the proper execution of the WORK in accordance with the CONTRACT DOCUMENTS and all incidental work necessary to complete the PROJECT in an acceptable manner, ready for use, occupancy or operation by the OWNER.

4.2 In case of conflict between the DRAWINGS and SPECIFICATIONS, the SPECIFICATIONS shall govern. Figure dimensions on DRAWINGS shall govern over general DRAWINGS.

4.3 Any discrepancies found between the DRAWINGS and SPECIFICATIONS and site conditions or any inconsistencies or ambiguities in the DRAWINGS or SPECIFICATIONS shall be immediately reported to the ENGINEER, in writing, who shall promptly correct such inconsistencies or ambiguities in writing. WORK done by the CONTRACTOR after discovery of such discrepancies, inconsistencies or ambiguities shall be done at the CONTRACTOR'S risk.

5.0 SHOP DRAWINGS

5.1 The CONTRACTOR shall provide SHOP DRAWINGS as may be necessary for the prosecution of the WORK as required by the CONTRACT DOCUMENTS. The ENGINEER shall review all SHOP DRAWINGS. The ENGINEER'S review of any SHOP DRAWINGS shall not release the CONTRACTOR from responsibility for deviations from the CONTRACT DOCUMENTS. .

5.2 When submitted for the ENGINEER'S review, SHOP DRAWINGS shall bear the CONTRACTOR'S certification that he has reviewed, checked and approved the SHOP DRAWINGS and that they are in conformance with the requirements of the CONTRACT DOCUMENTS.

5.3 Portions of the WORK requiring a SHOP DRAWING or sample submission shall not begin until the SHOP DRAWING or submission has been reviewed by the ENGINEER. A copy of each SHOP DRAWING and each sample shall be kept in good order by the CONTRACTOR at the site and shall be available to the ENGINEER.

6.0 MATERIALS, SERVICES AND FACILITIES

6.1 It is understood that, except as otherwise specifically stated in the CONTRACT DOCUMENTS, the CONTRACTOR shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, supervision, temporary construction of any nature, and all other services and facilities of any nature whatsoever necessary to execute, complete, and deliver the WORK within the specified time, unless state otherwise herein.

6.2 Materials and equipment shall be so stored as to insure the preservation of their quality and fitness for the WORK. Stored materials and equipment to be incorporated in the WORK shall be located so as to facilitate prompt inspection.

6.3 Manufactured articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer.

6.4 Materials, supplies, and equipment shall be in accordance with samples submitted by the CONTRACTOR and approved by the ENGINEER.

6.5 Materials, supplies, or equipment to be incorporated into the WORK shall not be purchased by the CONTRACTOR or the SUBCONTRACTOR subject to a chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller.

7.0 INSPECTION AND TESTING

7.1 All materials and equipment used in the construction of the PROJECT shall be subject to adequate inspection and testing in accordance with generally accepted standards, as required and defined in the CONTRACT DOCUMENTS.

7.2 The OWNER shall provide all inspection and testing services not required by the CONTRACT DOCUMENTS.

7.3 The CONTRACTOR shall provide at the CONTRACTOR'S expense the testing and inspection services required by the CONTRACT DOCUMENTS.

7.4 If the CONTRACT DOCUMENTS, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any WORK to specifically be inspected, tested, or approved by someone other than the CONTRACTOR, the CONTRACTOR will give the ENGINEER timely notice of readiness. The CONTRACTOR will then furnish the ENGINEER the required certificates of inspection, testing or approval.

7.5 Inspections, tests, or approvals by the ENGINEER or others shall not relieve the CONTRACTOR from the obligations to perform the WORK in accordance with the requirements of the CONTRACT DOCUMENTS.

7.6 The ENGINEER and the ENGINEER'S representatives will at all times have access to the WORK. In addition, authorized representatives and agents of any participating Federal or State or Local agency shall be permitted to inspect all work, materials, payrolls, records or personnel, invoices of materials, and other relevant data and records. The CONTRACTOR will provide proper facilities for such access and observation of the WORK and also for any inspection or testing thereof.

7.7 If any WORK is covered prior to notification, or contrary to the instructions of the ENGINEER it must, if requested by the ENGINEER, be uncovered for the ENGINEER'S observation and replaced at the CONTRACTOR'S expense.

7.8 If the ENGINEER considers it necessary or advisable that covered WORK be inspected or tested by others, the CONTRACTOR, at the ENGINEER'S request, will uncover, expose or otherwise make available for observation, inspection or testing as the ENGINEER may require, that portion of the WORK in question, furnishing all necessary labor, materials, tools, and equipment. If it is found that such WORK is defective, the CONTRACTOR will bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction, if, however, such WORK is not found to be defective, the CONTRACTOR will 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 an appropriate CHANGE ORDER shall be issued.

8.0 SUBSTITUTIONS

8.1 Whenever a material, article, or piece of equipment is identified on the DRAWINGS or SPECIFICATIONS by reference to brand name or catalog numbers, it shall be understood that this is referenced for the purpose of defining
the performance or other salient requirements and that other products of equal capacities, quality and function shall be considered. The CONTRACTOR may recommend the substitution of a material, article, or piece of equipment of equal substance and function for those referred to in the CONTRACT DOCUMENTS by reference to brand name or catalog number, and if, in the opinion of the ENGINEER, such material, article, or piece of equipment is of equal substance and function to that specified, the ENGINEER may approve its substitution and use by the CONTRACTOR. Any cost differential shall be deductible from the CONTRACT PRICE and the CONTRACT DOCUMENTS shall be appropriately modified by CHANGE ORDER. The CONTRACTOR warrants that if substitutes are approved, no major changes in the function or general design of the PROJECT will result. Incidental changes or extra component parts required to accommodate the substitute will be made by the CONTRACTOR without a change in the CONTRACT PRICE or CONTRACT TIME.

9.0 PATENTS

9.1 The CONTRACTOR shall pay all applicable royalties and license fees, and shall defend all suits or claims for infringement of any patent rights and save the OWNER harmless from loss on account thereof, except that the OWNER shall be responsible for any such loss when a particular process, design, or product of a particular manufacturer or manufacturers is specified, however, if the CONTRACTOR has reason to believe that the design, process, or product specified is an infringement of a patent, the CONTRACTOR shall be responsible for such loss unless the CONTRACTOR promptly gives such information to the ENGINEER.

10.0 SURVEYS, PERMITS AND REGULATIONS

10.1 From the information provided by the OWNER, unless otherwise specified in the CONTRACT DOCUMENTS, the CONTRACTOR shall develop and make all detail surveys needed for construction such as slope stakes, batter boards, stakes for pipe locations and other working points, lines, elevations and cut sheets.

10.2 The CONTRACTOR shall carefully preserve benchmarks, reference points and stakes and, in case of willful or careless destruction, shall be charged with the resulting expense and shall be responsible for any mistake that may be caused by their unnecessary loss or disturbance. All points of reference (existing or set) shall be checked and verified by the Contractor prior to commencement of work.

10.3 Permits and licenses of a temporary nature necessary for the prosecution of the WORK shall be secured and paid for by the CONTRACTOR unless otherwise stated in the SUPPLEMENTAL GENERAL CONDITIONS. Permits, licenses, and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the OWNER, unless otherwise specified. The CONTRACTOR shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the WORK as drawn and specified. If the CONTRACTOR observes that the CONTRACT DOCUMENTS are at variance therewith, the CONTRACTOR shall promptly notify the ENGINEER in writing, and any necessary changes shall be adjusted as provided in the Section pertaining to, CHANGES IN THE WORK.

11.0 PROTECTION OF WORK, PROPERTY, AND PERSONS

11.1 The CONTRACTOR will be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the WORK. The CONTRACTOR will take all necessary precautions for the safety of, will provide the necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury or loss to all employees on the WORK and other persons who may be affected thereby, all the WORK and all materials or equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

11.2 The CONTRACTOR will comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction. The CONTRACTOR will erect and maintain, as required by the conditions and progress of the WORK, all necessary safeguards for safety and protection. The CONTRACTOR will notify owners of adjacent utilities when prosecution of the WORK may affect them. The CONTRACTOR will remedy all damage, injury or loss to any property caused, directly or indirectly, in whole or part, by the CONTRACTOR, any SUBCONTRACTOR or anyone directly or indirectly employed by any of them or anyone of whose acts any of them be liable, except damage or loss attributable to the fault of the CONTRACT DOCUMENTS or to the acts or omissions of the OWNER, of the 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.

11.3 In emergencies affecting the safety of persons or the WORK or property at the site or adjacent thereto, the CONTRACTOR, without special instructions or authorization from the ENGINEER or OWNER, shall act to prevent threatened damage, injury or loss. The CONTRACTOR will give the ENGINEER prompt WRITTEN NOTICE of any significant changes in the WORK or deviations from the CONTRACT DOCUMENTS caused thereby, and a CHANGE ORDER shall thereupon be issued covering the changes and deviations involved.

12.0 SUPERVISION BY CONTRACTOR

12.1 The CONTRACTOR will supervise and direct the WORK. He will be solely responsible for the means, methods, techniques, sequences and procedures of construction. The CONTRACTOR will employ and maintain on the WORK a qualified supervisor or superintendent who shall have been designated in writing by the CONTRACTOR as the CONTRACTOR'S representative at the site. The supervisor shall have full authority to act on behalf of the CONTRACTOR and all communications given to the supervisor shall be as binding as if given to the CONTRACTOR. The supervisor shall be present on the site at all times as required to perform adequate supervision and coordination of the WORK.

13.0 CHANGES IN THE WORK

13.1 The OWNER may at any time, as the need arises, order changes within the scope of the WORK without invalidating the Agreement. If such changes increase or decrease the amount due under the CONTRACT DOCUMENTS, or in the time required for performance of the WORK, an equitable adjustment shall be authorized by CHANGE ORDER.

13.2 The ENGINEER, also, may at any time, by issuing a FIELD ORDER, make changes in the details of the WORK. The CONTRACTOR shall proceed with the performance of any changes in the WORK so ordered by the ENGINEER unless the CONTRACTOR believes that such FIELD ORDER entitles the CONTRACTOR to a change in CONTRACT TIME or PRICE, or both, in which event the CONTRACTOR shall give the ENGINEER WRITTEN NOTICE thereof within seven (7) days after receipt of the ordered change. Thereafter the CONTRACTOR shall document the basis for the change in CONTRACT PRICE or TIME within thirty (30) days. The CONTRACTOR shall not execute such changes pending the receipt of an executed CHANGE ORDER or further instruction from the OWNER.

14.0 CHANGES IN CONTRACT PRICE

14.1 The CONTRACT PRICE may be changed only by a CHANGE ORDER. The value of any WORK covered by a CHANGE ORDER or of any claim for increase or decrease in the CONTRACT PRICE shall be determined by one or more of the following methods in the order of precedence listed below:

a. Unit prices previously approved.
b. An agreed lump sum.

14.2 The quantities of Unit Pay Items listed in the Proposal forms are to be considered approximate only. The Engineer reserves the right to make such alterations in the Plans or in the extent of the work as he may consider desirable or necessary during the progress of the work to satisfactorily complete the proposed construction.

14.3 The Owner may, under this reservation, increase or decrease any or all of the quantities of Pay Items as set forth in the Proposal, or delete certain items of work from the Contract. Increased or decreased quantities of items will be paid for at the unit bid price.

14.4 It is understood that variations in quantities, within the above limitations, shall not be considered as a waiver of any conditions of the Contract, nor invalidate the Contractor's Proposal and the Contractor shall perform the work as increased or decreased from the Unit Contract Prices as bid.

15.0 TIME FOR COMPLETION AND LIQUIDATED DAMAGES

15.1 The date of beginning and the time for completion of the WORK are essential conditions of the CONTRACT DOCUMENTS and the WORK embraced shall be commenced on a date specified in the NOTICE TO PROCEED.

15.2 The CONTRACTOR will proceed with the WORK at such rate of progress to insure full completion within the CONTRACT TIME. It is expressly understood and agreed, by and between the CONTRACTOR and the OWNER, that the CONTRACT TIME for the completion of the WORK described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the WORK.

During the process of determining the workforce effort necessary for completion of the work within the Contract Time, the Contractor shall consider the Normal Adverse Weather Days for the type of work and the seasonal period of the work being performed. The number of normal adverse weather days to be included in these considerations shall be as follows:

Jan. – 21	Feb. – 17	March – 12	April – 9	May – 9
June – 9	July – 9	Aug. – 8	Sept. – 7	Oct. – 5
Nov. – 11	Dec. – 17			

Normal adverse weather days as shown above are defined by the National Weather Service as being those with temperatures of 32 degrees or less, or precipitation of 0.1 inches or more, based on a 6 day work week. If the Contractor fails to complete the Work within the Contract Time, the Adverse Weather Days in excess of those shown above for each month, may be considered for an extension of the Contract Time.

15.3 If the CONTRACTOR shall fail to complete the WORK within the CONTRACT TIME, or extension of time granted by the OWNER, the Contractor does hereby agree, as a part consideration for the awarding of this contract, to pay to the Owner the amount specified in the contract, not as a penalty but as liquidated damages for such breach of contract as hereinafter set forth, for each working day that the CONTRACTOR shall be in default after the time stipulated in the CONTRACT DOCUMENTS for completing the work. The said amount is fixed and agreed upon by and between the Contractor and the Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain, and said amount is agreed to be the amount of damages which the Owner would in sustain and said amount shall be retained by the Owner from current periodical estimates.

For the purpose of determining the number of working days considered for liquidated damages, a working day shall be defined as a day in which the weather and soil conditions permit the Contractor to proceed with work operations on the controlling item or items of work in progress at that time, for a period of not less than six (6) hours. The number of working days shall be based on a five-day workweek exclusive of state recognized legal holidays, or days on which delays are attributed to the Owner, governmental authorities, catastrophic events, or time periods awaiting the vegetative growth and coverage of plant growth, or the curing of asphalt or concrete.

15.4 The CONTRACTOR shall not be charged with liquidated damages or any excess cost when the delay in completion of the WORK is due to the following and the CONTRACTOR has promptly given WRITTEN NOTICE of such delay to the OWNER or ENGINEER.

15.4.1 To any preference, priority or allocation order duly issued by the OWNER.

15.4.2 To unforeseeable causes beyond the control and without the fault or negligence of the CONTRACTOR, including but not restricted to, acts of God, or of the public enemy, acts of the OWNER, acts of another CONTRACTOR in the performance of a contract with the OWNER, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and abnormal and unforeseeable weather.

15.4.3 To any delays of SUBCONTRACTORS occasioned by any of the causes specified in paragraphs 15.4.1 and 15.4.2 of this article.

15.4.4 Interim completion dates may be required by the CONTRACT DOCUMENTS to support owner occupancy or subsequent construction by other contractors. If interim completion dates are specified, the contractor shall complete the work required for that activity as indicated in the CONTRACT SPECIFICATIONS and shown in the CONTRACT DRAWINGS within the specified time. All contract provisions relating to time for completion and liquidated damages shall apply to interim completion dates.

16.0 CORRECTION OF WORK

16.1 The CONTRACTOR shall promptly remove from the premises all WORK rejected by the ENGINEER for failure to comply with the CONTRACT DOCUMENTS, whether incorporated in the construction or not, and the CONTRACTOR shall promptly replace and re-execute the WORK in accordance with the CONTRACT DOCUMENTS and without expense to the OWNER and shall bear the expense of making good all WORK of other CONTRACTORS destroyed or damaged by such removal or replacement.

16.2 All removal and replacement WORK shall be done at the CONTRACTOR'S expense. If the CONTRACTOR does not take action to remove such rejected WORK within ten (10) days after receipt of WRITTEN NOTICE, the OWNER may remove such WORK and store the materials at the expense of the CONTRACTOR.

17.0 SUBSURFACE CONDITIONS

17.1 It is the responsibility of the CONTRACTOR to become familiar with the project site, the construction process, and the nature of the physical ground as to the extent necessary for the completion of the WORK as specified in the CONTRACT DOCUMENTS, prior to bidding the project. If during construction, conditions are encountered that differ from those normally encountered during projects of similar nature or location, the CONTRACTOR shall promptly, and before such conditions are disturbed, except in the event of an emergency, notify the OWNER by WRITTEN NOTICE of unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in WORK of the character provided for in the CONTRACT DOCUMENTS.

17.2 The OWNER shall promptly investigate the conditions, and if it is found that such conditions do so materially differ and cause an increase or decrease in the cost of, or in the time required for, performance of the WORK, an equitable adjustment shall be made and the CONTRACT DOCUMENTS shall be modified by a CHANGE ORDER. Any claim of the CONTRACTOR for adjustment hereunder shall not be allowed unless the required WRITTEN NOTICE has been given; provided that the OWNER may, if the OWNER determines the facts so justify, consider and adjust any such claims asserted before the date of final payment.

17.3 The existence of, and location of some of the known utilities and obstructions are indicated on the plans but are not guaranteed. The Contractor shall make sufficient investigation and inspections, at the site of the work, to enable him to determine the existence of, and exact nature and location of all such drainage structures, underground and overhead obstructions, fences, and public and private utilities that will be disturbed in the prosecution of the work. The Contractor shall repair or replace such utilities and improvements, which are damaged by his operations so as to function properly, at his own expense and in a manner and condition equal to that of such utilities and improvements prior to damage. Fences which must be crossed shall be repaired to an “as was” condition.

18.0 SUSPENSION OF WORK, TERMINATION, AND DELAY

18.1 The OWNER may suspend the WORK or any portion thereof for a period of not more than ninety days or such further time as agreed upon by the CONTRACTOR, by WRITTEN NOTICE to the CONTRACTOR and the ENGINEER, which shall fix the date on which WORK shall be resumed. The CONTRACTOR will be allowed an increase in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, directly attributable to any suspension.

18.2 If the CONTRACTOR is adjudged a bankrupt or insolvent, or makes a general assignment for the benefit of its creditors, or if a trustee or receiver is appointed for the CONTRACTOR or for any of its property, or if CONTRACTOR files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or applicable lays, or repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or repeatedly fails to make prompt payments to SUBCONTRACTORS or for labor, materials or equipment or disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction of the WORK or disregards the authority of the ENGINEER, or otherwise violates any provision of the CONTRACT DOCUMENTS, then the OWNER may, without prejudice to any other right or remedy and after giving the CONTRACTOR and its surety a minimum of ten (10) days from delivery of a WRITTEN NOTICE, terminate the services of the CONTRACTOR and take possession of the PROJECT and of all materials, equipment, tools, construction equipment and machinery thereon owned by the CONTRACTOR, or secure the services of another Contractor and finish the WORK by whatever method 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 and indirect costs of completing the PROJECT, including compensation for additional professional services, such excess SHALL BE PAID TO THE CONTRACTOR. If such costs exceed such unpaid balance, the CONTRACTOR will pay the difference to the OWNER. Such costs incurred by the OWNER will be determined by the ENGINEER and incorporated in a CHANGE ORDER.

18.3 Where the CONTRACTOR'S services have been so terminated by the OWNER, said termination shall not affect any right of the OWNER against the CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of monies by the OWNER due the CONTRACTOR will not release the CONTRACTOR from compliance with the CONTRACT DOCUMENTS.

18.4 After ten (10) days from delivery of a WRITTEN NOTICE to the CONTRACTOR and the ENGINEER, the OWNER may, without cause and without prejudice to any other right or remedy, elect to abandon the PROJECT and terminate the CONTRACT. In such case the CONTRACTOR shall be paid per contract unit price for all WORK completed in accordance with the Contract Documents.

18.5 If, through no act or fault of the CONTRACTOR, the WORK is suspended for a period of more than ninety (90) days by the OWNER or under an order of court or other public authority, or the ENGINEER fails to act on any request for payment within thirty (30) days after it is submitted, or the OWNER fails to pay the CONTRACTOR substantially the sum approved by the ENGINEER or awarded by arbitrators within thirty (30) days of its approval and presentation, then the CONTRACTOR may, after ten (10) days from delivery of a WRITTEN NOTICE to the OWNER and the ENGINEER terminate the CONTRACT and recover from the OWNER payment for all WORK executed and all executed and all expenses sustained. In addition and in lieu of terminating the CONTRACT, if the ENGINEER has failed to make any payment as aforesaid, the CONTRACTOR may upon ten (10) days written notice to the OWNER and the ENGINEER stop the WORK until paid all amounts then due, in which event and upon resumption of the WORK CHANGE ORDERS shall be issued for adjusting the CONTRACT PRICE or extending the CONTRACT TIME or both to compensate for the costs and delays attributable to the stoppage of the WORK.

18.6 If the performance of all or any portion of the WORK is suspended, delayed, or interrupted as a result of a failure of the OWNER or ENGINEER to act within the time specified in the CONTRACT DOCUMENTS, or if no time is specified, within a reasonable time, an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, shall be made by CHANGE ORDER to compensate the CONTRACTOR for the costs and delays necessarily caused by the failure of the OWNER or ENGINEER.

19.0 PAYMENT TO CONTRACTOR

19.1 At least ten (10) days before each progress payment falls due (but not more often than once a month), the CONTRACTOR will submit to the ENGINEER a partial payment estimate filled out and signed by the CONTRACTOR covering the WORK performed during the period covered by the partial payment estimate and supported by such data as the ENGINEER may reasonably require. The submitted progress payment shall be accompanied by a monthly certification to the Engineer indicating payments to subcontractors. If payment is requested on the basis of materials and equipment not incorporated in the WORK but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data, satisfactory to the OWNER, as will establish the OWNER'S title to the material and equipment and protect the OWNER'S interest therein, including applicable insurance. The ENGINEER will, within ten (10) days after receipt of each partial payment estimate, either indicate in writing approval of payment, and present the partial payment estimate to the OWNER, or return the partial payment estimate to the CONTRACTOR indicating in writing the reasons for refusing to approve payment. In the latter case, the CONTRACTOR may make the necessary corrections and resubmit the partial payment estimate. The OWNER will, within thirty (30) days of presentation of an approved partial payment estimate, pay the CONTRACTOR a progress payment on the basis of approved partial payment estimate less retainage. The retainage shall be an amount equal to five percent (5%) until the work is at least fifty percent (50%) complete, on schedule, and satisfactory in the Engineer's opinion, at which time fifty percent (50%) of the retainage held to date shall be returned to the Prime Contractor for distribution to the appropriate subcontractors and suppliers. Future retainage shall be withheld at the rate of two and one-half percent (2-1/2%). Upon substantial completion of the work, any amount retained may be paid to the CONTRACTOR. When the WORK has been substantially completed except for WORK which cannot be completed because of weather conditions, lack of materials or other reasons which in the judgment of the OWNER are valid reasons for noncompletion, the OWNER may make additional payments, retaining at all times an amount sufficient to cover the estimated cost of the WORK still to be completed.

19.2 Prior to SUBSTANTIAL COMPLETION, the OWNER, with the approval of the ENGINEER and with the concurrence of the CONTRACTOR, may use any completed or partially completed portions of the WORK. Such use shall not constitute an acceptance of such portions of the WORK.

19.3 The OWNER shall have the right to enter the premises for the purpose of doing work not covered by the CONTRACT DOCUMENTS. This provision shall not be construed as relieving the CONTRACTOR of the sole responsibility for the care and protection of the WORK, or the restoration of any damaged WORK except such as may be caused by agents or employees of the OWNER.

19.4 Upon completion and acceptance of the WORK, the ENGINEER shall issue a certificate attached to the approved final payment request that the WORK has been accepted under the conditions of the CONTRACT DOCUMENTS. The entire balance found to be due the CONTRACTOR, including the retainage percentages, but except such sums as may be lawfully retained by the OWNER, shall be paid to the CONTRACTOR within thirty (30) days of completion and acceptance of the WORK. In no event shall said final payment due the Contractor be made until the Engineer is provided with the following: 1) Written certification from the Contractor that all suppliers and subcontractors have been paid. 2) Written consent of Final Payment from the Contractor's Surety.

19.5 The CONTRACTOR will indemnify and save the OWNER or the OWNER'S agents harmless from all claims growing out of the lawful demand of SUBCONTRACTORS, laborers, workmen, mechanics, material, men, and furnishers of machinery and part thereof, equipment, tools, and all supplies, incurred in the furtherance of the performance of the WORK. The CONTRACTOR shall furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived. If the CONTRACTOR fails to do so the OWNER may, after having notified the CONTRACTOR, either pay unpaid bills or withhold from the CONTRACTOR'S unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the CONTRACTOR shall be resumed in accordance with the terms of the CONTRACT DOCUMENTS, but in no event shall the provisions of this sentence be construed to impose any obligations upon the OWNER to either the CONTRACTOR, the CONTRACTOR'S Surety, or any third party. In paying any unpaid bills of the CONTRACTOR, any payment so made by the OWNER shall be considered as a payment made under the CONTRACT DOCUMENTS by the OWNER to the CONTRACTOR and the OWNER shall not be liable to the CONTRACTOR for any such payments made in good faith.

20.0 ACCEPTANCE OF FINAL PAYMENT AS RELEASE

20.1 The acceptance by the CONTRACTOR of final payment shall be and shall operate as a release to the OWNER of all claims and all liability to the CONTRACTOR other than claims in stated amounts as may be specifically excepted by the CONTRACTOR for all things done or furnished in connection with this WORK and for every act and neglect of the OWNER and others relating to or arising out of this WORK. Any payment, however, final otherwise, shall not release the CONTRACTOR or its sureties from any obligations under the CONTRACT DOCUMENTS or the Performance and Payment BONDS.

21.0 INSURANCE

21.1 The CONTRACTOR shall purchase and maintain such insurance as will protect it from claims set forth below which may arise out of, or result from, the CONTRACTOR'S execution of the WORK, whether such execution be by the CONTRACTOR, any SUBCONTRACTOR, or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

21.1.1 Claims under workmen's compensation, disability benefit and other similar employee benefit acts;

21.1.2 Claims for damages because of bodily injury, occupational sickness or disease, or death of employees;

21.1.3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than employees;

21.1.4 Claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the CONTRACTOR, or (2) by any other person; and

21.1.5 Claims for damages because of injury to or destruction of tangible property, including loss of use resulting there from.

21.2 Certificates of Insurance acceptable to the OWNER shall be filed with the OWNER prior to commencement of the WORK. These Certificates shall contain a provision that coverages afforded under the policies will not be canceled unless at least fifteen (15) days prior WRITTEN NOTICE has been given to the OWNER.

21.3 The CONTRACTOR shall procure and maintain, at the CONTRACTOR'S own expense, during the CONTRACT TIME, Liability insurance as hereinafter specified:

21.3.1 CONTRACTOR'S General Public Liability and Property Damage Insurance including vehicle coverage issued to the CONTRACTOR and protecting the CONTRACTOR from all claims for personal injury, including death, and all claims for destruction of or damage to property, arising out of or in connection with any operations under the CONTRACT DOCUMENTS, whether such operations be by the CONTRACTOR or by any SUBCONTRACTOR employed by the CONTRACTOR or anyone directly or indirectly employed by the CONTRACTOR or by a SUBCONTRACTOR employed by the CONTRACTOR. Insurance shall be written with a limit of liability of not less than $1,000,000 for all damages arising out of bodily injury, including death, at any time resulting there from, sustained by any one person in any one accident; and a limit of liability of not less than $1,000,000 aggregate for any such damages sustained by two or more persons in any one accident. Insurance shall be written with a limit of liability of not less than $500,000 for all property damage sustained by any one person in any one accident; and a limit of liability of not less than $500,000 aggregate for any such damage sustained by two or more persons in any one accident.

21.3.2 The CONTRACTOR shall acquire and maintain, if applicable, Fire, Flood and Extended Coverage insurance value thereof for the benefit of the OWNER, the CONTRACTOR, and SUBCONTRACTORS as their interest may appear. This provision shall in no way release the CONTRACTOR or CONTRACTOR'S surety from obligations under the CONTRACT DOCUMENTS to fully complete the PROJECT.

21.4 The CONTRACTOR shall procure and maintain, at the CONTRACTOR'S own expense, during the CONTRACT TIME, in accordance with the provisions of the laws of the state in which the WORK is performed, Workmen's Compensation Insurance, including occupational disease provisions, for all of the CONTRACTOR'S employees at the site of the PROJECT and in case any WORK is sublet, the CONTRACTOR shall require such SUBCONTRACTOR similarly to provide Workmen's Compensation Insurance, including occupational disease provisions for all of the latter's employees unless such employees are covered by the protection afforded by the CONTRACTOR. In case any class of employees engaged in hazardous work under this contract at the site of the PROJECT is not protected under Workmen's Compensation statue, the CONTRACTOR shall provide, and shall cause each SUBCONTRACTOR to provide, adequate and suitable insurance for the protection of its employees not otherwise protected.

21.5 The CONTRACTOR shall secure, if applicable, "All Risk" type Builder's Risk Insurance for WORK to be performed. Unless specifically authorized by the OWNER, the amount of such insurance shall not be less than the CONTRACT PRICE totaled in the BID. The policy shall cover not less than the losses due to fire, explosion, hail, lightning, vandalism, malicious mischief, wind, collapse, riot, aircraft, flood, and smoke during the CONTRACT TIME, and until the WORK is accepted by the OWNER. The policy shall name as the insured the CONTRACTOR, and the OWNER.

22.0 CONTRACT SECURITY

22.1 The CONTRACTOR shall within ten (10) days after the receipt of the NOTICE OF AWARD furnish the OWNER with the Performance BOND and a Payment BOND in penal sums equal to the amount of the CONTRACT PRICE, conditioned upon the performance by the CONTRACTOR of all undertakings, covenants, terms, conditions and agreements of the CONTRACT DOCUMENTS, and upon the prompt payment by the CONTRACTOR to all persons supplying labor and materials in the prosecution of the WORK provided by the CONTRACT DOCUMENTS. Such BONDS shall be executed by the CONTRACTOR and a corporate bonding company licensed to transact such business in the state in which the WORK is to be performed and named on the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Treasury Department Circular Number 570. The expense of these BONDS shall be borne by the CONTRACTOR. If at any time a surety on any such BOND is declared a bankrupt or loses its right to do business in the state in which the WORK is to be performed or is removed from the list of Surety Companies accepted on Federal Bonds, CONTRACTOR shall within ten (10) days after notice from the OWNER to do so, substitute an acceptable BOND (or BONDS) in such form and sum and signed by such other surety or sureties as may be satisfactory to the OWNER. The premiums on such BOND shall be paid by the CONTRACTOR. No further payment shall be deemed due nor shall be made until the new surety or sureties shall have furnished an acceptable BOND to the OWNER.

23.0 ASSIGNMENTS

23.1 Neither the CONTRACTOR nor the OWNER shall sell, transfer, assign, or otherwise dispose of the Contract or any portion thereof, or of any right, title or interest therein, or any obligation there under, without written consent of the other party.

24.0 INDEMNIFICATION

24.1 The CONTRACTOR will indemnify and hold harmless the OWNER and the ENGINEER and their agents and employees from and against all claims, damages, losses and expenses including attorney's fees arising out of or resulting from the performance of the WORK, provided that any such claims, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property including the loss of use resulting therefrom; and is caused in whole or in part by any negligent or willful act or omission of the CONTRACTOR or SUBCONTRACTOR, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.

24.2 In any and all claims against the OWNER or the ENGINEER, or any of their agents or employees, by any employee of the CONTRACTOR, any SUBCONTRACTOR, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type or damages, compensation or benefits payable by or for the CONTRACTOR or any SUBCONTRACTOR under Workmen's Compensation acts, disability benefit acts or other employee benefits acts.

24.3 The obligation of the CONTRACTOR under this paragraph shall not extend to the liability of the ENGINEER, its agents or employees arising out of the preparation of approval of maps, DRAWINGS, opinions, reports, surveys, CHANGE ORDERS, designs, or SPECIFICATIONS.

25.0 SEPARATE CONTRACT

25.1 The OWNER reserves the right to let other contracts in connection with this PROJECT. The CONTRACTOR shall afford other CONTRACTORS reasonable opportunity for the introduction and storage of their materials and the execution of their WORK, and shall properly connect and coordinate the WORK with theirs. If the proper execution or results of any part of the CONTRACTOR'S WORK depends upon the WORK of any other CONTRACTOR, the CONTRACTOR shall inspect and promptly report to the ENGINEER any defects in such WORK that render it unsuitable for such proper execution and results.

25.2 The OWNER may perform additional WORK related to the PROJECT or the OWNER may let other contracts containing provisions similar to these. The CONTRACTOR will afford the other CONTRACTORS who are parties to such Contracts (or the OWNER, if the OWNER is performing the additional WORK) reasonable opportunity for the introduction and storage of materials and equipment and the execution of WORK, and shall properly connect and coordinate the WORK with theirs.

25.3 If the performance of additional WORK by other CONTRACTORS or the OWNER is not noted in the CONTRACT DOCUMENTS prior to the execution of the CONTRACT, WRITTEN NOTICE thereof shall be given to the CONTRACTOR prior to starting any additional WORK. If the CONTRACTOR believes that the performance of such additional WORK by the OWNER or others involves it in additional expense or entitles it to an extension of the CONTRACT TIME, the CONTRACTOR may make a claim thereof as provided in Sections 14 and 15.

26.0 SUBCONTRACTING

26.1 The CONTRACTOR may utilize the services of specialty SUBCONTRACTS on those parts of the WORK which, under normal contracting practices, are performed by specialty SUBCONTRACTORS.

26.2 The CONTRACTOR shall not award WORK to SUBCONTRACTOR(S), in excess of fifty (50%) percent of the CONTRACT PRICE, without prior written approval of the OWNER.

26.3 The CONTRACTOR shall be fully responsible to the OWNER for the acts and omissions of its SUBCONTRACTORS, and of persons either directly or indirectly employed by them, as the CONTRACTOR is for the acts and omissions of persons directly employed by it.

26.4 The CONTRACTOR shall cause appropriate provisions to be inserted in all subcontracts relative to the WORK to bind SUBCONTRACTORS to the CONTRACTOR by the terms of the CONTRACT DOCUMENTS insofar as applicable to the WORK of SUBCONTRACTORS and give the CONTRACTOR the same power as regards terminating any subcontract that the OWNER may exercise over the CONTRACTOR under any provision of the CONTRACT DOCUMENTS.

26.5 Nothing contained in this CONTRACT shall create any contractual relationship between any SUBCONTRACTOR and the OWNER.

27.0 ENGINEER'S AUTHORITY

27.1 The ENGINEER shall act as the OWNER'S representative during the construction period, shall decide questions which may arise as to quality and acceptability of materials furnished and WORK performed, and shall interpret the intent of the CONTRACT DOCUMENTS in a fair and unbiased manner. The ENGINEER will make periodic visits to the site to determine if the WORK is proceeding in general accordance with the CONTRACT DOCUMENTS.

27.2 The CONTRACTOR will be held strictly to the intent of the CONTRACT DOCUMENTS in regard to the quality of materials, workmanship, and execution of the WORK. Inspections may be at the factory or fabrication plant of the source of material supply.

27.3 The ENGINEER will not be responsible for the construction means, controls, techniques, sequences, procedures, or construction safety.

27.4 The ENGINEER shall promptly make decisions relative to interpretation of the CONTRACT DOCUMENTS.

28.0 LAND AND RIGHTS-OF-WAY

28.1 Prior to issuance of NOTICE TO PROCEED, the OWNER shall obtain all land and rights-of-way necessary for carrying out and for the completion of the WORK to be performed pursuant to the CONTRACT DOCUMENTS, unless otherwise mutually agreed.

28.2 The OWNER shall provide to the CONTRACTOR information, which delineates and describes the lands owned and rights-of-way acquired.

28.3 The CONTRACTOR shall provide at its own expense and without liability to the OWNER any additional land and access thereto that the CONTRACTOR may desire for temporary construction facilities, or for storage of materials.

29.0 GUARANTEE

29.1 The CONTRACTOR shall guarantee all materials and equipment furnished and WORK performed for a period of one (1) year from the date of SUBSTANTIAL COMPLETION. The CONTRACTOR warrants and guarantees for a period of one (1) year from the date of SUBSTANTIAL COMPLETION of the system that the completed system is free from all defects due to faulty materials or workmanship and the CONTRACTOR shall promptly make such corrections as may be necessary by reason of such defects including the repairs of the damage of other parts of the system resulting from such defects. The OWNER will give notice of observed defects with reasonable promptness. In the event that the CONTRACTOR should fail to make such repairs, adjustments, or other WORK that may be made necessary by such defects, the OWNER may do so and charge the CONTRACTOR the cost thereby incurred. The Performance Bond shall remain in full force and effect through the guarantee period.

30.0 ARBITRATION BY MUTUAL AGREEMENT

30.1 All claims, disputes, and other matters in questions arising out of, or relating to, the CONTRACT DOCUMENTS or the breach thereof, except for claims which have been waived by the making an acceptance of final payment as provided by the CONTRACT DOCUMENTS, may be decided by arbitration if the parties mutually agree. Any agreement to arbitrate shall be specifically enforceable under the prevailing arbitration law. The award rendered by the arbitrators shall be final, and judgment may be entered upon it in any court having jurisdiction thereof.

30.2 Notice of the request for arbitration shall be filed in writing with the other party to the CONTRACT DOCUMENTS and a copy shall be filed with the ENGINEER. Request for arbitration shall in no event be made on any claim, dispute, or other matter in question which would be barred by the applicable statute of limitations.

30.3 The CONTRACTOR will carry on the WORK and maintain the progress schedule during any arbitration proceedings, unless otherwise mutually agreed in writing.

31.0 TAXES

31.1 The CONTRACTOR will pay all sales, consumer, use, and other similar taxes required by the laws of the place where the WORK is performed.

32.0 ENVIRONMENTAL REQUIREMENTS

The CONTRACTOR, when constructing a project involving trenching and/or other related earth excavation, shall comply with the following environmental constraints.

32.1 WETLANDS - The CONTRACTOR, when disposing of excess, spoil, or other construction materials on public or private property, WILL NOT FILL IN or otherwise CONVERT WETLANDS.

32.2 FLOODPLAINS - The CONTRACTOR, when disposing of excess, spoil, or other construction materials on public or private property, WILL NOT FILL IN or otherwise CONVERT 100 YEAR FLOODPLAIN areas delineated on the latest FEMA Floodplain Maps.

32.3 HISTORIC PRESERVATION - Any excavation by the CONTRACTOR that uncovers an historical or archaeological artifact shall be immediately reported to the PROJECT ENGINEER. Construction shall be temporarily halted pending the notification process and further directions issued after consultation with the State Historic Preservation Officer (SHPO).

32.4 ENDANGERED SPECIES - The CONTRACTOR shall comply with the Endangered Species Act, which provides for the protection of endangered and/or threatened species and critical habitat. Should any evidence of the presence of endangered and/or threatened species or their critical habitat be brought to the attention of the CONTRACTOR, the CONTRACTOR will immediately report this evidence to the PROJECT ENGINEER. Construction shall be temporarily halted pending the notification process and further directions issued after consultation with the U.S. Fish and Wildlife Service.

33.0 RECORD DRAWINGS

33.1 The Contractor shall make a record of all changes in the contract drawings and specifications and shall change the contract drawings and specs to reflect all changes made. The Engineers will furnish a set of reproducible drawings to the Contractor on which changes shall be made. Additional sheets shall be drawn on mylar film as required. Record drawings and specifications shall be completed and furnished to the Engineers prior to the submission of the request for final payment. Keep records current and do not cover or conceal any work until the required information has been recorded.

The following items shall be recorded on the record drawings:

1. Depths of various elements in relation to datum.
2. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.

3.Location of internal appurtenances concealed in construction referenced to visible and accessible features of the work.
4.Field changes of dimension and detail.
5.Changes made by Change Order.
6.Details not on original Contract Drawings.
7.Locations of plugged openings for future connections.

Specifications and Addenda shall be legibly marked up to record:

1.Manufacture, trade name, catalog number and supplier of each product and item of equipment actually installed.
2.Changes made by Change Order.
3.Other matters not originally specified.

33.2 Shop Drawings shall be maintained as record documents and legibly annotate drawings to record changes made after review.

34.0 CLAIMS FOR DELAY

34.1 No claim for delay damages will be allowed the Contractor resulting from change orders executed by him.

35.0 FUEL, ENERGY, AND WATER

35.1 The Contractor shall furnish all fuels, electric power and other energies, water and other consumables used in the prosecution of the work including testing and trial operations until in the opinion of Engineers, the work or part thereof, is substantially complete and in use by the Owner, at which time the Owner will begin paying power bills for that part. Arrangements shall be made in advance of need with utilities involved.

36.0 STREET MAINTENANCE

36.1 The Contractor, at his own expense, shall be required to maintain the streets and thoroughfares disturbed, in a passable condition, providing means of ingress and egress to persons residing and conducting business thereon where possible.

36.2 The Contractor shall provide additional earth backfill or adding surfacing materials for excavation and/or trenches in streets or thoroughfares, if and when the shrinkage sets in and shall shape and re-shape and grade and re-grade as in the opinion of the Engineers is necessary to maintain all thoroughfares disturbed in good condition from the time of initial excavation to the date of final acceptance. All streets and alleys shall be left in a good and satisfactory condition. In general, the Contractor shall not be required to construct or maintain detours, or to maintain streets disturbed beyond the date of final acceptance of the other work.

36.3 The Contractor shall provide facilities on a 24 hours, 7 day basis for pulling vehicles bogged down due to his operations.

36.4 The Contractor shall at locations where streets and public thoroughfares have been disturbed by excavations, or his equipment or operations, at all times while the work is in progress, take precautions for the protection of the public by placing and maintaining adequate flagmen, barricades, red flags and/or lights.

37.0 CLEANING UP

37.1 As each portion of the work is completed, the Contractor shall clean up and remove from the site all rubbish and old and unused materials and fill all holes and cavities made for his convenience, and shall leave the site in a neat, presentable and usable condition, restored to original or better condition.

37.2 Cleaning up is considered to be an integral, important and necessary function of each item of work. Where work on unit price items are substantially complete but lack clean-up and/or corrections ordered by the Engineer, amounts shall be deducted from unit prices in partial payment estimates to amply cover such clean-up and corrections.

When the above grounds are removed, payment shall be made for amounts withheld because of them.

SPECIAL CONDITIONS

1. Safety – The Contractor shall bear the full responsibility for Safety on the project site for the duration of the project.

2. Maintenance of Traffic - The Contractor is solely responsible for all safety devices necessary for insuring the safety of traffic through the construction zone and for compliance with the MUTCD part VI. The traffic control plan, if made a part of the contract documents, is considered a minimum amount of traffic control required, and does not relieve the Contractor from providing additional components conforming to the MUTCD as necessary for the safe travel of traffic through the construction zone. A competent, trained, and experienced Traffic Safety Officer capable of reviewing and maintaining construction zone safety shall be designated by the Contractor prior to the commencement of the project.

3. Construction Staking – Construction staking for the project will be the responsibility of the Contractor from benchmarks, control points, or reference lines provided by the owner. The CONTRACTOR shall carefully preserve such benchmarks, reference points and stakes and, in case of willful or careless destruction, shall be charged with the resulting expense and shall be responsible for any mistake that may be caused by their unnecessary loss or disturbance. All points of reference (existing or set) shall be checked and verified by the Contractor prior to commencement of work.

4. The Contractor shall be responsible for the layout of concrete removal areas after approved foundation plan. The removal and disposal of existing concrete slab will be by Owner.

5. Fuel adjustments will not be allowed on this project.

6. The Contractor shall supply and maintain rest room facilities (Port-A-Johns) at appropriate locations in the vicinity of the work area(s). Periodic moving of these facilities may be required as the work area progresses along the project.

7 Any utility mains or service lines damaged by the Contractors operations shall be repaired or replaced by the Contractor immediately. Prior to commencement of work in the vicinity of utility mains or service lines, the Contractor shall have appropriate resources available to make needed repairs without undue length of service outage to local property owners and businesses. The location of all valves necessary for isolation of the area under construction shall be determined prior to commencement of work. A One-Call utility locate shall be performed prior to work commencement.

8. An erosion control plan and permitting shall be the responsibility of the Contractor. Any items shown on the plans shall be considered as minimum requirements.

ASHLAND MUNICIPAL COMPLEX BUILDING (REBID)

TOWN OF ASHLAND, MISSISSIPPI

NOTICE OF AWARD

To:_____

_____

_____

PROJECT Description: **ASHLAND MUNICIPAL COMPLEX BUILDING (REBID)**

The OWNER has considered the BID submitted by you dated _____, for the above-described work in response to its Advertisement for Bids and Information for Bidders.

You are hereby notified that your BID has been accepted for items in the amount of _____.

You are required to execute the Agreement and furnish the required Contractor's Performance Bond and Payment Bond within (15) calendar days from the date of this Notice to you.

If you fail to execute said Agreement and to furnish said bonds within (15) days from the date of this notice, said OWNER will be entitled to consider all your rights arising out of the OWNER's acceptance of your BID as abandoned and as a forfeiture of your Bid Bond. The OWNER will be entitled to such rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.
Dated this _____ day of _____, 20_____.

Owner : *TOWN OF ASHLAND, MISSISSIPPI*
By : _____

Title : _____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged by _____ this the _____ day of _____, 20_____.

By: _____

Title: _____

ASHLAND MUNICIPAL COMPLEX BUILDING (REBID)

TOWN OF ASHLAND, MISSISSIPPI

NOTICE TO PROCEED

To: _____ Date: _____

_____

_____

Project: **ASHLAND MUNICIPAL COMPLEX BUILDING (REBID)**

You are hereby notified to commence work in accordance with the Agreement dated _____, 20___, on or before _____, 20___, and you are to complete all WORK within 180 consecutive calendar days thereafter.

The date of completion of all WORK is therefore _____, 20___.

TOWN OF ASHLAND, MISSISSIPPI

Owner

By: _____

Title:_____

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by _____ this the _____ day of _____, 20___.

By: _____

Title: _____

ASHLAND MUNICIPAL COMPLEX BUILDING (REBID)

TOWN OF ASHLAND, MISSISSIPPI

CHANGE ORDER

Order No.: _____

Date: _____

Agreement Date: _____

PROJECT: ASHLAND MUNICIPAL COMPLEX BUILDING (REBID)

OWNER: TOWN OF ASHLAND, MISSISSIPPI

The following changes are hereby made to the CONTRACT DOCUMENTS:

Justification:

ORIGINAL CONTRACT PRICE $_____

CURRENT CONTRACT PRICE adjusted by previous CHANGE ORDER: $_____

The CONTRACT PRICE due to this CHANGE ORDER will be decreased by: $_____

The new CONTRACT PRICE including this CHANGE ORDER will be: $_____

The CONTRACT TIME will be (increased)(decreased) by _____ calendar days.

The date for completion of all work will be _____.

Approvals required:

Requested by (OWNER): _____

Recommended by (ENGINEER): _____

Accepted by (CONTRACTOR): _____

TECHNICAL SPECIFICATIONS
for
MUNICIPAL COMPLEX BUILDING

TOWN OF ASHLAND, MISSISSIPPI

TABLE OF CONTENTS; TECHNICAL SPECIFICATIONS

MUNICIPAL COMPLEX BUILDING

TOWN OF ASHLAND, MISSISSIPPI

SECTION 01000 – SCOPE OF WORK & SUPPLEMENTAL INFORMATION

1. **GENERAL**: The work to be performed under this Contract shall consist of furnishing all labor, tools, equipment and materials and performing all work necessary for the complete construction of all facilities depicted by the Contract Drawings and specified herein. The major items of work shall consist of, but are **not** limited to the following:

   MOBILIZATION
   SITEWORK
   SERVICE UTILITIES
   CONCRETE PAVING
   BUILDING CONSTRUCTION
   EROSION CONTROL

2. **LOCATION**: The project site is located at 15870 Boundary Drive Ashland, MS, 38603
3. **STANDARDS**: Any reference to a specification or designation of the American Society for Testing and Materials (ASTM), American Water Works Association (AWWA), American Standards Association (ASA), Commercial Standards (CS), National Sanitation Foundation (NSF), Federal Specifications, Mississippi Standard Specifications for State Aid Road and Bridge Construction, Mississippi Standard Specifications for Road and Bridge Construction, Mississippi Department of Transportation Roadway Design Standard Drawing or other standards, codes, or orders refers to the most recent or latest specification or designation and any issued addenda. Where names of specific products may be designated in these specifications, or in the details appearing on the Contract Drawings, the intent is to state the general type or quality of product desired without ruling out the use of other products of equal type and quality, provided that use of such other products of equal type and quality has been approved in writing by the Engineer prior to installation.

4. **STANDARD SPECIFICATIONS**: Applicable portions of "MISSISSIPPI STANDARD SPECIFICATIONS FOR STATE AID ROAD AND BRIDGE CONSTRUCTION", 2004 Edition, and the "MISSISSIPPI STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", 2004 Edition are made a part of this specification fully and completely as if attached hereto except where superseded by Special Provisions or amended by revisions. All references to Standard Specifications shall mean the Mississippi Standard Specifications for Road and Bridge Construction, 2004 Edition, unless otherwise indicated. Special Provisions and Revised Specifications adopted and approved are made a part hereof fully and completely as if attached hereto.

   It shall be the responsibility of the Bidder to acquire a copy of these Specifications and become familiar with all applicable Sections and Subsections. Copies of these documents may be obtained from the Mississippi Department of Transportation, Post Office Box 1850, Jackson, Mississippi 39215-1850.

5. **LAYOUT AND CONSTRUCTION STAKING**: Contractor shall be responsible for all staking as required. Control points are provided on the plans and contractor will be furnished with an electronic layout drawing for staking purposes.

6. **QUALITY CONTROL**: The Contractor shall be responsible for providing materials, which meet the requirements of the specifications contained herein. Test Reports and/or Certification by the manufacturer or material supplier, properly notarized, shall be furnished to the Contractor and the Engineer for all materials supplied for the project.

   The Owner reserves the right to withhold payment for any work or materials, which have not been approved by the Engineer, or certified in accordance with the specifications, contained herein.

7. **UNDERGROUND UTILITIES**: The approximate location of known underground utilities is shown on the Construction Plans. In addition to the utilities shown, there may also be additional underground utilities, which have not been detected. It shall be the responsibility of the Contractor to notify the Owner and all utility companies with underground utilities and give notification of intent to excavate in the area of the project, and to contact the Mississippi One-Call utility locator service at 811 (1-800-227-6477) prior to excavation activities. Failure by the Contractor to notify the Owner and said utility companies shall make the Contractor liable under State law for any damages incurred to underground utilities.

   The Contractor assumes all responsibility for any damage to underground utilities.

8. **GUARANTEE**: The Contractor shall guarantee all work done under these Contract Documents for a period of one year from the date of substantial completion. This guarantee shall include the repair, without cost to the Owner, of any defect due to design, materials, and/or workmanship. Performance and payment bonds shall remain in effect during the Warranty Period. Inspection will be held by the owner to ascertain any defects prior to release and final acceptance.

END OF SECTION

SECTION 02281

TERMITE CONTROL

PART GENERAL

1.01 SECTION INCLUDES

A. Soil treatment for termite control.

1.02 RELATED SECTIONS

A. Section 02315 -Excavation and Fill.

1.03 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Not used.

1.04 REFERENCES

A. EPA - Environmental Protection Agency - Federal Insecticide, Fungicide and Rodenticide Act.

B. State and local Codes: Regulations Governing Pest Control Operators.

1.05 SUBMITTALS

A. Product Data: Indicate each toxicant to be used, composition by percentage, dilution schedule, intended application rate.

B. Test Reports: Indicate regulatory agency approval reports when required.

C. Manufacturer's Installation Instructions: Indicate caution requirements and.

1.06 PROJECT RECORD DOCUMENTS

A. Product Data: Indicate each toxicant to be used, composition by percentage, dilution schedule, intended application rate.

B. Test Reports: Indicate regulatory agency approval reports when required.

C. Manufacturer's Installation Instructions: Indicate caution requirements and restrictions.

D. Manufacturer's Certificate: Required. Certify that toxicants meet or exceed specified requirements.

1.07 PROJECT RECORD DOCUMENTS

A. Accurately record moisture content of soil before application, date and rate of application, areas of application, diary of meter readings and corresponding soil coverage.

B. Keep project records in accordance with the requirements of regulations governing Pest Control Operators.

1.08 MAINTENANCE DATA

A. Maintenance Date: Indicate re-treatment schedule an optional service contract should be made available.

1.09 QUALIFICATIONS

A. Applicator: Company specializing in performing the work of this Section and currently licensed by the State and local governments as required

1.10 REGULATORY REQUIREMENTS

A. Conform to all applicable codes in force for requirements for application licensing.

B. Provide all necessary certification indicating that toxicants are approved for their intended use by State and local governments.

1.11 SEQUENCING

A. Application to be coordinated with General Contractor prior to the placing of concrete.

1.12 WARRANTY

A. Provide a five year warranty.

B. Warranty: Include coverage for damage and repairs to building and building contents caused by termites. Repair damage. Re-treat where required.

C. Inspections and reports are to be submitted to the Owner in writing.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Certified as in 1.06, E.

2.02 MATERIALS

A. Toxicant Chemical: EPA and State approved; synthetically color dyed to permit visual identification of treated soil.

B. Diluent: Recommended by toxicant manufacturer.

2.03 MIX

A. Mix toxicant to manufacturer's instructions.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify site conditions.

B. Verify that soil surfaces are unfrozen, sufficiently dry to absorb toxicant, and ready to receive treatment.

C. Verify final grading is complete.

3.02 APPLICATION

A. Apply toxicant in accordance with label describing manufacturer's instructions for use.

B. Apply toxicant to the area of the building footprint as described on the drawings. Apply also to an area extending out an additional 10 feet from the building perimeter in all directions.

C. Apply extra treatment to structure penetration surfaces such as pipe or ducts, and soil penetrations such as grounding rods or posts.

D. Re-treat disturbed treated soil with same toxicant as original treatment.

E. If inspection of testing identifies the presence of termites, re-treat soil and re-test.

3.03 PROTECTION OF FINISHED WORK

A. Protect construction materials and finished Work. The Contractor is to take the necessary precautions to assure that termites are not introduced into any construction materials that are left on untreated ground. Wood or cellulose based products should be isolated from the ground to prevent infection with termites.

B. Do not permit soil grading over treated work.

C. Re-treat as per 3.02, D.

3.06 SCHEDULES

A. Locations

1. Under Slabs-on-Grade.

2. Under base of Foundation Surface.

3. Soil Within 10 feet of Building Perimeter for a Depth of 2 feet.

4. Treat the perimeter of the existing construction adjacent to the new construction.

END OF SECTION

SECTION 02300 - EARTHWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Project Specific Geotech Report.

1.2 SUMMARY

A. This Section includes the following:
   1. Preparing subgrades for walks, pavements, lawns, and plantings.
   2. Subbase course for concrete walks and pavements.
   3. Base course for pavements.
   4. Excavating and backfilling trenches for buried mechanical and electrical utilities and pits for buried utility structures.

B. Related Sections include the following:
   1. Division 1 Section "Construction Facilities and Temporary Controls."
   2. Division 2 Section "Site Clearing" for site stripping, grubbing, removing topsoil, and protecting trees to remain.
   3. Division 2 Section "Lawns and Grasses" for finish grading, including placing and preparing topsoil for lawns and plantings.
   4. Division 3 Section "Cast-in-Place Concrete" for granular course over vapor retarder.
   5. Division 15 and 16 Sections for excavating and backfilling buried mechanical and electrical utilities and buried utility structures.

1.3 DEFINITIONS

A. Backfill: Soil materials used to fill an excavation.
   1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
   2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Layer placed between the subbase course and asphalt paving.

C. Bedding Course: Layer placed over the excavated subgrade in a trench before laying pipe.

D. Borrow: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course: Layer supporting slab-on-grade used to minimize capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations.

1. Additional Excavation: Excavation below subgrade elevations as directed by Architect or Engineer. Additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
2. Bulk Excavation: Excavations more than 10 feet in width and pits more than 30 feet in either length or width.
3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated dimensions without direction by Architect or Engineer. Unauthorized excavation, as well as remedial work directed by Architect or Engineer, shall be without additional compensation.

G. Fill: Soil materials used to raise existing grades.

H. Rock: Rock material in beds, ledges, unstratified masses, and conglomerate deposits and boulders of rock material 3/4 cu. yd. or more in volume that when tested by an independent geotechnical testing agency, according to ASTM D 1586, exceeds a standard penetration resistance of 100 blows/2 inches.

I. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

J. Subbase Course: Layer placed between the subgrade and base course for asphalt paving, or layer placed between the subgrade and a concrete pavement or walk.

K. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

L. Utilities include on-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.4 SUBMITTALS

A. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:
1. Classification according to ASTM D 2487 of each on-site or borrow soil material proposed for fill and backfill.
2. Laboratory compaction curve according to ASTM D 698 for each on-site or borrow soil material proposed for fill and backfill.

B. Tests:
1. The CONTRACTOR shall retain the services of a qualified testing laboratory to make tests and determine acceptability of the fill or material as listed below.

2. Contractor shall give full cooperation to the testing lab personnel so that the required soil tests can be taken in an efficient and timely manner.

3. Required Tests:
a. Approval of Select Fill Samples:

1.) Gradation, ASTM D 422.
2.) Liquid Limit, Plastic Limit and Plasticity Index, ASTM D 4318.

3.) Compaction, Laboratory Moisture-Density Relationship Standard Effort ASTM D 698.

4. Compacted Select Fill:

a. Compaction, Field Density; ASTM D 2922.
b. Compaction, Moisture Content, ASTM 3017

1.5 QUALITY ASSURANCE

A. Geotechnical Testing Agency Qualifications: An independent testing agency qualified according to ASTM E 329 to conduct soil materials and rock-definition testing, as documented according to ASTM D 3740 and ASTM E 548.

B. Preexcavation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings."

1.6 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect or Engineer and then only after arranging to provide temporary utility services according to requirements indicated:
1. Notify Architect or Engineer not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Architect or Engineer's written permission.
3. Contact utility-locator service for area where Project is located before excavating.

B. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies to shut off services if lines are active.

C. No extra compensation shall be granted for work which the Contractor should have foreseen by close conscientious investigation of the site. Unforeseen conditions discovered after conscientious investigations shall be immediately brought to the attention of the Architect or Engineer as per the General Conditions as supplemented.

D. Permits and Regulations:

1. Obtain all necessary permits for work in roads, rights-of-way, railroads, etc.
2. Obtain permits as required by local, state and federal agencies for discharging water from excavations to rivers and streams.
3. Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: Moderate plasticity silty clay (CL) or sandy clay (CL) a combination of these; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: ASTM D 2487 soil classification groups ML, MH, CH, OL, OH, PT, GM or a combination of these group symbols.

D. Backfill and Fill: Satisfactory soil materials.

E. Non-Select (General) Fill Material:

1. Shall be used in non-building areas and shall not be utilized beneath buildings or pavements.
2. Can be obtained from on-site grading or excavation operations or imported from off-site.
3. Shall be free of organics, vegetation, debris, large boulders, large pieces of chalk, or other deleterious materials.
4. Shall have the following physical properties:
   Liquid Limit: 45 or less
   Plasticity Index 25 or less
5. Non-Select fill material is subject to the approval of the Architect or Engineer.

F. Select Fill Material:

1. Shall be placed beneath the footprint of the building and for a distance of at least 5 feet outside of the building or as shown on the project plans unless superseded by project specific Geotechnical Report.
2. Shall consist of predominately fine grained soils (i.e., more than 60 percent passing the No. 200 sieve) that are free of roots, construction debris, organic matter, or any other type deleterious matter. If predominately fine grained soils that meet these requirements are not available, relatively well graded sandy soils with at least 25 percent fines that are free of organic or other deleterious materials may be used.
3. Shall have the following physical properties:
   Liquid Limit: 40 or less
   Plasticity Index: Between 10 and 20

G. Subbase: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2- inch sieve and not more than 12 percent passing a No. 200 sieve.

H. Base: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve.

I. Bedding: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.

J. Drainage Fill: Washed, narrowly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2- inch sieve and 0 to 5 percent passing a No. 8 sieve.

K. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D 448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch sieve and 0 to 5 percent passing a No. 4 sieve.

L. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

2.2 ACCESSORIES

A. Drainage Fabric: Nonwoven geotextile, specifically manufactured as a drainage geotextile; made from polyolefins, polyesters, or polyamides; and with the following minimum properties determined according to ASTM D 4759 and referenced standard test methods:
   1. Grab Tensile Strength: 110 lbf (490 N); ASTM D 4632.
   2. Tear Strength: 40 lbf; ASTM D 4533.
   3. Puncture Resistance: 50 lbf; ASTM D 4833.
   4. Water Flow Rate: 150 gpm per sq. ft.; ASTM D 4491.
   5. Apparent Opening Size: No. 50; ASTM D 4751.

B. Separation Fabric: Woven geotextile, specifically manufactured for use as a separation geotextile; made from polyolefins, polyesters, or polyamides; and with the following minimum properties determined according to ASTM D 4759 and referenced standard test methods:
   1. Grab Tensile Strength: 200 lbf; ASTM D 4632.
   2. Tear Strength: 75 lbf; ASTM D 4533.
   3. Puncture Resistance: 90 lbf; ASTM D 4833.
   4. Water Flow Rate: 4 gpm per sq. ft.; ASTM D 4491.
   5. Apparent Opening Size: No. 30; ASTM D 4751.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Protect subgrades and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary.

C. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.2 DEWATERING

A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
   1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
   2. Install a dewatering system to keep subgrades dry and convey ground water away from excavations. Maintain until dewatering is no longer required.

3.3 EXPLOSIVES

A. Explosives: Do not use explosives.

3.4 EXCAVATION, GENERAL

A. Excavation: Excavation to subgrade elevations required.
   1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.5 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. Extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.
   1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

2. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch. Do not disturb bottom of excavations intended for bearing surface.

B. Over excavation and backfill for building foundations shall conform to the Structural Plans and the recommendations of the Geotechnical Report.

3.6 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated cross sections, elevations, and grades.

B. Over excavation and backfill for pavements shall conform to the Site Plans and the recommendations of the Geotechnical Report.

3.7 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.
   1. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.

B. Excavate trenches to uniform widths to provide a working clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit, unless otherwise indicated.
   1. Clearance: 12 inches on each side of pipe or conduit.
   2. Clearance: As indicated.

C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.
   1. For pipes and conduit less than 6 inches in nominal diameter and flat-bottomed, multiple-duct conduit units, hand-excavate trench bottoms and support pipe and conduit on an undisturbed subgrade.
   2. For pipes and conduit 6 inches or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe circumference. Fill depressions with tamped sand backfill.
   3. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

D. Trench Bottoms: Excavate trenches 4 inches deeper than bottom of pipe elevation to allow for bedding course. Hand excavate for bell of pipe.
   1. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

3.8 APPROVAL OF SUBGRADE

A. Notify Architect or Engineer when excavations have reached required subgrade.

B. If Architect or Engineer and testing lab determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.
   1. Additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.

C. Proof roll subgrade with moderately heavy pneumatic-tired equipment such as a loaded tandem axle dump truck or similar rubber-tired vehicle to identify soft pockets and areas of excess yielding. Do not proof roll wet or saturated subgrades.

D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect or Engineer.

3.9 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill may be used when approved by Architect or Engineer.
   1. Fill unauthorized excavations under other construction or utility pipe as directed by Architect or Engineer.

3.10 STORAGE OF SOIL MATERIALS

A. Stockpile borrow materials and satisfactory excavated soil materials. Stockpile soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
   1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.11 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:
   1. Construction below finish grade including, where applicable, dampproofing, waterproofing, and perimeter insulation.
   2. Surveying locations of underground utilities for record documents.
   3. Inspecting and testing underground utilities.
   4. Removing concrete formwork.
   5. Removing trash and debris.
   6. Removing temporary shoring and bracing, and sheeting.
   7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

3.12 UTILITY TRENCH BACKFILL

A. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

B. Backfill trenches excavated under footings and within 18 inches of bottom of footings; fill with concrete to elevation of bottom of footings.

C. Place and compact initial backfill of subbase material, free of particles larger than 1 inch, to a height of 12 inches over the utility pipe or conduit.
   1. Carefully compact material under pipe haunches and bring backfill evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of utility system.

D. Coordinate backfilling with utilities testing.

E. Fill voids with approved backfill materials while shoring and bracing, and as sheeting is removed.

F. Place and compact final backfill of satisfactory soil material to final subgrade.

G. Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

3.13 SELECT FILL

A. Preparation: Remove vegetation, topsoil, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface before placing fills.

B. Plow, scarify and bench sloped surfaces steeper than 1 vertical to 6 horizontal so fill material will bond with existing material.

C. Place and compact fill material in layers to required elevations as follows:
   1. Under grass and planted areas, use satisfactory soil material.
   2. Under walks and pavements, use select fill material.

3.14 MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent below to 3 percent above optimum moisture content.
   1. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
   2. Remove and replace, or scarify and air-dry, otherwise satisfactory soil material that exceeds optimum moisture content by 3 percent and is too wet to compact to specified dry unit weight.

3.15 COMPACTION OF BACKFILLS AND FILLS

A. Place backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil to not less than the following percentages of maximum dry density according to ASTM D 698:
   1. Under pavement areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill material at 95 percent.
   2. Under lawn or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill material at 90 percent.

3.16 GRADING

A. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
   1. Provide a smooth transition between adjacent existing grades and new grades.
   2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
   1. Lawn or Unpaved Areas: Plus or minus 1 inch (25 mm).
   2. Walks: Plus or minus 1 inch (25 mm).
   3. Pavements: Plus or minus 1/2 inch (13 mm).

3.17 SUBBASE AND BASE COURSES

A. Under pavements and walks, place subbase course on prepared subgrade and as follows:
   1. Place base course material over subbase.
   2. Compact subbase course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry density according to ASTM D 698.
   3. Compact base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 98 percent of maximum dry density according to ASTM D 698.
   4. When thickness of compacted subbase or base course is 6 inches or less, place materials in a single layer.
   5. When thickness of compacted subbase or base course exceeds 6 inches, place materials in equal layers, with no layer more than 6 inches thick or less than 3 inches thick when compacted.

3.18 DRAINAGE COURSE

A. Under slabs-on-grade, place drainage course on prepared subgrade and as follows:
   1. Compact drainage course to required cross sections and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 698.
   2. When compacted thickness of drainage course is 6 inches or less, place materials in a single layer.
   3. When compacted thickness of drainage course exceeds 6 inches, place materials in equal layers, with no layer more than 6 inches thick or less than 3 inches thick when compacted.

3.19 FIELD QUALITY CONTROL

A. Testing Agency: Contractor will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing. Owner / Architect or Engineer shall approve testing firm.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect or Engineer.

D. Testing agency will test compaction of soils in place according to 2922 as applicable. Tests will be performed at the following locations and frequencies:
   1. Paved Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 2000 sq. ft. or less of paved area or building slab, but in no case fewer than three tests.
   2. Trench Backfill: At each compacted initial and final backfill layer, at least one test for each 150 feet or less of trench length, but no fewer than two tests.

E. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

3.20 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
   1. Scarify or remove and replace soil material to depth as directed by Architect or Engineer; reshape and recompact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.

3.21 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

END OF SECTION 02300

SECTION 02315 - EXCAVATION AND FILL

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Coordinate site filling operations with accompanying soil reports.

B. Site filling and compaction.

C. Fill under slabs-on-grade, drives, and parking areas.

D. Washed gravel under all building slabs-on-grade.

1.02 RELATED WORK

A. Section 02310 – Site Grading.

1.03 COORDINATION

A. Coordinate fill operations with installation of underground utilities.

B. Coordinate fill operations with installation of foundation system.

C. Coordinate fill operations with installation of storm drainage system.

1.04 CONTRACTOR RESPONSIBILITIES

A. It is the responsibility of the Contractor to provide all engineering work associated with lay-out. Written verification of lay-out by a registered engineer or land surveyor is required.

B. It is the responsibility of the Contractor to provide all engineering work associated with establishing design elevations. Written verification of design elevations by a registered engineer or land surveyor is required.

C. Contractor is responsible for testing and verification of compaction requirements by engaging the services of an approved registered Mississippi geotechnical engineer to execute a sufficient number of density tests. Promptly submit copies of all field density tests to Architect or Engineer.

PART 2 - PRODUCTS

2.01 FILL MATERIALS

A. The near surface soils are suitable for site shaping as required.

B. Relocated material shall be free of rubbish, concrete, topsoil, and humus matter.

C. Imported soils required beneath structures and paving should consist of select lean silty or sandy clay materials conforming to Unified Soil Classifications SM, SC or CL and exhibiting a plasticity index (PI) of 6 to 20.

D. Receiving subgrade shall be scarified, compacted, proof-rolled, and maintained in a moist (above optimum moisture) condition prior to filling.

E. Provide 4" of washed gravel under building slabs, size 57 (1" smaller) concrete gravel or approved equal.

F. A minimum of 12" of select imported material shall be provided beneath and extending 6 feet beyond all buildings. The top of this fill blanket shall be at the bottom of the 4" gravel fill beneath all slabs.

G. At all paving surfaces:

1. Compact sub-grade to 95% standard proctor at a moisture content 2 to 5% above optimum.

2. At Standard Duty Asphalt Paving: Provide and install 6 inches crushed limestone conforming to the specifications shown below, compacted to minimum of 98% of standard proctor (see ASTM D-698).

3. At Heavy Duty Asphalt Paving: Provide and install 10 inches crushed limestone conforming to the specifications shown below, compacted to minimum of 98% of standard proctor (see ASTM D-698).

4. The Granular Material Crushed Stone shall consist of hard, durable particles free from adherent coatings, soft or disintegrated pieces, vegetation, or other deleterious matter. The gradation of the Granular Crushed Stone shall be as follows:

Sieve Size	**Percentage Passing**
1"	100
3/8"	50-85
No. 4	35-65
No. 10	25-50
No. 40	15-30
No. 200	5-15

PART 3 - EXECUTION

3.01 INSPECTION

A. Verify areas to be filled are free of debris, snow, ice, or water, and ground surfaces are not frozen.

B. Any unsuitable material found after the site has been stripped and proof-rolled shall be removed and replaced by the Contractor.

3.02 PREPARATION

A. Prior to construction, all rubbish, concrete, and any remaining topsoil or humus matter shall be removed and the in-situ soils scarified to the specified depth and compacted to a minimum of 95 percent of standard proctor.

B. Proof roll the site. Any excessively wet or soft areas shall be undercut and backfilled with select material as directed. No unauthorized over-excavation shall be permitted.

C. Maintain the receiving subgrade in a moist (above optimum moisture) condition prior to filling.

D. Prior to construction, the Contractor shall furnish and install drainage ditches to facilitate run-off. Operate pumps and pumping equipment as required.

E. The Contractor is responsible for lay-out of areas to be filled and all engineering services required to ensure that fill is installed to required elevations. Written verification is required.

F. The Contractor is responsible for all engineering testing services as required to verify and confirm that fill under buildings and paving is compacted as specified.

3.03 FILLING

A. Fill areas to required contours and elevations. Use unfrozen materials.

B. Fill systematically, as early as possible, to allow maximum time for natural settlement. Do not fill over porous, wet, or spongy subgrade surfaces.

C. Compaction shall be achieved in maximum loose lifts of eight inches (8").

D. Make changes in grade gradually. Blend slopes into level areas.

E. All fill under buildings, drives, and parking areas shall be compacted to 95% of maximum dry density (standard proctor), achieved in maximum loose lifts of 8 inches at a moisture content comparable to the optimum moisture content established in the laboratory.

F. All fill placed outside building and parking areas shall be compacted to 90% of maximum dry density (standard proctor).

G. Crushed limestone under concrete/asphalt/gravel or crushed stone paving shall be compacted to a minimum of 98% of standard proctor (see ASTM D-698).

H. Contractor is responsible for testing and verification of compaction requirements by engaging the services of an approved registered Mississippi geotechnical engineer to execute a sufficient number of density tests. Promptly submit copies of all field density tests to Architect or Engineer.

3.04 TESTING

A. A commercial testing laboratory employing a Mississippi registered geotechnical engineer and approved by the Architect or Engineer and Owner shall be hired by the Contractor to make all necessary tests. These should be considered minimum requirements and adjusted as necessary

by the geotechnical engineer. Test reports shall be signed by the Mississippi registered engineer.

B. Field moisture-density tests should be performed utilizing a nuclear device in accordance with ASTM D-2122 at a frequency of:

1. One test per 5,000 square feet of prepared subgrade beneath structures or paving.

2. One test per 2,500 square feet per 8" loose lift of relocated or imported fill beneath structures or paving (minimum three tests per lift beneath structures).

3. One test per 5,000 square feet of prepared sub-base or base beneath pavement.

4. One test per 10,000 square feet in areas outside structures or paving.

END OF SECTION

SECTION 02370 - EROSION AND SEDIMENT CONTROL

PART 1 - GENERAL

1.01 SUMMARY

A. Work Included

1. Provide and install measures to prevent and control erosion and sedimentation during construction and adhere to MDEQ storm water permitting requirements.

B. Related Sections

1. Section 02310 – Site Grading

2. Section 02315 – Excavation and Fill

3. Section 02923 – Seeding

4. Section 02930 – Lawns and Grasses

1.02 QUALITY ASSURANCE

A. Establish sediment control barriers prior to the beginning of clearing and maintain during the entire period of construction.

B. Clean out and dispose of any sediment that inhibits the proper functioning of erosion control measures or when the storage capacity of any sediment facility is reduced by one-half.

C. The sedimentation control measures specified herein are minimum requirements. It is the Contractor's responsibility to take necessary measures to prevent and control erosion and sedimentation. If required by Mississippi law based on the area of the project, the Contractor shall provide an erosion control plan, prepared by a professional engineer licensed to practice in the State of Mississippi and approved by the Mississippi Department of Environmental Quality. Said plan shall be implemented by the Contractor. Additional requirements to meet local, state or federal erosion and sediment control ordinances shall be designed, installed and maintained by the Contractor.

PART 2 - PRODUCTS

1.03 SEDIMENT CONTROL

A. Straw Bales: Wire bound or string tied bales.

B. Silt Fence:

1. Silt Stop by American Excelsior Company, Arlington, Texas.

2. Envirofence by Mirafi, Charlotte, North Carolina.

3. Exxon GTF 100S by Exxon, Atlanta, Georgia.

PART 2 - EXECUTION

1.04 INSTALLATION

A. Provide and install grass, silt fences, and straw bale barriers, as required to prevent and control the loss of soil from the construction site and to prevent to erosion of soil into local receiving waters or onto adjacent property.

B. Straw Bale Barriers:

1. Provide and install straw bales around each storm drain, catch basin, area drain, or curb inlet to prevent sediment from entering underground storm drains. Place each bale in a 4" trench and backfill to anchor and prevent undermining.

2. Anchor each bale with two #3 x 36" reinforcing bars.

3. Fill gaps between bales with loose straw to prevent sediment from escaping between the bales.

C. Silt Fence:

1. Install silt fence in ditches and swales as necessary to prevent sedimentation.

2. Install silt fence in accordance with manufacturer's recommendations.

D. Gravel Traffic Entrance:

1. Install and maintain a minimum 12-foot by 100-foot with size 3" stone pad at each traffic entrance to the site. Also, any stone surfaced lay down areas needed are the contractor's responsibility.

END OF SECTION

SECTION 03300 CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Elevated concrete slabs.

B. Floors and slabs on grade.

C. Concrete shear walls, elevator shaft walls, and foundation walls.

D. Concrete foundations and anchor bolts for pre-engineered building.

E. Concrete reinforcement.

F. Joint devices associated with concrete work.

G. Concrete curing.

1.02 RELATED SECTIONS

A. Concrete Forms and Accessories: Forms and accessories for formwork.

1.03 REFERENCES

A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International; 1991.

B. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International; 1996.

C. ACI 302.1R - Guide for Concrete Floor and Slab Construction; American Concrete Institute International; 1996.

D. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International; 1989.

E. ACI 305R - Hot Weather Concreting; American Concrete Institute International; 1991.

F. ACI 306R - Cold Weather Concreting; American Concrete Institute International; 1988.

G. ACI 308 - Standard Practice for Curing Concrete; American Concrete Institute International; 1992.

H. ACI 318 - Building Code Requirements for Reinforced Concrete and Commentary; American Concrete Institute International; 1995.

I. ASTM A 185 - Standard Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement; 1997.

J. ASTM A 615/A 615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; 1996a.

K. ASTM C 33 - Standard Specification for Concrete Aggregates; 1997.

L. ASTM C 39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 1996.

M. ASTM C 94 - Standard Specification for Ready-Mixed Concrete; 1997.

N. ASTM C 150 - Standard Specification for Portland Cement; 1997.

O. ASTM C 171 - Standard Specification for Sheet Materials for Curing Concrete; 1997.

P. ASTM C 173 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 1994a.

Q. ASTM C 260 - Standard Specification for Air-Entraining Admixtures for Concrete; 1995.

R. ASTM C 309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 1997.

S. ASTM C 330 - Standard Specification for Lightweight Aggregates for Structural Concrete; 1989.

T. ASTM C 494 - Standard Specification for Chemical Admixtures for Concrete; 1992.

U. ASTM C 618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete; 1997.

V. ASTM C 1059 - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete; 1991.

W. ASTM C 1107 - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 1997.

X. ASTM D 1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types); 1983 (reapproved 1991).

Y. ASTM E 1155 - Standard Test Method for Determining F(F) Floor Flatness and F(L) Floor Levelness Numbers; 1996.

1.04 SUBMITTALS

A. Submit data to Engineer of record.

B. Product Data: Submit manufacturers' data on manufactured products.

C. Manufacturer's Installation Instructions: Indicate installation procedures and interface required with adjacent construction for concrete accessories.

D. Project Record Documents: Accurately record actual locations of embedded utilities and components that will be concealed from view upon completion of concrete work.

1.05 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301 and ACI 318.
   1. Maintain one copy of each document on site.

B. Acquire cement from same source and aggregate from same source for entire project.

C. Follow recommendations of ACI 305R when placing concrete during hot weather.

D. Follow recommendations of ACI 306R when placing concrete during cold weather.

E. Quality Control testing for cast in place concrete shall be the responsibility of the Contractor, with all testing by an Mississippi Department of Transportation and/or AASHTO approved laboratory. Sampling rates shall conform to the following as a minimum requirement:

1.	Sampling	
2.	Air Content	First load then one per 50 cu yd
3.	Slump	First load then one per 50 cu yd
4.	Compressive Strength	One set (2 cylinders) for 0-100 cu yd inclusive and one set for each additional 100 cu yd or fraction thereof for each class concrete delivered and placed on a calendar day from a single supplier.

PART 2 PRODUCTS

2.01 FORMWORK

A. Comply with requirements of Concrete Forms and Accessories section.

2.02 REINFORCEMENT

A. Comply with requirements of Concrete Reinforcement section.

2.03 CONCRETE MATERIALS

A. Cement: ASTM C 150, Type I - Normal Portland type.

B. Fine and Coarse Aggregates: ASTM C 33.

C. Lightweight Aggregate: ASTM C 330.

D. Fly Ash: ASTM C 618, Class C.

E. Water: Clean and not detrimental to concrete.

2.04 ADMIXTURES

A. Air Entrainment Admixture: ASTM C 260.

B. Chemical Admixtures: ASTM C 494, Type A - Water Reducing, Type C - Accelerating, and Type G - Water Reducing, High Range and Retarding.
   1. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

2.05 CONCRETE ACCESSORIES

A. Reglets: Formed steel sheet, galvanized, with temporary filler to prevent concrete intrusion during placement.

B. Bonding Agent: ASTM C 1059, Type II acrylic non-redispersable type.

C. Vapor Retarder: 6 mil thick clear polyethylene film, type recommended for below grade application.

D. Non-Shrink Grout: ASTM C 1107; premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.
   1. Minimum Compressive Strength at 28 Days: 7,000 psi.

E. Curing Materials: Comply with requirements of Concrete Forms and Accessories section.

2.06 JOINT DEVICES AND MATERIALS

A. Joint Filler: ASTM D 1751; Asphalt impregnated fiberboard or felt, 1/4 inch thick; tongue and groove profile.

B. Construction Joint Devices: Integral galvanized steel; 1/4 inch thick, formed to tongue and groove profile, knockout holes spaced at 6 inches, ribbed steel spikes with tongue to fit top screed edge.

2.07 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.

B. Concrete Strength: Establish required average strength for each type of concrete on the basis of field experience or trial mixtures, as specified in ACI 301.
   1. For trial mixtures method, employ independent testing agency acceptable to Structural Engineer of Record for preparing and reporting proposed mix designs.

C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.

D. Normal Weight Concrete:
   1. Compressive Strength, per ASTM C 39 at 28 days: 3500 psi.
   2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.
   3. Total Air Content: 5 percent, per ASTM C 173.
   4. Maximum Slump: 4 inches.
   5. Maximum Aggregate Size: 3/4 inch. Coordinate with concrete supplier and Engineer if pumping equipment is to be used.

2.08 MIXING

A. Transit Mixers: Comply with ASTM C 94.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.02 PREPARATION

A. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.

B. Verify that forms are clean and free of rust before applying release agent.

C. Coordinate placement of joint devices with erection of concrete formwork and placement of form accessories.

D. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.

E. Install vapor retarder under interior slabs on grade. Lap joints minimum 6 inches and seal watertight by taping edges and ends. Cover with sand to depth shown on drawings.

3.03 INSTALLING REINFORCEMENT

A. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.

B. Install wire fabric in maximum possible lengths, and offset end laps in both directions. Splice laps with tie wire.

C. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.

3.04 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

B. Place concrete for floor slabs in accordance with ACI 302.1R.

C. Notify Structural Engineer of Record not less than 24 hours prior to commencement of placement operations.

D. Ensure reinforcement, inserts, waterstops, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.

E. Repair vapor retarder damaged during placement of concrete reinforcing. Repair with vapor retarder material; lap over damaged areas minimum 6 inches and seal watertight.

F. Install joint devices in accordance with manufacturer's instructions.

G. Install construction joint devices in coordination with floor slab pattern placement sequence. Set top to required elevations. Secure to resist movement by wet concrete.

H. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.

I. Place concrete continuously between predetermined expansion, control, and construction joints.

J. Do not interrupt successive placement; do not permit cold joints to occur.

K. Saw cut joints within 24 hours after placing. Use 1/4 inch thick blade, cutting to a depth of 1/4 of slab thickness.

L. Screed floors level, maintaining surface flatness of maximum 1/8 inch in 10 ft.

3.05 CONCRETE FINISHING

A. Repair surface defects, including tie holes, immediately after removing formwork.

B. Unexposed Form Finish: Rub down or chip off fins or other raised areas 1/4 inch or more in height.

C. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide finish as follows:
   1. Smooth Rubbed Finish: Wet concrete and rub with carborundum brick or other abrasive, not more than 24 hours after form removal.

D. Concrete Slabs: Finish to requirements of ACI 302.1R, and as follows:
   1. Wood float surfaces that will receive quarry tile, ceramic tile, and terrazzo with full bed setting system.
   2. Steel trowel surfaces that will receive carpeting, resilient flooring, seamless flooring, thin set quarry tile, and thin set ceramic tile.
   3. Steel trowel surfaces that will be left exposed.

E. In areas with floor drains, maintain floor elevation at walls; pitch surfaces uniformly to drains at 1:100 nominal.

3.06 CURING AND PROTECTION

A. Comply with requirements of ACI 308. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period

necessary for hydration of cement and hardening of concrete.
1. Normal concrete: Not less than 7 days.

C. Formed Surfaces: Cure by moist curing with forms in place for full curing period.

D. Surfaces Not in Contact with Forms:
1. Start initial curing as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
2. Begin final curing after initial curing but before surface is dry.
   a. Moisture-retaining cover: Seal in place with waterproof tape or adhesive.
   b. Curing compound: Apply in two coats at right angles, using application rate recommended by manufacturer.

3.07 FIELD QUALITY CONTROL

A. Provide free access to concrete operations at project site and cooperate with quality control personnel.

B. Submit proposed mix design of each class of concrete to Structural Engineer of Record for review prior to commencement of concrete operations.

C. Tests of concrete and concrete materials may be performed at any time to ensure conformance with specified requirements.

3.08 DEFECTIVE CONCRETE

A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.

B. Repair or replacement of defective concrete will be determined by the Engineer of Record. The cost of additional testing shall be borne by Contractor when defective concrete is identified.

C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Engineer of Record for each individual area.

3.09 BASIS OF PAYMENT

Cast-In-Place Concrete will not be paid for separately but shall be included in the bid price for related items.

Reinforcing Steel will not be paid for separately. Waterstops will not be paid for separately.

END OF SECTION

SECTION 03320 CONCRETE REINFORCEMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Reinforcing steel for cast-in-place concrete.

B. Supports and accessories for steel reinforcement.

1.02 RELATED SECTIONS

A. Section 03310 Concrete Forms and Accessories.

B. Section 03300 Cast-In-Place Concrete.

1.03 REFERENCES

A. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International; 1996.

B. ACI 318 - Building Code Requirements For Reinforced Concrete and Commentary; American Concrete Institute International; 1995.

C. ACI SP-66 - ACI Detailing Manual; American Concrete Institute International; 1994.

D. ASTM A 185 - Standard Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement; 1997.

E. ASTM A 615/A 615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; 1996a.

F. ASTM A 884/A 884M - Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Fabric for Reinforcement; 1996a.

G. AWS D1.4 - Structural Welding Code - Reinforcing Steel; American Welding Society; 1998.

H. CRSI (DA4) - Manual of Standard Practice; Concrete Reinforcing Steel Institute; 1997, 26th Edition.

I. CRSI (P1) - Placing Reinforcing Bars; Concrete Reinforcing Steel Institute; 1992.

1.04 SUBMITTALS

A. Submit data to Engineer of record.

B. Shop Drawings: Comply with requirements of ACI SP-66. Include bar schedules, shapes of bent bars, spacing of bars, and location of splices.
   1. Prepare shop drawings under seal of a Professional Structural Engineer experienced in design of work of this type and licensed in the State in which the Project is located.

C. Manufacturer's Certificate: Certify that reinforcing steel and accessories supplied for this project meet or exceed specified requirements.

D. Reports: Submit certified copies of mill test report of reinforcement materials analysis.

1.05 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301.
   1. Maintain one copy of each document on project site.

B. Welders' Certificates: Submit certifications for welders employed on the project, verifying AWS qualification within the previous 12 months.

PART 2 PRODUCTS

2.01 REINFORCEMENT

A. Reinforcing Steel: ASTM A 615/A 615M Grade 60 (420).
   1. Deformed billet-steel bars.
   2. Unfinished.

B. Welded Steel Wire Fabric: ASTM A 884/A 884M, deformed, Class A epoxy coated type.
   1. Flat Sheets.
   2. Mesh Size and Wire Gage: As indicated on drawings.

C. Reinforcement Accessories:
   1. Tie Wire: Annealed, minimum 16 gage.
   2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.
   3. Provide stainless steel components for placement within 1-1/2 inches of weathering surfaces.

2.02 FABRICATION

A. Fabricate concrete reinforcing in accordance with CRSI (DA4) - Manual of Standard Practice.

B. Welding of reinforcement is permitted only with the specific approval of Structural Engineer of Record. Perform welding in accordance with AWS D1.4.

C. Locate reinforcing splices not indicated on drawings at point of minimum stress.

PART 3 EXECUTION

3.01 PLACEMENT

A. Place, support and secure reinforcement against displacement. Do not deviate from required position.

B. Do not displace or damage vapor barrier.

C. Accommodate placement of formed openings.

D. Conform to applicable code for concrete cover over reinforcement.

3.02 MEASUREMENT

Concrete Reinforcement will not be measured for separate payment.

3.03 BASIS OF PAYMENT

Concrete Reinforcement is a reference specification.

END OF SECTION

SECTION 03330 CONCRETE CURING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Initial and final curing of horizontal and vertical concrete surfaces.

1.02 RELATED SECTIONS

A. Section 03300 Cast-In-Place Concrete.

1.03 REFERENCES

A. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International; 1996.

B. ACI 302.1R - Guide for Concrete Floor and Slab Construction; American Concrete Institute International; 1996.

C. ACI 308 - Standard Practice for Curing Concrete; American Concrete Institute International; 1992.

D. ASTM C 171 - Standard Specification for Sheet Materials for Curing Concrete; 1997.

E. ASTM C 309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 1997.

F. ASTM D 2103 - Standard Specification for Polyethylene Film and Sheeting; 1992.

1.04 SUBMITTALS

A. Submit data to Engineer of record.

B. Product Data: Provide data on curing compounds and moisture-retaining sheet, including compatibility of different products and limitations.

1.05 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 301 and ACI 302.1R.

B. Maintain one copy of each document on project site.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver curing materials in manufacturer's sealed packaging, including application instructions.

PART 2 PRODUCTS

2.01 MATERIALS

A. Membrane Curing Compound: ASTM C 309 Type 1 - Clear or translucent, Class A.

B. Moisture-Retaining Sheet: ASTM C 171.

C. Water: Potable, not detrimental to concrete.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate surfaces are ready to be cured.

3.02 EXECUTION - HORIZONTAL SURFACES

A. Cure floor surfaces in accordance with ACI 308.

B. Membrane Curing Compound: Apply curing compound in accordance with manufacturer's instructions.

3.03 EXECUTION - VERTICAL SURFACES

A. Cure surfaces in accordance with ACI 308.

B. Membrane Curing Compound: Apply compound in accordance with manufacturer's instructions.

3.04 PROTECTION OF FINISHED WORK

A. Do not permit traffic over unprotected floor surface.

3.05 BASIS OF PAYMENT Concrete Curing is a reference specification.

END OF SECTION

SECTION 08 11 13 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general conditions of Contract, including General and Supplementary Conditions and Divisons-1 Specification sections apply to work of this section.

1.2 SUMMARY

A. Provide steel doors and frames.

B. Related sections include:
   1. Section 08 71 00 – Door Hardware.
   2. Section 08 80 00 – Glazing.

1.3 SUBMITTALS

A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.

B. Shop Drawings: Submit shop drawings indicating material characteristics, details of construction, connections, and relationship with adjacent construction.

1.4 QUALITY ASSURANCE

A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

B. Standards: ANSI/SDI-100, Recommended Specifications for Standard Steel Doors and Frames.

C. Performance Standards:
   1. Fire-Rated Assemblies: NFPA 80, and acceptable testing agency listing.
   2. Thermal-Rated Assemblies at Exterior: ASTM C 236 or ASTM C 976.
   3. Sound-Rated Assemblies at Mechanical Rooms: ASTM E 1408, and ASTM E 413.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Interior Steel Doors:
   1. Material: Minimum 18 gauge steel sheet.
   2. Thickness: 1-3/4 inches.
   3. Finish: Factory finished.
   4. Accessories:
      a. Glazing stops.
      b. Silencers.

B. Exterior Steel Doors:
   1. Material: Minimum 16 gauge steel sheet.

2. Thickness: 1-3/4 inches.
3. Finish: Factory finished.
4. Accessories:
   a. Glazing stops.
   b. Silencers.

C. Interior Steel Frames:
1. Material: Minimum 16 gauge steel sheet.
2. Corners: Mitered or coped.
3. Type: Welded.

D. Exterior Steel Frames:
1. Manufacturers: Republic Doors and Frames; Steel Door Institute; Steelcraft, Div. of Ingersoll Rand.
2. Material: Minimum 14 gauge galvanized steel sheet.
3. Corners: Mitered or coped.
4. Type: Welded.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Fabricate work to be rigid, neat and free from seams, defects, dents, warp, buckle, and exposed fasteners. Install doors and frames in compliance with SDI-100, NFPA 80, and requirements of authorities having jurisdiction.

B. Hardware: Prepare doors and frames to receive hardware on final schedule. Provide for 3 silencers on single doorframes; 2 on double doorframes.

C. Shop Finish: Clean, treat and prime paint all work with rust-inhibiting primer comparable with finish paint specified in Division 9 section. Provide asphalt emulsion sound deadening coating on concealed frame interiors.

D. Touch-up damaged coatings ready to receive finish painting.

END OF SECTION

SECTION 08 71 00 - DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. Provide door hardware.

1.2 SUBMITTALS

A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.

B. Samples: Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.

C. Submit for approval hardware schedule proposed for use based on Owner's requirements prior to construction.

1.3 QUALITY ASSURANCE

A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

B. Hardware for Fire-Rated Openings: NFPA 80, and local requirements.

C. Materials and Application: ANSI A156 series standards.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Door Hardware:
1. Manufacturers: Accurate Metal Weather Strip Co., Inc.; DORMA; Hager Companies; LCN Closers, Div. of Ingersoll Rand; PDQ Mfg.; Schlage Lock Co., Div. of Ingersoll Rand; Von Duprin, Div. of Ingersoll Rand.
2. Quality Level: Heavy duty commercial.
3. Locksets and Latchsets: Bored cylindrical type. Cylinders: Best (no substitute).
4. Keying: Owner's requirements.
5. Hinges and Butts: Full-mortise type at interior, with non-removable pins at exterior doors.
6. Closers, Door Control, and Exit Devices: High frequency.
7. Closers, Door Control, and Exit Devices: Barrier-free.
8. Pivots: Offset or center-hung type.
9. Push/Pull Units: Through-bolted type.
10. Hardware Finishes: Satin chrome finish on exposed surfaces.
11. Auxiliary Materials:
    a. Door Trim Units: Kickplates, edge trim, and related trim.
    b. Stops and overhead door holders.
    c. Soundstripping.
    d. Weatherstripping and thresholds.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Follow guidelines of DHI 'Recommended Locations for Builder's Hardware and hardware manufacturers' instructions.

B. Install materials and systems in accordance with manufacturer's instructions and approved submittals. Install materials and systems in proper relation with adjacent construction and with uniform appearance. Coordinate with work of other sections.

C. Adjust operation, clean and protect.

END OF SECTION

SECTION 08 80 00 – GLAZING

PART 1 - GENERAL

1.1 SUMMARY

A. Provide glass and glazing.

1.2 SUBMITTALS

A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.

B. Shop Drawings: Submit shop drawings indicating material characteristics, details of construction, connections, and relationship with adjacent construction.

C. Samples: Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.

D. Warranty: Submit manufacturer's standard warranty. Include labor and materials to repair or replace defective materials.
1. Laminated Glass: Manufacturer's 5-year warranty.
2. Coated Glass: Manufacturer's 10-year warranty.
3. Insulating Glass: Manufacturer's 10-year warranty.
4. Mirror Glass: Manufacturer's 5-year warranty.

1.3 QUALITY ASSURANCE

A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

B. Glazing for Fire-Rated Assemblies: Glazing for assemblies that comply with NFPA 80

C. Safety Glazing Products: Comply with testing requirements in 16 CFR 1201 and, for wired glass, ANSI Z97.1.

D. Glazing Publications:
1. GANA Publications: GANA's 'Glazing Manual.' and 'Laminated Glass Design Guide.'
2. AAMA Publications: AAMA GDSG-1, 'Glass Design for Sloped Glazing,' and AAMA TIR-A7, 'Sloped Glazing Guidelines.'
3. IGMA Publication for Sloped Glazing: IGMA TB-3001, 'Sloped Glazing Guidelines.'
4. IGMA Publication for Insulating Glass: SIGMA TM-3000, 'Glazing Guidelines for Sealed Insulating Glass Units.'

E. Mock-Ups: Provide mock-up as required to demonstrate quality of workmanship.
1. Each type of glazing.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Glass and Glazing:
1. Type: Insulating glass units, tempered at locations as required by Code.
2. Type: Insulating spandrel glass units, tempered at locations as required by Code.
3. Type: High-performance insulating glass units with low-e coating, tempered at locations as

required by code.

4. Auxiliary Materials:.
   a. Compression gaskets.
   b. Elastomeric glazing sealants.
   c. Preformed glazing tapes.
   d. Glazing gaskets.
   e. Setting blocks, spacers, and compressible filler rods.
   f. Mirror adhesive, top and bottom angles and clips.

B. Fire-Rated Glazing:
   1. Type: Fire-rated glazing as vision lights in fire-rated door assemblies.
   2. Type: Fire-rated glazing as vision lights in sidelights, transoms and borrowed lites in fire rated frames.
   3. Material: Transparent ceramic.
   4. Fire Rating: As required for application.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Inspect framing and report unsatisfactory conditions in writing.

B. Comply with GANA "Glazing Manual" and manufacturers instructions and recommendations. Use manufacturer's recommended spacers, blocks, primers, sealers, gaskets and accessories.

C. Install glass with uniformity of pattern, draw, bow and roller marks.

D. Install sealants to provide complete wetting and bond and to create a substantial wash away from glass.

E. Set mirrors on stainless steel clips and adhere to wall with mirror adhesive.

F. Remove and replace damaged glass and glazing. Wash, polish and protect all glass supplied under this section.

END OF SECTION

SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.1 SUMMARY

A. Provide gypsum board assemblies.

1.2 SUBMITTALS

A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.

1.3 QUALITY ASSURANCE

A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

B. Tolerances: Not more than 1/16-inch difference in true plane at joints between adjacent boards before finishing. After finishing, joints shall be not be visible. Not more than 1/8 inch in 10 feet deviation from true plane, plumb, level and proper relation to adjacent surfaces in finished work.

C. Fire Resistance for Fire-Rated Assemblies: ASTM E 119.

D. Mock-Ups: Provide mock-up as required to demonstrate quality of workmanship and level of finish.

E. Performance: Fire, structural, and seismic performance meeting requirements of building code and local authorities.

PART 2 -PRODUCTS

2.1 MATERIALS

A. Gypsum Board:
1. Manufacturers:CertainTeed Gypsum, Inc.;ClarkDietrich Building Systems;Continental Building Products.
2. Application: Interior walls, partitions, and ceilings with tape and joint compound finish.
3. Application: Abuse-resistant board at corridors.
4. Application: Insulation and vapor barrier systems in gypsum board assemblies.
5. Application: Installation of access panels in gypsum board assemblies.
6. Material Standard: ASTM C1396.
7. Type: Board for tape and joint compound finish.
    a. Type: Regular, moisture-resistant and fire-rated types as required.
    b. Typical Thickness: 5/8 inch.
8. Type: Water-resistant gypsum backing board.
    a. Type: Regular and fire-rated types as required:
    b. Typical Thickness: 5/8 inch.
    c. Typical Thickness: 5/8 inch.
9. Joint Treatment: ASTM C474 and ASTM C840, 3-coat system, paper or fiberglass tape.
10. Auxiliary Materials:
    a. Cornerbead, edge trim and control joints.

b. Extruded aluminum reveals and channels.
c. Gypsum board screws, ASTM C 1002.
d. Gypsum board nails, ASTM C 514.
e. Fastening adhesive.
f. Concealed acoustical sealant.
g. Mineral fiber sound attenuation blankets.
h. Mineral fiber thermal insulation.
i. Acoustical finish.

B. Glass-Mat Water-Resistant Gypsum Backing Board:
1. Material Standard: ASTM C1178.
2. Type: Regular and fire-resistant as required.
a. Typical Thickness: 5/8 inch.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install gypsum board for tape and 3-coat joint compound finish in compliance with ASTM C 840 and GA 216, Level 4 finish. Install gypsum board assemblies true, plumb, level and in proper relation to adjacent surfaces.

B. Provide fire-rated systems where indicated and where required by authorities having jurisdiction.

C. Install boards vertically. Do not allow butt-to-butt joints and joints that do not fall over framing members.

D. Where new partitions meet existing construction, remove existing cornerbeads to provide a smooth transition.

E. Provide insulation full height and thickness in partitions at conference rooms, toilet rooms, between different occupancies, and where required.

F. Provide acoustical sealant at both faces at top and bottom runner tracks, wall perimeters, openings, expansion and control joints.

G. Install trim in strict compliance with manufacturer's instructions and recommendations.

H. Repair surface defects. Leave ready for finish painting or wall treatment.

END OF SECTION

SECTION 09 51 13 - ACOUSTICAL CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general conditions of Contract, including General and Supplementary Conditions and Divisons-1 Specification sections apply to work of this section.

1.2 SUMMARY

A. Provide acoustical ceilings and suspension systems.

1.3 SUBMITTALS

A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.

B. Samples: Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.

C. Extra Stock: Submit extra stock equal to 2 percent of amount installed.

1.4 QUALITY ASSURANCE

A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

B. Performance: Fire, structural, and seismic performance meeting requirements of building code and local authorities. Acoustical performance based on project requirements.

C. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.

PART 2 - PRODUCTS

2.1 GRID SYSTEM

A. Components: All main beams and cross tees shall be commercial quality hot-dipped galvanized (galvanized steel, aluminum, or stainless steel) as per ASTM A 653. Main beams and cross tees are double-web steel construction with 15/16 IN type exposed flange design. Exposed surfaces chemically cleansed, capping pre-finished galvanized steel (aluminum or stainless steel) in baked polyester paint. Main beams and cross tees shall have rotary stitching (exception: extruded aluminum or stainless steel).
   1. Structural Classification: ASTM C 635 HD.
   2. Color: White and match the actual color of the selected ceiling tile, unless noted otherwise.
   3. Acceptable Product, ACT-2: Prelude XL 15/16" Exposed Tee System #8300 as manufactured by Armstrong World Industries, Inc. or approved equal.

B. Attachment Devices: Size for five times design load indicated in ASTM C 635,

Table 1, Direct Hung unless otherwise indicated.

C. Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft temper, pre-stretched, with a yield stress load of at least time three design load, but not less than 12 gauge.

D. Edge Moldings and Trim: Metal or extruded aluminum of types and profiles indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations, including light fixtures, that fit type of edge detail and suspension system indicated. Provide moldings with exposed flange of the same width as exposed runner.

E. Accessories

2.2 ACOUSTICAL CELING UNITS

A. Mineral Fiber Acoustical Ceilings:
   1. Ceiling tile shall be Armstrong Fine-Fissured Tegular medium texture #1833 or approved equal.
   2. Panel Size: 24 by 24 by 5/8 inches.
   3. Panel Edge: Square Lay-in.
   4. Auxiliary Materials:
      a. Edge molding and trim.
      b. Hold-down clips and impact clips.
      c. Concealed acoustical sealant

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install materials and suspension systems in accordance with manufacturer's instructions and recommendations, and ASTM C 636. Coordinate installation with location of mechanical and electrical work to ensure proper locations and anchorage.

B. Level ceiling to within 1/8 inch in 10 feet in both directions. Scribe and cut panels to fit accurately. Measure and layout to avoid less than half panel units.

C. Removal and reinstallation at existing ceilings: Remove and store materials for reuse when allowed. Handle with white gloves and avoid damaging corners and edges. Clean tiles and grid system, which have been removed. Provide additional materials to complete the work and to replace damaged existing materials. New materials shall match existing materials as approved.

D. Adjust, clean, and touch-up all system components.

END OF SECTION

SECTION 096600

RESILIENT TILE FLOORING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Provide resilient tile flooring and base where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related work: 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.

1.2 QUALITY ASSURANCE

A. 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.

1.3 SUBMITTALS

A. Comply with pertinent provisions of Section 01340.

B. Product data: Within 90 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:

1. Materials list of items proposed to be provided under this Section.
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
3. Samples of each item, color, and pattern available in the specified grades from the proposed manufacturers.
4. Manufacturer's recommended installation procedures which, when approved by the Engineer, will become the basis for accepting or rejecting actual installation procedures used on the Work.

1.4 PRODUCT HANDLING

A. Store floor tile and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F. Store floor tiles on flat surfaces.

1.5 EXTRA STOCK

A. Deliver to the Owner, for his use in future modifications, an extra stock of approximately 25 sq. ft. of each color and pattern in each material installed under this Section, packaging each type of material separately, distinctly marked, and adequately protected against deterioration.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Provide colors and patterns as selected by the Engineer from standard colors and patterns of the approved manufacturer in the specified type.

B. Adhesives:

1. Provide waterproof and stabilized type adhesive as recommended by the manufacturer of the material being installed.
2. Asphalt emulsions and other non-waterproof adhesives will not be acceptable.

C. Concrete slab primer: Provide non-staining type as required and as recommended by the manufacturer of the material being installed.

2.2 RESILIENT MATERIALS

A. Vinyl composition tile:

1. Dimension: Provide 12" x 12" x 1/8".
2. Acceptable products:
   a. Armstrong World Industries, Inc.
   b. Mannington Mills, Inc; Essentials
   d. Equal products of other manufacturers when approved by the Engineer.

B. Vinyl base:

1. Provide 1/8" thick by 4" high, round top, set on type.

2.3 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Engineer.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 PREPARATION

A. Subfloors:

1. Verify that substrate is smooth, level, at required finish elevation, and without more than 1/8" in 10'-0" variation from level or slopes shown on the Drawings.
2. Prior to laying materials, broom clean or vacuum the surfaces to be covered and inspect the subfloors.
3. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.

B. Priming:

1. Apply concrete slab primer if so recommended by the resilient flooring manufacturer.
2. Apply in accordance with the manufacturer's recommendations.

3.3 INSTALLATION

A. General:

1. Install materials only after finishing operations, including painting, have been completed and after permanent heating system is operating.

2. Verify that moisture content of concrete slabs, building air temperature, and relative humidity are within the limits recommended by the manufacturers of the materials used.
3. Maintain reference markers, holes, and openings that are in place or plainly marked for future cutting by repeating on the finish surface as marked in the subfloor. Use chalk or other non-permanent marking device.

B. Installing resilient tiles:

1. Place units with adhesive cement in strict compliance with the manufacturer's recommendations.
   a. Butt units tightly to vertical surfaces, nosings, edgings, and thresholds.
   b. Scribe as necessary around obstructions and to produce neat joints.
   c. Place tiles tightly laid, even, and in straight parallel lines.
   d. Extend units into toe spaces, door reveals, and in closets and similar spaces.
2. Lay units from center marks established with principal walls, discounting minor offsets, so that units at opposite edges of the room are of equal width.
   a. Adjust as necessary to avoid use of cut widths less than 3" wide at room perimeters.
   b. Lay units square to axes of the room or space.
3. Match units for color and pattern by using materials from cartons in the same sequence as manufactured and packaged.
4. Lay in ashlar pattern with grain in all units running the same direction, unless otherwise directed by the Engineer.
5. Place resilient edge strips tightly butted to units and secured with adhesive, providing at all unprotected edges unless otherwise shown.

C. Installing base:

1. Install base at all vertical surfaces abutting tiled floors.
2. Use factory-preformed exterior corners, and factory-preformed or job-mitered interior corners.

3.4 CLEANING AND PROTECTING

A. Remove excess adhesive and other blemishes from exposed surfaces, using neutral cleaner recommended by the manufacturer of the resilient materials.

B. Immediately prior to final inspection of work, thoroughly clean floors. Apply polish with type of floor polish, number of coats and procedures recommended by the manufacturer of the resilient materials.

C. Provide heavy non-staining paper or plastic walkway as required over tiled floors in direction of traffic, maintaining intact until tiled space is accepted by the Owner.

3.5 MEASUREMENT AND PAYMENT

A. No separate measurement or direct payment will be made for the work under this Section and all costs for same shall be included in the price bid for the item to which it pertains.

END OF SECTION

SECTION 09 91 00 - PAINTING

PART 1 GENERAL

1.1 SUMMARY

A. Provide painting and surface preparation.

1.2 SUBMITTALS

A. Product Data: Submit manufacturer's product data and installation instructions for each material and product used.

B. Samples: Submit two representative samples of each material specified indicating visual characteristics and finish. Include range samples if variation of finish is anticipated.
   1. Include manufacturers full range of color and finish options if additional selection is required.

C. Extra Stock: Submit 2 unopened gallons of each paint and color used in the project.

1.3 QUALITY ASSURANCE

A. Comply with governing codes and regulations. Provide products of acceptable manufacturers, which have been in satisfactory use in similar service for three years. Use experienced installers. Deliver, handle, and store materials in accordance with manufacturer's instructions.

B. Regulations: Compliance with VOC and environmental regulations.

C. Mock-Ups: Provide mock-up as required to demonstrate quality of workmanship.
   1. Provide 4 foot x 4 foot mock-ups of each type of surface.

PART 2 PRODUCTS

2.1 MATERIALS

A. Painting:
   1. Manufacturers: Sherwin-Williams, basis of specifications, or approved equal.
   2. Application: Interior unfinished surfaces.
   3. Application: Exterior unfinished surfaces.
   4. Application: Exposed mechanical and electrical items.
   5. Application: Repainting of existing surfaces.
   6. Primary Coating Type: Latex based paints.
   7. Primary Paint Systems: Primer plus two finish coats.

PART 3 EXECUTION

3.1 INSTALLATION

A. Inspect surfaces, report unsatisfactory conditions in writing; beginning work means acceptance of substrate.

B. Comply with manufacturer's instructions and recommendations for preparation, priming and coating work. Coordinate with work of other sections.

C. At existing areas to be repainted, remove blistered or peeling paint to sound substrates. Remove chalk deposits and mildew and wash all surfaces with mild detergent. Perform related minor preparation including caulk and glazing compounds. Spot prime bare areas before priming and painting as specified.

D. Match approved mock-ups for color, texture, and pattern. Re-coat or remove and replace work which does not match or shows loss of adhesion. Clean up, touch up and protect work.

3.2 PAINT SCHEDULE

A. Gypsum Drywall:

1. System:
   a. 1 coat S-W High Build Primer, Interior Latex, B28W8601
   b. 2 coats S-W Pro-Mar 200, Interior Latex Eg-Shel, B20W2200 Series

B. Wood for Painted Finish:

1. System:
   a. 1 coat S-W Premium Wall & Wood Primer
   b. 2 coats S-W ProMar 200 Interior Latex Semi-Gloss, B31W2200 Series

C. Exterior Wood for Painted Finish:

1. System:
   a. 1 coat exterior primer
   b. 2 coats S-W A-100 Exterior Latex Satin, A82-100 Series
   c.

D. Ferrous Metals:

1. System:
   a. 1 coat S-W Ken Kromik Universal Metal Primer
   b. 2 coats S-W Industrial Enamel

END OF SECTION

SECTION 10 21 00
TOILET COMPARTMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Solid plastic toilet compartments including the following: (Hiny Hiders)
   1. Floor mounted overhead-braced toilet compartments.
   2. Privacy screens.
   3. .

1.2 REFERENCES

A. ASTM A 666 - Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

B. ASTM B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

C. National Fire Protection Association (NFPA) 286 - Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth.

D. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

1.3 SUBMITTALS

A. Submit under provisions of Section 01 30 00 - Administrative Requirements.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

C. Shop Drawings: Provide layout drawings and installation details with location and type of hardware required.

D. Verification Samples: For each finish product specified, two samples representing actual product, color, and patterns.

E. Sustainable Design Submittals:
   1. Recycled Content: Certify percentages of post-consumer and pre-consumer recycled content.
   2. Regional Materials: Certify distance between manufacturer and Project and between manufacturer.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: A company regularly engaged in manufacture of products specified in this section, and whose products have been in satisfactory use under similar service conditions for not less than 5 years.

B. Installer Qualifications: A company regularly engaged in installation of products specified in this Section, with a minimum of 5 years experience.

C. Materials: Doors, panels and pilasters, constructed from high density polyethylene (HDPE) resins. Partitions to be fabricated from polymer resins compounded under high pressure, forming a single component which is waterproof, nonabsorbent and has a self-lubricating surface that resists marks from pens, pencils, markers and other writing instruments. Cover all plastic components with a protective plastic masking.

D. Performance Requirements:
   1. Fire Resistance: Partition materials shall comply with the following requirements, when tested in accordance with ASTM E 84:
      a. Class A flame spread/smoke developed rating.
      b. Class B flame spread/smoke developed rating.
   2. Material Fire Ratings:
      a. National Fire Protection Association (NFPA) 286: Pass.
      b. International Code Council (ICC): Class B.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

1.6 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.7 WARRANTY

A. Manufacturer guarantees its plastic against breakage, corrosion, and delamination under normal conditions for 25 years from the date of receipt by the customer. If materials are found to be defective during that period for reasons listed above, the materials will be replaced free of charge. Labor not included in warranty.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Scranton Products, which is located at: 801 E. Corey St.; Scranton, PA 18505; Toll Free Tel: 800-445-5148; Fax: 855-376-6161; Email:request info (info@scrantonproducts.com); Web:www.scrantonproducts.com
   1. Fabricator: Santana Toilet Partitions.
   2. Fabricator: Comtec Toilet Partitions.
   3. Fabricator: Capitol Toilet Partitions.

B. Requests for substitutions will be considered.

2.2 MATERIAL

A. Plastic Panels: High density polyethylene (HDPE) suitable for exposed applications, waterproof, non-absorbent, and graffiti-resistant textured surface.

B. Zinc Aluminum Magnesium and Copper Alloy (Zamac): ASTM B 86.

C. Stainless Steel Castings: ASTM A167, Type 304.

D. Aluminum: ASTM 6463-T5 alloy.

2.3 SOLID PLASTIC TOILET COMPARTMENTS

A. Basis of Design: Hiny Hiders Toilet Partitions as manufactured by and supplied by Scranton Products.
   1. Style: Floor mounted overhead-braced toilet compartments.

B. Doors, Panels, and Pilasters: 1 inch (25 mm) thick with all edges rounded to a radius. Mount doors and dividing panels based on height of specified system.
   1. Door and Panel Height: 55 inches (1397 mm).

   2. Panel Edge: Standard.

   3. Pilasters: 82 inches (2083 mm) high and fastened to floor.

C. Panel Color: Traditional Series.
   1. Black - Orange Peel.
   2. Black - Grip Ex.
   3. Paisley - Orange Peel.
   4. Shale - Orange Peel.
   5. Charcoal Grey - Orange Peel.
   6. Grey - Orange Peel.
   7. Glacier Grey - Orange Peel.
   8. White - Orange Peel.

D. Pilaster Shoes: 3 inches (76 mm) high one-piece molded HDPE. Secured to pilasters with a stainless steel tamper resistant Torx head sex bolt.
   1. Pilaster Plastic Shoe Color: Mocha.
   2. Pilaster Plastic Shoe Color: Black.
   3. Pilaster Plastic Shoe Color: Grey.
   4. Pilaster Plastic Shoe Color: Linen.
   5. Pilaster Plastic Shoe Color: Beige.
   6. Pilaster Plastic Shoe Color: Blueberry.

E. Headrail: Heavy-duty extruded 6463-T5 alloy aluminum with anti-grip design. Finish to be clear anodized. Fastened to headrail brackets with stainless steel tamper resistant Torx head sex bolt, and fastened at the top of the pilaster with stainless steel tamper resistant Torx head screws.
   1. Headrail Brackets: 20 gauge stainless steel with satin finish. Secured to the wall with stainless steel tamper resistant Torx head screws.

F. Wall Brackets:
   1. Aluminum Brackets: Heavy-duty aluminum 6463-T5 alloy.
   2. Stainless Steel Brackets: Stainless steel type 304.
   3. Brackets are fastened to pilasters with stainless steel tamper resistant Torx head screws and fastened to the panels with stainless steel tamper resistant Torx head sex bolts.
   4. Bracket Type: Stirrup double ear aluminum.
   5. Bracket Type: Stirrup stainless steel double ear.
   6. Bracket Type: Continuous 54 inches (1372 mm) stainless steel.
   7. Bracket Type: Continuous 54 inches (1372 mm) aluminum.

G. Door Hardware:
   1. Wrap-Around Hinges: 8 inches (203 mm) and fabricated from heavy-duty extruded aluminum. Hinges are through-bolted to pilasters and doors with stainless steel tamper resistant Torx head sex bolts. Hinges operate with field adjustable nylon cams. Cams can be field set in 30, 60 or 9 degree increments.

2. Wrap-Around Hinges - Regal: Heavy-duty cast aluminum. Hinges are through bolted to doors and pilasters. Hinges operate with field adjustable nylon cams. Cams can be field set in 30, 60 or 90 degree increments.
3. Door Strike/Keeper: Heavy-duty extruded aluminum 6436-T5 alloy with a bright dip anodized finish. Secured to pilasters with stainless steel tamper resistant Torx head sex bolts. Bumper shall be made of extruded black vinyl.
   a. Style: 6 inches (152 mm) aluminum.
4. Aluminum Slide Bolt Latch and Housing: Heavy-duty extruded 6463-T5 alloy aluminum. Latch and housing to have a bright dip anodized finish. Slide bolt and button to have a black anodized finish.
5. Stainless Steel Slide Bolt Latch and Housing: Heavy-duty stainless steel type 304. The latch and housing to have a bright finish. The slide bolt and button to have a black anodized finish.
6. Doors supplied with one coat hook/bumper and door pull made of chrome plated Zamak.
7. Equip outswing handicapped doors with second door pull and door stop.

2.4 SOLID PLASTIC PRIVACY SCREENS

A. Provide plastic privacy screens in urinal and entry toilet room applications as indicated or scheduled.

B. Panels, and pilasters, if required, 1 inch (25 mm) thick with edges rounded to a radius. Screens to be mounted at 14 inches (356 mm) above the finished floor. Color as selected by Architect from manufacturer's full line of current colors.

C. Screen Type: Wall mounted.
   1. Urinal Screens: 24 inches (610 mm) wide by 42 inches (1067 mm) high.

D. Wall Brackets: Extruded PVC plastic. Fastened to the panel/pilaster with stainless steel tamper resistant torx head screws and fastened to wall with stainless steel tamper resistant torx head sex bolts.
   1. Length of Wall Brackets: 41 inches (1041 mm).

E. Aluminum Slide Bolt Latch and Housing: Heavy-duty extruded 6463-T5 alloy aluminum. Latch and housing to have a bright dip anodized finish. Slide bolt and button to have a black anodized finish.

2.5 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

2.6 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Examine areas to receive toilet partitions, screens, and shower compartments for correct height and spacing of anchorage/blocking and plumbing fixtures that affect installation of partitions. Report discrepancies to the architect.

2.7 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install partitions rigid, straight, plumb, and level manor, with plastic laid out as shown on shop drawings.

C. Clearance at vertical edges of doors shall be uniform top to bottom and shall not exceed 3/8 inch (9.5 mm).

D. No evidence of cutting, drilling, and/or patching shall be visible on the finished work.

E. Finished surfaces shall be cleaned after installation and be left free of imperfections.

2.8 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 10530 - CANOPIES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following: Pre-finished aluminum canopies.

1.2 PERFORMANCE REQUIREMENTS

A. General: Design, fabricate, and install canopies to withstand loads from wind and snow; including exposure to weather.

1.3 SUBMITTALS

A. Product Data: Material descriptions, construction details, fabrication details, dimensions of individual components and profiles, hardware, fittings, mounting accessories, features, finishes, and operating instructions for canopies.

B. Shop Drawings: Show location and extent of canopies. Include elevations sections. Show materials, fabrication, dimensions, mounting heights, connections, anchorages, installation details, and attachments to other work.

1. Show locations for blocking, reinforcement, and supplementary structural support to be provided.

C. Samples for Verification: Provide sample of aluminum panel and available colors.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Minimum (5) years experience in similar work.

B. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.

1.5 PROJECT CONDITIONS

A. Field Measurements: Where canopy installation is indicated to fit to other work, verify dimensions of other work by field measurements before fabrication and indicate measurements on Shop Drawings.

1.6 WARRANTY

A. Warranty: Manufacturer's standard form in which manufacturer and fabricator agree to repair or replace components of canopy that fails in materials or workmanship within specified warranty period.

1. Finish Warranty Period: 10 yr finish
2. Material and Installation Warranty Period: 10 year.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Approved Manufacture meeting specifications. General hanger-rod canopy design

2.2 MATERIALS

A. Aluminum Frames: Canopy shall use perimeter-extruded gutter and extruded decking. Extruded Decking shall be a cap and pan (0.032 W-panel or flat pan) and shall interlock to make a rigid structure. Crimped decking is not allowed. Roll-formed aluminum decking (12" or 16" widths) shall be allowed upon approval by the Architect or owner.

B. Support Rods shall be 1½"x 1½" square tubing. Utilizing 2"x2" square tubing based on design loads.

C. Gutter size shall be 4"x 6" at 0.093" thick.

D. Flashing shall be made of aluminum sheet painted to match the color of the canopy.

E. Anchors, Fasteners, Fittings, Hardware, and Installation Accessories: Complying with performance requirements indicated and suitable for exposure conditions.

2.3 FABRICATION

A. Fabricate and finish aluminum roof panels and accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes.

B. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.

C. Frames: Pre-assemble frames in the shop to greatest extent possible.

2.4 FINISHES

A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a temporary protective covering before shipping.

B. Standard factory options are bronze baked enamel or white baked enamel.

C. Optional finishes include Powder Coating

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present or requirement of immediate notification of any damaged material before installation is conducted.

1. Proceed with installation only after material have been corrected.

3.2 INSTALLATION, GENERAL

A. General: Install canopies at locations and in position indicated, securely connected to supports. Use mounting methods of types described and in compliance with Shop Drawings.

B. Install canopies after other finishing operations, including joint sealing and painting, have been completed.

C. Attach metal roof panels to frames as recommended by manufacture.

D. Anchoring to In-Place Construction: Use anchors, fasteners, fittings, hardware, and installation accessories where necessary for securing canopies to structural support.

3.3 CLEANING AND PROTECTION

A. Clean canopy surfaces after installation, according to manufacturer's written instructions.

B. Touchup Painting: Immediately after erection.

3.4 BASIS OF PAYMENT

As indicated on the bid proposal form, otherwise an absorbed cost.

END OF SECTION 10530

SECTION 11023 - HVAC SPECIFICATIONS

1. Contractor to supply a minimum 15 seer rating heating and cooling system (Carrier, Trane, or approved equal) which shall be sized to adequately heat and cool the enclosed office, break, storage and bathroom areas of the building, including future admin offices for a total of 2000 square feet (minimum 5 ton) and must provide submittals to the engineer detailing the make and model of the proposed unit along with a proposed ductwork layout.

2. All ductwork to be constructed per SMACNA standards and all joints to be sealed with an approved duct sealant.

3. All rectangular duct shall have a 1" liner. (supply and r/a)

4. All supply air take-off's shall have a balance damper

5. The mechanical contractor shall install all equipment per mfg's instructions and recommendations.

6. The mechanical contractor shall install and coordinate with the general contractor for natural gas lines, condensate drains, etc.

7. The controls shall be space temp sensors located 4'-6'' above finished floor and near the return air grill of the respective unit, with a 7 day programmable control located per the owner's requirements.

SECTION 13120 - PRE-ENGINEERED BUILDINGS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Structural steel main building frames and secondary framing including purlins and girts, engineered and fabricated by the building systems supplier.
B. Steel wall and insulated roof system including gutters and downspouts.
C. Complete roof covering system consisting of the exterior roof panels, panel attachments, sealants, mastics, trim and flashings as required.
D. Foundation and slab, including structural design of footings.
E. Other items as required to complete the work and not specifically covered under this or other sections.

1.02 RELATED SECTIONS

A. ~~Metal Fabrications.~~
B. Cast in Place Concrete

1.03 REFERENCES

A. AISC S323 - Quality Criteria and Inspection Standards; American Institute of Steel Construction, Inc.; 1988, Third Edition.
B. AISC S335 - Specification for Structural Steel Buildings--Allowable Stress Design, Plastic Design; American Institute of Steel Construction, Inc.; 1989.
C. AISC S342L - Load and Resistance Factor Design Specification for Structural Steel Buildings; American Institute of Steel Construction, Inc.; 1993.
D. ASTM A 36/A 36M - Standard Specification for Carbon Structural Steel; 1996.
E. ASTM A 153/A 153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 1995.
F. ASTM A 307 - Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength; 1994.
G. ASTM A 325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength; 1997.
H. ASTM A 325M - Standard Specification for High-Strength Bolts for Structural Steel Joints

(Metric); 1993.

I. ASTM A 490 - Standard Specification for Heat-Treated Steel Structural Bolts, 150 ksi Minimum Tensile Strength; 1997.

J. ASTM A 500 - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 1996.

K. ASTM A 501 - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing; 1996.

L. ASTM A 529/A 529M - Standard Specification for High-Strength Carbon-Manganese Steel of Structural Quality; 1996.

M. ASTM A 572/A 572M - Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel; 1997.

N. ASTM A 653/A 653M - Standard Specification for Steel Sheets, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 1997.

O. ASTM C 1107 - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 1997.

P. ASTM E 1514-93 – Specification for Structural Standing Seam Steel Roof Panel Systems

Q. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; American Welding Society; 1998.

R. AWS D1.1 - Structural Welding Code - Steel; American Welding Society; 1996.

S. MBMA (LR) - Low Rise Building Systems Manual; Metal Building Manufacturers Association; 1996, with Rev 1 (4/97).

T. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); Society for Protective Coatings; 1991 (Part of Steel Structures Painting Manual, Vol. Two).

U. UL 580 - Standard for Tests for Uplift Resistance of Roof Assemblies; Underwriters Laboratories Inc.; 1994.

1.04 DESIGN REQUIREMENTS

A. Design members to withstand dead load, applicable snow load, and design loads due to pressure and suction of wind calculated in accordance with 2015 International Building code. Include effects from equipment and earthquakes in all designs. See below for additional notes, collateral loads, and Use Factors

1.) Bldg. Exposure is Class C
2.) Collateral Load is 2 Lb. per SF (min.)
3.) Live Load Reduction is allowed
4.) Columns to be tapered
5.) Wall Girts to be flush
6.) Expandable Frame at both end walls for future expansion, designed for full load.

1.05 SUBMITTALS

A. See Administrative Requirements for submittal procedures.
B. Product Data: Provide data on profiles, component dimensions, fasteners.
C. Shop Drawings and Related Submittals: Indicate assembly dimensions, locations of structural members, connections; wall and roof system dimensions, general construction details, anchorages and method of anchorage, installation; framing anchor bolt settings, sizes, and locations from datum, foundation loads; indicate welded connections with AWS A2.4 welding symbols; indicate net weld lengths; provide professional signature and seal of pre-engineered building engineer licensed in the project state; provide manufacturer's certification that building conforms to the contract documents and manufacturer's standard design procedure.
D. Manufacturer's Instructions: Indicate preparation requirements, anchor bolt placement, and erection requirements.
E. Column reaction loads and footing design.
F. Erection Drawings: Indicate members by label, assembly sequence, and temporary erection bracing.
G. Project Record Documents: Record actual locations of concealed components and utilities.

1.06 QUALITY ASSURANCE

A. Design structural components, develop shop drawings, and perform shop and site work under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the State of Mississippi.
    1. Conform to applicable code for submission of design calculations as required for acquiring permits.
    2. Cooperate with regulatory agency or authority and provide data as requested.
B. Perform work in accordance with AISC S335.
C. Perform welding in accordance with AWS D1.1.
D. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum five years documented experience.
E. Erector Qualifications: Company specializing in performing the work of this section with minimum five years' experience.
F. General Contractor shall provide column footing design to be integrated into the building slab based on column reaction loads provided by the manufacturer of the Pre-engineered Building (Paragraph 1.05). Said footing design shall be prepared and sealed by a professional engineer licensed to practice in the State of Mississippi.

1.07 PRE-INSTALLATION MEETING

A. Convene one week before starting work of this section.

1.08 WARRANTY

A. Metal building contractor shall provide a workmanship warranty of two (2) years and leaks for a period of two (2) years after the date of substantial completion.
B. Building manufacturer shall provide a warranty of twenty (20) years to cover the prefinished roof and wall panels against leaking, chipping, cracking, crazing, blistering, peeling, chalking or fading. Warranty shall include coverage for weather tightness, full installation cost (materials & labor) for the entire warranty period.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. See Section 1.06 for Manufacturer Qualifications requirements.

2.02 PRE-ENGINEERED BUILDING

A. Clear span rigid frame.
B. Eave Heights (Top of Eave Struts): see drawings
C. Bay spacing: see drawings
D. Primary Framing: Rigid frame of rafter beams and columns, and wind bracing.
E. Secondary Framing: Purlins, girts, and eave struts.
F. Lateral Bracing: Horizontal loads not resisted by main frame action shall be resisted by portal frames in the sidewalls and endwall: rods in the roof.
G. Wall and Roof system Preformed steel panels insulation and accessory components.
H. Roof Slope: see drawings

2.03 MATERIALS - FRAMING

A. Structural Steel Members: ASTM A 36/A 36M.
B. Structural Tubing: ASTM A 500, Grade B.
C. Plate or Bar Stock: ASTM A 529/A 529M.
D. Anchor Bolts: ASTM A 307, unprimed.

E. Bolts, Nuts, and Washers: ASTM A 325 (ASTM A 352M), galvanized to ASTM A 153/A 153M.
F. Welding Materials: Type required for materials being welded.
G. Primer: SSPC-Paint 20, Red Oxide.
H. Grout: ASTM C 1107, Non-shrink type, premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents, capable of developing minimum compressive strength of 2400 psi in two days and 7000 psi in 28 days.

2.04 COMPONENTS

A. Roof System:
1. Sheet Steel Stock: Galvanized or Galvalume as required by manufacturer's design.
2. Roof Insulation: batt glass fiber type, faced with reinforced white vinyl. UL flame spread classification of 25 or less where exposed, **R-13 unless noted otherwise.**
3. Standing Seam Roofing: Minimum 24 gage metal thickness, mechanical seam edges, 2.-0" coverage.
4. Closures: Manufacturer's standard typed.
5. Fasteners: Manufacturer's standard type, finish to match adjacent surfaces when exterior exposed. Size to maintain load and weather tightness requirements.
6. Exterior Surfaces of Roof panels: Standard Color over Galvalume, color as selected from manufacturer's standard range.
7. Low Profile Ridge Cap: Manufacturer's standard type.
8. Thermal Blocks at Purlins: Manufacturer's standard type.

B. Wall System:
1. Sheet Steel Stock: Galvanized or "Galvalume" as required by manufacturer's design.
2. Siding: Minimum 26 gage metal thickness, Panel rib wall panels provide 36" wide net coverage. Side Laps are at least one full major rib.
3. Closures: Manufacturer's standard type.
4. Fasteners: Manufacturer's standard type, finish to match adjacent surfaces when exterior exposed. Size to maintain load and weather tightness requirements.
5. Exterior Surfaces of Wall Panels: Standard Color over Galvalume, color as selected from manufacturer's standard range.
6. Wall Insulation: batt glass fiber type, faced with reinforced white vinyl UL flame spread classification of 25 or less where exposed, **R-13 unless noted otherwise**.

C. Flashing and Trim: Match material and color of adjacent components. Provide trim at rakes, including peak and corner assemblies, high and low eaves, corners, bases, framed openings and as required or specified to provide weathertightness and a finished appearance.
   1. Eave Gutter: Roll formed 26 gage and include gutter straps, fasteners and joint sealant.
   2. Downspouts: 4”x5” 29 gage complete with downspout elbows and downspout straps.

D. Sealants, Mastics and Closures: Manufacturer’s standard type.
   1. Provide at roof panel endlaps, sidelaps, rake, eave, transitions and accessories as required to provide a weather resistant roof system; use tape mastic or gunnable sealant at sidelaps and endlaps.
   2. Provide at rakes, eaves, transitions and accessories.
   3. Closures: Formed to match panel profiles; closed cell elastic material, manufacturer’s standard color.
   4. Tape Mastic: Pre-formed butyl rubber-based, non-hardening, non-corrosive to metal; white or light gray.
   5. Gunnable Sealant: Non-skinning synthetic elastomer-based material; gray or bronze.

2.05 ROOF ACCESSORIES

Provide purlins as required to frame all roof openings.

2.06 FABRICATION - FRAMING

A. Fabricate members in accordance with AISC Specification for plate, bar, tube, or rolled structural shapes.
B. Anchor Bolts: Formed with straight shank, assembled with template for casting into concrete.

2.07 FINISHES

A. Framing Members: Clean, prepare, and shop prime. Do not prime surfaces to be field welded.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that foundation, floor slab, mechanical and electrical utilities, and placed anchors are in correct position

3.02 ERECTION - FRAMING

A. Erect framing in accordance with AISC Specification for Structural Steel Buildings.
B. Provide for erection and wind loads. Provide temporary bracing to maintain structure plumb and in alignment until completion of erection and installation of permanent bracing. Locate braced bays as indicated.
C. Set column base plates with non-shrink grout to achieve full plate bearing.
D. Do not field cut or alter structural members without approval.
E. After erection, prime welds, abrasions, and surfaces not shop primed.

3.03 ERECTION - GUTTERS AND DOWNSPOUTS

A. Rigidly support and secure components. Joint lengths with formed seams sealed watertight. Flash and seal gutters to downspouts.
B. Slope gutters minimum 1/8 inch/ft.
C. Install splash pans under each downspout.

3.04 TOLERANCES

A. Framing Members: 1/4 inch from level; 1/8 inch from plumb.

3.05 BASIS OF PAYMENT

A. PREENGINEERED BUILDING shall be paid for at the contract lump sum price, which shall be full compensation for completing the work specified, including all labor, materials, equipment and appurtenances as required to complete the work.

END OF SECTION

SECTION 15400

PLUMBING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Provide plumbing system as shown on the Drawings, specified herein, and needed for a complete and proper installation including, but not necessarily limited to:

1. Domestic hot and cold water piping systems.
2. Drain, waste and vent systems.
3. Gas piping system.
4. Storm drainage system within the structures.
5. Plumbing fixtures and trim as shown on the Drawings.

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.

1.2 QUALITY ASSURANCE

A. 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.

B. Codes and regulations:

1. In addition to complying with the specified requirements, comply with local plumbing code having jurisdiction.
2. In the event of conflict between or among specified requirements and pertinent regulations, the more stringent requirement will govern when so directed by the Engineer.
3. Work shall meet the Plumbing Inspector's approval.

C. Permits, licenses and fees:

1. Plumbing Contractor shall obtain and pay for all permits, licenses, fees and service charges required for execution of this work.

1.3 SUBMITTALS

A. Product data: Within 30 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:

1. Materials list of items proposed to be provided under this Section.
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
3. Shop drawings and other data as required to indicate method of installing and attaching equipment, except where such details are fully shown on the Drawings.

B. Manuals: Upon completion of the work of this Section, deliver to the Engineer two (2) copies of an operation and maintenance manual.

1.4 PRODUCT HANDLING

A. Protect piping materials from severe impact blows, gouging or cutting by metal surfaces or rocks.

PART 2 - PRODUCTS

2.1 PIPE SCHEDULE

A. Materials:

1. All materials and equipment shall be new and free from flaws and defects of any nature.
2. All pipe shall conform to the latest edition of the "International Plumbing Code" or local governing plumbing codes and the latest ASTM standard specifications.
3. Cast iron pipe and fittings shall be asphaltum coated, no-hub type, stainless steel coupling and neoprene gaskets, all complying with ASTM Specification A-74.
4. Copper pipe shall comply with the requirements of ASTM B 88 for the type specified.
5. Galvanized or black steel pipe shall conform to ASTM A 120.
6. PVC Pipe shall be ASTM D 2665, Schedule 40, solid-wall drain, waste, and vent (DWV).
7. PEX High Density polyethylene tubing pipe shall be manufactured to the requirements of ASTM F876 and meet the standard grade pressure ratings.

B. Drain, waste and vent system:

1. Solid-Wall PVC Pipe: ASTM D 2665, drain, waste, and vent.
2. PVC Socket Fittings: ASTM D 2665, mate to ASTM D 3311, drain, waste, and vent patterns and to fit Schedule 40 pipe.
3. Adheisive Primer: ASTM F 656.
   a. Adheisive primer shall have a VOC content of 550 g/L or less when calculated according to 40 CRF 59, Subpart D (EPA Method 24).
4. Solvent Cement: ASTM D 2564.
   a. PVC Solvent cement shall have a VOC content of 510 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

C. Water system (domestic piping): Provide PEX polyethylene tubing pipe with standard PEX crimp fittings with copper crimp rings or Type "K", hard drawn copper with wrought copper fittings, soldered (50-50).

D. Gas piping: Provide Schedule 40 black steel pipe with malleable iron screwed fittings, except provide galvanized where pipe or fittings are exposed to the weather.

E. Roof drainage piping: Provide service weight cast iron pipe and fittings.

F. Compressed air system: Above or below ground provide Type "K", soft drawn copper tubing with flared gas tubing fittings. Do not use compression type tubing fittings.

1. Buried piping to be installed within Schedule 40, PVC conduit.
2. Seal conduit ends and vent to outside.

2.2 UNIONS

A. Provide at all connections to fixtures, pumps and equipment.

B. For copper lines, provide cast brass.

C. For connections in iron pipe lines 2-1/2" and smaller, provide ground joint brass-to-iron.

2.3 VALVES

A. Gate valves: Provide solid wedge disc, rising stem, 200# WOG; non-rising stem valves may be used only where there is insufficient clearance.

1. 3" and smaller, rising stem: Provide Crane #428, bronze, screwed or equal.
2. 3" and smaller, non-rising stem: Provide Crane #438, bronze, screwed or equal.
3. 4" and larger: Provide Crane #465-1/2, IBBM, flanged, non-rising stem or equal.

2.4 GAS COCKS

A. 2" and smaller: Provide 250#, bronze, screwed, square head, 125#.

B. 2-1/2" and larger: Provide Nordstrom #142 or #143, or equal.

2.5 NOT USED

2.6 STRAINERS

A. Provide Y-pattern, 200# WOG, 20-mesh monel screen:

1. 3" and smaller: Provide Crane #988-1/2, screwed or equal.
2. 4" and smaller: Provide Crane #989-1/2, flanged or equal.

2.7 NOT USED

2.8 PIPE SLEEVES

A. Wherever pipes pass through masonry construction, furnish and install Schedule 40 PVC pipe sleeves two pipe sizes larger than pipes passing through.

B. Provide epoxy sealant around piping in sleeves.

C. Provide chrome plated escutcheon plates, Crane Company, No. 10-BC, or equal.

2.9 FLASHING

A. Where piping passes through roof, flash with a 30" square of 4-pound sheet lead or 16 ounce copper.

1. Turn flashing up a minimum of 6" and install Wade No. W-8770, Josam or equal flashing sleeve.

2.10 SHOCK ABSORBERS

A. Provide Josam, J.R. Smith, Wade or Zurn.

2.11 AIR CHAMBERS

A. Provide on water supply pipes to each fixture.

B. Make one pipe size larger than the supply riser and at least 18" long.

2.12 NOT USED

2.13 CLEANOUTS

A. General:

1. Provide Josam, J.R. Smith or equal.
2. Cleanouts shall be the same size diameter as lines in which they are installed up to 4", and not less than 4" for larger pipe.

B. Exterior: Provide Smith #4253 or Josam 58860-22, with XH cast iron top.

C. Floors:

1. Provide Smith #4023 or Josam 58410 with round nickel-bronze top.
2. Provide "flush-with-floor" type cleanouts, with adjustable watertight covers and integral anchoring flange with clamping collar where waterproofing membrane is used.

D. Finished walls: Provide Smith #4532 or Josam 58790-22 with round chrome plated or stainless steel access plate and screw.

E. Provide cleanout plugs of extra heavy bronze.

2.14 FIXTURES AND EQUIPMENT

A. Provide plumbing fixture, trim and equipment as shown on the "Fixture and Equipment Schedule" in the Drawings.

B. Roof drains:

1. Provide Smith #1010 or Josam #4100 cast iron roof drains complete with roof clamping collar and removable dome strainers, in sizes shown on the Drawings.
2. Provide underdeck clamp, sump receivers, and extensions where required.

C. Hose bibbs:

1. Interior located hose bibbs shall be 3/4" Mueller H-8296 or equal with wheel type operator. Provide Watts No. 8, Nidel or equal vacuum breakers shall be installed on each hose bibb.
2. Outside located hose bibbs shall be Woodford Model 27 or equal, automatic draining freezeless backflow protected wall faucet with wheel operator.

2.15 BACKFLOW PREVENTERS

A. Where installed in finished spaces, provide chromium plated finish.

2.16 GAS VENT LINES

A. General:

1. For combustion vent flues for gas-fired equipment, provide size required by the manufacturer of the equipment and as required by governmental agencies having jurisdiction.
2. Provide "Transite", "Metal-Bestos", or equal products of "Amerivent".

B. Do not use single wall metal vent line.

2.17 MISCELLANEOUS PARTS AND ACCESSORIES

A. Use standard commercial grade suitable for the type of installation or system involved, and conforming to the applicable standards and specifications.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

3.2 PLUMBING SYSTEM LAYOUT

A. Drawings are intended to be diagrammatic and do not include all offsets, fittings and specialties required.

B. Before construction of project begins, check locations and inverts of existing and proposed pipes, sewers and mains.

C. Review other drawings for the project, checking grades, elevations, locations of structural elements, walls and partitions.

D. Report to Engineer any conflicts or unsatisfactory conditions before start of construction.

E. Follow the general layout shown on the Drawings in all cases except where other work may interfere, use minimum number of fittings.

F. Lay out pipes to fall within partition, wall or roof cavities, and to not require furring other than as shown on the Drawings.

G. No extra charge for work resulting from failure to follow these instructions will be approved after start of construction.

3.3 LOCATING

A. No water pipe shall pass through or come in contact with any part of a sewer manhole.

3.4 INSTALLATION OF PIPING AND EQUIPMENT, GENERAL

A. General:

1. Proceed as rapidly as the building construction will permit.
2. Thoroughly clean items before installation. Cap pipe openings to exclude dirt until fixtures are installed and final connections have been made.
3. Cut pipe accurately, and work into place without springing or forcing, properly clearing windows, doors, and other openings. Excessive cutting or other weakening of the building will not be permitted.
4. Show no tool marks or threads on exposed plated, polished, or enameled connections from fixtures. Tape all finished surfaces to prevent damage during construction.
5. Install horizontal soil, waste and drain piping at a uniform slope of not less than 1/4" per foot for pipe 3" and smaller, and not less than 1/8" per foot for larger pipe.
6. All changes in direction of soil, waste and drain piping shall be made using only sanitary drainage pattern fittings. Changes in direction shall be made by use of 45° wyes, long sweep quarter, sixth, eighth, or sixteenth bends, or by a combination of these or equivalent fittings. Short radius quarter bends may be used only where direction of flow is from horizontal to vertical. Running threads, bands, saddles, tapped tees, and tapped crosses will not be allowed in the drainage lines. Tapped sanitary tees and crosses are acceptable.

7. Run horizontal water piping with an adequate pitch upwards in direction of flow to allow complete drainage.
8. Provide sufficient swing joint, ball joints, expansion loops, and devices necessary for a flexible piping system, whether or not shown on the Drawings.
9. Support piping independently at pumps, coils, tanks, and similar locations, so that weight of pipe will not be supported by the equipment.
10. Securely bolt all equipment, isolators, hangers, and similar items in place.
11. Support each item independently from other pipes. Do not use wire for hanging or strapping pipes.
12. Provide complete dielectric isolation between ferrous and non-ferrous metals, EPCO, Mayco, or equal.
13. Provide union and shutoff valves suitably located to facilitate maintenance and removal of equipment and apparatus.
14. Piping within the buildings shall be run concealed, unless otherwise approved.
15. Drains and associated drain piping shall be provided at all low points.

B. Equipment access: Install piping, equipment and accessories to permit access for maintenance. Relocate items as necessary to provide such access, without additional cost to the Owner.

3.5 PIPE JOINTS

A. Copper tubing:

1. Cut square, remove burrs, and clean inside of female filling to a bright finish.
   a. Apply solder flux with brush to tubing.
   b. Remove internal parts of solder-end valves prior to soldering.
2. Provide dielectric unions at points of connection of copper tubing to ferrous piping and equipment.
3. For joining copper tubing, use:
   a. Water piping 3" and smaller: 95-5 solder.
   b. Water piping larger than 3": "Sil-fos" brazing;
   c. Underground: "Sil-fos" brazing.

B. Screwed piping:

1. Deburr cuts:
   a. Do not ream exceeding internal diameter of the pipe.
   b. Thread to requirements of ANSI B2.1.
2. Use teflon tape on male thread prior to joining other services.
3. Use litharge and glycerin on joint prior to cleaning for air and oil piping.

C. No-hub cast-iron pipe: Place coupling midway on joint, tighten band equally on both sides.

D. Leaky joints:

1. Remake with new material.
2. Remove leaking section and/or fitting as directed.
3. Do not use thread cement or sealant to tighten joint.

3.6 PIPE SUPPORTS

A. Space hangers and support for horizontal steel pipes.

B. Hubless cast iron piping:

1. Provide hangers on the piping at each side of, and within 6" of, hubless pipe coupling so the coupling will bear no weight.
2. Do not provide hangers on couplings.

3. Provide hangers adequate to maintain alignment and to prevent sagging of the pipe.
4. Make adequate provision to prevent shearing and twisting of the pipe and the joint.

D. Provide sway bracing on hangers longer than 18".

E. Support vertical piping with riser clamps secured to the piping and resting on the building structure. Provide at each floor unless otherwise noted.

F. Arrange pipe supports to prevent excessive deflection, and to avoid excessive bending stress.

G. Support piping from inserts or anchors in concrete slabs.

3.7 SLEEVES AND OPENINGS

A. Provide sleeves for each pipe passing through walls, partitions, floors, roofs and ceilings.

1. Set pipe sleeves in place before concrete is placed.
2. For uninsulated pipe, provide sleeves two pipe sizes larger than the pipe passing through, or provide a minimum of 1/2" clearance between inside and outside of the pipe.
3. For insulated pipe, provide sleeves of adequate size to accommodate the full thickness of pipe covering, with clearance for packing and caulking.

B. Caulk the space between sleeve and pipe or pipe covering, using a non-combustible, permanently plastic, waterproof, non-staining compound which leaves a smooth finished appearance, or pack with non-combustible asbestos cotton, rope, or fiberglass to within 1/2" of both wall faces, and provide the waterproof compound described above.

C. Finish and escutcheons:

1. Smooth up rough edges around sleeves with plaster or spackling compound.
2. Provide escutcheons on all pipes exposed to view where passing through walls, floors, partitions, ceilings, and similar locations.
   a. Size the escutcheons to fit pipe and covering.
   b. Hold escutcheons in place with setscrew.

3.8 CLEANOUTS

A. Secure the Engineer's approval of locations for cleanouts in finished areas prior to installation.

B. Provide cleanouts of same nominal size as the pipes they serve; except where cleanouts are required in pipes 4" and larger, provide 4" cleanouts.

C. Make cleanouts accessible. After pressure tests are made and approved, thoroughly graphite the cleanout threads.

3.9 VALVES

A. Provide valves in water, air, and gas system. Locate and arrange so as to give complete regulation of apparatus, equipment and fixtures.

B. Provide valves in at least the following locations:

1. In branches and/or headers of water piping serving a group of fixtures.
2. On both sides of apparatus and equipment.
3. For shutoff of risers and branch mains.
4. For flushing and sterilizing the system.
5. Where shown on the Drawings.

C. Locate valves for easy accessibility and maintenance.

3.10 WATER HAMMER ARRESTERS

A. Provide water hammer arresters on hot water lines and cold water lines.

1. Install in upright position on hot water lines and cold water lines.

B. Where fixtures are not protected by water hammer arresters, provide 18" high air chambers on each water supply, properly sized and designed for maintenance and drainage.

3.11 BACKFLOW PREVENTION

A. Protect plumbing fixtures, faucets with hose connections, and other equipment having plumbing connections, against possible back-siphonage.

B. Arrange for testing of backflow devices as required by the governmental agencies having jurisdiction.

3.12 PLUMBING FIXTURE INSTALLATION

A. Installation:

1. Set fixtures level and in proper alignment with respect to walls and floors, and with fixtures equally spaced.
2. Provide supplies in proper alignment with fixtures and with each other.
3. Provide flush valves in alignment with the fixture, without vertical or horizontal offsets.

B. Grout wall and floor mounted fixtures watertight where the fixtures are in contact with walls and floors.

C. Caulk deck-mounted trim at the time of assembly, including fixture and casework mounted. Caulk self-rimming sinks installed in casework.

3.13 TESTING

A. Water system:

1. Clean and flush line of dirt and foreign material.
2. Perform pressure tests prior to installation of fixtures.
3. Test pump, pipe connection, pressure gauges, measuring devices and all other necessary appurtenances to conduct tests shall be provided by the Contractor.
4. Tests shall be conducted on each line or valved section of line.
5. Test pressures shall be 150 psi based on the elevation of the lowest point of the section under test and corrected to the elevation of the test gauge.
6. Replace or remake joints showing leakage.
   a. Remove cracked pipe, defective pipe, and cracked or defective joints, fittings and valves. Replace with sound material and repeat the test until results are satisfactory.
   b. Make repair and replacement without additional cost to the Owner.

B. Drainage system:

1. Test the entire drainage and sanitary system as dictated by local codes.
2. Plug all necessary openings appended to the system.
3. Fill the system or section of system being tested with water to the level of the top of highest vent stack.

4. Not less than 10 feet of water pressure should be maintained for one hour, unless otherwise required.
5. Should any test disclose excessive leakage, locate and repair the joint, joints or pipe until accepted.
6. This work and any additional testing required by the Engineer shall be done at no additional costs to the Owner.

C. Air and gas systems:

1. Perform pressure tests prior to installation of fixtures.
2. Test pump, pipe connection, pressure gauges, measuring devices and all other necessary appurtenances to conduct tests shall be provided by the Contractor.
3. Tests shall be conducted on each line or valved section of line.
4. Test pressures shall be 150 percent of the working pressure of the line.
5. Replace or remake joints showing leakage.
   a. Remove cracked pipe, defective pipe, and cracked or defective joints, fittings and valves. Replace with sound material and repeat the test until results are satisfactory.
   b. Make repair and replacement without additional cost to the Owner.

3.14 STERILIZATION OF WATER SYSTEMS

A. Disinfect hot and cold water systems.

1. Upon completion of testing, sterilize all water lines to meet requirements of the Department of Health.
2. Newly laid valves or other appurtenances shall be operated several times while line is filled with chlorinating agent.
3. Should initial treatment fail to meet results specified, repeat procedures until satisfactory results are obtained, at no additional cost to the Owner.
4. All pipe taps, feeders, chemicals, etc., for sterilization shall be provided by the Contractor.

B. Procedure:

1. Flush systems to extent possible with available pressure and outlets, prior to sterilization.
2. Apply chlorine as liquid chlorine or chlorine compound such as calcium hypochlorite with known chlorine content.
3. Apply through corporation cock in top of main, at beginning of system being sterilized.
4. Use proper feeder and flow regulator to introduce chlorinating agent.
5. Application rate shall be not less than 50 ppm.
6. Retain chlorinated water in system not less than 24 hours.
7. At end of retention period, at least 10 ppm of chlorine shall remain in the water at the extreme end of section.
8. Flush line thoroughly.

3.15 MEASUREMENT AND PAYMENT

A. No separate measurement or direct payment will be made for the items under this Section and all costs for same shall be included in the price bid for the item to which it pertains.

END OF SECTION

SECTION 16400

ELECTRICAL

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Provide a complete electrical system as indicated on the Drawings, as specified herein, and as needed for a complete and proper installation including, but not necessarily limited to:

1. Main service, switchgear, distribution equipment, motor control centers and transformers.
2. Feeder system, in conduit.
3. Branch circuit panels for power and lighting.
4. Branch circuit wiring, in conduit, for lighting, receptacles, junction boxes and motors.
5. Hangers, anchors, sleeves, chases, supports for fixtures, and other electrical materials and equipment in association therewith.
6. Lighting fixtures and lamps.
7. Wiring system, in conduit, for equipment and controls provided under other Sections of these Specifications including, but not necessarily limited to, Equipment and Mechanical Sections.
8. Motor starters and controls for motors provided under the Contract, but for which motor starters and controls are not otherwise provided.
9. Telephone conduit system.
10. Heaters, fans, air conditioning units and louvers.
11. Other items and services required to complete the systems whether particularly mentioned or not.

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.

1.2 QUALITY ASSURANCE

A. 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. These shall include, but not be limited to, an electrical supervisor who is a licensed master electrician, a field foreman with a minimum journeyman electrician's license and adequate electricians and helpers.

B. Without additional cost to the Owner, provide such other labor and materials required to complete the work of this Section in accordance with the requirements of governmental agencies having jurisdiction, regardless of whether such materials and associated labor are called for elsewhere in these Contract Documents.

1.3 SUBMITTALS

A. Electrical shop drawing submittals of the 8-1/2" x 11" size shall consist of three blackline bond copies.

B. Product data: Within 30 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:

1. Materials list of items proposed to be provided under this Section.
2. Manufacturer's specifications, other data and shop drawings needed to prove compliance with the specified requirements. Drawings for approval shall include:
   a. Switchgear
   b. Panels
   c. Motor control centers
   d. Transformers
   e. Wiring devices and cover plates
   f. Conduit and fittings
   g. Conductors
   h. Lighting fixtures
   i. Motor starters
   j. Safety switches
   k. Special systems
   l. Heaters, fans, air conditioning units, and louvers
3. Manufacturer's recommended installation procedures which, when approved by the Engineer, will become the basis for accepting or rejecting actual installation procedures used on the Work.

C. Samples:

1. When so requested by the Engineer, promptly provide samples of items scheduled to be installed in the final structure.
2. When specifically so requested by the Contractor and approved by the Engineer, approved samples will be returned to the Contractor for installation on the Work.

D. Manual: Upon completion of this portion of the Work and as a condition of its acceptance, deliver to the Engineer two copies of an operation and maintenance manual. Include within each manual:

1. Copy of the approved Record Documents for this portion of the Work.
2. Copies of all circuit directories.
3. Copies of all warranties and guaranties.

1.4 NOT USED

1.5 WARRANTY

A. In addition to standard one-year warranty on all labor and materials, provide a two-year warranty on all lighting fixtures.

1.6 RULES AND PERMITS

A. The entire installation shall be in accordance with the latest edition of the National Electrical Code, Occupational Safety and Health Act, and all local codes.

B. Apply and pay for all permits and inspections required by local or state laws.

C. Furnish the Owner with certificate of inspection and final approval from all authorities having jurisdiction.

1.7 DRAWINGS

A. The drawings and specifications are complementary to each other and what is called for by one shall be as binding as if called for by both. The drawings are diagrammatic and are to be followed as closely as the construction will permit.

B. The drawings show the general location of fixtures and do not indicate all of the detail involved. The Contractor shall carefully investigate the structural and finish conditions affecting all his Work and shall arrange such work accordingly, furnishing such fittings, junction boxes and accessories as may be required to meet such conditions.

1.8 ELECTRICAL SERVICE

A. Establish from the electric utility company their requirements for metering, connections, etc., and make provisions for them; providing and installing all lugs, connectors, grounding, etc., required for a complete installation.

B. Coordinate work with both the electric utility company and the Owner, and schedule the installation of the service in accordance with the construction schedule such that there will be no delays in equipment startup and placing the facilities in operation.

PART 2 - PRODUCTS

2.1 GENERAL

A. Provide only materials that are new, of the type and quality specified. Where Underwriters' Laboratories, Inc. have established standards for such materials, provide only materials bearing the UL label. Materials called for are to be considered as standard that, however, implies no right on the part of the Contractor to substitute other materials and methods without written authority from the Engineer. Requests for substitution for specified equipment, materials, or service shall be submitted to the Engineer not less than ten (10) days prior to opening of bids.

B. Temporary power:

1. In addition to providing temporary power, provide and pay the costs for installing permanent electrical meter or meters as required.
2. When all equipment is in place and connected, and the Engineer determines the project is ready for final checkout, the Contractor shall arrange to have the permanent metering installed in the Owner's name. The costs for electrical power charged against the meter or meters shall then be paid by the Owner.

2.2 RACEWAYS

A. Main service entrance and feeder raceways and all raceways on grade, below grade, in poured concrete construction, in wet or damp areas shall be full weight hot dipped galvanized rigid steel conduit.

B. All raceways exposed up to 10' on walls or ceiling shall be full weight rigid galvanized or intermediate metal conduit (IMC).

C. All other raceways may be rigid steel conduit, IMC or electrical metallic tubing (EMT).

D. Motor lead connections and connections to other electrical equipment subject to vibration, or where indicated, shall be flexible weatherproof type steel core conduit with wrapping and cover, factory assembled.

E. Couplings for rigid steel conduit shall be standard electric conduit couplings, and no pipe couplings or sleeves shall be used. Fittings shall be full weight galvanized.

F. Fittings for flexible weatherproof type conduit shall be galvanized, watertight O-Z/Gedney or approved equal.

G. Couplings and connectors for EMT shall be rain tight compression type. Use insulated metallic bushings on all rigid conduits entering panel cabinets, outlet boxes, etc. All EMT entering panel cabinets, outlet boxes, etc. shall be provided with insulated throat connector.

H. Install expansion fittings complete with copper bonding jumper at all building expansion joints. Fittings shall be O.Z. Type "AX" or equal.

I. Conduit straps, hangers and accessories shall be heavyweight hot dipped galvanized except as noted in 2.14.A.

J. Watertight conduit hubs shall be Meyers, O-Z/Gedney or approved equal.

2.3 CONDUCTORS

A. Conductors for secondary service entrance, feeders, underground, under floor, in damp or wet locations, and to any process associated equipment shall be 600 volt, 75º C, Type RHH-RHW-USE. All other conductors may be 600 volt, 75º C, Type THW, THWN, or XHHW. Sizes #12 and #10 shall be solid except that stranded shall be used where installed in flexible conduit. Sizes #8 and larger shall be stranded. Equipment grounding conductors shall be same type as specified above for circuit conductors. Size #14, when indicated for control wiring, shall be stranded.

B. Cable for the primary system shall be shielded type. Construction shall be stranded copper conductor with semi-conducting coating and tape, bare tinned copper concentric wire shield, separator tape and polyvinyl chloride outer covering.

C. Primary system terminations shall be made with one-piece molded slip on terminals and stress relief cones of sizes required. Cones shall be manufactured by Elastimold, G&S, Kerney, 3M, or equal.

D. All branch circuit wiring installed within ballast compartment of fixtures shall be rated 90º C., Type RHH, or Type THHN.

2.4 GROUNDING

A. Bushings for conduits 1" or larger shall be grounding type. Bond to ground bar or lug of enclosure.

B. Ground rods shall be 3/4"φ x 10' copperclad.

2.5 OUTLET BOXES

A. Interior boxes, extensions and rings shall be galvanized.

B. Interior boxes shall be ganged where two or more devices occur at the same location unless noted otherwise. Boxes shall be of the one-piece type.

C. Interior boxes for lighting fixtures shall have studs when required.

D. Interior boxes shall have lugs or ears to secure covers or plaster rings.

E. Interior boxes shall have covers or plaster rings as required.

F. Ceiling boxes shall be minimum 4" x 4" x 2-1/8" deep, or 4" octagon x 2-1/8" deep, of one piece construction, except where otherwise specified herein or when larger size is required by code.

G. Boxes in block walls shall be masonry type. Boxes in poured slabs shall be concrete type.

H. All small interior exposed boxes shall be galvanized cast type with hubs.

I. All large interior exposed and exterior boxes shall be NEMA 4X type.

2.6 DEVICE PLATES

A. Plates shall be designed to fit the device or devices on which they are used and shall conform to the following finish requirements:

1. Flush devices in finished walls: Oversized (jumbo), Type 302 stainless steel.
2. Exposed outlets: Galvanized steel, raised cover with rounded edges.

2.7 LIGHTING FIXTURES

A. All enclosed areas with drop ceiling shall use 2x4 LED flat panel lighting fixtures (Nicor T6C LED Troffer or equal).

B. Interior Work Bay lighting shall be 8' LED, 5000k (Layout to maintain an industry standard 70 lumens per square foot.)

C. Outdoor Work Bay lighting shall be all-weather low bay fixtures (Layout to maintain an industry standard 70 lumens per square foot)

2.8 SAFETY SWITCHES

A. Switches shall be heavy duty, quick make, quick break, with cover interlock.

B. Fuses shall be current limiting type, "Fusetron" or approved equal of Chase-Shawmut.

2.9 PANELBOARDS

A. Panels shall be circuit breaker type as manufactured by General Electric, Siemens, Square D, Cutler-Hammer or approved equal. Panelboards shall have typed directories and be keyed alike.

B. Lugs shall be in top or bottom for the number of wires and wire sizes as indicated on the drawings.

C. Breakers shall be bolt-in type and be numbered as indicated on the drawings. All multi-pole breakers shall be common trip type.

2.10 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Engineer.

2.11 MISCELLANEOUS MATERIALS

A. Support framing, channel and associated accessories shall be aluminum or stainless steel as manufactured by Unistrut, Kindorf, or equal.

B. All attachment hardware shall be stainless steel (bolts, nuts, washers, U-bolts, anchors, threaded rods, etc.).

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 PREPARATION

A. Coordination:

1. Coordinate as necessary with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.
2. Coordinate the installation of electrical items with the schedule for work of other trades to prevent unnecessary delays in the total Work.
3. Where lighting fixtures and other electrical items are shown in conflict with locations of structural members and mechanical or other equipment, provide required supports and wiring to clear the encroachment.

B. Data indicated on the Drawings and in these Specifications are as exact as could be secured, but their absolute accuracy is not warranted. The exact locations, distances, levels, and other conditions will be governed by actual construction and the Drawings and Specifications should be used only for guidance in such regard.

C. Where outlets are not specifically located on the Drawings, locate as determined in the field by the Engineer. Where outlets are installed without such specific direction, relocate as directed by the Engineer and at no additional cost to the Owner.

D. Verify all measurements at the building. No extra compensation will be allowed because of differences between work shown on the Drawings and actual measurements at the site of construction.

E. Branch circuit wiring and arrangement of home runs have been designed for maximum economy consistent with adequate sizing for voltage drops and other considerations. Install the wiring with circuits arranged exactly as shown on the Drawings, except as otherwise approved in advance by the Engineer.

3.3 TRENCHING AND BACKFILLING

A. Perform trenching and backfilling associated with the work of this Section in strict accordance with the provisions of Section 02300 of these Specifications.

3.4 CONDUCTORS

A. Install no conductor smaller than #12 AWG unless otherwise indicated. All conductors shall be copper. Conductors shall be as shown on the plans or as specified herein. All wiring shall be continuous from outlet to outlet, identified by color and marked with size, grade and manufacturer. Pull boxes shall not be considered outlets, and the wiring shall be continuous, without joints, through the pull boxes.

B. All branch circuits which exceed 100' at 120 volts and 200' at 277 volts from panel to load center shall be No. 10 minimum.

C. #14 AWG stranded conductors where indicated for control shall be terminated using insulated compression type spade lugs when required.

3.5 COLOR CODE AND MARKERS

A. All #12 and #10 conductors in the 277/480 volt, 4 wire wye, 60 Hz system shall have Phase "A" - brown; Phase "B" - orange; Phase "C" - yellow; and the neutral wire white with tracer. All #12 and #10 conductors in the 120/208 volt, 4 wire wye, 60 Hz system shall have Phase

"A" - black; Phase "B" - red; Phase "C" - blue; and the neutral wire white. All equipment grounding conductors shall be green. All conductors #8 and larger and all feeders shall be marked with plastic tape to match the above color coding.

B. All 480 volt equipment shall be marked "DANGER - 480 VOLTS" by means of red laminated plastic nameplates having one-half inch (1/2") engraved lettering. Attach plate to equipment with stainless steel screws.

C. Mark wires within panelboards with self-sticking label bearing the number corresponding to the circuit number on the drawings. Connect these wires to corresponding breaker in panel. Mark circuit numbers in outlet boxes only where color coding is repeated by having two or more wires of the same color.

D. Mark equipment, panelboards, cabinets, control devices, starters, switches, etc. by means of black, white core laminated nameplates having 1/4" engraved lettering. Description shall conform to designations on the drawings. Attach plates to equipment with stainless steel screws.

E. Primary cables shall be phase coded. Verify method used with Engineer.

3.6 SPLICES AND CONNECTIONS IN WIRES AND CABLES

A. Low voltage (600 volts and below) conductors shall be joined securely both mechanically and electrically. Wire #8 and smaller shall be soldered and insulated with tape sealant, heat shrink and plastic electrical tape to provide insulation equal to the original conductor (approved pressure type mechanical connectors may be used). Wire #6 and larger shall be connected with compression type solderless connectors and insulated with tape sealant, heat shrink and plastic electrical tape to provide insulation equal to the original conductor.

B. Splices in primary cables shall be made with factory splice kits and connectors.

C. Final connections and/or terminations for all wiring indicated on the electrical drawings and in this division of the specifications shall be made by the electrical contractor. Equipment supplied under other divisions of the specifications that require electrical connections under this division shall be provided with Engineer approved wiring and termination diagrams.

3.7 RACEWAYS AND FITTINGS

A. All wiring shall be in raceways run concealed unless otherwise directed or noted on drawings. Securely and rigidly support raceways at all boxes, outlets and turns, and not over 8 feet on centers.

B. Exposed raceways shall be installed either parallel or perpendicular to building walls. Raceways exposed on walls or free standing shall be perpendicular to the floor. Exposed raceways shall be installed on channel so as to provide a minimum spacing of 1/2" between raceway and the surface to which it is mounted.

C. Where conduits emerge from walls, ceilings, floor or concrete slabs, all conduit bends shall be made entirely within the structure (i.e.: the conduit shall emerge perpendicular to the surface and the bend shall be covered).

D. Raceways for future wiring shall have a nylon pull cord.

E. Ream raceways, butt ends into couplings; 3 quarter bends per run maximum; install no pull box in an inaccessible location; fasten raceway to boxes with locknuts and bushing.

F. Secure raceways in place and protect where necessary to prevent damage during construction. Plug ends of raceways to avoid filling with plaster, mortar or concrete.

G. In general, the raceway installation shall follow layout shown on the plans. However, this layout is diagrammatic only, and where changes are necessary due to structural conditions, other apparatus or other causes, such changes shall be made without any additional cost to the Owner. Offsets in conduits are not indicated and must be furnished as required.

H. Chapter 9 of the National Electrical Code shall apply unless larger raceways are specified.

I. Metal conduit installed in contact with the earth shall be protected by brush application of two coats of hot pitch or other approved preservative. Seal all joints.

J. All raceways underground and exterior to the building shall be installed a minimum of 24" below grade unless otherwise noted.

K. Provide necessary sleeves and chases where conduits pass through floors and walls, and provide other necessary openings and spaces, arranging for in proper time to prevent unnecessary cutting in connection with the Work. Perform cutting and patching in accordance with the provisions for the original Work.

L. Seal all underground conduits at electrical equipment with duct seal.

M. On all conduits terminating in the top or sides of NEMA 3R, 4 or 4X enclosures, install watertight conduit hubs. On conduits terminating in the bottom of such enclosures, use a sealing locknut having an integral gasket.

3.8 GROUNDING

A. Particular attention is directed to Article No. 250 of the National Electrical Code. The electrical system and motors shall be grounded and bonded in accordance with this article.

B. Bond ground lug of each receptacle to outlet box with green jumper wire.

C. Install electric bond around panels, cabinets, pull boxes, enclosures, etc., to incoming and outgoing subfeed raceways by use of grounding type bushings.

D. Install ground from main service to driven ground rod system (maximum resistance shall measure 25 ohms).

3.9 OUTLET BOXES

A. All boxes shall be sized in strict accordance with Article No. 370 of the National Electrical Code, except that no box will be less than the minimum specified.

B. Contractor shall check the location of all outlets to see that the outlets will clear any new or existing wall fixture, shelving, work tables, sinks, bulletin boards, etc. and the outlet will fit the area intended.

3.10 CONVENIENCE OUTLETS AND SWITCHES

A. Switches shall be mounted 50" from floor to centerline of outlet box and shall be 6" from edge of doorjamb on strike side, unless otherwise noted on drawings.

B. Convenience outlets shall be mounted 18" from floor to centerline of outlet box, unless otherwise noted on drawings.

3.11 LIGHTING FIXTURES

A. Furnish and install lighting fixtures, complete with lamps as scheduled on the drawings or described herein.

B. All lighting fixture housings shall be securely grounded.

C. Fixtures shall be firmly fastened to the structure by supports designed for the purpose.

D. Install necessary inserts and supports as required for installation.

3.12 MOUNTING OF SWITCHGEAR, CONTROL PANELS AND ELECTRICAL EQUIPMENT

A. Mount floor and wall mounted equipment utilizing Type 316 stainless steel anchors of the size and number recommended by the manufacturer.

B. Utilize stainless steel fasteners on other type mountings.

3.13 UNIT RESPONSIBILITY

A. Switchgear, panelboards, motor control centers, relays, switches, starters, etc. furnished under this Section of the specifications shall be supplied by the same manufacturer so as to give unit responsibility and ease of maintenance.

3.14 HEATING, VENTILATING AND AIR CONDITIONING

A. Provide all power wiring for the plumbing, heating, ventilating and A.C. systems as shown on the drawings and according to an approved wiring diagram furnished by the Mechanical Contractor.

B. Control and interlock wiring shall be provided under other sections of these specifications, including conduit and outlet boxes required, except as specifically indicated on electrical drawings.

C. Make all connections to equipment required for proper operation.

D. Consult the mechanical drawings in detail for exact locations of all equipment.

3.15 TESTING AND INSPECTION

A. Provide personnel and equipment, make required tests, and secure required approvals from the Engineer and governmental agencies having jurisdiction.

B. Make written notice to the Engineer adequately in advance of each of the following stages of construction:

1. In the underground condition prior to placing concrete floor slab, when all associated electrical work is in place.
2. When all rough-in is complete, but not covered.
3. At completion of the work of this Section.

C. When material and/or workmanship is found to not comply with the specified requirements, within three days after receipt of notice of such non-compliance remove the non-complying items from the job site and replace them with items complying with the specified requirements, all at no additional cost to the Owner.

D. A qualified field serviceman, representing the manufacturer of each piece of major electrical equipment shall, after final installation and completion of all field wiring, make proper and complete adjustments of all adjustable devices, load switches, etc., and shall also verify and approve all connections prior to any initial or test operation of said equipment. Confirmation in writing by the manufacturer's authorized representative of said services shall be submitted to the Engineer.

3.17 HAZARDOUS LOCATIONS

A. Wiring and equipment in hazardous locations, as defined by the National Electrical Code, shall conform to the special requirements of the National Electrical Code, unless otherwise indicated or specified.

3.18 CLEANING AND PAINTING

A. On completion of the electrical work, all debris, scraps and other waste material left by this Contractor shall be collected and removed from the premises. All trench work shall be well tamped, leveled and excess dirt and debris removed to site dump, when and as directed by the Engineer. All electrical equipment, lighting fixtures, exposed conduit, enclosures and boxes shall be thoroughly cleaned of all foreign materials and painted unless noted or directed otherwise. Any threaded area of raceway that is not covered by fitting shall be cleaned of cutting oil and painted with a cold galvanizing compound prior to final finish painting.

3.19 ELECTRIC EQUIPMENT BY OTHERS

A. All motors for equipment shall be furnished by the equipment manufacturer. This Contractor shall verify voltage, dimensions, extent, type, etc. of this and all other such electrical equipment, and furnish and install all electrical supply and control equipment and material required to put all the items in proper operative condition, and shall refer to other sections of these specifications for verification of other equipment and devices requiring electrical connections, wiring and devices not included in this section, and to structural drawings for details not indicated on the electrical drawings. Before connecting to any piece of such equipment, check the nameplate data against the information shown on the drawings and call to the immediate attention of the Engineer any discrepancies discovered.

3.20 PROJECT COMPLETION

A. Entire system shall be free from all shorts and grounds; equipment bonded and grounded in full compliance with local and national codes. Test system in the presence of the Engineer and operate to his complete satisfaction in accordance with true intent of plans and specifications. Defray cost of all adjustments necessary to bring system up to standards set forth by Contract Documents at no additional cost.

B. Thoroughly indoctrinate the Owner's operation and maintenance personnel in the contents of the operations and maintenance manual required to be submitted under Article 1.3 of this Section of these Specifications.

C. Turn over to Owner 100% spare fuses for all sizes and types installed on the project.

3.21 MEASUREMENT AND PAYMENT

A. No separate measurement or direct payment will be made for this work and all costs for same shall be included in the price bid for the work to which it pertains.

END OF SECTION

SECTION 90000 - RECORD DRAWINGS

1. DESCRIPTION:

The Contractor shall be responsible for maintaining one (1) set of record or "as-built" drawings documenting any changes or additions to the plans and specifications, as well as the locations of all utility service connections. These record drawings shall be returned to the Engineer as part of the project closeout procedures.

No separate payment will be made for Record Drawings.