

ARKANSAS STATE PARKS

CONTRACT DOCUMENTS AND SPECIFICATIONS

FOR

Village Creek – Sport Court Complex Improvements

Wynne, Arkansas

DBA Project #: 9002504

Cross County

Construction Documents

October 2024

Prepared by:



10800 Executive Centre Parkway, Ste. 500
Little Rock, AR 72211
(501)-801-2690

Halff Project No. 043617.011



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INVITATION TO BID
Section 00 11 16 / Rev: August 2021

Half Associates, Inc.

Village Creek - Sport Court Complex Improvements

10800 Financial Centre Pkwy, Suite 500
Little Rock, Arkansas 72211
(501) 837-5647

DBA Project #: 9002504
Owner/Agency: Arkansas Dept. of Parks,
Heritage, and Tourism

- 1) You are invited to bid on a General Contract for the:
Renovation of: Village Creek - Sport Court Complex Improvements
Located At: 201 County Road 754, Wynne, AR 72396
Project Owner: Arkansas Dept. of Parks, Heritage, and Tourism
Bid Type: Lump Sum Basis: Lowest Responsive and Responsible Bidder
- 2) There will be a Pre-Bid Conference
Date:
Time:
Location:

The State reserves the right to schedule future meetings.

- 3) The Owner will receive bids until:
Date:
Time:
Location: Division of Building Authority, Suite 101N, 501 Woodlane Avenue, Little Rock,
Arkansas 72201

Sealed bids may be mailed or delivered to the above address. Bids received after the date and time stated in the solicitation and will not be considered. Bids will be publicly opened and read aloud at the time and date mentioned. Interested parties are invited to attend. The Division of Building Authority, hereinafter termed DBA, unless designated to another entity, supervises the bidding and award of all construction contracts, approves contract change orders, request for final payment and ensures on-site observations are accomplished.

- 4) Obtaining contract documents through any source other than the Design Professional listed above or their representative(s) is not advisable due to the risks of receiving incomplete or inaccurate information. Contract documents obtained through the Design Professional or their representative(s) are considered the official version and take precedence should any discrepancies occur. The official version of the complete set of the contract documents should be examined and are obtainable from:

Southern Reprographics Inc., 901 West 7th Street Little Rock, Arkansas 72201, (501) 372-4011.

- 5) Bid document deposit and refund information:

"Bidders must deposit a check in the amount of \$35.00 per set, payable to Halff. Deposits will be refunded to all prime bidders who return bidding documents in good conditions within ten (10) days after the opening of bids. A bidder receiving a contract award may retain the bidding documents and the Bidder's deposit will be refunded. Prime Bidders requiring additional sets and Sub-bidders may purchase bidding documents through Southern Reprographics.

- 6) While contract documents can be examined at the following plan room(s), bidders should use caution in doing so:

Southern Reprographics Inc., 901 West 7th Street Little Rock, Arkansas 72201, (501) 372-4011.

- 7) Bid Security in the amount of five (5) percent of the bid must accompany each bid in accordance with the Instructions to Bidders.

- 8) Bidders are hereby notified that any bidder who desires to enter into Contract for this work must comply with disclosure requirements pursuant to Governor Executive Order 98-04. Submission to the Owner and DBA of the completed Disclosure (DBA 00 73 73) form will be a condition of the Contract. The Owner cannot enter into any contract nor can DBA approve any contract, which does not obligate the Contractor to require the submission of Disclosure (DBA 00 73 73) forms for subcontracts exceeding \$25,000.

9)

- 10) The State reserves the rights to reject any and all bids, and to waive any formalities. Bidders shall conform to the requirements of the Arkansas licensing laws and regulations for contractors, and shall be licensed before his bid is submitted unless the project is federally funded pursuant to Arkansas Code Annotated § 17-25-315.

- 11) Pursuant to Ark. Code Ann. § 22-9-203, the State encourages all small, minority, and women business enterprises to submit bids for capital improvements. Encouragement is also made to all general contractors that in the event they subcontract portions of their work, consideration is given to the identified groups.

- 12) Pursuant to Ark. Code Ann. § 19-11-105, the lowest responsible bidder shall certify prior to executing the contract that they do not employ or contract with any illegal immigrants. Bidders shall certify online at: <https://www.ark.org/dfa/immigrant/index.php/user/login>

- 13) Bidders are responsible to adhere to the guidelines established for state operated buildings. Face coverings should be worn upon entering the facility and whenever moving through common areas (lobbies, elevators, stairs, restrooms, meetings and hallway/corridors). Bidders without a face covering may be denied access at the point of entry. Due to social distancing requirements and health/safety concerns, prompt entrance to the building may not occur therefore, Bidders should be prepared for any delays into the building for a timely bid submittal.

To: All Bidders
From: Division of Building Authority, Construction Section
Re: Common Bidding Mistakes
Date: 4/1/2017

The following list* are the eleven most common mistakes which occur in the bid submittal process and result in bid rejections.

- 1) Not listing the Subcontractor's name or the Contractors name (Mechanical, Plumbing, Electrical, Roofing) in the space provided on the bid form.***
- 2) The listed Subcontractor's is unlicensed to do the listed work.***
- 3) Bid Bond is not signed by a resident / non resident agent licensed within Arkansas.***
- 4) Addenda are not acknowledged by the Contractor on the Bid Form.***
- 5) Failure to submit any bid security or the issuing surety company for the Bid Bond is not qualified and authorized to do business within the State and is not listed on the current United States Department of the Treasury's listing of approved sureties.***
- 6) Bid Bond or Bid Form is not signed by the Contractor or Contractors representative.***
- 7) Expired Contractor's license or is misclassified for the work.***
- 8) Bid Bond not accompanied by the Agent's Power of Attorney, or the name of the resident / non resident agent is not shown on the Power of Attorney.***
- 9) Bid Security (Bid Bond or Cashiers Check) made out to the wrong entity (Obligee or Payee), the bid security must be made out to the Owner.***
- 10) Failure to submit attachments, such as unit prices, with the bid form, if required by the bid documents.***
- 11) Bidder fails to initial any revised entries on the submitted bid form. All changes shall be made by striking through the wrong entry and the corrected entry shall be inserted on the Bid Form and initialed.***

*This is NOT an all inclusive checklist and is only being provided as informational assistance to bidders. Bidders should become familiar with all the bid documents, procedures, rules and laws governing bid submittals and state contracting processes.

INSTRUCTIONS TO BIDDERS
Section 00 21 13 / Rev: August 2021

1. **BIDDING DOCUMENTS.** Bidders may obtain complete sets of Contract Documents from issuing office designated in the Invitation to Bid. Complete sets of Contract Documents must be used in preparing bids; neither Owner nor Design Professional assume responsibility for errors or misinterpretations resulting from the use of incomplete sets of Contract Documents. Obtaining Contract documents through any source other than the Design Professional listed in the Invitation to Bid is not advisable due to the risks of receiving incomplete or inaccurate information, and the bidder runs the risk of basing bidder's proposal on such information. The documents obtained through the Design Professional or his representative(s) or DBA are considered the official version and take precedence if any discrepancies occur. The fact that documents used for bidding purposes are named "contract documents" does not diminish in any way the right of the State to reject any and all bids and to waive any formality.

2. **EXAMINATION OF DRAWINGS, SPECIFICATIONS AND SITE OF WORK.** Bidder shall examine the Contract Documents and visit the project site of work. Bidder shall become familiar with all existing conditions and limitations under which the Work is to be performed, and shall base bid on items necessary to perform the Work as set forth in the Contract Documents. Failure to do so is at the sole risk of the bidder. No allowance will be made to Bidder because of lack of such examination or knowledge. The submission of a Bid shall be construed as conclusive evidence that the Bidder has made such examination.

3. **INTERPRETATION OF CONTRACT DOCUMENTS DURING BIDDING.**
 - 3.1 All references to the Owner shall be interpreted to mean the Agency for whom the work is being contracted.

 - 3.2 If any person contemplating submitting a Bid is in doubt as to the true meaning of any part of the Contract Documents or finds discrepancies in or omissions from any part of the Contract Documents, he may submit to the Design Professional a written request for an interpretation or correction thereof not later than five (5) calendar days before Bid opening. In those instances where a Design Professional is not involved with the project, written requests for interpretation or correction may be made to the DBA Construction Section within the time frame stated above. Bidders shall not make additions, notations, clarifications, reservations, or exceptions to the bid form proposal or include additional documents regarding additions, notations, clarifications, reservations, or exceptions. See also # 6.1. Segregated bids, alternate bids or assignments ("additions") shall not be considered. The reading of a bid is not inclusive of the Bidder's additions, notations, clarifications, reservations, or exceptions and shall not change the Bidder's responsibilities and duties to provide all labor, materials, services and equipment necessary for, or incidental to, the construction of the project pursuant to the contract documents, including the time set forth and the lump sum base bid stated in the bid proposal.

 - 3.3 Address all communications regarding the Contract Documents to the Design Professional.

In those instances where a Design Professional is not involved, address all such communications to DBA Construction Section, 501 Woodlane, Suite 101N, Little Rock, AR 72201 (501-682-1833).

3.4 Interpretation or correction of the Contract Documents will be made only by Addendum and will be issued by fax transmission to, hand delivered to, electronic notification to or picked up by potential bidders who received plans and specifications from the official plan distribution entity. The Design Professional shall be responsible for issuance of all addenda and documentation relating to its issuance (not receipt). In those instances where a Design Professional is not involved, the DBA Construction Section shall distribute Addenda in the above referenced manner. Bidders are responsible for verifying if any Addenda were issued prior to bid submittal. The State will not be responsible for oral explanations or interpretation of the Contract Documents.

3.5 Addenda issued during the bidding period will be incorporated into the Contract Documents.

4. **SUBSTITUTIONS.**

4.1 Materials, products, and equipment described in the Contract Documents establish a standard of required function and a minimum desired quality or performance level, or other minimum dimensions and capacities, to be met by any proposed substitution. Acceptability of substitutions will not be considered during bidding period.

4.2 In some cases, prior approval of material or equipment, or both shall be obtained from Owner in order to obtain the desired color, size, visual appearance, and other features specified.

5. **TYPE OF BID.**

5.1 The Work under this Contract will be awarded under a stipulated sum contract to the lowest responsive and responsible base bid amount. No segregated bids, alternate bids, or assignments will be considered.

5.2 The estimate of quantities is approximate only and shall be the basis for receiving unit price bids for each item, but shall not be considered by the Bidder as the actual quantities that may be required for the completion of the proposed work. Bidder shall state a unit price for every item of work named in the Proposal. Bidder shall include, in the unit prices, furnishing of labor, materials, tools, equipment, and apparatus of every description to construct, erect, and finish the Work. The unit price bid for the items shall be shown numerically and in the appropriate spaces provided on the Bid Form. Such figures shall be clear and distinctly legible so that no question can arise as to their intent or meaning. Unit price bids and totals shown in the Bid Form shall not include costs of engineering, advertising, printing and appraising.

6. **PREPARATION OF BID.**

- 6.1 Bid shall be made on an unaltered Bid Form identical to the form included with the Contract Documents. Fill in all blank spaces and submit one original. Bidders shall not strike through or add language to the bid form unless Bidders are modifying language previously inserted by the bidders themselves. Bidders should contact the DBA Construction Section for questions or concerns regarding the bid form. If this solicitation requires bidding on all items, failure to do so will disqualify the bid. Bidder shall furnish all information required by the solicitation and bid documents. Bids shall be signed with name printed below the signature. The Contractor's license number issued by the Contractors Licensing Board shall be placed on the Bid Form whenever the total project amount is \$50,000 or more.

Where Bidder is a corporation, bids shall be signed with the legal name of the corporation and the signature of an authorized officer of the corporation. Bids signed by an agent shall be accompanied by evidence of that agent's authority. The name of the state of incorporation, contractor's license number issued by the Contractors Licensing Board should be listed. Bids submitted by contractors who are not properly licensed shall be rejected.

- 6.2 Bids submitted by a "Joint Venture/Joint Adventure" shall be signed by representatives of each component part of the Joint Venture/Joint Adventure. The licenses of each component part of the Joint Adventure should also be listed in the bid submittal. Therefore, joint adventure bidders shall indicate at least two (2) signatures and should indicate two (2) licenses numbers on the Bid Form. Exception: Joint Ventures who have been properly licensed with the Arkansas Contractors Licensing Board as a "Joint Venture" need only to indicate the joint venture license number on the Bid Form. Joint Venture Bidders shall indicate at least two (2) signatures on the bid form even if they are licensed as a joint venture.

- 6.3 Bidder shall not enter into an agreement for any portion of the Work (services, materials, supplies, equipment, etc.) throughout the term of the Contract with any design professional (or firm) who is under contract to the Owner to provide administration of the Contract.

7. **BID GUARANTEE AND BONDS.**

- 7.1 Each bid proposal shall include a bid security in the amount of five percent of the total bid offered, if the bid is in excess of \$50,000.00. The bidder will be required to submit a bid security, which includes enclosing a cashiers check payable to the order of the OWNER drawn upon a bank or trust company doing business in Arkansas or by a corporate bid bond in an amount equal to five (5) percent of the bid. The bidder shall include in the bid the bid bond amount so that the bid represents the total cost to the Owner of all work included in the contract. Bid bonds shall be made by a surety company qualified and authorized to do business in the State of Arkansas and are listed on the current United States Department of the Treasury's listing of approved sureties. The bid bond shall be executed by a resident or non-resident agent who is licensed by the Arkansas Insurance Commissioner to represent the surety company executing the bond. The agent shall file a power of attorney to act on the behalf of the bonding company with the bid bond. Bidders may utilize a DBA Bid Bond form, however they are not required to do so; other bid bond formats are acceptable.

In any event, regardless of the type of bid security or the format of the bid bond chosen by the Bidder, failure to submit a valid bid security in accordance with Arkansas laws and regulations, including a power of attorney with the bid bond, shall render the bidders proposal void.

- 7.2 The bid security shall indemnify the Owner against failure of the Contractor to execute and deliver the contract and necessary bond (Performance and Payment Bond) for faithful performance of the contract. The bid security shall provide that the contractor or surety must pay the damage, loss, cost and expense subject to the amount of the bid security directly arising out of the Contractor's default in failing to execute and deliver the contract and bonds.
- 7.3 Owner will have the right to retain the bid security of bidders to whom an award is being considered until the Contract has been executed and bonds if required, have been furnished, or until specified time has elapsed so that bids may be withdrawn, or all bids have been rejected.
- 7.4 Failure to execute the Contract and file an acceptable full payment and performance bond and proof of insurance within the time frame as stated in 6(b) of Section 00 41 13 Bid Form after the intent to award has been issued to the bidder shall be just cause for the cancellation of the award and forfeiture of the bid security, which shall become the property of the agency, not as a penalty but in liquidated damages sustained. Award may then be made to the next lowest responsible bidder, or the work may be rebid and constructed under contract or otherwise as the State determines. The responsible low bidder who fails to execute the Contract and submit an acceptable payment and performance bond and proof of insurance will not be permitted to bid on any subsequent advertisement of that project.
8. **PERFORMANCE AND PAYMENT BOND.** Performance and Payment Bonds are not required for bids \$50,000.00 or under, except for roofing projects. For work exceeding \$50,000.00, the Contractor shall furnish a Performance and Payment Bond in the amount equal to 100 percent of contract price, on a form identical to the Performance and Payment Bond Form included with the Contract Documents as security for faithful performance of the Contract and payment of all obligations arising thereunder within the time frame as stated in 6(b) of Section 00 41 13 Bid Form after receipt of the Intent to Award. The bond shall be executed by a surety company qualified and authorized to do business in the State of Arkansas and are listed on the current United States Department of the Treasury's listing of approved sureties. The bond shall be executed by a resident or non-resident agent licensed by the State Insurance Commissioner, to represent the surety company and the agent shall file with the bond the power of attorney of the agent to act on behalf of the bonding company. The bond shall be written in favor of the Owner. Contractor shall file the bond with the Circuit Clerk in the county where the Work is to be performed.

Failure to deliver said bonds, as specified, shall be considered as having abandoned the Contract and the bid security will be retained as liquidated damages. The bidder shall include in the bid the Performance and Payment bond amount so that the bid represents the total cost to the Owner of all work included in the contract.

9. **LISTING OF SUBCONTRACTORS.**

- 9.1 **LISTING OF SUBCONTRACTORS.** Name of principal Subcontractors or Prime Contractor (Mechanical {HVACR}, Plumbing, Electrical and Roofing) shall be listed where indicated on the Bid Form in accordance with Ark. Code Ann. § 22-9-204 and the contract documents. All prime contractors, as a condition to perform construction work for and in the State of Arkansas, shall use no other Subcontractors, including his own forces when the Subcontractor's portion of the project is \$50,000.00 or more, except those qualified and licensed by the Contractors Licensing Board in Mechanical (HVACR), Plumbing, Electrical and Roofing. Those principal Subcontractors or Prime Contractor listed in these spaces must be properly licensed for the listed work performed as determined by the Contractors Licensing Board (CLB). The bidder must also be properly licensed and use licensed Subcontractors for all other Work performed on or for the project that totals \$50,000 dollars or more as classified and determined by the CLB.

A bidder should request clarification from the Design Professional (or from DBA Construction Section, if no Design Professional exists for the project), if the bidder determines a type of work (mechanical – indicative of HVACR; electrical; plumbing; roofing) is a component of the project, but space has not been provided on the bid form for the listing of such, if the bid form lists a type of Work that is not a component of the project or if the bidder has any question on how to fill out the proposal with respect to the listing of subcontractors. Clarification should be made in accordance with Instruction 3.2.

- 9.1.1 The Prime Contractor must make a decision as to which (mechanical –indicative of HVACR; electrical; plumbing; roofing) subcontractor or his own forces he intends to use for each principal discipline of work. The prime contractor shall place the name(s) of each subcontractor or his own forces he intends to perform the Work in the space provided on the Bid Form and indicate whether the amount of the listed Work is \$50,000.00 or more. The prime contractor and/or the subcontractor listed on the bid form must be properly licensed by the Contractors Licensing Board (CLB) for any principal Work (mechanical –indicative of HVACR; electrical; plumbing; roofing), as well as any other proposed Work on the project.

If a Contractor or Subcontractor needs license classification guidance or wishes to verify classifications and/or licensees of subcontractors or their own forces they should contact the CLB prior to submitting the bid. If the bid form has a space for the prime contractor to list which subcontractor(s) or his own forces he intends to utilize to accomplish the disciplines of mechanical, electrical, plumbing, and/or roofing, the bidder must fill in the said blank space with the name of the contractor/subcontractor that will perform this work. Failure to complete the form correctly shall cause the bid to be declared non-responsive, and the bid will not receive consideration.

- 9.1.2 It shall be mandatory that any subcontractors listed on the Bid Form by the Prime Contractor are awarded a contract under Ark. Code Ann. § 22-9-204. Prime Contractors who submit a bid listing unlicensed subcontractors or use unlicensed subcontractors on a state project or any subcontractor not licensed by the Contractors Licensing Board who perform Work having a value of \$50,000.00 or more on a state project are subject to the Contractors Licensing Board.

- 9.2 License Requirement

- a. No person shall perform Work on the contract without possessing the applicable Arkansas State License for the Work they are performing from the appropriate governing Boards. Apprentices will be appropriately supervised according to the State governing Boards requirements.
- b. All licensed craftsman shall have a copy of their license with them and shall be required to provide it to a DBA or Owner Representative upon request.
- 9.3 Pursuant to Ark. Code Ann. § 22-9-404, the Bidder may require subcontractors to provide a Performance and Payment Bond to the Bidder when the Subcontractor is the selected for their portion of the Work. If the Contractor requires a Subcontractor to furnish a Performance and Payment Bond, the Subcontractor shall be entitled to payment of ninety-five (95) percent of the earned progress payments when due, with the Contractor retaining five (5) percent to assure faithful performance of the construction subcontract. Upon the approval of the Contractor, if the Subcontractor completes fifty (50) percent of the construction subcontract the Contractor shall not retain any further monies.
10. **SUBMITTAL.** Submit bid on the Bid Form in an opaque, sealed envelope. Identify the envelope with: the words "Bid Documents", project name and number, name of Bidder, and Arkansas Contractors License number, if required; only one bid shall be submitted per State Contractors license number. Submit bids in accordance with the Invitation to Bid. All blanks on the form shall be filled out in ink or be typewritten. Erroneous entries, alterations, and erasures shall be lined out, initialed by the Bidder, and the corrected entry inserted on the Bid Form.
11. **MODIFICATION, WITHDRAWAL AND SCRIVENERS' ERROR.**
- 11.1 Modification and Withdrawal. Bidder may withdraw bid at any time before bid opening and may resubmit up to the date and time designated for receipt of bids. No bid may be withdrawn or modified after time has been called for the bid opening. Oral modifications to bids will not be considered. Bidder may submit written modifications to bid in writing, by telegraph, or by facsimile and must be received by DBA at any time prior to the expiration of the bidding time and date. All modifications shall be signed and no modification shall show the base bid amount. Telegraph or facsimile modifications shall require written confirmation over the Bidder's original signature within 24 hours after bid opening.
- 11.2 Scriveners' Error. Pursuant to Ark. Code Ann. § 19-4-1405 (e), bidders may request in writing to the DBA Director, to be relieved of their bid any time after the bid opening, but no later than 72 hours after receiving the intent to award, excluding Saturdays, Sundays and holidays. Scriveners' error is an error in the calculation of a bid which can be documented by clear and convincing written evidence and which can be clearly shown by objective evidence drawn from inspection of the original work papers, documents, or materials used in the preparation of the bid sought to be withdrawn; and the bid was submitted in good faith and the mistake was due to a calculation or clerical error, an inadvertent omission, or a typographical error as opposed to an error in judgment.

11.2.1 Failure to make a timely request constitutes a waiver by the bidder of the bidder's right to claim that the mistake in his or her bid was a scrivener's error.

12. **DISQUALIFICATION OF BIDDERS.** The State shall have the right to disqualify bids (before or after opening), which includes but is not limited to, evidence of collusion with intent to defraud or other illegal practices upon the part of the Bidder, to reject a bid not accompanied by the required bid security or by other data required by the Contract Documents, or to reject a Bid which is in any way incomplete or irregular.

13. **APPLICABLE LAWS.**

13.1 Labor. Contractors employed upon the work will be required to conform to the labor laws of the State of Arkansas and the various acts amendatory and supplementary thereto, and to all the laws, regulations, and legal requirements applicable thereto.

13.2 Discrimination. Bidder shall not discriminate against any employee, applicant for employment, or subcontractor as provided by law. Bidder shall be responsible for ensuring that all subcontractors comply with federal and state laws and regulations related to discrimination. Upon a final determination by a court or administrative body having proper jurisdiction that the Bidder has violated state or federal laws or regulations, the Owner or DBA, or both may impose a range for appropriate remedies up to and including termination of the Contract.

13.3 Taxes. Bidder shall include in the bid all state sales tax, social security taxes, state unemployment insurance, and all other items of like nature. It is the intent that the bid shall represent the total cost to the Owner of all work included in the contract. There are no provisions for a contractor to avoid taxes by using the tax exempt number of a state agency, board, commission or institutions. Said taxes shall be included in the bid price.

13.4 State licensing laws for Contractors shall be complied with.

13.5 Disclosure. Potential Bidders are hereby notified that any bidder who desires to enter into a contract not exempted from the disclosure requirements, that disclosure is a condition of the Contract and that the Owner cannot enter into any such contract, nor can DBA approve any such contract, for which disclosures are not made and the verbiage of paragraphs a, b, and c below will be included in the body of any contract awarded.

Potential Bidders are hereby notified that:

a. Disclosure is required to be a condition of any present or future subcontract for which the total consideration is greater than twenty-five thousand dollars (\$25,000.00).

b. The Contractor shall require any present or future Subcontractor, for which the subcontract amount is greater than \$25,000.00 to complete and sign the Contract and Grant Disclosure and Certification form. The Contractor shall ensure that any agreement, current or future between the Contractor and a Subcontractor for which the total consideration is greater than \$25,000.00 shall contain the following:

Failure to make any disclosure required by Governor Executive Order 98-04, or any violation of any rule, regulation or adopted pursuant to that Order shall be material breach of the term of this subcontract. The party who fails to make the required disclosure or who violates the rule, regulation, or policy shall be subject to all legal remedies available to the contractor.

c. The Contractor shall transmit a copy of the Subcontractor's disclosure form to the agency and a statement containing the dollar amount of the subcontract within ten (10) days upon receipt of subcontractor's disclosure.

Note: A copy of the "Contract and Grant Disclosure and Certification Form" DBA 00 73 73 is included within the division zero documents.

- 13.5 Minority Participation: Pursuant to Ark. Code Ann. § 22-9-203, the State encourages all small, minority, and women business enterprises to submit bids for capital improvements. Encouragement is also made to all prime contractors that in the event they subcontract portions of their work, consideration is given to the identified groups.
- 13.6 The bidding, award and administration of the contract shall be made pursuant to Ark. Code Ann. §19-4-1401 et seq., Ark. Code Ann. § 22-9-101 et seq., Ark. Code Ann. § 22-2-101 et seq. and the Minimum Standards and Criteria. The interpretation and intent of these laws and rules take precedence in the event of any conflict with the bid or contract documents, or both. Clarification should be made in accordance with Instruction 3.2.
- 13.7 Pursuant to Ark. Code Ann. §19-11-105, no state agency may enter into or renew a public contract for services with a Contractor who knows that the Contractor or a Subcontractor employs or contracts with an illegal immigrant to perform work under the contract.

Before executing a public contract, each prospective contractor shall certify in a manner that does not violate federal law in existence on January 1, 2007, that the Contractor at the time of the certification does not employ or contract with an illegal immigrant. Online certification shall be made at: <https://www.ark.org/dfa/immigrant/index.php/user/welcome>

If a Contractor violates this section, the Owner shall require the Contractor to remedy the violation within sixty (60) days. Failure to remedy the violation within the sixty (60) days as required by law, the Owner shall terminate the contract for breach of the contract and the Contractor shall be liable to the Owner for actual damages.

If a Contractor uses a Subcontractor at the time of certification, the Subcontractor shall certify in a manner that does not violate federal law in existence on January 1, 2007, that the Subcontractor at that time of certification does not employ or contract with an illegal immigrant. Subcontractors shall submit the certification required to the Contractor within thirty (30) days after the execution of the subcontract. The Contractor shall maintain on file the certification of the Subcontractor throughout the duration of the term of the contract. If the Contractor learns that a Subcontractor is in violation of this section, the Contractor may terminate the contract with the Subcontractor, and the termination of the contract for a violation of this section shall not be considered a breach of the contract by the Contractor and Subcontractor. Contractor agrees the Owner's Representative or DBA shall have the right to request the Contractor's records of Subcontractors illegal immigrant disclosure statements during the course of the project.

- 13.8 Pursuant to Ark. Code Ann. §25-1-501 (Act 710 of 2017), state agencies shall not enter into contracts with companies for construction work unless the contract includes a written certification from the company or person that the company or person is not currently engaged in a boycott of Israel and agrees for the duration of the contract not to engage in a boycott of Israel.

Before executing a public contract, each prospective contractor shall certify by signing the "Anti-Boycott of Israel" certification. This certification shall be submitted as one of the contract documents. The Contract shall not be approved until the certification is completed and provided with the other bid documents necessary for contract approval. If a Contractor violates this section, the Owner shall require the Contractor to remedy the violation within thirty (30) days. Failure to remedy the violation, shall constitute a breach of the contract and the Contractor shall be liable to the Owner for actual damages.

Note: A copy of the "Anti-Boycott of Israel Certification" is included in section 00 45 00.

- 13.9 Pursuant to Ark. Code Ann. §22-9-105 (Act 422 of 2019) , contractors who have been determined by a State Agency to be on the "Prohibited Bidders List" may not bid on state projects. Bidders should review Section 3-324 of the Building Authority Minimum Standards and Criteria for more information. Contractors who are determined to be prohibited from bidding due to material issues on state contracts may not be awarded state capital improvement contracts until the state agency has determined the material issue is no longer of concern or the contract has been terminated or closed out, whichever is sooner. However, the contractor's ineligible bidding status shall not exceed more than three (3) years.

14. **LIQUIDATED DAMAGES.** The amount of liquidated damages to be assessed shall be in accordance with the amount indicated in the Contract. Bidder understands and agrees that under the terms of the Contract to be awarded, if the Contractor fails to complete the work within the time limit specified in the Contract, the Contractor shall pay the Owner as Liquidated Damages, and not in the nature of a penalty the sum specified in the Bid Form for each day completion is delayed. It is further understood and agreed by bidder that the said sum fixed as Liquidated Damages is a reasonable sum considering the damages that Owner will sustain in the event of any delay in completion of the Work, and said sum is herein agreed upon and fixed as Liquidated Damages because of difficulty in ascertaining the exact amount of damages that may be sustained by such delay.

15. **PREBID CONFERENCE.** See Section 00 11 16 – Invitation to Bid

16. **OPENING.** Bids will be opened as identified in the Invitation to Bid.

17. **EVALUATION AND CONSIDERATION OF BIDS.**

- 17.1 It is the intent of the State to award a Contract to the lowest responsive qualified Bidder provided the bid has been submitted in accordance with the requirements of the Contract Documents and does not exceed the funds certified for the project by more than 25%. The State shall have the right to waive any formalities in a bid received and to accept the bid which, in the State's judgment, is in its best interests and upon approval of DBA. The State shall have the right to accept any or all bids for a period not to exceed the time frame as stated in 6(d) of Section 00 41 13 Bid Form.
- 17.2 Tie Bids. If two or more sealed bids are equal in amount, meet Bidding Document requirements, and are the lowest received by the time of the bid opening, then the apparent low bidder will be determined by lot (placing the name of the tie bidders into a container and drawing one name). The drawing will be conducted by DBA personnel and another person so designated by DBA in the presence of a witness and the tie bidders or representatives. The witness shall be an employee of the State of Arkansas. Documentation of the drawing shall be included on the bid tabulation and be signed by those present. Nothing in the above and foregoing will diminish the State's reserved right to reject any and all bids and to waive any formalities.
18. **EXECUTION OF CONTRACT.**
- 18.1 The apparent low Bidder shall be prepared, if so required by the Owner, to present evidence of experience, qualifications, and financial ability to carry out the terms of the Contract.
- 18.2 The successful Bidder will be required to execute an Agreement with the Owner on a form identical to the Agreement Form included with the Contract Documents and the Performance and Payment Bond and Certification of Insurance and a copy of the policies showing all endorsement, exclusions within the time frame as stated in 6(b) of Section 00 41 13 Bid Form after receipt of the Intent to Award. Failure of the Bidder to do so may result in the Bidder being rejected and could result in disqualification and forfeiture of bid bond. The Owners notice to proceed shall not be issued until the insurance certificates and coverage have been reviewed and approved by the Owner. The successful Contractor will commence work within five (5) days of the start date listed on the notice proceed issued by the owner or DBA.
- 18.3 The successful Bidder will be required to furnish Owner with proof of insurance, as prescribed by the General Conditions and Supplementary General Conditions.

END OF DOCUMENT

BID FORM
Section 00 41 13 / Rev: August 2021

Bid Date:
Bid Time:
Bid Opening Location: Division of Building Authority,
Suite 101N, 501 Woodlane
Avenue, Little Rock, Arkansas
72201

Bid To: Arkansas Dept. of Parks, Heritage, and Tourism

Bid From: _____

DBA Project Number: 9002504

Project Name: Village Creek - Sport Court Complex Improvements

- 1) Having carefully examined the Contract Documents for this project, as well as the premises and all conditions affecting the proposed construction, the undersigned proposes to provide all labor, materials, services, and equipment necessary for, or incidental to, the construction of the project in accordance with the Contract Documents within the time set forth, for the lump sum base bid of:

\$ _____
Dollar Amount Is To Be Shown Numerically

- 2) Allowances:
Not Required

- 3) Unit Prices:
Not Required

- 4) Trench or
Excavation
Safety: Not
Required

\$ _____
Dollar Amount Is To Be Shown Numerically

Please Note: Do not strike through or add language to the bid form. See Instruction to Bidders #6.1

5) Completion Date: The Bidder agrees that the work will be complete in accordance with the contract documents and ready for Substantial Completion:

Number of Calendar Days: 90

On or Before Date: N/A

6) The undersigned, in compliance with the Contract Documents for the construction of the above named project, does hereby declare:

a. That the undersigned understands that the State reserves the right to reject any and all bids and to waive any formality.

b. That if awarded the Contract, the undersigned will enter into an Agreement, on a form identical to the form included in the Contract Documents and execute required performance and payment bonds and proof of insurance within ten (10) days after receipt of the Intent to Award, will commence work within five (5) days after the start date of the Notice to Proceed, and will complete the Contract fully by Completion Date indicated. Should the undersigned fail to fully complete the work within the above stated time, he shall pay the Owner as fixed, agreed and liquidated damages and not as a penalty, the sum of:

Dollar amount of liquidated damages per day: \$250 until work is completed or accepted.

c. The undersigned further agrees that the bid security payable to Owner and accompanying this proposal shall become the property of the Owner as liquidated damages if the undersigned fails to execute the Contract or to deliver the required bonds and proof of insurance to the Owner within the time frame as stated in paragraph 6 (b) from receipt of the Intent to Award as these acts constitute a breach of the Contractor's duties.

d. That this bid may not be withdrawn for a period of: 30 calendar days after the bid opening.

e. The undersigned understands that the Owner's intent is to construct all facilities proposed within the limits established by the funds appropriated for the project.

f. The names of subcontractors and the nature of the work to be performed by each one have been included on the Bid Form.

g. The following prevailing wage rates will apply:
Bidders are hereby notified that prevailing wage rates will not apply.

Please Note: Do not strike through or add language to the bid form. See Instruction to Bidders #6.1

h. Bids submitted by a "Joint Venture/Joint Adventure" shall be signed by representatives of each component part of the Joint Venture/Joint Adventure. The licenses of each component part of the Joint Adventure should also be listed in the bid submittal. Therefore, Joint Adventure bidders shall indicate at least two (2) signatures and should indicate two (2) licenses numbers on the Bid Form. Exception: Joint Ventures who have been properly licensed with the Arkansas Contractors Licensing Board as a "Joint Venture" need only to indicate the Joint Venture license number on the Bid Form. Joint Venture Bidders shall indicate at least two (2) signatures on the bid form even if they are licensed as a Joint Venture.

7) The following document(s) is attached to and made a condition of this bid.

a. Bid Security

8) The undersigned acknowledges receipt of and inclusion as a part of the Contract Documents the following addenda(s):

#: _____	Dated: _____
#: _____	Dated: _____
#: _____	Dated: _____
#: _____	Dated: _____
#: _____	Dated: _____
#: _____	Dated: _____
#: _____	Dated: _____

Please Note: Do not strike through or add language to the bid form. See Instruction to Bidders #6.1

- 9) Listing of Mechanical, Plumbing, Electrical, and Roofing Subcontractors or the Prime Contractor if the portion of work will be performed with your own forces.

Important Please Note

Indicate the name(s) of each entity performing the listed work below and answer the follow-up question. All Mechanical, Plumbing, Electrical, and Roofing Subcontractors or your own forces if applicable shall be listed regardless of qualifications, licensures or work amount. Bidders should consult the project manual on how to fill out this form. Failure to name the subcontractor or prime contractor in the space provided shall cause the bid to be declared non-responsive and the bid will not receive consideration.

Mechanical:
Not Required

Plumbing:
Not Required

Electrical:
Not Required

Roofing:
Not Required

Important Notice: If the Bid Form notes any or all of the above Subcontractor's (Mechanical (HVACR), Electrical, Plumbing, and/or Roofing) as "**Required**", you must list a subcontractor or list your own forces as applicable or your bid will be declared non-responsive.

Bid Form Signature Page

Project Name: Village Creek - Sport Court Complex Improvements

Project #: 9002504

Please Complete the Appropriate Section (Complete Only One)

Individual Entity of Company

Legal Name of the Entity or Company Contractors License Number

By: _____
Signature of Authorized Officer of the Company Date

Print Name Email Phone Number

Street Address City State Zip Code

Corporation (Must Include with bid a copy of the authorized officer's authority to sign)

By: _____
Signed With Legal Name of the Corporation State of Incorporation Contractor License Number

By: _____
Signature of Authorized Officer of the Corporation Date

Print Name Email Phone Number

Street Address City State Zip Code

Joint Venture or Adventure

1st Entity or Company (*legal Name*) Contractors License Number

By: _____
Signature of Authorized Officer of the Company Date

Print Name Email Phone Number

Street Address City State Zip Code

2nd Entity or Company (*legal Name*) Contractors License Number

By: _____
Signature of Authorized Officer of the Company Date

Print Name Email Phone Number

Street Address City State Zip Code

Bid Bond
Section 00 43 13 / Rev: August 2021

KNOW ALL PERSONS BY THESE PRESENTS:

That we, _____, as Principal,
and, _____, as Surety, a
corporation duly organized under the laws of _____, and who is
qualified and authorized to do business in the State of Arkansas and is listed on the current
United States Department of the Treasury's listing of approved sureties, and held and firmly bound
unto _____ Arkansas Dept. of Parks, Heritage, and Tourism _____, the State
of Arkansas and entities thereof as Obligee (owner/agency), in the sum of five (5) percent of the
amount of the bid and for payment of which in lawful money of the United States, 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 THE ABOVE OBLIGATION IS SUCH THAT, WHEREAS, Principal has
submitted a Bid for the work on Division of Building Authority Project number/name: 9002504
Village Creek - Sport Court Complex Improvements

NOW, THEREFORE, if Principal is not released from his bid as defined in the Bidding
Documents and, if selected as the apparent lowest responsible Bidder, Principal shall, within the time
period specified in the Bidding Documents, do the following:

- (1) Enter into a written agreement in accordance with the Bid Document.
- (2) File a performance and payment bond, which guarantees faithful performance and
payment for labor and materials as required by the Bid Documents, in the County where
the work is to be performed and provide said bond to the obligee.
- (3) Furnish certificates of insurance and all other items as required by the Bidding
Documents.

In the event of the disqualification of said Bid due to failure of Principal to enter into such agreement and furnish such bonds, certificates of insurance, and all other items as required by the bidding documents, Principal and Surety shall pay obligee the damage, loss, cost, and expenses subject to the amount of the bid security directly arising out of the Principal's default in failing to execute and deliver the contract and the performance/payment bond. Liability shall be limited to five (5) percent of the amount of the bid.

This bid bond is given in accordance with Arkansas laws and regulations, including Arkansas Code Ann. §19-4-1405, §22-9-203 and §22-9-402. This bid bond is binding upon the above named parties, and their successors, heirs, assigns and personal representatives. Executed by the parties who individually represent that each voluntarily enters into and has the authority to enter into this agreement.

IN WITNESS WHEREOF, we have hereunto set our hands this _____ day of _____, 20____.

Principal Company Name: _____

Contractor Name: _____

Signature*: _____

Title: _____

Surety Name: _____

Surety NAIC Number: _____

Resident/Non-Resident Agent Name: _____

Signature: _____

License Number*: _____

*** Bids shall be rejected if a proper bid bond/power of attorney is not submitted. Bid Bonds must be executed by a resident/non-resident agent licensed by the Arkansas Insurance Commissioner to represent the surety which have qualified and are authorized to do business in Arkansas and is listed on the current United States Department of the Treasury's listing of approved sureties. The Power of Attorney of the agent to act on behalf of the surety shall be submitted with this Bid Bond.**

AGREEMENT FORM
Section 00 52 13 / Rev: August 2021

THIS AGREEMENT entered into this _____ by and between _____ hereinafter referred to as the Contractor, and _____ Arkansas Dept. of Parks, Heritage, and Tourism hereinafter referred to as the Owner, and the Department of Transformation and Shared Services, Division of Building Authority (DBA),

WITNESSETH:

- 1) That for and in consideration of the payment by the Owner in the amount of \$ _____ - to be made as set forth in the Contract Documents, the Contractor hereby agrees to furnish all tools, labor, equipment, and materials, and to build and construct that certain project in _____ Cross _____ County, designated as

Project # : 9002504

Project Name: Village Creek - Sport Court Complex Improvements

consisting of construction, more specifically described in the Contract Documents attached hereto and incorporated herein by reference. Contract Documents include the following: the Agreement Form (this instrument); the Invitation to Bid; Instruction to Bidders; Bid Form; all Addenda; Performance and Payment Bond; General and Supplementary Conditions; Drawings and Specifications, Drawings listed in the Specifications; Notice to Proceed; Negotiated Changes Documents; and Change Orders. All capital improvements shall be in exact accord with the Contract Documents filed with the Construction Section Office, Division of Building Authority, located in Little Rock, Arkansas, on:

The Division of Building Authority (DBA) Construction Section shall have direct contract supervision. Said capital improvements shall be to the satisfaction of the DBA Construction Section, and in accordance with the laws of the State of Arkansas, and the work shall be subject to inspection and approval at all times by the appropriate state and federal agencies.

- 2) Owner may at any time during the progress of the work alter, change, subtract from, or add to said Contract Documents without violating this Agreement or the terms thereof. Said changes, alterations, subtractions, or additions shall be set forth in writing in a document referred to as a "Change Order". Said document shall not be effective unless approved by the DBA. Once effective, the Change Order shall be attached hereto and incorporated herein by reference and shall be made a condition or term of the Contract Documents. Nothing contained in the Change Order shall be construed to waive the sovereign immunity of the State or entities thereof.

- 3) The Contractor agrees, for the consideration set forth in the Bid Form, to begin work within the time frame stated in 6 (b) of Section 00 41 13 Bid Form after a Notice to Proceed is issued and to complete the work:

In: 90 Calendar Days

On or Before: N/A

If the Contractor fails to complete the work within the time limit herein specified, he shall pay to the Owner, as liquidated damages and not in the nature of a penalty, the sum specified in the Bid Form of for each calendar day delayed, it being understood and agreed between the parties hereto that the said sum fixed as liquidated damages is a reasonable sum, considering the Owner will sustain in the event of any such delay, and said amount is herein agreed upon and fixed as liquidated damages because of difficulty of ascertaining the exact amount of damages that may be sustained by such delay. The said sum shall be deducted from the amount of the contract.

- 4) Should Contractor be delayed in the execution or completion of the Work by the act, neglect or default of the State, or by any damage by fire, weather conditions or other casualty or event for which the Contractor is not responsible, or by general strikes or lockouts caused by acts of employees, then any extended period shall be determined and fixed by the Owner with approval given by DBA Construction Section. Said extended period shall be the time for a period equivalent to the time lost by reason of any or all of the causes aforesaid, but no such allowance shall be made unless a claim therefore is presented in writing to the Owner or DBA Construction Section within seven calendar days of the occurrence of the event causing the delay.
- 5) It is mutually agreed between the parties that in the performance of this contract, Contractor is acting independently and in no sense as Agent of the State. Contractor shall not let, assign, or transfer this contract or any interest therein, without the written consent of the Owner and DBA.
- 6) It is agreed and understood between the parties hereto that the Contractor shall accept and the Owner will pay for the Work, at the prices stipulated in the Contract Documents, such payment to be in the form of legal tender, and the payment shall be made at the time and in the manner set forth in the Contract Documents.
- 7) Any laborer or mechanic employed by the Contractor or any Subcontractors for this project, directly on site for the Work covered by the Contract Documents, shall be paid a rate of wages required by the Contract Documents, if required. If the Owner or DBA, or both discovers that wages less than the rate of wages specified by the Contract Documents have been or are being paid, then the Owner or DBA, after giving written notice to the Contractor, will terminate the Contractor's right to proceed with the project Work or such part of the Work as to which there has been a failure to pay the required wages and to prosecute the Work to completion by contract or otherwise, and the Contractor and his sureties shall be liable to the Owner for any excess costs occasioned thereby.

- 8) Contractor shall promptly repair, at his own expense and to the satisfaction of the Owner and DBA Construction Section, damage done by him or his employees or agents at the work site, or to the public property or buildings, or both, and will save the State harmless from all claims of any person for injury to person or to property occasioned by his act, or the acts of his employees or agents, while in the execution of the work specified.
- 9) The Owner or DBA, or both may terminate this agreement to the extent Owner's funds are no longer available for expenditures under this agreement.
- 10) Failure to make any disclosure required by Governor's Executive order 98-04, or any violation of any rule, regulation, or policy adopted pursuant to that Order, shall be a material breach of terms of this contract. Any contractor, whether an individual or entity, who fails to make the required disclosure or who violates any rule, regulation, or policy shall be subject to all legal remedies available to the Agency.
 - a) The Contractor shall prior to entering any agreement with any subcontractor, for which the total consideration is greater than \$25,000.00, require the subcontractor to complete a Contract and Grant Disclosure and Certification Form. The Contractor shall ensure that any agreement, current or future between the contractor and a subcontractor for which the total consideration is greater than \$25,000.00 shall contain the following:

Failure to make any disclosure required by Governor Executive Order 98-04, or any violation of any rule, regulation or adopted pursuant to that Order, shall be a material breach of the term of this subcontract. The party who fails to make the required disclosure or who violates the rule, regulation, or policy shall be subject to all legal remedies available to the Contractor.
 - b) The Contractor shall, within ten days of entering into any agreement with a subcontractor, transmit to Division of Building Authority; a copy of the Contract and Grant Disclosure and Certification Form (00 73 73) completed and signed by the subcontractor and a statement containing the dollar amount of the subcontractor.
 - c) The terms and conditions regarding the failure to disclose and conditions which constitutes material breach of contract and rights of termination and remedies under the Executive Order 98-04 are hereby incorporated within.
- 11) Nothing in this Contract shall be construed to waive the sovereign immunity of the STATE OF ARKANSAS or any entities there of.

Executed by the parties who individually represent that each have the authority to enter into this Contract.

Project # : 9002504

Project Name: Village Creek - Sport Court Complex Improvements

Contractor: _____ Legal Name of the Entity or Company

Signature of Authorized Officer of the Company _____ Date _____

Print Name _____ Title _____ Email Address _____

Street Address _____ City _____ State _____ Zip Code _____

Arkansas Dept. of Parks, Heritage, and Tourism

Owner: _____ Agency Name

Signature of Authorized Officer of the Agency _____ Date _____

Print Name _____ Title _____ Email Address _____

1 Capitol Mall, Suite 4B.215 Little Rock, Arkansas 72201

Street Address _____ City _____ State _____ Zip Code _____

Approved: Transformation & Shared Services, Division of Building Authority

By: _____ Date: _____

Title _____

PERFORMANCE AND PAYMENT BOND
Section 00 61 13 / Rev: August 2021

1) We _____, (Principal), and

_____, (Surety), are held and firmly bound, jointly

and severally, unto Arkansas Dept. of Parks, Heritage, and Tourism, as Obligee (Owner), in the initial Contract amount of \$ _____ - said amount to be deemed a Performance Bond payable to Owner and in the separate amount of \$ _____ - said amount to be deemed a Payment Bond payable to proper claimants such amounts subject to the terms of this Performance Bond and Payment Bond Agreement. The Principal and Surety state that the Surety is a solvent corporate surety company authorized to do business in the State of Arkansas and is listed on the current United States Department of Treasury's listing of approved sureties.

Principal has by written agreement dated _____ entered into a capital improvement contract (Contract) with the Owner for:

Village Creek - Sport Court Complex Improvements

Project # 9002504. The above referenced Contract is incorporated herein by reference.

2) Under this Performance Bond and Payment Bond Agreement, the Principal and Surety shall be responsible for the following:

a. Performance Bond

- i. The Principal shall faithfully perform the above referenced Contract, which is incorporated herein by reference.
- ii. In the event that the Principal defaults in its performance of its obligations under the Contract, the Principal and the Surety, jointly and severally, shall indemnify and save harmless the Owner from all cost and damage which the Owner may suffer by reason of Principal's failure to perform the Contract. Said indemnification shall include, but not be limited to, full reimbursement and repayment to the Owner for all outlays and expenses which the Owner may incur in making good any such default of the Contract by the Principal.

b. Payment Bond

- i. Principal shall pay all persons all indebtedness for labor or material furnished or performed under the Contract and in doing so this obligation shall be null and void.

ii. In the event that Principal fails to pay for such indebtedness, such persons shall have a direct right of action against the Principal and Surety, jointly and severally, under this obligation, subject to the Owner's priority.

3) This Performance Bond and Payment Bond is given in accordance with Arkansas laws and rules, including Ark. Code Ann. § 18-44-501 et seq., §19-4-1401 et seq., and § 22-9-401 et seq. The Surety guarantees that the Principal shall comply with Ark. Code Ann. § 22-9-301 et seq. by payment and full compliance with all prevailing hourly wage contract provisions where the contract amount exceeds the amount provided by law.

Any changes made in the terms of the Contract, including but not limited to, the amount of the Contract, or in the work to be performed pursuant to the Contract or the giving by the Owner of any extension of time for the performance of the Contract, or any other forbearance on the part of either the Owner or the Principal to the other shall not in any way release the Principal and the Surety or Sureties or either or any of them, their heirs, personal representatives, successors or assigns from their liability hereunder, notice to and consent of the Surety or Sureties of any such change, extension or forbearance being are hereby voluntarily waived. In no event shall the aggregate liability of the Surety exceed the greater amount of the Contract, including DBA approved change orders.

This Performance Bond and Payment Bond Agreement is binding upon the above named parties, and their successors, heirs, assigns and personal representatives.

Executed by the parties who individually represent that each voluntarily enters into and has the authority to enter into this agreement.

By: _____
Contractor's (Principal) Signature Date

By: _____
Arkansas Resident Agent or Non-Resident Agent Signature (attach Power of Attorney) Date

Agent's License Number

Surety Company's NAIC Number

Print Agent's Name

Date

Street Address

City

County

State

Zip Code

Business Phone Number

Email Address

CERTIFICATE OF SUBSTANTIAL COMPLETION

Section 00 65 16 / Rev: August 2021

Project Name: Village Creek - Sport Court Complex Improvements

DBA Project Number: 9002504 Owner/Agency: Arkansas Dept. of Parks, Heritage, and Tourism

DEFINITION OF DATE OF SUBSTANTIAL COMPLETION:

The Date of Substantial Completion of the Work, or designated portion thereof, is the date certified by the Design Professional and approved by the Owner and DBA when the Work is sufficiently complete, in accordance with the Contract Documents, so the Owner can occupy or utilize the Work or designated portion thereof for the use for which it is intended, as expressed in the Contract Documents. Check the appropriate box below to denote a full or partial substantial completion.

PARTIAL SUBSTANTIAL COMPLETION

The partial substantial completion includes the following area(s):

The Work performed under this Contract has been reviewed and found to be substantially complete. The Date of Substantial Completion for the above portion(s) of the Project is hereby established as: _____, which is the date of commencement of applicable warranties required by the Contract Documents, and assumption by the Owner of responsibility for maintenance, security, heat, utilities, damage to the Work and insurance excepting as stated below.

FULL SUBSTANTIAL COMPLETION

The Work performed under this Contract has been reviewed and found to be substantially complete. The Date of Substantial Completion for the Project is hereby established as: _____, which is the date of commencement of applicable warranties required by the Contract Documents, and assumption by the Owner of responsibility for maintenance, security, heat, utilities, damage to the Work and insurance excepting as stated below.

The responsibilities of the Owner and the Contractor shall be as follows: (Note - Owner's and Contractor's legal and insurance counsel should determine and review insurance requirements and coverage; Contractor shall secure consent of the Surety Company, if any.)

A list of punch list items to be completed or corrected, prepared by the Contractor and verified and amended by the Architect/Engineer is attached hereto. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. The date of commencement of warranties for items on the attached list will be the date of final completion and inspection/acceptance by the Architect/Engineer, Owner and DBA.

In the case of a full substantial completion the Owner and Contractor understand and agree that all items listed on the attached punch list must be completed within 30 calendar days from the date of substantial completion. Failure to complete the punch list items within the above referenced timeframe may result in notification to and request for action of the Surety Company's Performance and Payment Bond.

Certification of Design Professional:

Firm Name: Halff Associates, Inc.

Address: 10800 Financial Centre Pkwy, Suite 500
Little Rock, Arkansas 72211

Signature Title Date

Approval of Contractor:

Company Name: _____

Address: _____

Signature Title Date

Approval of Owner-Agency:

Agency Name: Arkansas Dept. of Parks, Heritage, and Tourism

Address: 1 Capitol Mall, Suite 4B.215
Little Rock, Arkansas 72201

Signature Title Date

Approval of Dept. of Transformation and Shared Services, Division of Building Authority:

Signature Title Date

Cc: Surety Company

Certificate of Final Completion – Capital Improvement Project

Section 00 65 19 / Rev: August 2021

DBA Project Number: 9002504

Project Name: Village Creek - Sport Court

We, the undersigned parties, state:

- 1) The date of final completion for the above referenced project is herein established as: _____
Pursuant to Arkansas Code Annotated §22-9-604, retainage shall be released within thirty (30) days of the final completion date. The establishment of the final completion date shall not be deemed to relieve the Contractor of its obligation contained in the contract documents including but not limited to providing all close out documents for final payment.
- 2) All known details of the project are resolved and there is no uncompleted work left, no Contractor claims or outstanding progress payment(s).
- 3) The project punch list items, excluding warranty work is complete.
- 4) The substantial completion certificate previously executed established the twelve (12) month warranty period for projects and a twenty four (24) month warranty for roofing projects, or both. Sixty (60) days prior to the warranty expiration the parties listed below shall conduct a final warranty inspection; this report will be delivered to the Contractor who will correct all defects identified in the Design Professionals or Owners follow-up inspection reports.

Contractor:

Contractor Company/Corporation Name

By: Contractor Authorized Representative

Print Name Date

State Agency, Board & Commission:
Arkansas Dept. of Parks, Heritage, and
Tourism

Owner/Agency Name

By: Agency Authorized Representative

Print Name Date

Design Professional:

Half Associates, Inc.

Design Professional Firm Name

By: Design Professional Authorized Representative

Print Name Date

Division of Building Authority

By: DBA Observer or Authorized Representative

Print Name Date

Release of Claims
Section 00 65 19.13 / Rev: August 2021

Comes the undersigned, who does hereby swear and affirm that:

1. My name is: _____, and

I am doing business as: _____

and my legal address is: _____

2. Except as stated in Paragraph Four (4) below, pursuant to Contract # : 9002504

which was executed on: _____, on the following project:

Village Creek - Sport Court Complex Improvements

I have paid and have otherwise satisfied all obligations for all furnished materials and equipment, all work, labor and services performed, and for all known claims against the Contractor arising in any manner in connection with the performance of the above referenced contract for which the Owner might in any way be held responsible.

3. Except as stated in Paragraph Four (4) below, to the best of my knowledge, information and belief, the releases or waivers of Claims, attached hereto and incorporated herein, includes the above referenced contract, all subcontractors, all suppliers of materials and equipment, and all performers of work, labor or services who have or may have claims against the Owner arising in any manner out of the performance of the Contract.

4. The Exceptions are: (if none exists, then indicate "none". The Contractor shall furnish a written explanation to the Owner for each exception.)

Affiant's Signature

Date

Verification

STATE OF ARKANSAS >

>

COUNTY OF: _____

Subscribed and Sworn To before me this _____ day of _____ 20____

Notary Public

My Commission Expires: _____.

Division of Building Authority
General Conditions
Section 00 72 13 / Rev: August 2021

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- 9.6 Payment for Increase or Decreased Quantities
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- 9.8 Action on a Request for Payment and a Final Payment
- 9.9 Payment for Uncorrected Work
- 9.10 Payment for Rejected Materials and Work
- 9.11 Date of Substantial Completion
- 9.12 Final Completion and Payment by Owner
- 9.13 Partial Occupancy or Use
- 9.14 Final Inspection
- 9.15 Assignment of Warranties
- 9.16 Acceptance and Final Payment

Article 10: Protection of Persons and Property

- 10.1 General

Article 11: Insurance and Bonds

- 11.1 Contractor's Liability Insurance
- 11.2 Bonds

Article 12: Uncovering and Correction of Work

- 12.1 Examination of Completed Work
- 12.2 Defective Work
- 12.3 Rejected Materials
- 12.4 Correction of Faulty Work After Final Payment

Article 13: Miscellaneous Provisions

- 13.1 Governing Law

- 13.2 Written Notice
- 13.3 Tests and Inspections
- 13.4 Verbal Agreements

Article 14: Termination or Suspension of the Contract

- 14.1 Suspension of Work
- 14.2 Termination by Owner for Cause
- 14.3 Termination by Owner for Convenience

Article 15: Dispute Resolution

- 15.1 Contractual Disputes
- 15.2 Mediation
- 15.3 Arbitration

End of TOC

ARTICLE 1 -- GENERAL PROVISIONS

1.1 DEFINITIONS

- 1.1.1 **Contract Documents:** Contract Documents consist of Agreement; Invitation to Bid; Instruction to Bidders; the Bid Form; the Bid and the Performance and Payment Bonds; General and Supplementary Conditions; Specifications; Drawings; Addenda issued prior to execution of the Contract; Front End Documents; all DBA approved Change Orders; Wage Rate Determinations (if required); other documents listed or referred to in the Agreement; and modifications issued after execution of the Contract and signed by Contractor and Owner, and approved by DBA.
- 1.1.2 **Contract:** The Contract Documents form the Contract for construction. The Contract Documents will not be construed to create a contractual relationship between the Design Professional and Contractor, between the Owner and a Subcontractor, between the Owner and Design Professional, or between entities other than the Owner and Contractor; however, a contractual relationship does exist between the Contractor and the agency referred to as Owner, and DBA for approval purposes.
- 1.1.3 **Work:** Construction and services required by the Contract Documents whether completed or partially completed, include tools, labor, equipment, supplies, transportation, handling, and incidentals provided by the Contractor.
- 1.1.4 **Project:** The total capital improvement project described in the Contract Documents.
- 1.1.5 **Drawings:** Graphic and textual portions of the Contract Documents showing the design, location, and dimensions and size of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.
- 1.1.6 **Specifications:** Written requirements for materials, equipment, systems, standards, and workmanship for the Work, and performance of related services.
- 1.1.7 **Project Manual:** Volume, which may include the bidding requirements, forms, contracting requirements, and the Specifications.
- 1.1.8 **Owner:** The person or entity identified as such in the Contract Agreement, referred to throughout the Contract Documents as singular in number. The term Owner means the Owner which is a party to this contract.

- 1.1.9 Contractor: The person or entity identified as such in the Contract Agreement, referred to throughout the Contract Documents as singular in number. The Contractor means the person or other entity entering into the contract with the Owner. The term Contractor means the Prime Contractor or the Prime Contractor-authorized representative.
- 1.1.10 Design Professional (Architect/Engineer/Consultant): The person or entity identified as such in the Agreement, lawfully licensed to practice architecture or engineering or another field of expertise and under contract to Owner to provide design service, advice, and consultation, referred to throughout the Contract Documents as if singular in number. The term Design Professional means the Architect/Engineer/Consultant or the authorized representative.
- 1.1.11 Subcontractor: Any person, firm, or corporation with a direct contract with the Contractor who acts for or in behalf of the Contractor in executing a portion of the Work. The term Subcontractor is referred to as singular in number and means the Subcontractor or the Subcontractor-authorized representative.
- 1.1.12 Inspector: A duly authorized representative of the Owner, DBA and Design Professional, designated for detailed inspection and/or observations of materials, construction, workmanship, and methods of construction.
- 1.1.13 Sites: The particular location of that part of the project being considered.
- 1.1.14 State: The Owner or DBA, or both
- 1.1.15 Day(s): Unless specifically referred to as calendar days, "day(s)" refers to a period of time meaning "work" days.

1.2 **INTENT**

- 1.2.1 The intent of the Contract Documents is to set forth the standards of construction, the quality of materials and equipment, the guarantees that are to be met, and to include items necessary for proper execution and completion of the Work. The Contract Documents are complementary and what is required by one will be as binding as if required by all. Performance by the Contractor shall be required to the extent consistent with the Contract Documents and reasonably inferable as necessary to produce indicated results.
- 1.2.2 Organization of the Specifications into divisions, sections, and articles, and arrangement of Drawings will not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

1.2.3 Unless otherwise stated in the Contract Documents, words which have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

1.3 **CAPITALIZATION**

1.3.1 Terms capitalized in the Contract Documents include those which are specifically defined, the titles to numbered sections and articles, identified references to paragraphs, and the titles of other published documents.

1.4 **INTERPRETATION**

1.4.1 Whenever in these Contract Documents the words "as ordered", "as directed", "as required", "as permitted", "as allowed", or words or phrases of like importance are used, it shall be understood that the order, direction, requirement, permission, or allowance of the Owner and Design Professional is intended.

1.4.2 Whenever in these Contract Documents the word "product" is used, it shall be understood that the materials, systems, and equipment will be included.

1.4.3 Whenever in these Contract Documents the word "provide" is used, it shall be understood that it means to "furnish and install".

1.4.4 The Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an", but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

ARTICLE 2 -- OWNER

2.1 **LAND**

2.1.1 The Owner will provide the lands shown on the Drawings upon which the Work shall be performed. The Owner will provide a right-of-way for access to the project site.

2.1.2 The Owner will provide base lines for the location of the principle component parts of the Work with a suitable number of benchmarks adjacent to the Work.

2.2 **RIGHT OF ENTRY BY OWNER**

2.2.1 The Owner and his authorized representative will have the right to enter the property or location on which the Work shall be constructed. The Owner further reserves the right to construct or have his authorized agents construct such work as the Owner will desire, so long as these operations do not interfere with or delay the work being constructed under this Contract.

2.3 **OWNER'S RIGHT TO CARRY OUT THE WORK**

2.3.1 If the Contractor defaults or neglects to perform the Work in accordance with the Contract Documents, including the requirements with respect to the schedule of completion, and fails after ten days written notice from the Owner to correct the deficiencies, or fails to work diligently to correct the deficiencies. The Owner may deduct the cost thereof from the payment then or thereafter due the Contractor.

ARTICLE 3 -- CONTRACTOR

3.1 **GENERAL**

3.1.1 The Contractor shall perform the Work in accordance with the Contract Documents.

3.1.2 The Contractor shall furnish labor, materials, equipment, and transportation necessary for the proper execution of the work unless specifically noted otherwise. The Contractor shall do all the work shown on Drawings and described in Specifications and all incidental work considered necessary to complete the project in a substantial and acceptable manner, and to fully complete the work or improvement, ready for use, occupancy and operation by the Owner. Drawings and Specifications shall be interpreted by the Design Professional or the Owner if no Design Professional exists for the project.

3.1.3 The Contractor shall cooperate with the Owner, Design Professional, Inspectors, and with other contractors on the Project. Contractor shall allow inspectors acting in an official capacity, to have access to the project site.

3.1.4 The Contractor shall determine that the final and completed work on the project is in accordance with the Contract Documents. The failure of the Design Professional to find or correct errors or omissions in the use of materials or work methods during the progress of the work shall not relieve the Contractor from his responsibility to correct all the defects in the Work.

3.1.5 The Contractor shall assist in making final inspections and shall furnish such labor and equipment as may be required for the final tests of equipment, piping, and structures.

3.2 **REVIEW OF FIELD CONDITIONS**

3.2.1 Before ordering material or doing Work, the Contractor shall verify all measurements involved and shall be responsible for the correctness of same. No extra charge or compensation will be allowed on account of difference between actual dimensions and the measurements indicated on Drawings; differences which may be found shall be submitted to Design Professional for consideration before proceeding with the Work.

3.2.2 Drawings may show the location or existence of certain exposed and buried utilities as well as existing surface and subsurface structures. The Owner assumes no responsibility for failure to show any or all such utilities and structures on the Drawings or to show such in the exact location. It is mutually agreed such failure will not be considered sufficient basis for claims for extra work or for increasing the pay quantities in any manner unless the obstruction encountered necessitates substantial changes in the lines or grades or requires the building of a special structure.

3.3 **REVIEW OF CONTRACT DOCUMENTS**

3.3.1 The Contractor shall study and compare Drawings, Specifications, and other instructions as a Construction Professional, not as a Design Professional and shall report to the Design Professional at once any error, inconsistency, or omission discovered.

3.3.2 In the event of conflict among the Contract Documents, interpretations will be based on the following order of precedence, stated highest to lowest:

- a. The Agreement
- b. This Division Zero (0) shall control in the event of conflict between this Division Zero (0) and other Divisions.
- c. Addenda to Drawings and Specifications with those of later date having precedence.
- d. Drawings and Specifications

3.3.3 Since the Contract Documents are complementary, the Contractor shall take no advantage of any apparent error or omission in the Drawings and Specifications. The Owner or Design Professional shall furnish interpretations as deemed necessary for the fulfillment of the intent of the Drawings and Specifications.

3.3.4 Discrepancies found between the Drawings and Specifications and actual site conditions or any errors or omissions in the Drawings or Specifications shall be immediately reported to the Design Professional or in the case where a Design Professional is not on the Project, the Owner shall be notified, who shall address such error or omission in writing. Work done by the Contractor after discovery of such discrepancies, errors, or omissions shall be at the Contractor's risk and expense.

3.3.5 The Contractor shall keep on the work site a copy of the drawings and specifications and shall at all times give the Owner, Design Professional, and DBA access thereto. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of differences between the drawings and specifications the more stringent document will prevail.

3.4 **REQUEST FOR SUPPLEMENTARY INFORMATION**

3.4.1 The Contractor shall make timely requests of the Owner or Design Professional for additional information required for the planning and production of the Work. Such requests shall be submitted as required, but shall be filed in ample time to permit appropriate action to be taken by all parties involved so as to avoid delay. Contractor understands and agrees that it is Contractor's duty to determine the need for, and to request said additional information in writing from the Design Professional by such date as allows Design Professional to provide the information to the Contractor by a date that will not adversely affect Contractor's ability to complete the Work by the date specified in the Contract.

3.4.2 Additional instructions may be issued by the Design Professional during the progress of the Work to clarify the Drawings and Specifications or as may be necessary to explain or illustrate changes in the Work.

3.5 **SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES**

3.5.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work. The Owner or their designated representative may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.

3.5.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

3.5.3 Samples are physical examples that illustrate materials, equipment, or workmanship and establish standards by which the Work will be judged.

3.5.4 The Contractor shall provide shop drawings and other submittals, settings, schedules, and other drawings as may be necessary for the prosecution of the Work in the shop and in the field as required by the Drawings, Specifications, or Design Professional instructions. The Contractor shall coordinate all such drawings, submittals etc. and review them for accuracy, completeness, and compliance with other contract requirements.

Any deviation from the contract documents shall be disclosed upon submission to the Owner/Design Professional. Approval shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this contract. Any work done before receiving approval from the Owner/Design Professional will be at the Contractor's risk.

3.6 LABOR AND MATERIALS

3.6.1 Except as otherwise specifically stated in the Contract, the Contractor shall provide, but not be limited to, all materials, labor, tools, equipment, water, light, heating and cooling, power, transportation, superintendence, temporary construction of every nature, taxes legally collectible because of the Work, and all other services and facilities of every nature whatsoever necessary to complete the Work in accordance with the Contract Documents in an orderly and efficient manner. The sequence of construction operations shall follow the schedule of construction as approved by the Design Professional. The Work shall not be discontinued by the Contractor without approval of the Design Professional. Should prosecution of the Work be discontinued for any reason, the Contractor shall notify the Design Professional at least twenty-four hours in advance of resuming the Work.

3.6.2 All equipment, material, and articles furnished under this contract shall be new and of most suitable materials grade for the purpose intended, unless otherwise specifically provided in this contract. Materials and equipment furnished under this Contract will be subject to inspection by the Owner's authorized representative or by independent laboratories. Defective material, equipment, or workmanship may be rejected at any time before the acceptance of the Work even though the defective material, equipment, or workmanship may have been previously overlooked and estimated for payment. The Contractor shall replace defective equipment and material in accordance with the Contract Documents at no additional cost to the Owner.

3.6.3 The Contractor shall provide materials and supplies not subject to conditional sales agreements, or other agreement reserving unto the seller any right, title, or interest therein. All materials and supplies shall become the property of the Owner upon final acceptance of this Contract by the Owner.

3.6.4 If shop tests are to be conducted, the Contractor shall notify the Owner of such tests so a representative may witness tests, if desired.

3.6.5 The Contractor may make substitutions only with the consent of the Owner, after evaluation by the Design Professional, and in accordance with a Change Order.

3.7 UNAUTHORIZED WORK

3.7.1 Work done without lines and grades having been given or work done beyond the lines or not in conformity with the grades shown on the Drawings or as provided by the Owner, except as provided herein, and work completed without proper inspection and supervision or any extra or unclassified work completed without written authority and prior agreement shall be at the Contractor's risk. Such unauthorized work, at the option of the Design Professional, may not be measured and paid for and may be ordered removed at the Contractor's expense.

3.8 **SUPERINTENDENCE**

3.8.1 The Contractor shall supervise and direct the Work. The Contractor shall be solely responsible for construction means, methods, techniques, sequences, and procedures and for coordinating portions of the Work under the Contract.

3.8.2 The Contractor shall employ a qualified superintendent during the duration of the Project who is acceptable to the Owner, Design Professional and DBA Construction. The superintendent shall be maintained on the Project site and shall be present on the site at all times work is in progress. The superintendent shall be capable of reading and understanding the Drawings and Specifications and shall have full authority to act in behalf of the Contractor. All directions and instructions given to the Superintendent shall be considered as given to the Contractor and shall be as binding as if given to the Contractor.

3.8.3 Workmanship shall be performed by workmen experienced in their trade and skilled and experienced for the class of work to which assigned. Any person, including supervisory personnel, who does not show and exhibit skill and proficiency in said work shall be removed by the Contractor and replaced by a competent and experienced workman.

3.8.4 The Contractor shall, at all times, be responsible for the conduct and discipline of his employees and all Subcontractors and their employees. Disorderly, incompetent or intemperate persons, or persons who commit any crimes or trespass on public or private property in the vicinity of the Work must not be allowed to continue working upon the project which the Contractor has with the State. Any superintendent, foreman or workman employed by the Contractor or a Subcontractor who unreasonably refuses or neglects to comply with the instructions of the Owner, Design Professional, or Inspector, shall, at the written request of the Owner or Design Professional, be removed from the work site and shall not be allowed to work further on any portion of the work or another State Project without the approval of the Owner.

3.8.5 The Contractor shall coordinate Work by the various trades to provide uniform and symmetrical layout and spacing of the exposed components which will affect the finished design and appearance. Where spacing and related locations are not specifically shown on Drawings or where in doubt, the Contractor shall consult the Design Professional prior to installation of that part of the Work.

3.9 **PERMITS, FEES, AND NOTICES**

3.9.1 The Contractor shall purchase and secure all applicable permits and licenses and give all notices necessary and incidental to the prosecution of the Work. However, in accordance with Ark. Code Ann. §22-9-213, public works construction projects conducted by DBA or other state agencies are exempt from permit fees or inspection requirements of county or municipal ordinances.

3.9.2 When new construction under the Contract crosses highways, railroads, streets or utilities under the jurisdiction of the state, county, city, or other public agency, public utility, or private entity, the Contractor shall secure written permission from the proper authority before executing such new construction. A copy of this written permission shall be filed with the Owner before any work is completed. The Contractor shall furnish a release from the proper authority before final acceptance of the Work. Any bonds required for this Work shall be secured and paid for by the Contractor.

3.10 **SAMPLES AND TESTS**

3.10.1 The Contractor shall provide samples, materials, and equipment necessary or required for testing as outlined in the various sections of the Specifications or as directed by the Owner. The Contractor shall pay all costs for testing. Should materials, methods, or systems fail to meet specified standards, the Contractor shall pay all costs for additional testing as required by the Owner.

3.10.2 All tests shall be made by a laboratory approved by the Owner.

3.11 **LOCATION, GRADIENT, AND ALIGNMENT**

3.11.1 Based upon the site information provided by the Owner and verified by the Contractor, the Contractor shall develop and make detailed surveys necessary for construction including slope stakes, batter boards, and other working points, lines and elevations. The Contractor shall verify the figures before laying out the work and will be held responsible for any error resulting from its failure to do so.

3.11.2 The Contractor shall report any errors, inconsistencies, or omissions to the Design Professional as a request for information.

3.11.3 The Contractor shall preserve benchmarks, reference points and stakes, and in the case of destruction thereof by the Contractor, shall be responsible for damage or mistakes resulting from unnecessary loss or disturbance.

3.12 **LAND**

3.12.1 Additional land and access thereto not shown on Drawings that may be required for temporary construction facilities or for storage of materials shall be provided by the Contractor at his expense with no liability to the Owner. The Contractor shall confine his equipment and storage of materials and the operation of his workmen to those areas shown on the Drawings and described in the Specifications, and such additional areas which he may provide or secure as approved by the Owner.

3.12.2 The Contractor shall not enter upon private property for any purpose without first obtaining permission.

3.12.3 The Contractor shall be responsible for the preservation of and prevent damage or injury to all trees, monuments, and other public property along and adjacent to the street and right-of-way. The Contractor shall prevent damage to pipes, conduits and other underground structures, and shall protect from disturbance or damage all monuments and property marks until an authorized agent has witnessed or otherwise referenced their location, and shall not remove monuments or property marks until directed.

3.13 **LIMITS OF WORK**

3.13.1 The Contractor shall conduct Work and operations so as to cause a minimum of inconvenience to the public. At any time when, in the opinion of the Owner or Design Professional, the Contractor is obstructing a larger portion of a road, street, or other public right-of-way than is necessary for the proper execution of the Work, the Design Professional may require the Contractor to finish the sections on which work is in progress before work is commenced on any new sections.

3.14 **WARRANTY**

3.14.1 In addition to any other warranties in this contract, the Contractor warrants that Work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or workmanship performed by the Contractor or any Subcontractor or supplier. The Contractor shall warrant that all Work, materials, and equipment furnished will be free from defects in design, materials, and workmanship and will give successful service under the conditions required.

The warranty period for Work, materials, and equipment furnished by the Contractor shall be one year from the date of the written acceptance of the Work as stated in the Substantial Completion Form approved by the Contractor, Owner, Design Professional and DBA or the date that the DBA approves the final payment request, unless a longer period is agreed upon.

- 3.14.2 Warranty of Title: The Contractor warrants good title to all materials, supplies, and equipment incorporated in the Work and agrees to deliver the premises together with all improvements thereon free from any claims, liens or charges, and agrees further that neither it nor any other person, firm or corporation shall have any right to a lien upon the premises or anything appurtenant thereto.

3.15 **PATENTS AND ROYALTIES**

- 3.15.1 If the Contractor is required or desires to use any design, device, material or process covered by letters, patent, or copyright, he shall provide for such use by suitable legal agreement with the patents or Owner. It is mutually understood and agreed that without exception the Contract Sum shall include all royalties or costs arising from patents, trademarks, and copyrights in any way involved in the Work.

The Contractor and the surety shall defend, indemnify, and save harmless the Owner and all its officers, agents and employees from all suits, actions, or claims of any character, name and description brought for or on account of infringement or alleged infringement by reason of the use of any such patented design, device, material or process of any trademark or copyright used in connection with the Work agreed to be performed under this Contract, and shall indemnify the Owner for any cost, expense, or damage which it may be obliged to pay by reason of any action or actions, suit or suits which may be commenced against the Owner for any such infringement or alleged infringement at any time during the prosecution of the Work contracted for herein.

It is mutually agreed that the Owner may give written notice of any such suit to the Contractor, and thereafter, the Contractor shall attend to the defense of the same and save and keep harmless the Owner from all expense, counsel fees, cost liabilities, disbursements, recoveries, judgments, and executions in any manner growing out of, pertaining to, or connected therewith.

3.16 **CLEANING UP**

- 3.16.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove from and about the Project waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials, not purchased for or by the Owner.

- 3.16.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the cost thereof shall be charged to the Contractor.

ARTICLE 4 -- ADMINISTRATION OF CONTRACT

4.1 DESIGN PROFESSIONAL AUTHORITY

- 4.1.1 The Design Professional will interpret the requirements of the Contract Documents and decide matters concerning performance there under on request of the Owner or Contractor.
- 4.1.2 The Design Professional will provide administration of the Contract as described in the Contract Documents and will be the Owner's representative. The Design Professional will decide any and all questions as to the acceptability of materials or equipment furnished, work performed, interpretation of the Drawings and Specifications, rate of progress of the Work, acceptability of the quality of workmanship provided, and other questions as to the fulfillment of the Contract by the Contractor.
- 4.1.3 The Design Professional will prepare all change orders on the form specified by DBA. The Design Professional may authorize minor changes in the Work not involving adjustment in Contract Sum or extension of Contract Time and not inconsistent with the intent of the Contract Documents.
- 4.1.4 The Design Professional and his authorized representatives, Owner and DBA will have the right to enter the property or location on which the Work shall be constructed.

4.2 CLAIMS

- 4.2.1 Definition: A claim is a demand or assertion by one of the parties seeking adjustment, or interpretation of Contract terms, payment of money, extension of time, or other relief with respect to the terms of the Contract. The term includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. Claims will be initiated by written notice. The responsibility to substantiate claims shall rest with the party making the claim.
- 4.2.2 Claims of the Contractor or the Owner: Claims regarding the Work of the Contract shall be referred initially to the Design Professional for a decision. The Design Professional will review claims, and 1) reject in whole or in part; 2) approve the claim; 3) suggest a compromise; 4) advise the parties that the Design Professional is unable to resolve the claim.

- 4.2.3 Claims for Concealed or Unknown Conditions: If new and unforeseen items of work are discovered, which cannot be covered by any item or combination of items for which there is a Contract Sum, then the Contractor shall notify the Design Professional as quickly as reasonably possible and shall not continue working on the discovered new or unforeseen items without express written permission from the Design Professional. The Contractor shall complete such work and furnish such materials as may be required for the proper completion or construction of the work contemplated upon written Change Order from the Design Professional as approved by the Owner and DBA. Work shall be performed in accordance with the Contract Documents.
- 4.2.4 Claims for Extensions of Time: The Contractor shall provide written notice to Design Professional within seven calendar days stating the cause of the delay and request an extension of Contract Time. The Design Professional will act on the request in writing. The extension of time shall be for a period equivalent to the time lost by reasons indicated. No extension of time shall be effective until included in a Change Order approved by the Owner, Design Professional and DBA.
- 4.2.5 Claims for Changes in the Work: The Contractor shall provide written notice to Design Professional within seven calendar days after the receipt of instructions from the Owner, as approved by the Design Professional and DBA to proceed with changes in the Work and before such Work is commenced. Changes in the Work shall not be commenced before the claim for payment has been approved, except in emergencies endangering life or property. The Contractor's itemized estimate sheets showing labor and material shall be submitted to the Design Professional. The Owner's order (Change Order) for changes in the Work shall specify any extension of the Contract Time and one of the following methods of payment:
- a. Unit prices or combinations of unit prices, which formed the basis of the original Contract.
 - b. A lump sum fee based on the Contractor's estimate, approved by the Design Professional and accepted by the Owner.
 - c. The applicable methods of computation as set forth in 7.2.2.3.
- 4.2.6 Claims for Additional Costs: In case of an emergency which threatens loss or injury of property or safety of life, the Contractor shall be allowed to act, without previous instructions from the Design Professional, in a diligent manner. The Contractor shall notify the Design Professional immediately thereafter. Any claim for compensation by the Contractor due to such extra work shall be promptly submitted, but in no case more than 7 calendar days following the event causing the emergency, to the Design Professional for consideration.

The amount of reimbursement claimed by the Contractor on account of any emergency action shall be determined in the manner provided under these General Conditions. No agreement to pay costs for additional work shall be effective until included in a Change Order approved by the Owner, Contractor, the Design Professional and DBA.

ARTICLE 5 -- SUBCONTRACTORS

5.1 ASSIGNMENT OF CONTRACT

5.1.1 Neither the Owner nor the Contractor shall have the right to sublet, sell, transfer, assign, or otherwise dispose of the "Contract" or any portion thereof without written consent of the other party. No assignment, transfer, or subletting, even with the proper consent, shall relieve the Contractor of his liabilities under this Contract. Should any Assignee or Subcontractor fail to perform the work undertaken by him in a satisfactory manner, the Owner, with DBA approval, has the right to annul and terminate the Assignee's or Subcontractor's contract on the project.

5.2 SUBCONTRACTS

5.2.1 The subcontracting of the whole or any part of the Work to be done under this Contract will not relieve the Contractor of his responsibility and obligations. All transactions of the Owner or Design Professional shall be with the Contractor. Subcontractors will be considered only in the capacity of employees or workmen and shall be subject to the same requirements as to character and competency.

5.2.2 The Contractor shall discharge or otherwise remove from the project any Subcontractor that the Owner or the Design Professional has reasonably determined as incompetent or unfit.

5.2.3 The Contractor may not change those Subcontractors listed on the proposal without the written approval of the Owner, Design Professional and DBA. The Contractor shall submit written evidence, which includes but is not limited to, that the substituted contractor is costing the same amount of money or less and if costing less, that the saving will be deducted from the total contract of the prime contractor and rebated to the Owner prior to any approval. The Contractor shall submit his request to the Design Professional who then shall review the request, if approved, the request and approval shall be forwarded to the Owner. The Owner shall then review the request and accompanying paperwork and if approved, shall forward the approval and the accompanying documents to DBA. DBA shall review all of the documents.

DBA shall provide written notification to the Contractor, Design Professional and Owner as its determination. The Contractor shall not be relieved of any liabilities under this Contract, but shall be fully responsible for any Subcontractor or work by said Subcontractor where Subcontractor is employed by the Contractor to perform work under this Contract. Nothing contained in the Contract Documents shall create contractual relations between any Subcontractor and the State.

- 5.2.4 No officer, agent, or employee of the Owner, including the Design Professional, shall have any power or authority to bind the Owner or incur any obligation in his behalf to any Subcontractor, material supplier or other person in any manner whatsoever.

ARTICLE 6 - CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

6.1 OTHER CONTRACTS

- 6.1.1 The Owner reserves the right to award other contracts in connection with the Project. The Contractor shall cooperate with the other contractors with regard to the storage of materials and equipment, access to the site, and execution of their work. It shall be the Contractor's responsibility to inspect the work of other contractors which will affect the work of this Contract and to report to the Owner irregularities which will not permit him to complete his work in a satisfactory manner or in the time allotted. Failure to so report shall constitute an acceptance of the work of other contractors.

6.2 DEPENDENCE ON OTHERS

- 6.2.1 If any part of the Contractor's work depends for proper execution or results upon the work of the Owner or any separate contractor, the Contractor shall, prior to proceeding with the work, promptly report to the Design Professional any apparent discrepancies or defects in such other work that render it unsuitable for such proper execution and results. Failure of the Contractor to so report shall constitute an acceptance of the work.

ARTICLE 7 -- CHANGES IN THE WORK

7.1 GENERAL

- 7.1.1 The Owner may, as the need arises, without invalidating the Contract, order changes in the work in the form of additions, deletions, or modifications. Compensation to the Contractor for additional work or to the Owner for deductions in the work and adjustments for the time of completion shall be adjusted at the time of ordering such change.

7.1.2 Additional work shall be done as ordered in writing by the Owner. The order shall state the location, character, and amount of extra work. All such work shall be executed under the conditions of the Contract, subject to the same inspections and tests.

7.1.3 The Design Professional and the Owner reserve and shall have the right to make changes in the Contract Documents and the character or quantity of the work as may be considered necessary or desirable to complete fully and acceptably the proposed construction in a satisfactory manner.

7.2 **CHANGE ORDERS**

7.2.1 A Change Order is a written instrument, prepared by the Design Professional/DBA and approved by the Design Professional, the Contractor, the Owner, and DBA, stating their agreement upon the following, separately or in any combination thereof:

- a. Description and details of the work.
- b. Amount of the adjustment in the Contract Sum.
- c. Extent of the adjustment in the Contract Time.
- d. Terms and conditions of the Contract Documents.

7.2.2 Change Order requests by the Contractor shall be submitted in a complete itemized breakdown, acceptable to the Owner, Design Professional and DBA. Nothing contained in the change order shall be construed to waive the sovereign immunity of the State or entities thereof.

7.2.2.1 Where unit prices are stated in the Contract, Contractor should submit an itemized breakdown showing each unit price and quantities of any changes in the Contract Amount. The value of all such additions and deductions shall then be computed as set forth in Paragraph 7.2.2.3.

7.2.2.2 The Contractor shall present an itemized accounting together with appropriate supporting data for the purposes of considering additions or deductions to the Contract Amount. Supporting data shall include but is not limited to the following:

- a. Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and worker or workmen's compensation insurance;
- b. Cost of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;
- c. Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;

- d. Costs of premiums for all bonds and insurance, permit fees, and sales, use of similar taxes related to the Work; and
- e. Additional costs of supervision and field office personnel directly attributable to the change. (General Conditions)

The burden of proof of cost rests upon the Contractor. Contractor agrees that DBA or Owner's Representative shall have the right, at reasonable times, to inspect and audit the books and records of Contractor to verify the propriety and granting of such cost.

7.2.2.3 Compute requests for changes be they additions or deductions as follows:

- a. For work performed by the Contractor which results in an overall increase in the contract sum: example

Net Cost of Materials	a.	
State Sales Tax	b.	
Net Placing Cost <u>including Owner approved General Conditions</u>	c.	
W.C. Insurance Premium and FICA Tax	d.	
Subtotal of a+b+c+d:		
Overhead and Profit, shall not exceed 12% x (a+b+c+d)	e.	
Allowable Bond Premium	f.	
TOTAL COST		
a+b+c+d+e+f :		

- b. The amount of credit to be allowed by the Contractor to the Owner for a deletion or change which results in a net decrease in the contract sum shall be actual net cost as computed as outlined in 7.2.2.3.a (a. through e.) and confirmed by the Design Professional. Credit for work deleted shall be computed as outlined in 7.2.2.3.a (a. through e.), except the Contractor's share of overhead and profit percentage is not less than seven (7) percent.
- c. For added work performed by Subcontractors: Subcontractors shall compute their work as outlined in 7.2.2.3.a (a. through e.) to the cost of that portion of the work (Change) that is performed by the Subcontractor. The Contractor overhead and profit change shall not exceed five (5) percent plus the allowable bond premium.

- d. The amount of credit to be allowed by the Contractor to the Owner for a deletion or change which results in a net decrease in the contract sum by a Subcontractor shall be actual net cost as computed as outlined in 7.2.2.3.a (a. through e.) and confirmed by the Design Professional for work deleted by a Subcontractor: Subcontractors shall compute their work as outlined in 7.2.2.3.a (a. through e.), except that the overhead and profit shall be not less than seven (7) percent and the Contractor's overhead and profit shall be not less than five (5) percent.

7.3 PAYMENT FOR CHANGES IN THE WORK

- 7.3.1 All changes in the Work will be paid for in the manner indicated in Article 4, Paragraph 4.2, and the compensation thus provided shall be accepted by the Contractor as payment in full for the use of small tools, superintendent's services, premium on bond, and all other overhead expenses incurred in the prosecution of such work.
- 7.3.2 The Owner shall not be deemed to have agreed to any costs for additional work, to have agreed to additional time for completion, or to have agreed to any other change in the terms and conditions of the Contract Documents until Owner, Design Professional and Contractor have executed a Change Order to this Contract, and the Change Order is approved by DBA.

ARTICLE 8 -- TIME

8.1 DEFINITIONS

- 8.1.1 Contract Time is the period of time identified in the Contract Documents for Substantial Completion of the Work, including authorized adjustments made as part of Change Orders agreed to by the Owner, Contractor, Design Professional and DBA.
- 8.1.2 Date for commencement of the Work is the fifth calendar day following the start date listed on the Notice to Proceed, unless otherwise stated in the Contract.
- 8.1.3 Date of Substantial Completion is the date certified by the Design Professional, the Owner and DBA.

8.2 PROGRESS

- 8.2.1 Time limits identified in the Contract Documents are of the essence of the Contract. The Contractor confirms that the Contract Time is a reasonable period of time for performing the Work.

8.3 HOLIDAYS

8.3.1 New Year's Day, Robert E. Lee/Dr. Martin Luther King's Birthday, President's Birthday, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day and the day thereafter, Christmas Eve and Christmas Day will be considered as being legal holidays; no other days will be considered unless declared by the Governor of the State of Arkansas through an Executive Order or Proclamation. No Design Professional clarifications, observations, or State inspections will be provided on legal holidays, Saturdays and Sundays, and no work shall be performed on these days except in an emergency or with written approval in advance by the Design Professional and Owner.

8.4 **DELAYS**

8.4.1 Delays beyond the Contractor's control occasioned by an act or omission on the part of the Owner, strikes, fires, additions to the Work, delays by any separate contractor employed by the Owner, extremely abnormal weather conditions, or other delays beyond the Contractor's control may, if agreed to by Change Order by the Contractor, Owner, Design Professional and DBA entitle the Contractor to an extension of time in which to complete the Work. While such delays may be just cause for an extension of the Contract Time, the Contractor shall not have a claim for damages for any such cause or delay.

ARTICLE 9 -- PAYMENTS AND COMPLETION

9.1 **CONTRACT SUM**

9.1.1 The Contractor shall accept the compensation, as herein provided, in full payment for furnishing all materials, equipment, labor, tools, and incidentals necessary to complete the Work and for performing all Work contemplated and embraced under the Contract. Also, for loss or damage arising from the nature of the Work, from the action of the elements or from any unforeseen difficulties which may be encountered during the prosecution of the Work until the final acceptance by the Design Professional and Owner; and for all risks of every description connected with the prosecution of the Work; for all expenses incurred in consequence of the suspension or discontinuance of the Work as specified; and for any infringement of patent, trademark, or copyright, and for completing the Work according to the Contract Documents. Neither the payment of any estimate nor of any retained percentage shall relieve the Contractor of any obligation to make good any defective work or material.

9.1.2 No moneys payable under Contract or any part thereof, except the estimate for the first month or period, shall become due and payable if the Owner so elects until the Contractor shall satisfy the said Owner that he has fully settled or paid for all materials and equipment used in or on the Work and labor done in connection therewith, and the Owner, if he so elects, may pay any or all such bills wholly or in part and deduct the amount or amounts so paid from any monthly or final estimate excepting the first estimate.

9.1.3 In the event the surety on any contract or payment bond given by the Contractor becomes insolvent, or is placed in the hands of a receiver, or has the right to do business in a state revoked as provided by law, the Owner may at its election withhold payment of any estimate filed or approved by the Design Professional until the Contractor shall give a good and sufficient bond in lieu of the bond so executed by such surety. Any and all subsequent bonds shall be filed with the Circuit Clerk of the County in which the Work is being performed.

9.2 **SCHEDULE OF VALUES**

9.2.1 The Contractor shall submit to the Design Professional a schedule of values for each part of the Work. The schedule shall be a complete breakdown of labor and materials for the various parts of the Work including an allowance for profit and overhead. The total of these amounts shall equal the Contract Sum. The approved schedule of values shall be used as a basis for the monthly payments to the Contractor. In applying for the monthly payment, the Contractor shall show a detailed account of work accomplished in conformity with the schedule.

9.3 **MEASUREMENT OF QUANTITIES**

9.3.1 The Contractor shall be paid for all Work performed under the Contract based on Design Professional computations of as-built quantities and the Contractor's Contract Sum. This payment shall be full compensation for furnishing all supplies, materials, tools, equipment, transportation, and labor required to do the Work; for all loss or damage, because of the nature of the Work, from the action of the elements or from any unforeseen obstruction or difficulty which may be encountered in the prosecution of the Work and for which payment is not specifically provided for all or any part of the Work; and for well and faithfully completing the Work in accordance with the Contract Documents. The method of computation and payment for each item shall be as set forth in the Specifications or the Supplementary Conditions.

9.4 **REQUESTS FOR PAYMENT**

- 9.4.1 The Contractor may submit periodically, but not more often than once each month, a Request for Payment for work completed. When unit prices are specified in the Contract Documents, the Request for Payment shall be based on the quantities completed.
- 9.4.2 Unless otherwise provided in the Contract Documents, payments will be made on account of materials or equipment not incorporated in the Work to date but delivered and suitably stored at the site, and if approved in advance by the Owner, payments may similarly be made for materials or equipment suitably stored at some other location agreed upon in writing. Payments for materials or equipment stored on or off the site shall be conditioned upon submission by the Contractor of bills of sale or such other procedures satisfactory to the Owner and the Design Professional to establish the Owner's title to such materials or equipment or otherwise protect the Owner's interest including applicable insurance and transportation to the site for those materials and equipment stored off the site.
- 9.4.3 The Contractor shall furnish the Design Professional all reasonable facilities and job tickets required for obtaining the necessary information relative to the progress and execution of the Work and the measurement of quantities. Each Request for Payment shall be computed from the Work completed on all items listed in the approved schedule of values less five (5) percent (retainage) of the adjusted Contract Sum and less previous payments to the Contractor on the Contract. Retainage may be waived pursuant to the process and procedures as stated in 9.5.2.

9.5 **PERIODIC ESTIMATES FOR PAYMENT**

- 9.5.1 Unless otherwise stated in the Specifications or Supplementary Conditions, the Owner shall cause the Design Professional to prepare an Estimate for Payment to the Contractor each month. The Design Professional will make the estimate for the materials complete in place and the amount of work performed in accordance with the Contract between the twenty-fifth day of the month and the fifth day of the succeeding month.

9.5.2 From the total of the amount estimated to be paid, an amount equal to five (5) percent of the total completed shall be retained from each payment request. The Owner may waive withholding retainage of the progress payments if both of the Design Professional and Owner agree the Work is fifty (50) percent complete and the Contractor has provided the Work in a satisfactory manner. Nothing in the proceeding sentence shall be construed as prohibiting the Owner from maintaining the withholding of retainage (5%) throughout the entire project. All sums withheld by the Owner and requested in a Final Pay Request prepared by the Owner or Contractor will be paid to the Contractor within 30 days after the Contract has been completed and the work approved by DBA. No retainage will be withheld on that amount of the progress payment pertaining to the cost of materials stored at the site or within a bonded warehouse.

9.6 **PAYMENT FOR INCREASED OR DECREASED QUANTITIES**

9.6.1 When alterations in the quantities of work not requiring Contract modifications are ordered and performed, the Contractor shall accept payment in full at the Contract Sum, for the actual quantities of work accomplished. No allowance will be made for anticipated profits. Increased or decreased work involving Contract modifications shall be paid for as stipulated in such Contract modifications.

9.7 **DESIGN PROFESSIONAL'S ACTION ON A REQUEST FOR PAYMENT** (See also 9.9)

9.7.1 The Owner shall cause the Design Professional to, within five working days plus time required for transmittal from one party to another, act on a Request for Payment by the Contractor in one of the following:

- a. Approve the Request for Payment as submitted by the Contractor, and transmit same to the Owner.
- b. Approve an adjusted amount, as the Design Professional will decide is due the Contractor informing the Contractor in writing of the reason for the adjusted amount, and transmit same to the Owner.
- c. Withhold the Request for Payment submitted by the Contractor informing the Contractor, Owner and DBA in writing of the reason for withholding the request.

9.8 **ACTION ON A REQUEST FOR PAYMENT AND FINAL PAYMENT** (See also 9.9)

9.8.1 The Owner will, within five working days plus transmittal time between the various state agencies involved, act on a Request for Payment (not Final) after approval by the Design Professional by one of the following:

- a. Approve the Request for Payment as approved by the Design Professional and process the payment.
 - b. Approve payment of an adjusted amount as the Owner will decide is due the Contractor, informing the Contractor and the Design Professional in writing of the reason for the adjusted amount of payment.
 - c. Withhold the Request for Payment informing the Contractor and the Design Professional in writing of the reason for withholding the payment.
- 9.8.2 The State shall process payments in accordance with Ark. Code Ann. §19-4-1411, which establishes the time limits for the Design Professional, the Owner, and the Department of Finance and Administration. It also authorizes the Chief Fiscal Officer of the State to investigate any complaints of late payments and assess penalties for late payment. Complaints shall be addresses to: Chief Fiscal Officer of the State: Department of Finance and Administration; 1509 West Seventh Street, Suite 401; Post Office Box 3278; Little Rock, AR 72203-3278.
- 9.8.3 The Design Professional or the State may withhold payment for contested issues, including but not limited to, defective work on the project; evidence indicating the probable filing of claims by other parties against the Contractor related to the project; damage caused to another contractor; reasonable evidence that Work cannot be completed for the unpaid balance of the Contract Sum or within Contract Time or failure of the Contractor to make payments on materials, equipment or labor to subcontractors. It is the responsibility of the contesting party to notify the Contractor in writing that payment has been contested and the reasons why. The notification must be done within the timeframe specified for processing of payment under Ark. Code Ann. §19-4-1411.

9.9 PAYMENT FOR UNCORRECTED WORK

- 9.9.1 Should the Design Professional direct the Contractor not to correct work that has been damaged or that was not performed in accordance with the Contract Documents, an equitable deduction from the Contract Sum shall be made to compensate the Owner for the uncorrected work. The Design Professional shall determine the amount of the equitable deduction.

9.10 PAYMENT FOR REJECTED MATERIALS AND WORK

9.10.1 The removal of rejected Work and materials and the re-execution of acceptable work by the Contractor shall be at the expense of the Contractor. The Contractor shall pay the cost of replacing the work of other contractors destroyed or damaged by the removal of the rejected work or materials and the subsequent replacement with acceptable work.

9.11 DATE OF SUBSTANTIAL COMPLETION

9.11.1 A Certificate of Substantial Completion, which shall establish the Date of Substantial Completion, shall state the responsibilities of the Owner and the Contractor for security, maintenance, heat, utilities, damage to work, and insurance and shall fix the time within which the Contractor shall complete the items listed therein. Warranties required by the Contract Documents shall commence on the Date of Substantial Completion, unless another timeframe is stated in the Certificate of Substantial Completion. The Certificate of Substantial Completion shall not become effective until approved by DBA.

9.12 FINAL COMPLETION AND PAYMENT BY OWNER

9.12.1 The Contractor shall furnish a letter from the Design Professional attached to the Contractor's final estimate, which shall include all retainage withheld, certifying that the Design Professional has received and approved all guarantees, bonds, maintenance and operation manuals, air balance data, shop drawings, catalog data, and record documents specified in the Contract Documents.

9.12.2 Before final payment, the Contractor shall furnish to the Design Professional executed copies of the Release of Claims and Consent of the Performance and Payment Bond Surety for Final Payment. Items listed in this Section Nine (9) shall be submitted with and at the same time as the final estimate to the Design Professional and shall be promptly delivered by the Design Professional to the Owner. No final payment or release of retained amounts shall be made without complete compliance with this Section Nine (9), and approval by the Owner and DBA of the Final Pay Request, which shall include payment of all retained amounts.

9.12.3 Any claim by the Contractor to the Owner for interest on a delinquent final payment shall only be made pursuant to Ark. Code Ann. § 22-9-205.

9.13 PARTIAL OCCUPANCY OR USE

- 9.13.1 The Owner may occupy or use any completed or partially completed portion of the Work provided such use or occupancy is consented to by the insurer and authorized. The Contractor will prepare a list of items to be completed or corrected before partial acceptance. Upon receipt of the Contractor's list, the Design Professional will make an inspection to determine whether the Work or portion thereof is substantially complete. No portion of the work shall be considered substantially complete unless described in a Certificate of Substantial Completion Form approved by the Contractor, Owner, Design Professional and DBA.
- 9.13.2 The Design Professional will prepare a Certificate of Substantial Completion which shall establish the date of Substantial Completion, shall state the responsibilities of the Owner and the Contractor for security, maintenance, heat, utilities, damage to Work and insurance, identify work items to be corrected or completed by the Contractor and shall fixing the time within which the Contractor shall complete the items listed therein. Warranties required by the Contract Documents shall commence on the Date of Substantial Completion, unless another timeframe is stated in the Certificate of Substantial Completion. No retained amounts shall be paid until the Contractor, Design Professional, Owner and DBA approve a Certificate of Final Completion for all of the Work unless specifically provided for by this contract, and all other conditions for final acceptance of this Work are met to the satisfaction of the Owner and DBA.
- 9.13.3 If the contract documents allow for phased work and those phased sections of the project are completed, the retained amounts shall be paid in direct proportion to the value of the part of the capital improvement project completed as approved by the Contractor, Design Professional, Owner, and DBA and all other conditions of this Section Nine (9) are met by the Contractor.

9.14 **FINAL INSPECTION**

- 9.14.1 Tests, inspections, and approvals of portions of the Work required by the Contract Documents, laws, ordinances, or any public authority having jurisdiction shall be made at the appropriate time. The Contractor shall give the Design Professional timely notice of when and where tests and inspections shall be made so that the Design Professional may be present. The Contractor shall make arrangements for the testing and inspection with an independent testing laboratory.

9.14.2 The Contractor shall ensure that the final completed work is in accordance with the Contract Documents. Required certificates of testing and inspection shall be secured by the Contractor and delivered to the Design Professional, unless otherwise required by the Contract Documents. The Design Professional (or Owner, in the absence of a design professional) will coordinate the scheduling of the final inspection with all parties, to include specifically the DBA Observer. Upon completion of all work, including but not limited to the punch list items, all parties will execute the Certificate of Final Completion form setting forth the final completion date.

9.15 **ASSIGNMENT OF WARRANTIES**

9.15.1 All warranties of materials and workmanship running in favor of the Contractor shall be transferred and assigned to the Owner on completion of the Work and at such time as the Contractor receives final payment.

9.15.2 In case of warranties covering work performed by Subcontractors, such warranties shall be addressed to and in favor of the Owner. The Contractor shall be responsible for delivery of such warranties to the Owner prior to final acceptance of the work.

9.15.3 Delivery of guarantees or warranties shall not relieve the Contractor from any obligation assumed under any provision of the Contract. All warranties shall be for one year from the date of Substantial Completion of the Project, unless noted differently in the contract documents or extended otherwise.

9.16 **ACCEPTANCE AND FINAL PAYMENT**

9.16.1 Upon receipt of written notice that the Work is ready for final inspection, the Design Professional together with the Owner and DBA will conduct such inspection and when the Design Professional determines the work is acceptable to the Design Professional, Owner and DBA the Design Professional shall certify his acceptance to the Owner. Final Payment shall be the Contract Sum plus approved Change Order additions less approved Change Order deductions and less previous payments made. The Contractor shall furnish evidence that he has fully paid all debts for labor, materials, and equipment incurred in connection with the Work.

The Owner, upon approval by the Design Professional of all documentation to be provided by the Contractor in accordance with this Section 9, and approval by the Design Professional, Contractor, Owner and DBA of the Certificate of Final Completion will accept the Work and release the Contractor, except as to the conditions of the Performance and Payment Bond, any legal rights of the Owner, required guarantees and correction of faulty work after Final Payment, and shall authorize payment of the Contractor's final Request for Payment. The Contractor must allow sufficient time between the time of completion of the work and approval of the final Request for Payment for the Design Professional to assemble and check the necessary data.

- 9.16.2 Acceptance of final payment by the Contractor shall constitute waiver of all claims by the Contractor except those previously made in writing and identified by the Contractor as unsettled at the time of the final Request for Payment. Any claims for interest on delinquent payments shall be made pursuant to Ark. Code Ann. § 22-9-205.

ARTICLE 10 -- PROTECTION OF PERSONS AND PROPERTY

10.1 GENERAL

- 10.1.1 The Contractor shall at all times exercise precaution for the safety of employees on the Project and of the public, and shall comply with all applicable provisions of federal, state and municipal safety laws and applicable building and construction codes. The Contractor shall provide and maintain passageways, guard fences, lights, and other facilities for protection required by all applicable laws. All machinery, equipment, and other physical hazards shall be guarded in accordance with all federal, state or municipal laws or regulations.
- 10.1.2 The Work, from commencement to completion, and until written acceptance by the Design Professional, Owner and DBA or to such earlier date or dates when the Owner may take possession and control in accordance with Section Nine (9) of these General Conditions, shall be under the charge and control of the Contractor and during such period of control by the Contractor, all risks in connection therewith shall be borne by the Contractor. The Contractor shall make good and fully repair all damages to the Project by reason of the Contractor's negligence, and make good on all injuries to persons caused by any casualty or cause by reason of the Contractor's negligence. The Contractor shall adequately protect adjacent Property as provided by law and the Contract Documents. The Contractor shall hold the Owner and DBA harmless from any and all claims for injuries to persons or for damage to property during the control by the Contractor of the project or any part thereof.

- 10.1.3 The Contractor shall at all times so conduct the Work as to ensure the least possible obstruction to traffic, to the general public, and the residents in the vicinity of the Work, and to ensure the protection of persons and property. No road, street, or highway shall be closed to the public except with the permission of the Owner and proper governmental authority. Fire hydrants on or adjacent to the Work shall be kept accessible to fire fighting equipment at all times. The local fire department shall be notified of the temporary closing of any street.

ARTICLE 11 -- INSURANCE AND BONDS

11.1 INSURANCE REQUIREMENTS

- 11.1.1 The Contractor shall purchase and maintain in force during this Contract such insurance as is specified within the Contract Documents, from an insurance company authorized to write the prescribed insurance in the jurisdiction where the Project is located as will protect the Contractor, his subcontractors, and the Owner from claims for bodily injury, death, or property damage which may arise from operations under this Contract, and will protect him from claims set forth which may arise out of or result from the Contractor's operations under the Contract, whether such operations be by himself or by anyone directly or indirectly employed by any of them, or by anyone for whose acts may of them be liable.

The Contractor shall not commence work under this Contract until he has obtained all the insurance required, has filed the Certificate of Insurance with the Owner, and the certificate has been approved by the Owner. Each insurance policy shall contain a clause providing that it shall not be canceled by the insurance company without written notice to the Owner of intention to cancel in accordance with Ark. Code Ann. § 23-66-206. The Contractor is required to provide liability insurance with the additional insured endorsement that is primary non-contributory. All policies shall contain a waiver of the Contractor's right of subrogation against the State of Arkansas, its departments, agencies, boards, commissions, colleges and its officers, officials, agents, and employees for losses arising from work performed by or on behalf of the Contractor.

- 11.1.2 Workers' Compensation and Employers' Liability Insurance in statutory limits shall be secured and maintained as required by the laws of the State of Arkansas. This insurance shall cover all employees who have performed any of the obligations assumed by the Contractor under these Contract Documents including Employers' Liability Insurance. This insurance shall protect the Contractor against any and all claims resulting from injuries, sickness, disease, or death to employees engaged in work under this Contract.

- 11.1.3 Commercial General Liability Insurance, shall be secured and maintained in force during the period of the Contract. Prior to blasting, the Contractor shall furnish Certificate of Insurance, which shall certify that damage caused by blasting is within the coverage of his Commercial General Liability Insurance to the full limits thereof. Coverage for "completed operations" shall not be excluded under this commercial general liability Insurance section.
- 11.1.4 Commercial Automobile Liability Insurance shall be secured and maintained in force during this Contract. Liability coverage shall include coverage for hired and non-owned automobiles.
- 11.1.5 Umbrella Liability shall be secured and maintained in force during term of the Contract. The Contractor shall provide a Umbrella Liability Insurance to provide additional coverage over and above the Commercial General Liability, Commercial Business Automobile Liability and the Workers' Compensation and Employers' Liability to satisfy the Contract minimum limits. The umbrella coverage shall follow form with the Umbrella limits required as shown in section 00 73 16 Insurance Requirements.
- 11.1.6 Pollution Liability Insurance shall cover the Owner costs and liabilities attributable to bodily injury; property damage, including loss of use of damaged property or of property that has not been physically injured; clean-up cost; and defenses, including costs and expenses (including attorney's fees) incurred in the investigation, defense or settlement of claims.

If coverage is written on a claims-made basis, Contractor represents that any retroactive dates applicable to coverage under the policy precedes the effective date of the letter; and that continuous coverage will be maintained or an extended discovery period will be exercised for a period of three (3) years or as required by law beginning from the time that services under the contract are completed.

If the scope of work as defined in this Contract includes the disposal of any hazardous or non-hazardous materials from the Projects site, the Contractor must furnish to the Owner evidence of pollution liability insurance maintained by the disposal site operator for losses arising from the insured facility accepting waste under this Contract. Such coverage must be maintained in amounts conforming with applicable laws, rules and regulations.

Remediation: Remediation Contractor shall provide liability insurance for the removal or remediation of asbestos including the transportation and disposals of asbestos waste materials from the Project site.

11.1.7 Builder's Risk or Installation Floater Policy: The Contractor shall procure and maintain during the life of this Contract Builder's Risk or Installation Floater Insurance, and any extended coverage which shall cover damage for the capital improvement project. Perils to be insured are fire, lightning, malicious mischief, explosion, riot and civil commotion, smoke, sprinkler leakage, water damage, windstorm, hail, vandalism, and property theft on the insurable portion of the Project on a 100 percent completed value basis against damage to the equipment, structures, or material. Builders' risk policy shall include coverage for system testing and materials. The Owner and the Contractor, as their interests may appear, shall be named as the Insured. The Builders' Risk is not void if partial occupancy is required and a permission to occupy endorsement has been included when applicable. Builders' risk policy shall include "soft cost endorsement" in the amount of 10 percent of the total contract value.

Contractors will use the following information as guidance for the type of policy to procure which include but not limited to the following:

- a) All new building construction and major renovations will require Builders Risk insurance;
- b) Equipment installations, small renovations, utility installations, paving projects will require an Installation Floater Policy. If a determination cannot be made by the Contractor as the type of coverage required, the Contractor shall provide a written request to the Owner for clarification.

11.1.8 Proof of Insurance: The Contractor shall maintain the insurance coverage required by this contract (see Section 00 73 16 Insurance Requirements) throughout the term of this contract, and shall furnish the Owner with certificates of insurance which indicate the name of the insurance companies, the NAIC numbers, insured names, producer / agent names, telephone numbers, policy numbers, limits and types of coverage, effective and expiration dates of policies.

The Contractor shall supply the Owner updated replacement certificates not less than thirty days prior to the expiration date or renewal date of any insurance policies reflected on such certificates. Such certificates shall also contain substantially the following statement: "The insurance covered by this certificate will not be canceled, or materially altered except proper written notice pursuant Ark. Code Ann. § 23-66-206 has been received by the Owner." The notice to proceed shall not be issued until the insurance certificates have been approved by the Owner.

- 11.1.9 Additional Requirements: All policies shall be provided by insurers qualified to write the respective insurance in the State of Arkansas, and be in such form and include such provision as are generally considered standard provisions for the type of insurance involved. The Contractor will be financially responsible for all deductibles or self-insured retentions.

Equipment and Materials: The Contractor shall be responsible for any loss, damage, or destruction of its own property or that of any Subcontractor's equipment and materials used in conjunction with the Work. The Contractor will purchase at Contractor's own sole costs and expense such policy to cover Contractor's owned property.

Subcontractor's: The Contractor shall require all Subcontractors to provide and maintain general liability, automobile and workers' compensation insurance coverage substantially similar to those required of the Contractor. The Contractor shall require certificates of insurance from all Subcontractors as evidence of coverage. Contractor will be the responsible party for any and all claims by Subcontractors if Subcontractor fails to have appropriate insurance.

11.2 **BONDS**

- 11.2.1 Performance and Payment Bond: The Contractor shall, at the time of execution of the Contract, furnish bonds covering faithful performance of the Contract and the payment of obligations. Performance and Payment bonds, and any amendments thereto, shall be filed with the circuit clerk office in the County Courthouse of the county where the work shall be performed.

ARTICLE 12 -- UNCOVERING AND CORRECTION OF WORK

12.1 **EXAMINATION OF COMPLETED WORK**

- 12.1.1 If any portion of the work should be covered contrary to the request of the Owner, Design Professional, or Inspector or to requirements specifically expressed in the Contract Documents, it must, if required in writing by the Owner, Design Professional, or Inspector, be uncovered for his observation and replaced at the Contractor's expense.

12.2 **DEFECTIVE WORK**

12.2.1 Defective work, whether through the use of defective materials, the result of poor workmanship, or any other cause, shall be removed within ten days after notice is given by the Owner or Design Professional. The Work and affected materials and equipment shall be removed and replaced as necessary to comply with the Contract Documents without additional cost to the Owner. The fact that the defective work may have been previously overlooked by the Design Professional shall not constitute acceptance.

12.3 **REJECTED MATERIALS**

12.3.1 Materials which do not conform to the requirements of the Contract Documents, are not equal to samples approved by the Design Professional, or are in any way unsuited or unsatisfactory for the purpose for which intended, shall be rejected. Defective materials shall be removed within ten days after notice by the Design Professional. The materials shall be replaced with new materials as necessary to comply with the Contract Documents at no additional cost to the Owner. The fact that the defective material may have been previously overlooked by the Design Professional shall not constitute acceptance.

12.3.2 Should the Contractor fail to remove and replace rejected material within the specified ten days after written notice to do so, the Owner may remove and replace the material and deduct the cost from the Contract Sum.

12.4 **CORRECTION OF FAULTY WORK AFTER FINAL PAYMENT**

12.4.1 The approval of the final Request for Payment by the Design Professional and the making of the Final Payment by the Owner to the Contractor shall not relieve the Contractor of responsibility to correct faulty materials or workmanship promptly after receipt of written notice from the Owner until the end of the Contractor's warranty or performance and payment bond obligations or both. The Owner shall give such notice of faulty materials or workmanship promptly, after discovery of the condition. If the Contractor fails to correct the defects, promptly, after receipt of written notice from Owner, the Owner may have the work corrected at the Contractor's expense.

ARTICLE 13 -- MISCELLANEOUS PROVISIONS

13.1 **GOVERNING LAW**

13.1.1 The Contract shall be governed by the laws and regulations of the STATE OF ARKANSAS. Venue for any administrative action or judicial proceedings shall be Pulaski County, Arkansas. Nothing in these General Conditions shall be construed to waive the sovereign immunity of the STATE OF ARKANSAS or any entities thereof.

13.1.2 The Contractor shall give all notices and comply with all federal, state, and local laws, ordinances, and regulations in any manner affecting the conduct of the Work. The Contractor shall indemnify and save harmless the Owner and DBA against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree whether by himself or his employees.

13.1.3 The Contractor shall comply with the laws of the local, state, and federal government regarding wages and hours of labor.

13.2 **WRITTEN NOTICE**

13.2.1 Consider as served when delivered in person or sent by certified or registered mail to the individual, firm, or corporation or to the last business address of such known to him who serves the notice. Failure to accept or receive the hand delivered, certified, or registered mail does not negate the consideration of serving.

13.2.2 The written Notice to Proceed with the Work shall be issued by the Design Professional after the execution of the Contract by the Owner. The Contractor shall begin and prosecute the Work uninterrupted in a manner that will complete the Work within the time limits stated in the Contract.

13.3 **TESTS AND INSPECTIONS**

13.3.1 All materials and each and every part of the Work shall be subject at all times to inspection by the Owner, Design Professional, or the Inspector. The Contractor shall be held to the intent of the Contract Documents in regard to quality of materials, equipment, and workmanship, and the diligent execution of the Contract. The inspection may extend to and include plant, shop, or factory inspection of material furnished. The Contractor agrees to allow Federal or State inspectors, acting in an official capacity, to have access to the job site.

13.3.2 The Owner, Design Professional, DBA and the Inspector shall be allowed access to all parts of the Work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection for ascertaining if the Work as performed is in accordance with the requirements and the Contract Documents.

13.3.3 Inspectors shall only have authority to suspend any work in a life-threatening situation, which is being improperly done, subject to the final decision of the Owner or Design Professional. Inspectors shall have no authority to permit deviations, or to relax provisions of the Contract Documents without the written permission or instruction of the Owner, DBA or Design Professional, or delay the Contractor by failing to work with reasonable promptness.

13.4 **VERBAL AGREEMENTS**

13.4.1 No verbal objection, order, claim, or notice by any of the parties involved to the other parties shall affect or modify any of the terms or obligations contained in the Contract Documents. None of the terms or provisions of the Contract Documents shall be considered waived or modified unless the waiver or modification thereof is in writing, and agreed upon by the parties in the form of a Change Order approved by the Owner, Design Professional, Contractor and DBA, and no evidence shall be introduced in any proceeding of any other waiver or modification.

ARTICLE 14 -- TERMINATION OR SUSPENSION OF THE CONTRACT

14.1 **SUSPENSION OF WORK**

14.1.1 The Work or any portion thereof may be suspended at any time by the Owner provided that the Owner gives the Contractor written notice of the suspension. The notice shall set forth the date on which the Work is to be suspended and the date on which the Work is to be resumed. The Contractor shall resume the Work upon written notice from the Owner within ten days after the date set forth in the notice of suspension.

14.1.2 The Owner will have the authority to suspend the work, wholly or in part, for such period of time as deemed necessary. The suspension may be due to unsuitable weather, or such other conditions as are considered unfavorable for the proper prosecution of the Work, or the failure on the part of the Contractor to fulfill the provisions of the Contract. Failure to supply material, equipment, or workmanship meeting the requirements of the Contract Documents shall be just cause for suspension of the Work. The Contractor shall not have the right to suspend operations without the Design Professional or Owner's permission.

14.2 **TERMINATION BY OWNER FOR CAUSE**

14.2.1 The Owner will have the right to terminate the Contract upon giving ten days written notice of the termination to the Contractor and the Contractor's surety, in the event of any default by the Contractor and upon written notice from the Design Professional to the Owner that sufficient cause exists to justify such action. In the event of termination of the Contract, the Owner may take possession of the Work and of all materials, tools, and equipment and construction equipment and machinery thereon and may finish the work by whatever method he may select. However, Owner will not have the right to terminate without providing Contractor with reasonable opportunity to cure such default to Owner's reasonable satisfaction. If the Owner does not elect to use his own forces, the surety shall furnish a competent licensed contractor within 10 working days from the written notice to the surety.

14.2.2 It shall be considered a default by the Contractor whenever he shall become insolvent; declare bankruptcy assigns assets for the benefit of his creditors; fails to provide qualified superintendence, proper materials, competent Subcontractors, competent workmen; fails to make prompt payments for conforming labor, materials, or equipment; disregards or violates provisions of the Contract Documents; disregards the Owner's, Design Professional's, or DBA instructions; fails to prosecute the Work according to the approved schedule of completion, including extensions thereof as provided for by approved Change Orders; and fails to start the Work on the date established in the Notice to Proceed.

14.3 **TERMINATION BY OWNER FOR CONVENIENCE**

The Owner will have the right to terminate the Contract for Convenience and without cause upon giving ten days written notice of the termination to the Contractor and Contractor's surety and DBA. Once notice is received, the Contractor shall: cease all operations as indicated by the written notice and take necessary actions or at the Owner's direction as indicated by the written notice, for the protection and preservation of the work; and terminate existing Subcontractors and purchase orders upon the effective termination date as indicated in the notice and not enter into any contracts involving Subcontractors or purchase orders.

If the contract is terminated upon the convenience of the Owner, the Contractor is entitled to receive payment for the work executed and accepted by the Owner, and the overhead and profit credit amount of 1% of the work that was left to be performed in the contract unless the termination was due to the Owner's loss of funding in which case no amount for overhead and profit will be credited.

ARTICLE 15 – DISPUTE RESOLUTION

15.1 **CONTRACTUAL DISPUTES**

15.1.1 In the event that a dispute, claim or controversy between the Owner and the Contractor arises regarding the requirements of the Contract, the performance of the Work, payment due the Contractor, the terms of any Change Order, or otherwise, the Contractor shall not stop, suspend or delay the Work or any part of the Work to be performed under the Contract, or under any Change Order, or as ordered by the Owner. The Contractor shall continue to diligently prosecute the Work to completion, including work required in any Change Order or as directed by the Owner.

15.2 **MEDIATION**

15.2.1 In the event of any dispute regarding the Contractor and the Owner (hereinafter referred to as party/parties for this section only) under this Agreement, the party shall provide written notification to the DBA Construction Section.

15.2.2 If the Owner or the Contractor are unable to negotiate a settlement of the dispute amongst themselves, the parties may participate in mediation. Mediation shall be voluntary, non-binding and all proceedings in connection with such shall be subject to this Agreement and applicable provisions of Arkansas law. A request for mediation must be made in writing to the other party and the parties shall agree upon the location of the mediation. A Mediator mutually agreed upon by the parties shall conduct the mediation process. Any mediation fees shall be borne equally between the parties. The parties shall coordinate mediation and the Owner shall notify DBA of any mediation prior to it taking place. DBA Construction Administrator or his designee may view any and all mediation proceedings. Any settlements arising out of the voluntary mediation process must be approved by DBA.

15.2.3 Notwithstanding anything to the contrary contained herein, if any dispute arises between the Parties, whether or not it requires at any time the use of dispute resolution procedures described above, in no event, nor for any reason, shall the Contractor, Architect, or Engineer interrupt the provision of services/performance to the Owner, or perform any other action that prevents, slows down, or reduces, in any way, the provisions of the Agreement unless: (a) authority to do so is granted by the Owner and approved by DBA or (b) the Agreement has been terminated by the State. Nothing in these contract documents, including the use of mediation, shall be construed to waive the sovereign immunity of the State of Arkansas or any entities thereof.

15.3 **ARBITRATION**

15.3.1 In the event of any dispute regarding the Contractor and the Owner (hereinafter referred to as party/parties for this section only) under this Agreement, the party shall provide written notification to the DBA Construction Section.

- 15.3.2 If the Owner or the Contractor are unable to negotiate a settlement of the dispute amongst themselves, the parties may participate in arbitration. Arbitration shall be voluntary, binding and all proceedings in connection with such shall be subject to this Agreement and applicable provisions of Arkansas law. A request for arbitration must be made in writing to the other party and the parties shall agree upon the Arbitrator, process and procedures and the location of arbitration. Any arbitration fees shall be borne equally between the parties. The parties shall coordinate arbitration and the Owner shall notify DBA of any arbitration prior to it taking place. DBA Construction Administrator or his designee may view any and all arbitration proceedings. Any settlements arising out of the voluntary arbitration process must be approved by DBA.
- 15.3.3 Notwithstanding anything to the contrary contained herein, if any dispute arises between the Parties, whether or not it requires at any time the use of dispute resolution procedures described above, in no event, nor for any reason, shall the Contractor, Architect, or Engineer interrupt the provision of services/performance to the Owner, or perform any other action that prevents, slows down, or reduces, in any way, the provisions of the Agreement unless: (a) authority to do so is granted by the Owner and approved by DBA or (b) the Agreement has been terminated by the State. Any award rendered by the arbitrator shall be final with the approval of DBA. Nothing in these contract documents, including the use of arbitration, shall be construed to waive the sovereign immunity of the State of Arkansas or any entities thereof.

END OF DOCUMENT

Insurance Requirements
Section 00 73 16 / Rev: August 2021

Article 11 - Insurance and Bonds

(see General Conditions Article 11 for additional information)

1) Subparagraph 11.1.1, add the following sentence:

The amount of such insurance shall be not less than the following or any limits required by law.

2) Subparagraph 11.1.2, add the following clause:

11.1.2.1 Workers' Compensation

a. State	<u>Statutory</u>
b. Applicable Federal	<u>Statutory</u>
c. Employers' Liability	Per Accident: <u>\$100,000</u>
	Disease, Policy Limit: <u>\$500,000</u>
	Disease, Each Employee: <u>\$100,000</u>

3) Subparagraph 11.1.3, add the following clause:

11.1.3.1 Commercial General Liability

General Aggregate:	Per Project Aggregate: <u>\$2,000,000</u>
Completed Operations: (to be maintained for one year after final payment)	Aggregate: <u>\$1,000,000</u>
Personal Injury:	Each Occurrence: <u>\$1,000,000</u>
Each Occurrence Limit:	Each Occurrence: <u>\$1,000,000</u>

4) Subparagraph 11.1.4, add the following clause:

11.1.4.1 Automobile Liability: (including, non-owned and hired vehicles)	Combined Single Limit: <u>\$1,000,000</u>
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5) Subparagraph 11.1.5, add the following clause:

11.1.5.1 Umbrella Liability:	Each Occurrence: <u>\$1,000,000</u>
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6) Subparagraph 11.1.6, add the following clause:

11.1.6.1 Pollution Liability:	Per Loss: <u>N/A</u>
	Aggregate: <u>\$0</u>

7) Subparagraph 11.1.7, add the following clause:

11.1.7.1 Builder's Risk or Installation Floater Policy:	<u>\$ = Contract Amount</u>
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8) Contractor shall deliver to the Owner a copy of each Insurance certificate and any other requested supporting document for the Owners review and approval prior to the issuance of the Notice to Proceed and any work being performed.

Please Note: Policy Certificates of Insurance shall state "The insurance covered by this certificate will not be cancelled, or materially altered except after proper written notice pursuant Ark. Code Ann. § 23-66-206 has been received by the Owner."

End of Document

Contract and Grant Disclosure and Certification Form

Failure to complete all of the following information may result in a delay in obtaining a contract, lease, purchase agreement, or grant award with any Arkansas State Agency

Subcontractor: Subcontractor Name:

Yes No

Is This For:

Goods? Services? Both?

Taxpayer ID Name:

Your Last Name:

First Name:

M.I.

Address:

City:

State:

Zip Code:

Country:

AS A CONDITION OF OBTAINING, EXTENDING, AMENDING, OR RENEWING A CONTRACT, LEASE, PURCHASE AGREEMENT, OR GRANT AWARD WITH ANY ARKANSAS STATE AGENCY, THE FOLLOWING INFORMATION MUST BE DISCLOSED

FOR INDIVIDUALS *

Indicate below if: you, your spouse or the brother, sister, parent, or child of you or your spouse is a current or former: member of the General Assembly, Constitutional Officer, State Board or Commission Member, or State Employee:

Position Held	Mark (x)		Name of Position of Job Held <small>(senator, representative, name of board/ commission, data entry, etc.)</small>	For How Long?		What is the person(s) name and how they relate to you? (i.e. Jane Q. Public, Spouse, John Q. Public, Jr., child, etc.)	
	Current	Former		From MM/YY	To MM/YY	Person's Name(s)	Relation
General Assembly							
Constitutional Officer							
State Board or Commission Member							
State Employee							

None of the above applies

FOR AN ENTITY (BUSINESS) *

Indicate below if any of the following persons, current or former, hold any position of control or hold any ownership interest of 10% or greater in the entity: member of the General Assembly, Constitutional Officer, State Board or Commission Member, State Employee, or the spouse, brother, sister, parent, or child of a member of the General Assembly, Constitutional Officer, State Board or Commission Member, or State Employee. Position of control means the power to direct the purchasing policies or influence the management of the entity.

Position Held	Mark (x)		Name of Position of Job Held <small>(senator, representative, name of board/ commission, data entry, etc.)</small>	For How Long?		What is the person(s) name and what is his/her % of ownership interest and/or what is his/her position of control?		
	Current	Former		From MM/YY	To MM/YY	Person's Name(s)	Ownership Interest (%)	Position of Control
General Assembly								
Constitutional Officer								
State Board or Commission Member								
State Employee								

None of the above applies

* Note: Please list additional disclosures on separate sheet of paper if more space is needed.

Contract and Grant Disclosure and Certification Form

Failure to make any disclosure required by Governor's Executive Order 98-04, or any violation of any rule, regulation, or policy adopted pursuant to that Order, shall be a material breach of the terms of this contract. Any contractor, whether an individual or entity, who fails to make the required disclosure or who violates any rule, regulation, or policy shall be subject to all legal remedies available to the agency.

As an additional condition of obtaining, extending, amending, or renewing a contract with a state agency I agree as follows:

1. Prior to entering into any agreement with any subcontractor, prior or subsequent to the contract date, I will require the subcontractor to complete a **Contract and Grant Disclosure and Certification Form**. Subcontractor shall mean any person or entity with whom I enter an agreement whereby I assign or otherwise delegate to the person or entity, for consideration, all, or any part, of the performance required of me under the terms of my contract with the state agency.

2. I will include the following language as a part of any agreement with a subcontractor:

Failure to make any disclosure required by Governor's Executive Order 98-04, or any violation of any rule, regulation, or policy adopted pursuant to that Order, shall be a material breach of the terms of this subcontract. The party who fails to make the required disclosure or who violates any rule, regulation, or policy shall be subject to all legal remedies available to the contractor.

3. No later than ten (10) days after entering into any agreement with a subcontractor, whether prior or subsequent to the contract date, I will mail a copy of the **CONTRACT AND GRANT DISCLOSURE AND CERTIFICATION FORM** completed by the subcontractor and a statement containing the dollar amount of the subcontract to the state agency.

I certify under penalty of perjury, to the best of my knowledge and belief, all of the above information is true and correct and that I agree to the subcontractor disclosure conditions stated herein.

Signature _____	Title _____	Date _____
Vendor Contact Person _____	Title _____	Phone Number _____

Agency Use Only				
Agency Number	Agency Name	Agency Contact Person	Contact Phone #	Contract or Grant Number
900xxxx	Arkansas Dept. of Parks, Heritage, and Tourism	Andrew McCauley	(501) 682-1633	900xxxx

* Note: Please list additional disclosures on separate sheet of paper if more space is needed.

BIDDING ADDENDA
Section 00 91 13 / Rev: August 2021

Date:

Addendum Number:

Project Number: 9002504

Agency Name: Arkansas Dept. of Parks, Heritage, and Tourism

The proposed contract documents for this work are modified as follows:

1 INVITATION TO BID

2 SPECIFICATIONS

3 DRAWINGS

SECTION 01 33 00

SUBMITTALS

PART 1 - GENERAL

1.01 REQUIREMENTS

- A. Submit Progress Schedule, Shop Drawings, Product Data, Samples and Manufacturers' Certificates required by the Contract Documents.

1.02 RELATED REQUIREMENTS

- A. Definitions and additional responsibilities of parties: General Conditions.
- B. Submittal requirements for specific work: The respective specification sections.

1.03 PROCEDURES

- A. Deliver submittals to Architect/Engineer at address listed on title page of Project Manual.
- B. Identify Project, Contractor, subcontractors, major supplier; identify pertinent Drawings sheet and detail number, and Specification section number, as appropriate. Identify deviations from Contract Documents. Provide space for Contractor and Architect/Engineer review stamps.
- C. Submit initial progress schedules in duplicate within 30 days after award of Contract. After review by Architect/Engineer revise and resubmit as required. Submit revised schedules with each Application for Payment, reflecting changes since previous submittal.
- D. Comply with progress schedule for submittals related to Work progress. Coordinate submittal of related items.
- E. Submittals shall contain the Contractor's signature or stamp confirming his review of the submittal, verification of products, field measurements and construction criteria, and coordination of the information within the submittal with requirements of the Work and of the Contract Documents.
- F. After Architect/Engineer review of submittal, revise and resubmit as required, identifying changes made since previous submittal.
- G. Distribute copies of reviewed submittals to concerned persons. Instruct recipients to promptly report any inability to comply with provisions.

1.04 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit horizontal bar chart with separate bar for each major trade or operation, identifying first work day of each week.
- B. Show complete sequence of construction by activity, identifying work of separate stages and other logically grouped activities. Show projected percentage of completion for each item of Work as of time of each progress Application for Payment.
- C. Show submittal dates required for Shop Drawings, Product Data, and Samples, and Product delivery dates, including those furnished by Owner and those under Allowances.

1.05 SHOP DRAWINGS

- A. Present drawings in a clear and thorough manner, showing pertinent dimensions and identifying details by reference to sheet and detail, and schedules or room numbers shown on the Drawings.
- B. Submit the number of opaque reproductions which Contractor, subcontractor, and supplier require plus two copies for the Architect/Engineer. For structural, mechanical, or electrical products and processes, submit one extra copy.
- C. Do not submit reproduced copies of Contract Drawings for Shop Drawings.

1.06 PRODUCT DATA

- A. Preparation:
 - 1. Clearly mark each copy to identify pertinent products or models.
 - 2. Show performance characteristics and capacities.
 - 3. Show dimensions and clearances required.
 - 4. Show wiring or piping diagrams and controls.
 - 5. Include special installation instructions.
- B. Manufacturer's standard schematic drawings and diagrams:
 - 1. Modify drawings and diagrams to show information unique to the Work and delete information which is not applicable to the Work.
- C. Submit the number of copies which the Contractor, subcontractor, and supplier require plus two copies for the Architect/Engineer. For structural, mechanical, and electrical products, submit one extra copy.

1.07 SAMPLES

- A. Identify each sample, giving full information.
- B. Submit samples of sufficient size and quantity to clearly illustrate:
 - 1. Functional characteristics of the product, with integrally related parts and attachment devices.
 - 2. Full range color, texture, and pattern.
 - 3. Workmanship when applicable.
- C. Field samples and mock-ups:
 - 1. Erect at the project site at a location acceptable to the Architect/Engineer.
 - 2. Size of area: that specified in the respective specification section.
 - 3. Fabricate each sample and mock-up complete and finished.
 - 4. Remove mock-ups at conclusion of the Work or when acceptable to the architect/Engineer.
- D. Submit the quantity specified in respective Specification section; one will be retained by Architect/Engineer. Reviewed Samples which may be used in the Work are indicated in the Specifications section.

1.08 MANUFACTURERS' CERTIFICATES

- A. Submit certificates, in duplicate, in accordance with requirements of each Specification Section.

1.09 NOTIFICATIONS

- A. Notify the Architect/Engineer in writing, at the time of submission, of any deviations in the submittals from requirements of the Contract Documents.
- B. Notify the Architect/Engineer in writing, at the time of resubmission, of changes made on the resubmittals other than those previously requested by the Architect/Engineer.

PART 2 - PRODUCTS

(NOT USED)

PART 3 - EXECUTION

(NOT USED)

END OF DOCUMENT

SECTION 01 45 29

TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. The Owner will employ and pay for the services of an independent testing laboratory to perform specified testing, except where designated otherwise in the Specification Sections.
- B. Testing laboratory services are required for, but are not necessarily limited to, the following:
 - 1. Soil testing and compaction control.
 - 2. Cast-in-place concrete: Curing and testing of molded cylinders.
 - 3. Asphaltic concrete paving:
 - a. Density and moisture content of base course.
 - b. Density of compacted paving.

1.2 RELATED WORK

- A. Related requirements in other parts of the Project Manual:
 - 1. Inspections and testing required by laws, ordinances, rules, regulations, orders or approvals of public authorities: General Conditions of the Contract.
- B. Related requirements specified in other sections:
 - 1. Certification of products: The respective sections of Specifications.
 - 2. Test, adjust and balance of equipment: The respective sections of Specifications.
 - 3. Laboratory tests required, and standards for testing: Each specification section listed.

1.3 QUALITY ASSURANCE

- A. The testing laboratory employed by the Owner will meet "Recommended Requirements for Independent Laboratory Qualification" published by the American Council of Independent laboratories.
- B. In its work on this project, the testing laboratory will be required to meet the basic requirements of ASTM E 329, "Standards of Recommended Practice for Inspection and Testing Agencies for Concrete and Steel as Used in Construction".

1.4 SUBMITTALS

- A. Submit written report of each test and inspection to the following:
 - 1. Architect/Engineer.
 - 2. Contractor.
 - 3. Project Record file at job site.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

3.1 DUTIES OF TESTING LABORATORY

- A. Cooperate with Architect and Contractor; provide qualified personnel after due notice.
- B. Perform specified inspections, sampling and testing of materials and method of construction:
 - 1. Comply with specified standards.
 - 2. Ascertain compliance of materials with requirements of Contract Documents.
- C. Promptly notify Architect and Contractor of observed irregularities or deficiencies of work or products.
- D. Promptly submit copies of the written report of each test and inspection as required in Article 1.04 above.

3.2 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY

- A. The testing laboratory is not authorized to:
 - 1. Release, revoke, alter or enlarge on the requirements of the Contract Documents.
 - 2. Approve or accept any portion of the Work.
 - 3. Perform any duties of the Contractor.

3.3 CONTRACTOR'S RESPONSIBILITIES

- A. Cooperate with laboratory personnel and provide access to the Work and to Manufacturer's Operations.
- B. Secure and deliver to the laboratory adequate quantities of representational samples of materials proposed to be used and which require testing.
- C. Provide to the laboratory the proposed design mix to be used for concrete and other material mixes which require control by the testing laboratory.
- D. Furnish copies of Products test reports as required.
- E. Furnish incidental labor and facilities:
 - 1. To provide access to the Work to be tested.
 - 2. To obtain and handle samples at the Project site or at the source of the product to be tested.
 - 3. To facilitate inspections and tests.
 - 4. For storage and curing of test specimens.
- F. Notify the laboratory sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.
- G. Provide all required time within the construction schedule for the testing laboratory to perform its tests and to issue each of its findings.
- H. Provide at the site three extra standard test cylinder molds for emergency use.

END OF SECTION

SECTION – 01 56 39
PRESERVATION AND PROTECTION OF PLANT MATERIALS

PART 1 - GENERAL

Drawings, Standard General Conditions of Contract, Special Conditions and Division-1 Specification Sections, apply to Work of this Section.

1.1 DESCRIPTION

Preservation and protection of existing plant materials to be protected within the project site.

1.2 PROTECTION OF PLANT MATERIALS

It is the intention of this Specification that all native plant material at this project site not specifically indicated on the plans for removal shall be protected and preserved. Take all necessary precautions to avoid damage or removal of trees, shrubs and other plant materials that are to remain following construction. Specimen trees and other plants within and closely adjacent to construction sites shall be adequately protected by the Contractor, according to plans and Specifications. Additional protective measures may be installed by the Contractor at his option to preclude damage by his Workmen and equipment.

PART 2 - PRODUCTS

2.1 PLANT PROTECTION DEVICES

Install protective plastic construction fencing in locations indicated on the Drawings prior to beginning construction operations. Maintain protective devices in good order for the duration of the construction period. Additional protective devices or barriers, required by the Owner during the course of construction, will be added to the Work by change order. Protective devices (so added) are to be installed immediately and shall be maintained in good condition until construction is concluded. Protective devices are further defined to include references in the Specifications, or notes on the Drawings as to construction limits, clearing limits, Work limits or other such notes which indicate the area or right-of-way in which the Contractor must Work.

PART 3 - EXECUTION

3.1 EQUIPMENT AND MATERIAL STORAGE

Do not store, stack or place equipment, material, chemicals or supplies within 25-feet from edge of canopy of any plant materials that are to remain. Material storage areas are either indicated on the plans or will be designated and approved by the Owner as required. Care shall be exercised in the storage of chemicals to preclude spillage and translocation into protected area. No disposal of material or chemical wastes will be permitted on the site unless specifically allowed by Owner.

3.2 REPARATION FOR DAMAGES

- A. Unwarranted damages to plant material shall be evaluated by a member of the Owner's staff and instructions issued for the necessary repairs. The Contractor shall accomplish the corrective Work as ordered, or may, at his option, provide monetary reimbursement by change order reduction to the contract. The value established by the Owner will be final and shall be based on repairs by a qualified technician approved by the Owner. Plant material destroyed or removed by the Contractor or damaged beyond corrective repair will be evaluated and assessed as outlined above for reparable damage. In the event large irreplaceable plants are destroyed, the Owner will establish a fair value and may, at his discretion, require replacement by installation of several trees or other plants equaling the fair value of the tree(s) or plant(s) destroyed.
- B. The value of plant materials will be determined utilizing \$15.00 per square inch of trunk cross-sectional area taken 4-feet 6-inches above grade.
- C. Plants considered to be of special value to the completed project are noted on the plans and their values cited. Noted plant values will supersede values obtained through the above-referenced formula calculation. Source for determination of value on plant materials: Shade Tree Evaluation - International Arborists Association.

3.3 PLANT PRUNING AND LIMB REMOVAL

Plant protection requirements cited above include authorized pruning and cutting of limbs and major roots. The Contractor is cautioned not to cut, prune or otherwise remove plant parts without prior approval and guidance by the Owner. Major limb removal, which may be required by construction shall be as noted on the plans, approved prior to such removal, and shall be accomplished by certified arborist trained and skilled in the Work.

3.4 BURNING

Fires and/or burning are prohibited, unless approved and permitted through Arkansas City, Arkansas.

END OF SECTION

SECTION 03 30 01

SITE CONCRETE WORK

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Formwork, complete with required shoring, bracing and anchorage.
- B. Control joints and expansion joints.
- C. Concrete reinforcing, complete with required supports, spacers, and related accessories.
- D. Cast-in-place concrete.

1.2 RELATED WORK

- A. Section 01 45 29 – Testing Laboratory Services.
- B. Section 31 23 00 – Site Structure Excavation and Backfill.
- C. Section 32 13 13 – Concrete Pavement.
- D. Section 33 40 00 – Drainage.

1.3 QUALITY ASSURANCE

- A. Perform cast-in-place concrete work in accordance with the current ACI 301, unless specified otherwise in this Project Manual.
- B. Keep current copy of ACI 301 in field office for duration of project.

1.4 TESTING AGENCY

- A. Field testing of the concrete mix will be performed by an independent testing laboratory in accordance with Section 01 45 29.
- B. Provide free access to work and cooperate with the appointed laboratory.
- C. Tests of cement and aggregates may be performed to ensure conformance with requirements state herein.

1.5 REFERENCE STANDARDS

- A. ACI 301, Specifications for Structural Concrete for Buildings.
- B. ACI Manual of Concrete Practice, Parts 1, 2, and 3.

1.6 ENVIRONMENTAL REQUIREMENTS

- A. Allowable Concrete Mix Temperatures: ACI 301.

1. Cold Weather: Minimum 55 degrees F.
 2. Hot Weather: Maximum 90 degrees F.
- B. Do not place concrete during rain, sleet, or snow unless protection is provided.
 - C. Keep accurate thermometer in area where work is proceeding.

PART 2 - PRODUCTS

2.1 CEMENT (ACI 301 2.1)

- A. Portland Cement: ASTM C150, Type 1.
- B. Use one brand and type of cement throughout project unless otherwise specified.

2.2 ADMIXTURES (ACI 301 2.2)

- A. Add air entraining agent as indicated in ACI 301.
- B. Use of accelerating admixtures such as salts, chemicals, or other foreign materials in cold weather will not be allowed. Use no other admixtures without prior approval of the Architect/Engineer.
- C. Use of set-retarding admixtures during hot weather will not be allowed.

2.3 STRENGTH (ACI 301 3.2)

- A. Provide concrete of following strength: Compressive strength (28 day): 3,500 psi, except where noted otherwise in the Contract Documents.

2.4 AIR ENTRAINMENT (ACI 301 3.4)

- A. Add air entraining agent to concrete mix for concrete work exposed to exterior.

2.5 SLUMP (ACI 301 3.5)

- A. Contractor shall provide slump cone and test slump for each load of concrete.
- B. Minimum slump for all concrete work: 3 inches.
- C. Slump for consolidation by vibration: 4 inches maximum.
- D. Slump for slabs and consolidation other than by vibration: 5 inches maximum.

2.6 PROPORTIONS

- A. Selection of proportions for normal weight concrete: Method 1, Method 2, or Method 3, Contractor's Option.

- B. Fine aggregate shall conform to the requirements of ASTM Specifications C-33, latest edition, and shall consist of clean, fresh water sand graded uniformly to conform to the above referenced Specification C-33.
- C. Coarse aggregate shall conform to the requirements of ASTM Specification C-33, latest edition, using standard grading size 1-1/2" to No. 4 of washed gravel or crushed stone meeting requirements above and soundness requirements of ASTM C-33.
- D. Water: Clean and free of injurious amounts of oil, acids, alkalis, organic materials, or other deleterious substances.

2.7 REINFORCING STEEL (ACI 301 5.2)

- A. Reinforcing Steel: 60 ksi yield grade; deformed billet steel bars, ASTM A615; plain finish.
- B. Welded Steel Wire Fabric: plain type, ASTM A185; in coiled rolls, plain finish, 6x6 - W1.4 x W1.4 or 6x6 - W2.9 x W2.9 as shown on the Drawings.

2.8 ACCESSORIES

- A. Premolded expansion joint fillers: ASTM D1751, 1/2 inch thick. Refer to ACI 301.

2.9 CONCRETE MIX

- A. Mix concrete in accordance with ASTM C94.
- B. Mix concrete until there is a uniform distribution of the materials and the mass is homogeneous in consistency and colors. Continue mixing for at least 1-1/2 minutes after all the ingredients are in the mixer.

PART 3 - EXECUTION

3.1 GENERAL

- A. Notify Architect/Engineer at least 24 hours before the planned time to pour concrete.
- B. Inspection:
 - 1. Ensure that excavations and form work are completed and within the allowed tolerances.
 - 2. Ensure that ice and excess water are removed, no frost is present, and that ground is not frozen.
 - 3. Check that reinforcement is secured in place.
 - 4. Verify that insulation, anchors, and other embedded items are secured in position.
- C. Install concrete work in accordance with ACI 30 except as amended by this section.

3.2 FORMWORK (ACI 301 4.2)

- A. Obtain Architect/Engineer's review for use of earth forms. When using earth forms, hand-trim sides and bottoms, and remove loose dirt prior to placing concrete.
- B. Tolerances for Formed Services: Comply with ACI 301.

3.3 FORM SURFACES PREPARATION (ACI 301 4.4)

- A. Apply form release agent on formwork in accordance with manufacturer's recommendations. Apply prior to placing reinforcing steel, anchoring devices and embedded parts. Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings which are affected by agent.

3.4 FINISHING FORMED SURFACES

- A. Formed Surface Finishes: Provide rough form finish (ACI 301) at all surfaces not exposed to view. Provide smooth rubbed finish (ACI 301) at all surfaces exposed to view.

3.5 REMOVAL OF FORMS (ACI 301 4.5) -4

- A. Do not remove forms, shores, and bracing until concrete has gained sufficient strength to carry its own weight, construction loads, and design loads which are liable to be imposed upon it. Verify strength of concrete by compressive test results.

3.6 PLACING REINFORCING

- A. Reinforcing shall be unpainted and uncoated, free from rust or scale and shall be cleaned and straightened before being shaped and in position.
- B. Position reinforcing accurately and tie securely.
- C. Support footing reinforcement on concrete brick bats or concrete grout at maximum 3 feet on center each way to insure proper depth from bottom.
- D. Wire dowels to longitudinal bars and place top bars in perfect alignment by the use of wood templates placed 2 inches from the top of the form.
- E. Support wire mesh on concrete brick bats, or other approved means, at no greater than three feet on center way to hold reinforcing in the center of the slab or as shown on the Drawings.
 - 1. Do not depend on lifting mesh as concrete is being poured.
 - 2. Lap sides and ends not less than one wire spacing in slabs on grade and not less than 12 inches in structural slabs.
- F. Provide 3 inches of concrete between reinforcing and the ground, unless detailed otherwise, where concrete is poured against the ground.
- G. If, after the removal of forms, concrete surfaces are to be in contact with the ground or exposed to the weather:

1. Bars larger than No. 5: Protect with 2 inches of concrete.
 2. No. 5 bars and smaller: Protect with 1-1/2 inches of concrete.
- H. Concrete covering for any reinforcing at surfaces not exposed directly to the ground or weather: Protect with 1-1/2 inches of concrete.

3.9 PLACING CONCRETE

- A. Convey concrete from mixer to final position by method which will prevent separation or loss of material.
- B. Maximum height of concrete free fall: 60 inches.
- C. Regulate rate of placement so concrete remains plastic and flows into position.
- D. Deposit concrete in continuous operation until panel or section is completed.
- E. Do not use concrete that has set and do not re-temper or use concrete that has been mixed for more than 1-1/2 hours.

3.10 CONSOLIDATING CONCRETE:

- A. Use mechanical vibrating equipment for consolidation.
- B. Vertically insert and remove hand-held vibrators at points 18 inches to 30 inches apart, inserting to within 6 inches of bottom of freshly poured concrete.
- C. Do not use vibrators to transport concrete in forms.
- D. Minimum vibrator frequencies: 6000 impulses per minute.
- E. Vibrate concrete minimum amount required for consolidation.
- F. Keep spare vibrator on hand during concrete placing operation.
- G. Make sure the concrete is thoroughly worked around the reinforcing, the embedded items, and into corners of forms.

3.11 SLABS (ACI 301 11.1)

- A. Finish concrete slab surfaces in accordance with ACI 301:
 1. Uniformly spread, screed, and float slabs. Do not use grate tampers or mesh rollers. Do not spread concrete by vibration.
 2. Light broom finish exterior surfaces, except exposed aggregate.
- B. Sidewalks: Finish sidewalks in accordance with Section 32 10 00.

3.12 CURING

- A. Cure slabs: use damp method as per ACI 301.
- B. Cure Walls above Grade: Use moisture-retaining coverings as approved by Architect/Engineer in accordance with ACI 308.

3.13 WELDING (ACI 301 5.3)

- A. Welding Reinforcing Steel: Not allowed.

3.14 CONSTRUCTION JOINTS

- A. Install construction joints in accordance with ACI 301 6.1

3.15 INSERTS, EMBEDDED PARTS AND OPENINGS

- A. Provide formed openings where required for pipes, conduits, sleeves and other work to be embedded in and passing through concrete members.
- B. Coordinate work of other sections and cooperate with trade involved in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors, and other inserts.

3.16 REPAIR OF SURFACE DEFECTS (ACI 301 9.1)

- A. Allow Architect/Engineer to inspect concrete surfaces immediately upon removal of forms.
- B. Modify or replace concrete not conforming to required lines, detail, and elevations.
- C. Repair or replace concrete not properly placed resulting in excessive honeycombing and other defects. Do not patch, repair, or replace exposed architectural concrete except upon express direction of Architect/Engineer.

3.17 FIELD QUALITY CONTROL

- A. Four (4) concrete test cylinders will be taken by the testing laboratory for every 40 cu. yds., or fraction thereof, of concrete placed. Not less than one (1) set of test cylinders shall be taken for each day's pour.
- B. One (1) additional test cylinder will be taken during cold weather concreting and be cured on job site under same conditions as concrete it represents.
- C. One (1) slump test will be taken by the testing laboratory for each set of test cylinders taken and for each separate batch of concrete placed.
- D. Compression test cylinders: Test cylinders shall be cast on the project site by a representative of the testing laboratory.
 - 1. Make cylinders according to ASTM C31.
 - 2. Make additional sets of test cylinders for curing under job conditions:

- a. When it is needed to determine when to remove forms.
 - b. When to put a structure into service.
 - c. When temperature extremes are expected during the curing test period.
 - 3. Make test cylinders in the presence of Architect/Engineer.
 - 4. Properly mark prepared test cylinders and fill out the card supplied by the testing laboratory with instructions on when to make test breaks and where to send the test results.
 - 5. Transport in a protected condition, each set of prepared and marked test cylinders to the designated testing laboratory for curing and testing as soon as the cylinders can be transported without damage.
- E. Compression Testing Concrete Cylinders ASTM C-39: by commercial testing laboratory.
- 1. Cure cylinders in laboratory until time for testing.
 - 2. Test each set of cylinders at 7 days and 28 days after pouring.
 - 3. Tabulation of breakage schedule and action:

Specified strength of 3,000 psi at 28 days

	<u>Test Break</u>	<u>Action</u>
7 day	Less than 2400 psi 2400 - 3000 psi over 3000 psi	Contractor notify A/E Break 28 day cylinder Stop Testing
28 day	Less than 3000 psi	Contractor notify Architect, investigate reason for low break and report in writing to A/E.

- 4. For testing cylinders for specified compressive strength other than 3,000 psi, see the Architect/Engineer.

F. In Case of Low Compression Test Results:

- 1. Architect/Engineer will have right to order change in the mix design, costs to be borne by the contractor.
- 2. Architect/Engineer will have right to order core tests of the concrete in accordance with ASTM C42, or load tests of the structure, the costs to be borne by the Contractor for either test.

3.18 PROTECTION OF COMPLETED WORK

- A. During curing period, protect the concrete from damaging mechanical disturbances, water flow, loading, shock, and vibration.

END OF SECTION

SECTION 31 10 00

SITE CLEARING

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Clearing and grubbing site and street right-of-way.
- B. Disposing of removed material.

1.02 RELATED WORK

- A. Section 31 22 00 - Site Grading.

PART 2 - PRODUCTS

No products included.

PART 3 - EXECUTION

3.01 SITE PREPARATION & PROTECTION

- A. Protection of Existing Improvements:
 - 1. Provide protections necessary to prevent damage to existing improvements indicated to remain in place.
 - 2. Protect improvements on adjoining properties.
 - 3. Restore damaged improvements to their original condition, as acceptable to Architect/Engineer or other parties having jurisdiction.
- B. Protection of Existing Trees and Vegetation:
 - 1. Protect existing trees and other vegetation, indicated to remain in place, against unnecessary cutting, breaking or skinning of roots, skinning and bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip line, excess foot or vehicular traffic, or parking of vehicles within drip line. Provide temporary guards to protect trees and vegetation to be left standing throughout construction period.
 - 2. Water trees and other vegetation to remain within limits of contract work as required to maintain their health during course of construction operations.
 - 3. Repair or replace trees and vegetation indicated to remain which are damaged by construction operations, in a manner acceptable to the Architect/Engineer. Employ qualified tree arborist to repair damage to trees and shrubs.

3.02 SITE CLEARING

- A. General: Clear trail right-of-way construction areas of vegetation, improvements, debris, or other obstructions interfering with installation of new construction. Remove such items elsewhere on site or premises as specifically indicated. Removal includes digging out stumps and roots.

- B. Removal of Improvements: Remove above-grade and below-grade improvements necessary to permit construction, and other work as indicated.
- C. Abandonment or removal of certain underground pipe or conduits may be shown on mechanical or electrical drawings, and is included under work of those sections. Removal of all other abandoned underground piping or conduit interfering with construction is included under this section.

3.03 DISPOSAL OF WASTE MATERIALS

- A. Burning is not permitted on Owner's property.
- B. Remove cleared waste materials from Owner's property and dispose of at an off site location secured by the contractor. Contractor may elect to mulch trees and woody vegetation and store on site at the staging area.

END OF SECTION

SECTION 31 22 00

SITE GRADING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Stripping and stockpiling surface layer of topsoil and organic matter in building and traffic areas and in all cut and fill areas.
- B. Removing and disposing of material unsuitable for use in controlled fill.
- C. Excavating site to required subgrade for controlled fill and grading site to required slopes.
- D. Placing and compacting excavated material and borrow material to required density and at required subgrade and slope for structures, pavement areas, and other controlled fills.

1.2 REFERENCES

- A. ASTM D422 - Particle Size Analysis of Soils.
- B. ASTM D423 - Test for Liquid Limit of Soils.
- C. ASTM D424 - Test for Plastic Limit of Soils.
- D. ASTM D2216 - Method of laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil Aggregate Mixtures.
- E. ASTM D3017 - Moisture Content on Soil Aggregates in Place by Nuclear Methods (Shallow Depth).
- F. ASTM D698 - Standard Test Method for Moisture Density, Relations of Soils, and Soil Aggregate Mixtures Using 5.5 lb. Rammer and 12" Drop.
- G. ASTM D1557 - Standard Test Methods for Moisture Density Relations of Soils and Soil Aggregate Using 10 lb. Rammer and 18" Drop.
- H. ASTM D1556 - Test for Density of Soil in Place by Sand Cone Method.
- I. ASTM D2167 - Density of Soil in Place by Rubber Balloon Method.
- J. ASTM D2922 - Density of Soil and Soil Aggregates in Place by Nuclear Method (Shallow Depth).

1.3 SITE CONDITIONS

- A. Establish positive surface drainage during and following clearing and site grading proper ditching or sloping.
- B. Provide erosion control measures to prevent mud and silt from flowing onto adjacent property.

- C. Erect sheeting, shoring, and bracing as necessary for protection of persons, utilities, improvements, and excavations.

PART 2 - PRODUCTS

2.1 SUITABLE MATERIAL FOR CONTROLLED FILL

- A. On site excavated soils:
 - 1. Unified Soils Classification System Soils:
 - a. Class SC
 - b. Class GC
 - 2. Soils having a liquid limit of less than 40.
 - 3. Other soils approved by the Engineer.
- B. Borrow Material:
 - 1. Soils meeting the requirements of sub-paragraph A.1 of this Article.

2.2 UNSUITABLE MATERIAL FOR CONTROLLED FILL

- A. All areas: Organic top soils, soils containing roots, vegetable matter, or trash, and silts (ML) and clays (CH), and cobbles and fractured rock more than 3 inches in greatest dimension.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Complete clearing work, removing visible unsuitable materials from site.
- B. Protect benchmarks, site corner pins and existing street paving from damage by equipment.
- C. Stake the work:
 - 1. Set the grade and slope stakes.
 - 2. Mark the limits of the site grading work.
- D. Before starting the excavation, establish location and extent of underground utilities occurring in work area.
- E. Notify utility companies of lines which are in the way of excavation.
- F. Protect existing utility lines to remain which pass through the work area.
- G. Protect utility services uncovered by excavation.

- H. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.
- I. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies for shut-off of services if lines are active.

3.2 EXCAVATION PROCEDURES:

A. Excavation General:

1. Strip topsoil in cut and fill areas to whatever depths encountered in a manner to prevent intermingling with underlying subsoil or other objectionable material. Remove and dispose of heavy growth of grass and surface debris from areas prior to stripping topsoil.
 - a. Where trees are indicated to be left standing, stop topsoil stripping a sufficient distance to prevent damage to main root system.
2. Stockpile topsoil in storage piles in areas shown, or where directed. Construct storage piles to freely drain surface water. Cover storage piles if required to prevent wind-blown dust.
3. Remove soft or spongy material at the exposed sub-grade of cut and fill areas and replace with approved material and compact.
4. Use all suitable excavated material, as far as practicable, in the formation of controlled fills and fill slopes.
5. Keep all excavations dry by pumping or draining water from the Work.
6. In cut areas where fill is not required, proof roll the areas with a loaded tandem axle dump truck or similar equipment to aid in identifying soft areas. Remove soft soils and replace with controlled fill compacted to the same density as required for each layer of controlled fill. Scarify exposed sub-grade soils to a depth of at least 8 inches, adjust the soil mixture, and recompact to the same density as required for each layer of controlled fill.
7. Grade excavated slopes to a neat, smooth condition with no loose material or scars left on the surface.
8. Dispose of debris, excess topsoil, excess fill material and unsuitable material at an off-site location secured by the contractor.

3.03 CONTROLLED FILL

- A. After excavation and before fill placement, proof roll fill areas with a loaded tandem axle dump truck or similar equipment to aid in identifying soft areas. Remove soft areas and replace with controlled fill compacted to the same density as required for each layer of controlled fill.
- B. Scarify cleared surface in fill areas to a depth of at least 8 inches, adjust the soil mixture, and recompact to the same density as required for each layer of controlled fill.

- C. Place fill material in lifts no greater than 8 inch loose-lift uniform thickness and compact to minimum of 95% of maximum dry density at optimum moisture content as determined by the Modified Proctor Test, ASTM D1557.
 - 1. Aerate material when to wet by manipulation with suitable equipment before compacting.
 - 2. Add water when the soil is too dry and mix with the material before compacting.
- D. Complete excavation and controlled fill to within 6 inches of finish grade in all landscape and turf areas.

3.04 FIELD QUALITY CONTROL

- A. One field density test will be performed for each 2500 square feet of fill per lift. Test will be made in accordance with ASTM D1556 or ASTM D2167. ASTM D3017 may be used for up to 75% of the field density tests provided it is calibrated against one of the other methods specified.

END OF SECTION

SECTION 31 23 00

SITE STRUCTURE EXCAVATION AND BACKFILL

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Excavate for the following structures:
 - 1. Drainage structures.
- B. Shore and brace excavations as required.
- C. Backfill and compact structures to required elevations and densities.
- D. Dewater excavations.

1.2 RELATED WORK

- A. Section 31 10 00 – Site Clearing.
- B. Section 31 22 00 – Site Grading.
- C. Section 03 30 01 – Site Concrete Work.
- D. Section 33 40 00 – Drainage.

1.3 PROTECTION

- A. Protect trees that are to remain, and other features remaining as part of final landscaping.
- B. Protect bench marks, site corner pins, and existing street paving against damage from equipment and vehicular or foot traffic.
- C. Protect excavations by shoring, bracing, sheet piling, underpinning, or other method, as required to prevent cave-ins or loose dirt from falling into excavations.
- D. Underpin adjacent structures, which may be damaged by excavation work, including service lines and pipe chases.
- E. Notify Architect/Engineer of unexpected sub-surface conditions and discontinue work in area until Architect/Engineer provides notification to resume work.
- F. Protect bottom of excavations and soil around and beneath foundations from frost or freezing and water inundation.
- G. Grade around excavations to prevent surface water run-off into excavated areas.

PART 2 - PRODUCTS

2.1 SUITABLE BACKFILL MATERIALS

- A. Gravel: Angular crushed natural stone free from shale, clay, friable materials, and debris.
- B. Pea Gravel: Clean natural stone free from clay, shale, and organic matter.
- C. Sand: Clean natural river or bank sand free from silt, clay, loam, friable or soluble materials, and organic matter.
- D. Under areas not to be paved: Sub-soil free from roots, rock larger than 3 inches in size, and building debris.
- E. Under structures or areas to be paved: Material meeting requirements for controlled fill as specified in Section 31 22 00.
- F. Drainage fill: Evenly graded mixture of crushed stone or washed crushed or uncrushed gravel with 100% by weight passing a 1-1/2 inch sieve and not more than 5% by weight passing a No. 4 sieve.

PART 3 - EXECUTION

3.1 PREPARATION AND LAYOUT

- A. Establish extent of excavation by area and elevation; designate and identify datum elevation.
- B. Set required lines and levels.
- C. Maintain benchmarks, monuments and other reference points.

3.2 UTILITIES

- A. Before starting excavation, establish location and extent of underground utilities occurring in work area.
- B. Notify utility companies of lines which are in the way of excavation.
- C. Protect existing utility lines to remain which pass through work area.
- D. Protect utility services uncovered by excavation.

3.3 EXCAVATION

- A. Excavate sub-soil in accordance with lines and levels required for construction of the work, including space for forms, bracing and shoring, and to permit inspection.
- B. Do additional excavation only by written authorization of Architect/Engineer.
- C. Adjust pad footing depth when directed by Architect/Engineer to reach satisfactory bearing.
- D. Hand trim excavations and leave free from loose or organic material.

- E. Keep all excavations dry by pumping or draining water from the work.
- F. Pour footings the same day that excavations are made, and do not allow water to stand in excavated footing trench.
- G. When excavation is complete, allow Architect/Engineer to inspect sub-soil bearing condition before placing concrete.
- H. Undercut unavoidably submerged footing excavations to unaltered soils.
- I. Fill over-excavated sub-soil for re-use where directed. Remove excess or unsuitable excavated sub-soil from site.
- J. Do not interfere with normal 45 degree bearing splay of any foundation.
- K. Stockpile excavated sub-soil for re-use where directed. Remove excess or unsuitable excavated sub-soil from site.
- L. Do not disturb soil within branch spread of existing trees or shrubs that are to remain.

3.4 BACKFILLING

- A. Ensure areas to be backfilled are free from debris, snow, ice, and water, and that ground surfaces are not in a frozen condition.
- B. Backfill areas to grades, contours, levels, and elevations.
- C. Backfill systematically and as early as possible to allow maximum time for natural settlement and compaction.
- D. Compact backfill with mechanical tampers approved by Architect/Engineer.
- E. Place and compact backfill materials in continuous layers not exceeding 6 inched loose depth.
- F. Maintain optimum moisture content of backfill materials to attain required compaction density.
- G. Backfill free-standing structures on both sides at the same time in thin, equal layers to provide balanced pressures.
- H. Prior to placing slab on grade, provide a 4" thick bank run sand fill, screed and level to required grade. Place an 8 mil polyene vapor barrier, lapping joints 6" and sealing joints and penetrations with pressure sensitive tape.
- I. Where temporary unbalanced pressures are liable to develop on walls, erect necessary shoring to counteract imbalance. Leave in place until their removal is approved by Architect/Engineer.

3.5 FILL TYPES AND COMPACTION

- A. Backfill under areas not to be paved: Compact with mechanical tampers until material is as firm and unyielding as the surrounding material undisturbed by excavation.

- B. Backfill in compacted fill and under paving areas: Compact to top of subgrade to density requirements specified in Section 31 22 00.
- C. Fill under landscaped areas: Sub-soil to within 3 inches of finish grade elevation.

3.6 SURPLUS MATERIALS

- A. Remove surplus excavation or backfill materials from site.
- B. Leave stockpile areas completely free of all excess fill materials.

END OF SECTION

EROSION AND SEDIMENT CONTROL

PART 1 – GENERAL

1.1 SECTION INCLUDES

- A. Furnish all labor, equipment and materials needed to complete the Work as shown on the Plans and specified herein.
- B. The work performed under this section shall comply with the plan requirements for this project and with the requirements and intent of the NPDES Storm Water Discharge Permit program to the extent that it applies to this project.

1.3 QUALITY ASSURANCE

- A. Comply with applicable requirements of all governing authorities having jurisdiction. The Specifications and the Plans are not represented as being comprehensive, but rather to convey the intent to provide complete slope protection and erosion control for both the Owner's and adjacent property.
- B. Erosion control measures shall be established at the beginning of construction and maintained during the entire length of construction. On-site areas which are subject to severe erosion and off-site areas which are especially vulnerable to damage from erosion and/or sedimentation are to be identified and receive additional erosion control measures as directed by the Owner.
- C. All land-disturbing activities shall be planned and conducted to minimize the size of the area to be exposed at any one time and to minimize the time of exposure.
- D. Surface water runoff originating upgrade of exposed area shall be controlled to reduce erosion and sediment loss during the period of exposure.
- E. When the increase in the peak rates and velocity of storm water runoff resulting from a land-disturbing activity is sufficient to cause accelerated erosion of the receiving ditch or stream, the Contractor shall install measures to control both the velocity and rate of release so as to minimize accelerated erosion and increased sedimentation of the stream as directed by the Owner.
- F. All land-disturbing activities shall be planned and conducted so as to minimize off-site sedimentation damage.
- G. The Contractor shall be responsible for periodically cleaning out and disposing of all sediment once the storage capacity of the drainage feature or structure receiving the sediment is reduced by one-half. The Contractor shall also be responsible for cleaning out and disposing of all sediment at the time of completion of the Work.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Silt Fence Fabric:
 - 1. MISF1776, Propex 2130, TerraTexSC, or approved equal.
 - 2. Minimum bursting strength: 300 psi.
 - 3. Edges treated to prevent unraveling.
 - 4. Furnished with o-rings or clips to facilitate attachment to woven wire fabric.
- B. Wire Fencing: Steel wire fencing (hog wire) with minimum 14 gauge wire and a maximum 14 gauge wire and a maximum opening of 6 inches.
- C. Posts:
 - 1. Steel, T-section minimum 4 feet 6 inches long, minimum of 1.3 pounds per foot without anchor plate.
 - 2. Anchor plate attached before coating.
 - 3. Fabricate with lugs or other approved means to prevent vertical movement from the wire fencing.
- D. Tie Wire: Galvanized in accordance with ASTM A112.
- E. Temporary cover for graded areas shall be undamaged, air dry threshed straw free from weed seeds.

PART 3 - EXECUTION

3.1 CONDITION OF SUBSTRATE:

- A. Erosion control measures must be implemented prior to the commencement of any soil disturbing activity.
- B. Stabilize fill and grade of areas to receive soil erosion and sediment control. Maintain positive drainage to sediment and erosion control devices during and after grading operations.

3.2 SILT FENCE:

- A. Install posts on a minimum of 6-foot centers. Minimum embedment of 6”.
- B. Minimum height of the silt fence to be 2 feet 6 inches with a 6-inch clearance between the top of the silt fence and the top of the posts.
- C. Install the steel posts on a slight angle towards the anticipated runoff surface.
- D. Trench in the toe of the silt fence so that the down slope face of the trench is flat and perpendicular to the line of flow.
- E. Minimum trench depth: 6 inches.
- F. Trench width: 6 inches.
- G. Attach wire fence (hog wire) to the posts.
- H. Attach the silt fence fabric to the wire fence (hog wire) and secure with a minimum of two wire ties per post.
- I. Backfill over the silt fence fabric in the trench.
- J. When build up of soil, silt, or any other material behind the silt fence reaches a height of 6 inches or when the silt fence is no longer functioning efficiently, remove all accumulated material and repair the silt fence as needed.

3.3 DUST CONTROL

- A. Dust control of the Contractor's performance of the Work shall be performed by the Contractor by applying water.
- B. Dust control shall be provided in the amounts and locations as ordered by the Owner's Representative.

3.4 PROTECTION AND MAINTENANCE:

- A. Protect erosion and sediment control devices from damage. Repair and replace dikes, silt fences and other measures when damaged by construction, natural and other physical causes. All soil erosion and sediment control devices shall be repaired or replaced at the expense of the Contractor and shall function as originally intended.
- B. Periodically (at least once every 7 days and after each rainfall event) inspect and maintain erosion and sediment control structures, until final stabilization of disturbed ground areas is achieved.
- C. All stock piled soil shall be surrounded by a silt fence to properly control sediment runoff.

- D. Inspection services provided by the Owner's Representatives do not relieve the Contractor's responsibility for inspection and maintenance of the erosion control measures.
- E. The Contractor is responsible for modifying or providing additional erosion control devices to control erosion from his operations on the site. This may become necessary due to disturbance of additional areas or phasing of the Contractor's operations.

3.5 STAGING AREAS:

At such time when the specific location of the staging areas are determined, silt fences, diversions, or equivalent sediment controls are required for all side slope and down slope boundaries of the staging area and shall be provided by the Contractor. The erosion control plan for each staging area shall be approved by the Owner's Representative and devices shall be in place prior to occupation of the staging areas. All relative material and labor to construct and maintain the staging area erosion control plans shall be subsidiary to the other items of work.

- 3.6 The Contractor shall be responsible for complying with the Storm Water Pollution Prevention Plan as provided by Owner's Representative.

END OF SECTION

SECTION 32 10 00

SIDEWALKS

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Providing 4 inch thick concrete sidewalks where shown on Drawings.
- B. Providing 6 inch thick concrete handicap ramps where shown on Drawings.

1.2 RELATED WORK

- A. Section 31 23 00 - Structure Excavation and Backfill.
- B. Section 03 30 01 - Site Concrete Work.

1.3 REFERENCE STANDARDS

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM D 1751, Specifications for Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).

PART 2 - PRODUCTS

2.1 CONCRETE

- A. General: Materials for use in sidewalk construction shall conform to the requirements for Section 03 30 01 - Site Concrete Work, and shall be 3000 psi concrete.

2.2 JOINT FILLER

- A. The joint filler for all expansion joints shall be manufactured according to ASTM D 1751 and shall be elastic waterproof premolded compound that will not become soft and push out in hot weather, nor hard and brittle and chip out in cold weather. The strips shall be 1/2 inch in thickness except where shown otherwise on the Drawings; their width shall at least equal the full thickness of the slab; and their length shall at least equal the width of the slab at the joint.

2.3 FORMS

- A. Forms shall be steel or 2 inch nominal thickness lumber true to proper dimensions, smooth, sufficiently braced to resist springing out of shape, and accurately set to proper lines and grades. Used forms shall be free of dirt and mortar. Cross forms shall be 1/4 inch steel of the full width and depth of the concrete work and left in place until the wearing surface has been floated and has obtained its initial set.

2.4 CURING COMPOUND

- A. Liquid membrane forming curing compound conforming to ASSHTO M148, Type 2, white pigmented (all-resin base).

PART 3 - EXECUTION

3.1 GRADING AND SUBGRADING

- A. Prepare subgrade for walks by excavating or filling to a depth below the top of an intended pavement equal to the thickness of the finished walk and in exact conformity to the grade approved by the Engineer. Remove vegetable matter or material that will not compact properly and replace with suitable material. Place all fill required to bring the subgrade to the proper level in thin layers not exceeding 4 inches deep, and thoroughly ram, tamp, or roll until it has been made compact and solid. Bring subgrade to true grade in a uniformly firm condition before the placing of the concrete. Do not place concrete on the subgrade until the Engineer has inspected and approved both grade and condition of the subgrade.

3.2 SETTING FORMS

- A. Stake forms and hold to the established lines and grades. Provide minimum one-eighth of an inch per foot fall away from structures or as shown on the Drawings.

3.3 TREATMENT

- A. Wet wood forms and coat metal forms with oil, soft soap, or whitewash before depositing any material against them. Remove all mortar and dirt from forms that have been previously used.

3.4 MARKINGS

- A. Cut surface of concrete walks into flags by marking with an edging tool having a radius of 1/4 inch. Make flags not longer than 6 feet on any side nor longer than the width of the sidewalk. Round the slabs on all surface edges, including the crossmarking between flags, to a radius of 1/4 inch.
- B. Score surface or ramp as shown on Standard Detail Drawings.

3.5 JOINTS

- A. Provide an expansion joint 1/2 inch in thickness, extending full depth of the concrete and with filler as herein specified, at intervals of not more than 25 feet. Provide a similar joint 1/2 inch in thickness in each walkway at intersection of walkways. Also, provide an expansion joint 1 inch in thickness at each intersection of sidewalk and street curb and at such other points as may be designated by the Engineer. Separate sidewalks from abutting structures by 1/2 inch expansion joints. Place expansion joints 1/2 inch in thickness extending full depth of the concrete in a square outline around each object in sidewalks, such as fire hydrants, utility poles, light standards, etc.

3.6 PLACING CONCRETE

- A. Place concrete only on a moist subgrade and not adjacent to or around utility structures until such structures have been set to the proper grade.
- B. Transport from the mixer and place by such means as will not cause segregation of materials or loss of ingredients. Deposit successive batches in one layer by a continuous operation, completing individual sections to the required depth and width. Do not use concrete that has taken its initial set. Fill forms and bring the concrete to the established grade by means of a strike board or straight edge. Thoroughly tamp concrete until the mortar is flushed to the surface sufficiently to finish and mark the surface.
- C. Spade and/or vibrate the concrete so that it will flow together and completely fill all void spaces, especially along forms (including cross forms of joints) to prevent honeycombing and shall be struck off and tamped in an approved manner, until dense surface is obtained, free from porous or rough spots and at the required section and grade.
- D. Use method of placing the various sections so as to produce a straight clean-cut joint between them, in order to make each section an independent unit. Do not use any concrete in excess of that needed to complete a section at the stopping of work.
- E. Do not pour concrete when the is temperature is below 35 degrees F., and do not place concrete on frozen subgrade. Take all necessary precautions to prevent damage to concrete from freezing, rain, storm damage, etc.
- F. At all times during construction period, maintain proper drainage, by natural flow or pumping as required, so that water will drain away from excavated areas. Do not allow water to stand in any excavations, or elsewhere, to be covered by concrete. Provide and maintain in proper working order all necessary pumping and other equipment required to maintain drainage.

3.7 FINISHING

- A. After the concrete has been brought to the established grade by means of a strike board and tamped to bring the mortar to surface, float to a true even surface and finish with steel trowel. After the trowel finish has taken its initial set, brush surface lightly at right angles to center line of sidewalk with a soft bristle brush.
- B. Do not apply neat cement to the concrete surface to hasten its hardening.

3.8 CURING AND PROTECTION

- A. As soon as the concrete has hardened sufficiently to prevent damage, apply specified liquid membrane-forming curing compound in accordance with manufacturer's written instructions.
- B. Protect the freshly finished concrete from hot sun and drying winds until the curing compound is applied. Do not allow the concrete surface to be damaged or pitted by raindrops. Provide and use, when necessary, sufficient tarpaulins to completely cover all

sections that have been placed within the preceding twelve hours. Erect and maintain suitable barriers to protect the concrete. Repair any section damaged from traffic of other causes occurring prior to its official acceptance. Before the sidewalk is opened to traffic, remove and dispose of the covering.

3.9 FREEZING TEMPERATURE

- A. If at any time during the progress of the work, the temperature is predicted to drop to 35 degrees F. within 24 hours after placement, heat the water and aggregates and take precautions to protect the work from freezing for at least five days.

END OF SECTION

SECTION 321313

CONCRETE PAVEMENT

PART 1 - GENERAL

1.01 The General Conditions, Special Provisions and applicable requirements of Division 1 - General Requirements are hereby made a part of this section.

1.02 SCOPE

This work consists of street pavement, sidewalk, curb and gutter or rip rap slope pavement composed of Portland Cement Concrete with or without reinforcement, constructed on subgrade or base courses prepared in accordance with these specifications and to the lines, grades, thicknesses and typical cross-sections shown on the plans. Reinforcement, when required, will be subsidiary to the specified Concrete Pavement.

1.03 Submittals shall be in accordance with Section 013300, "Submittal Procedure", and shall include:

- A. Manufacturer's Literature: Descriptive data of installation methods and procedures.
- B. Certificates: Manufacturer's certification that materials meet specification requirements.

PART 2 - PRODUCTS

2.01 Portland cement concrete shall conform to the requirements of "Section 321313 – Concrete Pavement" for each type and strength indicated in the plans.

2.02 JOINT FILLER AND SEALER

See Section 32 13 73 Concrete Paving Joint Sealants for sealer and expansion joint filler materials.

2.03 STEEL REINFORCEMENT

Reinforcing bars shall conform to the requirements of AASHTO M31 or M53, Grade 60. Fabricated bar mats may be used if they conform to the requirements of AASHTO M54.

2.04 DOWELS AND TIE BARS

Dowels and tie bars shall conform to the requirements of AASHTO M31 or M53, Grade 60 or Grade 40, as specified on the plans. Tie bars shall be deformed meeting the requirements of AASHTO M31 or M53. Dowel and tie bars may conform to the requirements of AASHTO M 42, except that rail steel shall not be used for tie bars that are to be bent or restraightened during construction. Dowel bars shall be plain round bars of the size specified and the ends shall be sawed. Before delivery to the construction site, a minimum of two-thirds of the length of each dowel bar shall be painted with one coat of lead or tar paint. Prior to placement of concrete, the dowels shall be coated with grease if specified on the plans.

2.05 WATER

Water used in mixing or curing shall be as clean and free of oil, salt, acid, alkali, sugar, vegetable, or other substances injurious to the finished product as possible. Water will be tested in accordance with the requirements of AASHTO Method T26. Water known to be of potable quality may be used without testing.

2.06 COVER MATERIALS FOR CURING

Curing materials shall conform to one of the following specifications:

- A. "Sheet Materials for Curing Concrete" shall conform to AASHTO M171.
- B. "Burlap Cloth Made from Jute or Kenaf" shall conform to AASHTO M182, Class 3.
- C. "Liquid Membrane - Forming Compounds for Curing Concrete" shall conform to AASHTO M148, Type 2 (all-resin base), or Federal Specification TT-C-800, Type 2. Liquid Membrane shall be delivered and stored in bulk. Bulk storage shall be equipped with an agitator. All membranes shall be pigmented to allow visible inspection of coverage.

2.07 POZZOLANIC ADMIXTURE

The use of fly ash as a partial replacement for cement in pavement mix designs, at the rate specified in this paragraph will be allowed at the Contractor's option. Pozzolanic admixtures shall be fly ash meeting the requirements of ASTM C-618; Type C except loss on ignition shall not exceed three (3) percent. When fly ash is used as a partial replacement for cement, the minimum cement content may be met by considering portland cement plus fly ash as the total cementitious component. The replacement rate should not exceed 15 percent.

PART 3 - EXECUTION

3.01 EQUIPMENT

Equipment and tools necessary for handling materials and performing all parts of the work shall be approved by the Engineer as to design, capacity, and mechanical condition. The equipment shall be at the job site before the start of construction operations for examination and approval.

A. Batching Plant and Equipment.

1. General. The batching plant shall include bins, weighing hoppers, and scales for the fine aggregate and coarse aggregate. If bulk cement is used, a bin, hopper, and a separate scale for cement shall be included. The weighing hoppers shall be properly sealed and vented to preclude dusting during operation.
2. Bins and Hopper. Bins with adequate separate compartments for fine aggregate and coarse aggregate shall be provided in the batching plant. Each compartment shall discharge efficiently and freely into the weighing hopper. Means of control shall be provided so that, as the quantity desired in the weighing hopper is approached, the material may be added slowly and shut off with precision. A port or other opening for removing an overload of any one of the several materials from the hopper shall be provided. Weighing hoppers shall be constructed to eliminate accumulations of materials and to discharge fully.

3. Scales. The scales for weighing aggregates and cement shall be of either the beam or the springless dial type. They shall be accurate within 0.5 percent throughout their range of use. When beam-type scales are used, provisions such as a "telltale" dial shall be made for indicating to the operator that the required load in the weighing hopper is being approached. A device on the weighing beams shall clearly indicate critical position. Poises shall be designed to be locked in any position and to prevent unauthorized change. The weight beam and "telltale" device shall be in full view of the operator while charging the hopper, and the operator shall have convenient access to all controls.

Scales shall be inspected and sealed as often as the Engineer may deem necessary to assure their continued accuracy. The Contractor shall have on hand not less than ten 50-pound (23 kg) weights for testing of all scales when directed by the Engineer.

B. Mixers

1. General. Concrete may be mixed at a central plant, or wholly or in part in truck mixers. Each mixer shall have attached in a prominent place a manufacturer's nameplate showing the capacity of the drum in terms of volume of mixed concrete and the speed of rotation of the mixing drum or blades.

A device accurate within 3 percent and satisfactory to the Engineer shall be provided at the mixer for determining the amount of air-entraining agent or other admixture to be added to each batch requiring such admixtures.

Mixers shall be examined daily for the accumulation of hard concrete or mortar and the wear of blades.

2. Central Plant Mixer. Mixing shall be in an approved mixer capable of combining the aggregates, cement, and water into a thoroughly mixed and uniform mass within the specified mixing period, and of discharging the mixture without segregation. Central plant mixers shall be equipped with an acceptable timing device that will not permit the batch to be discharged until the specified mixing time has elapsed. The water system for a central mixer shall be either a calibrated measuring tank or a meter and shall not necessarily be an integral part of the mixer.

The mixers shall be examined daily for changes in condition due to accumulation of hard concrete or mortar or wear of blades. The pickup and throwover blades shall be replaced when they have worn down 3/4-inch (19 mm) or more. The Contractor shall have a copy of the manufacturer's design on hand showing dimensions and arrangement of blades in reference to original height and depth.

Truck Mixers and Truck Agitators. Truck mixers used for mixing and hauling concrete and truck agitators used for hauling central-mixed concrete shall conform to the requirements of ASTM C94.

C. Finishing Equipment.

1. Finishing Machine. The finishing machine shall be equipped with one or more oscillating-type transverse screeds.

2. Vibrators. For side-form construction, vibrators may be either the surface pan type for pavements less than 8 inches (20 cm) thick or the internal type with either immersed tube or multiple spuds, for the full width of the concrete slab. They may be attached to the spreader or the finishing machine, or they may be mounted on a separate carriage. They shall not come in contact with the joint, load-transfer devices, subgrade, or side forms. The frequency of the surface vibrators shall not be less than 3,500 vibrations per minute, and the frequency of the internal type shall not be less than 7,000 vibrations per minute for spud vibrators. When spud-type internal vibrators are used adjacent to the side forms, they shall have a frequency of not less than 3,500 vibrations per minute. Hand vibrators should be used to consolidate the concrete along forms and other isolated areas.

For slip-form construction, the paver shall vibrate the concrete for the full width and depth of the strip of pavement being placed. Vibration shall be accomplished by internal vibrators with a frequency range variable between 7,000 and 12,000 vibrations per minute. The amplitude of vibration shall be between 0.025 (0.6 mm) and 0.06 (1.5 mm) inches.

The number, spacing, frequency, and eccentric weights shall be provided as necessary to achieve an acceptable concrete density and finishing quality. Adequate power to operate all vibrators at the weight and frequency required for a satisfactory finish shall be available on the paver. The internal vibrators may be supplemented by vibrating screeds operating on the surface of the concrete. The frequency of surface vibrators shall not be less than 3,500 vibrations per minute. The Contractor shall furnish a tachometer or other suitable device for measuring the frequency of the vibrators. The vibrators and tamping elements shall be automatically controlled so that they shall be stopped as forward motion ceases. Any override switch shall be of the spring-loaded, momentary contact type.

For hand placed pavement the contractor shall consolidate concrete with the use of a handheld vibrator regardless of the type of strike off machinery used. Vibration shall be done to sufficiently remove air voids and consolidate concrete around reinforcing steel and side forms. **VIBRATORS SHALL NOT BE USED TO DISTRIBUTE CONCRETE.** The contractor shall limit disturbances of consolidated concrete during strike-off and finishing by using adequately sized floats and straight edges as approved by the Engineer. Vibrators, floats, and finishing tools to be on job site at all times during concrete placement.

3. Concrete Saw. When sawing of joints is specified, the Contractor shall provide sawing equipment adequate in number of units and power to complete the sawing to the required dimensions and at the required rate. The Contractor shall provide at least one standby saw in good working order. An ample supply of saw blades shall be maintained at the site of the work at all times during sawing operations. The Contractor shall provide adequate artificial lighting facilities for night sawing. All of this equipment shall be on the job both before and at all times during concrete placement.
4. Forms. Straight side forms shall be made of steel having a thickness of not less than 7/32 inch (6 mm) and shall be furnished in sections not less than 10 feet (3 m) in length. Forms shall have a depth equal to the prescribed edge thickness of the concrete without horizontal joint, and a base width equal to the depth of the forms. Flexible or curved forms of proper radius shall be used for curves of 100-foot (31 m) radius or less. Flexible or curved forms shall be of a design acceptable to the Engineer. Forms shall be provided with adequate devices for secure settings so that when in place they will withstand, without visible spring

or settlement, the impact and vibration of the consolidating and finishing equipment. Flange braces shall extend outward on the base not less than two-thirds the height of the form. Forms with battered top surfaces and bent, twisted, or broken forms shall be removed from the work. Repaired forms shall not be used until inspected and approved. Built-up forms shall not be used, except as approved by the Engineer. The top face of the form shall not vary from a true plane more than 1/8 inch (3 mm) in 10 feet (3 m), and the upstanding leg shall not vary more than 1/4-inch (6 mm). The forms shall contain provisions for locking the ends of abutting sections together tightly for secure setting.

5. Slip-form Pavers. The paver shall be fully energized, self-propelled, and designed for the specific purpose of placing, consolidating, and finishing the concrete pavement, true to grade, tolerances, and cross section. It shall be of sufficient weight and power to construct the maximum specified concrete paving lane width as shown in the plans, at adequate forward speed, without transverse, longitudinal or vertical instability or without displacement. The paver shall be equipped with electronic or hydraulic horizontal and vertical control devices.

3.02 FORM SETTING

Forms shall be set sufficiently in advance of the concrete placement to insure continuous paving operation. After the forms have been set to correct grade, the grade shall be thoroughly tamped, either mechanically or by hand, at both the inside and outside edges of the base of the forms. Forms shall be staked into place with not less than 3 pins for each 10-foot (3 m) section. A pin shall be placed at each side of every joint.

Form sections shall be tightly locked and shall be free from play or movement in any direction. The forms shall not deviate from true line by more than 1/4-inch (6 mm) at any joint. Forms shall be so set that they will withstand, without visible spring or settlement, the impact and vibration of the consolidating and finishing equipment. Forms shall be cleaned and oiled prior to the placing of concrete.

The alignment and grade elevations of the forms shall be checked and corrections made by the Contractor immediately before placing the concrete. When any form has been disturbed or any grade has become unstable, the form shall be reset and rechecked.

CONDITIONING OF UNDERLYING COURSE AND REINFORCING: The prepared grade shall be well moistened with water, without saturating, immediately ahead of concrete placement to prevent rapid loss of moisture from the concrete. Ruts or depressions in the subgrade or subbase caused by hauling or usage of other equipment shall be filled as they develop with suitable material (not with concrete or concrete aggregates) and thoroughly compacted by rolling. If damage occurs to a stabilized subbase, it shall be corrected full depth by the Contractor, or the damaged areas filled with concrete integral with the pavement. All excess material shall be removed. Low areas may be filled and compacted to a condition similar to that of the surrounding grade or filled with concrete integral with the pavement. In cold weather, the underlying subbase shall be protected so that it will be entirely free from frost when the concrete is placed. The use of chemicals to eliminate frost in the underlying material will not be permitted. The work described under the foregoing paragraphs does not constitute a regular subgrading operation, but rather a final accurate check of the underlying course.

Reinforcing steel, at the time concrete is placed, shall be free of mud, oil, or other organic matter that may adversely affect or reduce bond. Reinforcing steel with rust, mill scale, or a combination of both will be considered satisfactory, provided the minimum dimensions, weight, and tensile properties of a hand wire-brushed test specimen are not less than the applicable ASTM specification requirements and provided the rust

or scale is not loose. Reinforcing bars shall be securely wired together at all intersections and splices and shall be securely wired to each dowel and load transmission unit intersected. All bars shall be installed in their required position as shown on the plans.

3.03 MIXING CONCRETE

The concrete may be mixed at the work site, in a central mix plant or in truck mixers. The mixer shall be of an approved type and capacity. Mixing time shall be measured from the time all materials, except water, are emptied into the drum. Ready-mixed concrete shall be mixed and delivered in accordance with the requirements of ASTM C94, except that the minimum required revolutions of the mixing speed for transit mixed concrete may be reduced to not less than that recommended by the mixer manufacturer. The number of revolutions recommended by the mixer manufacturer shall be indicated on the manufacturer's serial plate attached to the mixer.

When mixed at the work site or in a central mixing plant, the mixing time shall not be less than 50 seconds nor more than 90 seconds. Mixing time ends when the discharge chute opens. Transfer time in multiple drum mixers is included in mixing time. The contents of an individual mixer drum shall be removed before a succeeding batch is emptied therein.

The mixer shall be operated at the drum speed as shown on the manufacturer's nameplate on the approved mixer. Any concrete mixed less than the specified time shall be discarded at the Contractor's expense. The volume of concrete mixed per batch shall not exceed the mixer's nominal capacity in cubic feet (cubic meters), as shown on the manufacturer's standard rating plate on the mixer. An overload up to 10 percent above the mixer's nominal capacity may be permitted provided concrete test data for segregation and uniform consistency are satisfactory, and provided no spillage of concrete takes place. The batch shall be charged into the drum so that a portion of the mixing water shall enter in advance of the cement and aggregates. The flow of water shall be uniform, and all water shall be in the drum by the end of the first 15 seconds of the mixing period. The throat of the drum shall be kept free of such accumulations as may restrict the free flow of materials into the drum.

Mixed concrete from the central mixing plant shall be transported in truck mixers, truck agitators, or nonagitating trucks. The time elapsing from the time water is added to the mix until the concrete is deposited in place at the work site shall not exceed 30 minutes when the concrete is hauled in nonagitating trucks, nor 60 minutes when the concrete is hauled in truck mixers or truck agitators. Retempering concrete by adding water or by other means will not be permitted, except when concrete is delivered in transit mixers. With transit mixers additional water may be added to the batch materials and additional mixing performed to increase the slump to meet the specified requirements, if permitted by the Engineer. All these operations must be performed within 45 minutes after the initial mixing operations and the water-cement ratio must not be exceeded. Admixtures for increasing the workability or for accelerating the set will be permitted only when specified for in the contract.

3.04 LIMITATIONS OF MIXING

No concrete shall be mixed, placed, or finished when the natural light is insufficient, unless an adequate and approved artificial lighting system is operated.

Unless authorized in writing by the Engineer, mixing and concreting operations shall be discontinued when a descending air temperature in the shade and away from artificial heat reaches 40 degrees F (4 degrees C) and shall not be resumed until an ascending air temperature in the shade and away from artificial heat reaches 35 degrees F (2 degrees C).

When concreting is authorized during cold weather, the aggregates may be heated by either steam or dry heat prior to being placed in the mixer. The apparatus used shall heat the mass uniformly and shall be arranged to preclude the possible occurrence of overheated areas which might be detrimental to the materials. Unless otherwise authorized, the temperature of the mixed concrete shall not be less than 50 degrees F (10 degrees C) at the time of placement in the forms.

If the air temperature is 35 degrees F (2 degrees C) or less at the time of placing concrete, the Engineer may require the water and/or the aggregates to be heated to not less than 70 degrees F (21 degrees C) nor more than 150 degrees F (66 degrees C). Concrete shall not be placed on frozen subgrade nor shall frozen aggregates be used in the concrete.

During periods of warm weather when the maximum daily air temperature exceeds 85 degrees F (30 degrees C), the following precautions should be taken. The forms and/or the underlying material shall be sprinkled with water immediately before placing the concrete. The concrete shall be placed at the coolest temperature practicable, and in no case shall the temperature of the concrete when placed exceed 90 degrees F (32 degrees C). The aggregate and/or mixing water shall be cooled as necessary to maintain the concrete temperature at or not more than the specified maximum.

3.05 PLACING CONCRETE

- A. Side-form Method: For the side-form method, the concrete shall be deposited on the moistened grade to require as little rehandling as possible. Unless truck mixers, truck agitators, or nonagitating hauling equipment are equipped with means for discharge of concrete without segregation of the materials, the concrete shall be unloaded into an approved spreading device and mechanically spread on the grade to prevent segregation of the materials. Placing shall be continuous between transverse joints without the use of intermediate bulkheads. Necessary hand spreading shall be done with shovels -- **NOT RAKES**. Workmen shall not be allowed to walk in the freshly mixed concrete with boots or shoes coated with earth or foreign substances.

Concrete for side-form construction shall be placed on cement treated base. No concrete shall be placed before the cement treated base has obtained a compressive strength specified at 7 days.

When concrete is to be placed adjoining a previously constructed lane of pavement and when mechanical equipment will be operated upon the existing lane of pavement, the concrete shall be at least 7 days old and at a flexural strength approved by the Engineer. If only finishing equipment is carried on the existing lane, paving in adjoining lanes may be permitted after 3 days, if approved by the Engineer.

Concrete shall be thoroughly consolidated against and along the faces of all forms and along the full length and on both sides of all joint assemblies by means of vibrators inserted in the concrete. Vibrators shall not be permitted to come in contact with a joint assembly, the grade, or a side form. In no case shall the vibrator be operated longer than 15 seconds in any one location, nor shall the vibrators be used to move the concrete. Concrete shall be deposited as near to expansion and contraction joints as possible without disturbing them but shall not be dumped from the discharge bucket or hopper onto a joint assembly unless the hopper is well centered on the joint assembly.

Should any concrete materials fall on or be worked into the surface of a completed slab, they shall be removed immediately by approved methods.

- B. Slip Form Method. For the slip-form method, the concrete shall be placed with an approved crawler-mounted, slip-form paver designed to spread, consolidate, and shape the freshly placed concrete in one

Complete pass of the machine so that a minimum of hand finishing will be necessary to provide a dense and homogeneous pavement in conformance with requirements of the plans and specifications.

The concrete should be placed directly on top of the joint assemblies to prevent them from moving when the paver moves over them. Side forms and finishing screeds shall be adjustable to the extent required to produce the specified pavement edge and surface tolerance. The side forms shall be of dimensions, shape, and strength to support the concrete laterally for a sufficient length of time so that no appreciable edge slumping will occur. Final finishing shall be accomplished while the concrete is still in the plastic state.

Concrete for slip form construction shall be placed on cement treated base or lime stabilized subgrade. No concrete shall be placed before the cement treated base has obtained the compressive strength specified at 7 days. The Contractor shall set grade stakes and stringline for each lane placement. The stringline shall be supported at intervals of not more than 25 feet. Additional supports shall be installed to prevent sag of the stringline. The horizontal alignment of the stringline shall be within plus or minus 1/4-inch in 10 feet of true alignment. The Contractor shall provide a suitable method of securing the stringline to maintain proper grade where vertical curves are to be constructed.

- C. Hand Placement Method. When the hand method of striking off and consolidating is permitted, the concrete, as soon as placed, shall be approximately leveled and then truck off and screeded to such elevation above grade that, when consolidated and finished, the surface of the pavement shall be at the grade elevation shown on the plans. The entire surface shall then be tamped and the concrete consolidated so as to insure maximum compaction and a minimum of voids. For the strike off and consolidation, both a strike template and tamping template shall be provided on the work. In operation the strike template shall be moved forward with a combined longitudinal and transverse motion and so manipulated that neither end of the template is raised from the forms during the striking-off process. A slight excess of material shall be kept in front of the cutting edge at all times. The straight edging, surfacing and joint finishing shall be as described herein.

3.06 STRIKE-OFF OF CONCRETE

Following the placing of the concrete, it shall be struck off to conform to the cross section shown on the plans and to an elevation such that when the concrete is properly consolidated and finished, the surface of the pavement shall be at the elevation shown on the plans. All reinforcement shall be positioned in advance of concrete placement. All reinforcing bars and bar mats shall be installed in the slab at the required depth below the finished surface and supported by chairs installed on 4-foot centers. After the reinforcing steel is securely installed above the subgrade, as specifically required by plans and as herein prescribed, there shall be no loading imposed upon (or walking upon) the bar mats or individual bars that will cause deformation of reinforcing before or during the placing or finishing of the concrete.

3.07 JOINTS

A. General:

1. Longitudinal and Transverse Joints: Longitudinal and transverse joints shall be constructed as indicated on the plans and in accordance with these requirements. All joints shall be

constructed true to line with their faces perpendicular to the surface of the pavement. Joints shall not vary more than 1/2-inch (13 mm) from a true line or from their designated position.

The vertical surface of the pavement adjacent to all expansion joints shall be finished to a true plane and edged to a radius of 1/4-inch (6 mm) or as shown on the plans. The surface across the joints shall be tested with a 10-foot (3 m) straightedge as the joints are finished and any irregularities in excess of 1/4-inch (6 mm) shall be corrected before the concrete has hardened. Longitudinal construction joints that do not meet these requirements or which show significant cracking or planes of weakness shall be sawed-off full depth at the Contractor's expense using the minimum practical width at locations designated by the Engineer. When required, keyways shall be accurately formed with a template of metal or wood. The gauge or thickness of the material in the template shall be such that the full keyway, as specified, is formed and is in the correct location. Transverse joints shall be right

2. Angles to the centerline of the pavement and shall extend the full width of the slab. All joints shall be so prepared, finished, or cut to provide a groove of the width and depth shown on the plans.
- B. Tie Bars: Tie bars shall consist of deformed bars installed principally in longitudinal joints as shown on the plans or the bars shall be extensions of the distributed reinforcing steel across the joints. Tie bars shall be placed at right angles to the centerline of the concrete slab. They shall be held in position parallel to the surface and midway between the surfaces of the slab. These bars shall not be painted, greased, or enclosed in sleeves. At all locations where tie bars are specified and where pavement is in place, the tie bars shall be inserted by drilling and grouting with approved epoxy material. Tie bars in longitudinal construction joints may be installed by bending the bars flush with a keyed joint.
- C. Dowel Bars: If used, dowel bars or other load-transfer units of an approved type shall be placed across transverse or other joints in the manner as specified on the plans. They shall be of the dimensions and spacings as shown and held rigidly in the middle of the slab depth in the proper horizontal and vertical alignment by an approved assembly device to be left permanently in place. The dowel or load-transfer and joint devices shall be rigid enough to permit complete assembly as a unit ready to be lifted and placed into position. A metal, or other type, dowel expansion cap or sleeve shall be furnished for each dowel bar used with expansion joints. These caps shall be substantial enough to prevent collapse and shall be placed on the ends of the dowels as shown on the plans. The caps or sleeves shall fit the dowel bar tightly and the closed end shall be watertight.
- D. Installation: Joints in concrete pavements shall be cut as shown on the plans. Equipment shall be as described in Paragraph 3.1. The circular cutter shall be capable of cutting a groove in a straight line and shall produce a slot at least 1/8-inch (3 mm) wide and to the depth shown on the plans. When shown on the plans or required by the specifications, the top portion of the slot or groove shall be widened by means of a second shallower cut or by suitable and approved beveling to provide adequate space for joint sealers. Sawing of the joints shall commence as soon as the concrete has hardened sufficiently to permit cutting without chipping, spalling, or tearing. Sawing shall be carried on both during the day and night as required. The joints shall be sawed at the required spacing consecutively in sequence of the concrete placement, unless otherwise approved by the Engineer.
- E. Longitudinal Joints:
1. Construction. Longitudinal construction joints shall be formed against suitable side forms (usually made of steel) with or without keyways. Wooden forms may be used under special

conditions, when approved by the Engineer. Where butt-type joints with dowels are designated, the dowels for this type shall be painted and greased. The edges of the joint shall be finished with a grooving tool or edging tool, and a space or slot shall be formed along the joint of the dimensions, as indicated, to receive the joint sealing material. Longitudinal construction joints shall be sawed to provide a groove at the top conforming to the details and dimensions indicated on the plans. Provisions shall be made for the installation of tie bars as noted on the plans.

2. Contraction or Weakened-plane type. The longitudinal groove sawed in the top of the slab shall be installed where indicated on the drawings. The groove shall be sawed with approved equipment in the hardened concrete to the dimensions required. The sawed groove shall be straight and of uniform width and depth. The groove shall be clean cut so that spalling will be avoided at intersections with transverse joints. Tie bars or distributed reinforcing steel shall be installed across these joints where indicated on the plans.
3. Expansion. Longitudinal expansion joints shall be installed as indicated on the plans. The premolded filler, of the thickness as shown on the plans, shall extend for the full depth and width of the slab at the joint, except for space for sealant at the top of the slab. The filler shall be securely staked or fastened into position perpendicular to the proposed finished surface. A cap shall be provided to protect the top edge of the filler and to permit the concrete to be placed and finished. After the concrete has been placed and struck off, the cap shall be carefully withdrawn leaving the space over the premolded filler. The edges of the joint shall be finished and tooled while the concrete is still plastic.

F. Transverse Joints:

Expansion. Transverse expansion joints shall be installed at the locations and spacing as shown on the plans. The joints shall be installed at right angles to the centerline and perpendicular to the surface of the pavement. The joints shall be installed and finished to insure complete separation of the slabs. Expansion joints shall be of a premolded type conforming to these specifications and with the plans and shall be the full width of the pavement strip.

All concrete shall be cleaned from the top of the joint material. Before the pavement is opened to traffic, this space shall be swept clean and filled with approved joint sealing material.

All devices used for the installation of expansion joints shall be approved by the Engineer. They shall be easily removable without disturbing the concrete and held in proper transverse and vertical alignment. Immediately after forms are removed, any concrete bridging the joint space at the ends shall be removed for the full width and depth of the joint.

When specified, expansion joints shall be equipped with dowels of the dimensions and at the spacing and location indicated on the plans. The dowels shall be firmly supported in place and accurately aligned parallel to the subgrade and the centerline of the pavement by means of a dowel assembly which will remain in the pavement and will ensure that the dowels are not displaced during construction.

Other types of load-transfer devices may be used, when approved by the Engineer.

1. Contraction. Transverse contraction joints, weakened-plane joints, or both, shall be installed at the locations and spacing as shown on the plans. These joints will be installed by sawing a groove into the concrete surface after the concrete has hardened in the same manner as specified in Paragraph 3.8(c)(2). Dowel bar assemblies shall be installed, when required, as shown on the plans.

2. Construction. Transverse construction joints shall be installed at the end of each day's placing operations and at any other points within a paving lane when concrete placement is interrupted for more than 30 minutes or it appears that the concrete will obtain its initial set before fresh concrete arrives. When the installation of the joint can be planned in advance, it shall be located at a contraction or expansion joint. The joint shall not be allowed within 8 feet (2.4 m) of a regular spaced transverse joint. If the pouring of the concrete has been stopped, causing a joint to fall within this limit, it shall not be installed, and the fresh placed concrete shall be removed back to the 8 foot (2.4 m) limit.

3.08 FINAL STRIKE-OFF, CONSOLIDATION, AND FINISHING

- A. Sequence. The sequence of operations shall be the strike-off and consolidation, floating and removal of laitance, straightedging, and final surface finish. **The addition of superficial water to the surface of the concrete to assist in finishing operations generally will not be permitted.** If the application of water to the surface is permitted, it shall be applied as a fog spray by means of approved spray equipment.
- B. Finishing at Joints. The concrete adjacent to joints shall be compacted or firmly placed without voids or segregation against the joint material; it shall be firmly placed without voids or segregation under and around all load-transfer devices, joint assembly units, and other features designed to extend into the pavement. Concrete adjacent to joints shall be mechanically vibrated. After the concrete has been placed and vibrated adjacent to the joints, the finishing machine shall be operated in a manner to avoid damage or misalignment of joints. If uninterrupted operations of the finishing machine, to, over, and beyond the joints, cause segregation of concrete, damage to, or misalignment of the joints, the finishing machine shall be stopped when the screed is approximately 8 inches (20 cm) from the joint. Segregated concrete shall be removed from the front of and off the joint; the screed shall be lifted and set directly on top of the joint, and the forward motion of the finishing machine shall be resumed. Thereafter, the finishing machine may run over the joint without lifting the screed, provided there is no segregated concrete immediately between the joint and the screed or on top of the joint.
- C. Machine Finishing. The concrete shall be spread as soon as it is placed, and it shall be struck off and screeded by an approved finishing machine. The machine shall go over each area as many times and at such intervals as necessary to give the proper consolidation and to leave a surface of uniform texture. Excessive operation over a given area shall be avoided. When side forms are used, the tops of the forms shall be kept clean by an effective device attached to the machine, and the travel of the machine on the forms shall be maintained true without lift, wobbling, or other variation tending to affect the precision finish. During the first pass of the finishing machine, a uniform ridge of concrete shall be maintained ahead of the front screed for its entire length. When in operation, the screed shall be moved forward with a combined longitudinal and transverse shearing motion, always moving in the direction in which the work is progressing, and so manipulated that neither end is raised from the side forms during the striking-off process. If necessary, this shall be repeated until the surface is of uniform texture, true to grade and cross section, and free from porous areas.
- D. Hand Finishing. Hand finishing methods will not be permitted, except under the following conditions: In the event of breakdown of the mechanical equipment, hand methods may be used to finish the concrete already deposited on the grade; in areas of narrow widths or of irregular dimensions where operation of the mechanical equipment is impractical. Concrete, as soon as placed, shall be struck off and screeded. An approved portable screed shall be used.

The screed for the surface shall be at least 2 feet (0.6 m) longer than the maximum width of the slab to be struck off. It shall be of approved design, sufficiently rigid to retain its shape, and shall be constructed either of metal or of other suitable material covered with metal. Wood will not be permitted. Consolidation shall be attained by the use of a suitable vibrator.

- E. Floating. After the concrete has been struck off and consolidated, it shall be further smoothed, trued, and consolidated by means of a longitudinal float, using one of the following methods:
1. Hand Method. The hand-operated longitudinal float shall not be less than 12 feet (3.6 m) in length and 6 inches (15 cm) in width, properly stiffened to prevent flexibility and warping. The longitudinal float, operated from foot bridges resting on the side forms and spanning but not touching the concrete, shall be worked with a sawing motion, while held in a floating position parallel to the slab centerline and passing gradually from one side of the slab to the other. Forward movement along the centerline of the slab shall be in successive advances of not more than one-half the length of the float. Any excess water or soup material shall be wasted over the slab edge on each pass.
 2. Mechanical Method. The Contractor may use a machine composed of a cutting and smoothing float(s), suspended from and guided by a rigid frame. The frame shall be carried by four or more visible wheels riding on, and constantly in contact with, the side forms or pavement subgrade. If necessary, long-handled floats having blades not less than 5 feet (1.5 m) in length and 6 inches (1.5 cm) in width may be used to smooth and fill in open-textured areas in the slab. Long-handled floats shall not be used to float the entire surface of the slab in lieu of mechanical methods. After floating, any excess water and laitance shall be removed from the surface of the slab by a straightedge 10 feet (3 m) or more in length. Successive drags shall be lapped one-half the length of the blade.
- F. Straight-edge Testing and Surface Correction. After the pavement has been struck off and consolidated and while the concrete is still plastic, it shall be tested for trueness with a 16-foot (4.8 m) straightedge. For this purpose the Contractor shall furnish and use an accurate 16-foot (4.8 m) straightedge swung from handles 3 feet (0.4 m) longer than one-half the width of the slab. The straightedge shall be held in contact with the surface in successive positions parallel to the centerline and the whole area gone over from one side of the slab to the other, as necessary. Advancing shall be in successive stages of not more than one-half the length of the straightedge. Any excess water and laitance shall be removed from the surface of the pavement. Any depressions shall be immediately filled with freshly mixed concrete, struck off, consolidated, and refinished. High areas shall be cut down and refinished. Special attention shall be given to assure that the surface across joints meets the requirements for smoothness. Straightedge testing and surface corrections shall continue until the entire surface is found to be free from observable departures from the straightedge and until the slab conforms to the required grade and cross section. The use of long-handled wood floats shall be confined to a minimum; they may be used only in emergencies and in areas not accessible to finishing equipment.

3.09 SURFACE TEXTURE

A light broom drag shall be used for slab concrete pavements. The direction of the texture device shall be as directed by the Engineer. Contractor to match existing pavement finishes.

3.10 SURFACE TEST

As soon as the concrete has hardened sufficiently, the pavement surface shall be tested with a 16-foot (5 m) straightedge or other specified device to determine its compliance with design grades. Where the departure from correct cross section exceeds ½ inch (13 mm), the pavement shall be ground down with a approved grinding machine to within 1/4 inch of tolerance or removed and replaced at the expense of the Contractor when so directed by the Engineer. Cracked or damaged slabs shall be removed and replaced at the expense of the Contractor when so directed by the Engineer.

Any area or section so removed shall not be less than 20 feet (6 m) in length nor less than the full width of the lane involved. When it is necessary to remove and replace a section of pavement, and remaining portion of a slab adjacent to the joints that is less than 10 feet (3 m) in length shall also be removed and replaced.

3.11 CURING

Immediately after the finishing operations have been completed and marring of the concrete will not occur, the entire surface of the newly placed concrete shall be cured in accordance with one of the methods below. In all cases in which curing requires the use of water, the curing shall have prior right to all water supply or supplies. Failure to provide sufficient cover material of whatever kind the Contractor may elect to use, or lack of water to adequately take care of both curing and other requirements, shall be cause for immediate suspension of concreting operations. The concrete shall not be left exposed for more than 1/2 hour during the curing period. The following are alternate approved methods for curing concrete pavements.

- A. Impervious Membrane Method. The entire surface of the pavement shall be sprayed uniformly with white pigmented curing compound immediately after the finishing of the surface and before the set of the concrete has taken place. The curing compound shall not be applied during rainfall. Curing compound shall be applied by mechanical sprayers under pressure at the rate of 1 gallon (4 liters) to not more than 150 square feet (14 square meters). The spraying equipment shall be of the fully atomizing type equipped with a tank agitator. At the time of use, the compound shall be in a thoroughly mixed condition with the pigment uniformly dispersed throughout the vehicle. During application the compound shall be stirred continuously by effective mechanical means. Hand spraying of odd widths or shapes and concrete surfaces exposed by the removal of forms will be permitted. Curing compound shall not be applied to the inside faces of joints to be sealed, but approved means shall be used to insure proper curing for 72 hours. The curing compound shall be of such character that the film will harden within 30 minutes after application. Should the film become damaged from any cause within the required curing period, the damaged portions shall be repaired immediately with additional compound. Upon removal of the side forms, the sides of the exposed slabs shall be protected immediately to provide a curing treatment equal to that provided for the surface. For the Impervious Membrane Method, the Contractor is encouraged to include Polyethylene Film dispensing equipment in the Paving Train to provide protection to the finished work in case of rainfall.
- B. Polyethylene Films. The top surface and sides of the pavement shall be entirely covered with polyethylene sheeting. The units shall be lapped at least 18 inches (457 mm). The sheeting shall be placed and weighted to cause it to remain in contact with the surface covered. The sheeting shall have dimensions that will extend at least twice the thickness of the pavement beyond the edges of the pavement. Unless otherwise specified, the sheeting shall be maintained in place for 72 hours after the concrete has been placed.
- C. Waterproof Paper. The top surface and sides of the pavement shall be entirely covered with waterproofed paper. The units shall be lapped at least 18 inches (457 mm). The paper shall be placed and weighted to cause it to remain in contact with the surface covered. The paper shall have dimensions that will extend at least twice the thickness of the pavement beyond the edges of the slab.

The surface of the pavement shall be thoroughly wetted prior to placing of the paper. Unless otherwise specified, the paper shall be maintained in place for 72 hours after the concrete has been placed.

- D. White Burlap-Polyethylene Sheets. The surface of the pavement shall be entirely covered with sheeting. The sheeting used shall be such length (or width) that it will extend at least twice the thickness of the pavement beyond the edges of the slab. The sheeting shall be placed so that the entire surface and both edges of the slab are completely covered. The sheeting shall be placed and weighted to remain in contact with the surface covered, and the covering shall be maintained fully wetted and in position for 72 hours after the concrete has been placed.
- E. Curing in Cold Weather. When the average daily temperature is below 40 degrees F (4 degrees C), curing shall consist of covering the newly laid pavement with not less than 12 inches (30 cm) of loose, dry hay or straw, or equivalent protective curing authorized by the Engineer, which shall be retained in place for 10 days. The hay or straw shall be secured to avoid being blown away. Admixture for curing or temperature control may be used only when authorized by the Engineer.

When concrete is being placed and the air temperature may be expected to drop below 35 degrees F (2 degrees C), a sufficient supply of straw, hay, grass, or other suitable blanketing material such as burlap or polyethylene shall be provided along the work. Any time the temperature may be expected to reach the freezing point during the day or night, the material so provided shall be spread over the pavement to a sufficient depth to prevent freezing of the concrete. The period of time such protection shall be maintained shall not be less than 10 days. A minimum of 3 days is required when high, early strength concrete is used. The Contractor shall be responsible for the quality and strength of the concrete placed during cold weather, and any concrete injured by frost action shall be removed and replaced at the Contractor's expense.

3.12 REMOVING FORMS

Unless otherwise specified, forms shall not be removed from freshly placed concrete until it has set for at least 12 hours, except where auxiliary forms are used temporarily in widened areas. Forms shall be removed carefully to avoid damage to the pavement. After the forms have been removed, the sides of the slab shall be cured as outlined in one of the methods indicated in Paragraph 3.17. Major honeycombed areas shall be considered as defective work and shall be removed and replaced. Any area or section so removed shall not be less than 20 feet (6 m) in length nor less than the full width of the lane involved. When it is necessary to remove and replace a section of pavement, any remaining portion of the slab adjacent to the joints that is less than 10 feet (3 m) in length shall also be removed and replaced.

3.13 SEALING JOINTS

The joints in the pavement shall be prepared and sealed in strict accordance with the sealant manufacturer's printed recommendations.

3.14 PROTECTION OF PAVEMENT

The Contractor shall protect the pavement and its appurtenances against both public traffic and traffic caused by the Contractor's employees and agents. This shall include watchmen to direct traffic and the erection and maintenance of warning signs, lights, pavement bridges, or crossovers, etc. The plans or special provisions will indicate the location and type of device or facility required to protect the work and provide adequately for traffic. Any damage to the pavement occurring prior to final acceptance shall be repaired or the pavement replaced at the Contractor's expense. In order that the concrete be properly protected against the effects of rain before the concrete is sufficiently hardened, the Contractor is encouraged to have available at all times

materials for the protection of edges and surface of the unhardened concrete. Such protective materials shall consist of rolled polyethylene sheeting at least 4 mils (0.1 mm) thick of sufficient length and width to cover the plastic concrete slab and any edges. The sheeting may be mounted on either the paver or a separate movable bridge from which it can be unrolled without dragging over the plastic concrete surface. When rain appears imminent, all paving operations shall stop and all available personnel should begin covering the surface of the unhardened concrete with the protective covering.

3.15 OPENING TO TRAFFIC

The Engineer shall decide when the pavement shall be opened to traffic. The pavement will not be opened to traffic until test specimens molded and cured in accordance with ASTM C31 have attained a flexural strength of 550 pounds per square inch (3792 kPa) when tested in accordance with ASTM C78. If such tests are not conducted, the pavement shall not be opened to traffic until 14 days after the concrete was placed. Prior to opening to traffic, the pavement shall be thoroughly cleaned.

3.16 SURFACE AND THICKNESS TOLERANCES

Extreme care must be exercised in all phases of the operation to assure the pavement will pass the specified tolerances. The following tolerances are applicable:

- A. Lateral deviation from established alignment of the pavement edge shall not exceed plus or minus 0.10 foot (30 mm) in any lane.
- B. Vertical deviation from established grade shall not exceed plus or minus 0.04 foot (12 mm) at any point.
- C. Surface smoothness deviations shall not exceed 3/8 inch (6 mm) from a 16-foot (5 m) straightedge placed in any direction, including placement along and spanning any pavement joint or edge.

No additional payment over the contract unit price shall be made for any pavement of a thickness exceeding that required by plans.

3.17 INTEGRAL CURBS

Where shown on the drawings, integral curbs shall be installed to the dimension shown using identical concrete to the paving mix. Expansion and contraction joints shall extend through curb section. Reinforcing for integral curb, when shown on the plans, shall be supported from the ground with driven stakes or as directed by the Engineer. Once the forms are removed, all voided areas shall be rubbed and filled with non-shrink grout within 24 hours. If the forms are removed within 2 days of placement, the curb shall be treated with a specified curing membrane.

3.18 CONCRETE CURB AND GUTTER

Concrete curb and gutter shall be constructed using concrete of the type and strength specified in the plans. The placement, strike-off consolidation and finishing shall be made using applicable portions of this specification as determined by the Engineer. Contraction joints shall be placed at 20-foot centers with the use of a 1/2" deep grooving tool. Expansion joints shall be placed at a maximum spacing of 400 feet and at all

radius points, curb returns and junctions with structures. For curves of 100 feet radius or less, contraction joints shall be tooled at 10-foot centers and expansion joints constructed at 50-foot centers. Expansion joints shall contain a minimum of two smooth dowels a minimum of one bar size larger than the longitudinal reinforcing and 3/4-inch thick expansion joint material of the type specified in the plans. Expansion joints shall be sealed in accordance with the plan details.

3.19 SIDEWALKS AND SLOPE PAVING

Concrete sidewalks and slope paving shall be constructed to use concrete of the type and strength specified in the plans. The placement, strike-off, consolidation and finishing shall be made using applicable portions of this specification as determined by the Engineer. Contraction joints shall be tooled at a depth of 1/2" at a spacing equal to the width of the sidewalk not to exceed six feet. For walks wider than six feet, longitudinal joints shall be tooled at equal spacing, not less than three feet. Edges shall be tooled with a 1/4-inch radius and finish slightly higher than adjacent curbs to ensure proper drainage if some settlement occurs. Expansion joints shall be placed at 100-foot intervals or at intersecting walk locations. Expansion joints shall be 3/4-inch in thickness and contain smooth dowels at not less than 12" spacing. The size of the dowels will be equal to the thickness of the sidewalk in inches. Scoring and tooling for barrier free ramps shall be made in accordance with governing City standards or as directed by the Engineer.

3.20 FIELD TEST SPECIMENS

Concrete samples shall be furnished by the Contractor and shall be taken in the field to determine the consistency, air content, and strength of the concrete. Compressive test cylinders shall be made each day that the concrete is placed. However, at the start of paving operations and when the aggregate source, aggregate characteristics, or mix design is changed, additional groups of test cylinders may be required until the Engineer is satisfied that the concrete mixture being used complies with the strength requirements of these specifications. Test ages will be 7 days and 28 days.

Test cylinders for compressive strength tests shall be taken and cured in accordance with ASTM C-31 and tested in accordance with ASTM C-39. At least four cylinders (a set) shall be made for each 1,000 cubic yards or fraction thereof placed and tested at 7 days and 28 days. No extra compensation will be allowed for materials and work involved in fulfilling these requirements. Concrete will be accepted on the basis of tests conducted on a "lot" of concrete. A lot will consist of 160 cubic yards and will be divided into four equal sublots. One set of tests will be made for each subplot. Random samples will be taken from the plastic concrete at the site in accordance with accepted statistical procedures.

The concrete shall be sampled in accordance with ASTM C172.

The lot will be accepted without adjustment in payment if the average 28 day compressive strength, based on four acceptance tests, indicates a strength deficiency of not less than 100 psi. The pay factor for 28-day compressive strengths showing a deficiency greater than 100 psi are listed in the table below.

PAY FACTOR SCHEDULE FOR COMPRESSIVE STRENGTH
AT THE SPECIFIED INTERVAL

Strength Deficiency (Based on an Average of 4 Cylinders) psi	Pay Factor (Percent of Contract Unit Price) psi
0 - 100	100
100 - 150	85
151 - 200	75
201 - 250	70
251 - 300	60
301 - 375	55
375 - 500	50
>500	Reject

END OF SECTION 321313

SECTION 32 13 50

POST-TENSIONED CONCRETE

PART 1 – GENERAL

1.01 SCOPE

- A. This Section of the Specifications and related drawings describe requirements pertaining to prestressed concrete structures by the post tensioning method.

1.02 COMPLIANCE WITH STANDARDS

- A. Comply with the following codes and standards except as modified herein:
 - 1. American Concrete Institute Standard, ACI 318-09. “Building Code Requirements for Reinforced Concrete”.
 - 2. American Concrete Institute Standard, ACI 302-IR-04, “Recommended Practice for Concrete Floor and Slab Construction”.
 - 3. American Concrete Institute Standard, ACI 315-99. “Manual of Standard Practice for Detailing Reinforced Concrete Structures”.
 - 4. Specification for Unbound Single Strand Tendons, 2nd Edition, Post Tensioning Institute (PTI).

1.03 CONTRACTOR

- A. Post tensioning materials shall be furnished, installed and stressed by one (1) Contractor who is a recognized fabricator and supplier of prestressing tendons and who is approved by the Landscape Architect and shall use tendons fabricated in a PTI certified plant.

1.04 DEFINITIONS

- A. Post-Tensioning: The term “post-tensioning”, when applied to prestressed concrete, shall refer to any method of tensioning the reinforcement after the concrete has been placed.
- B. Tendon” The term “tendon” is interchangeable with “strand” on the plans. A tendon shall be defined as any single post-tensioning unit used to apply prestress force to the concrete member whether composed of one (1) or many elements.
- C. Coated Tendons: Coated tendons shall be tendons that are shop coated and encased in slippage sheathing to prevent bond, retard corrosion and to reduce friction between tendon and concrete.

1.05 SUBMITTALS

- A. Submit to the Landscape Architect four (4) copies of each item in conformance with the requirements of the GENERAL CONDITIONS OF THE CONTRACT.
 - 1. Shop Drawings: Refer to Item 3.01
 - 2. Test data: Refer to Items 3.03, 3.07 and 3.08.
 - 3. Testing Agency: The Contractor shall submit the name and qualifications of a testing agency for approval by the Landscape Architect prior to the beginning of construction. Refer to Item 3.07.

PART 2 – PRODUCTS

2.01 PRESTRESSING STEEL

- A. Prestressing steel shall consist of one-half (1/2”) inch diameter strands in tendons conforming to ASTM Specifications A416/416M-02, “Specifications for Uncoated Seven-Wire Stress Relieved Strand for Prestressed Concrete”, Grade 270 KSI.

2.02 TENDONS

- A. Tendons shall be unbounded and shall have the prestressing steel permanently protected against corrosion by a properly applied coating of galvanizing, epoxy, grease, wax, plastic, bituminous and other approved material. The coating shall remain ductile and free from cracks and shall not become fluid over the entire operating or anticipated range of temperatures. The coating shall be suitable for and be non-reactive to cement, and the material shall adhere to and be continuous over the entire tendon length to be unbounded.

2.03 SHEATHING

- A. Sheathing for unbounded tendons shall have a sufficient tensile strength and water resistance to resist irreparable damage and deterioration during transport, storage at the Project site and installation. The sheathing shall be continuous over the tendon’s length to be unbounded. The sheathing shall prevent the intrusion of cement past and the escape of coating material. Minimum thickness of plastic coating shall be twenty (20) mils.

2.04 ANCHORAGE OF TENDONS

- A. Anchorage of tendons shall develop at least ninety-five (95%) percent of the minimum specified ultimate strength of prestressing steel without exceeding the anticipated set. The total elongation under the ultimate load of the tendon shall not be less than two (2%) percent measured in a minimum gauge length of ten (10’) feet. Anchorage hardware shall meet the minimum requirements set forth in ACI 301-05.

2.05 VAPOR BARRIER

- A. The vapor barrier shall be two (2) layers of six (6) mil polyethylene film, lapped and secured with two (2”) inch wide waterproof tape to provide two (2) continuous waterproof barriers.

2.06 CONCRETE MIX

- A. Concrete shall be normal weight and have minimum twenty-eight (28) day compressive strength of three thousand (3,000) psi, contain a minimum five (5) sacks of cement per cubic yard, have a maximum aggregate size of three quarter (3/4”) inch and a slump of three (3”) to six (6”) inches. Concrete shall comply with Item 1.03 of this Specification. Concrete mix shall include fiber reinforcement at the manufacturer’s recommended rate but not less than one and one half (1.5) lbs./CY.
- B. Concrete Admixtures:
 - 1. All concrete shall contain the specified air-entraining admixture for four (4%) percent to eight (8%) percent air entrainment.

2. The Contractor will not place concrete if adverse climatic and/or temperature conditions prevail (or are expected to prevail) at the time of placement. Calcium chloride will not be allowed in the concrete mix.
3. At the Contractor's option, plasticizers or water-reducing admixtures may be used in the concrete mix to improve workability.

2.07 REINFORCING BARS

- A. Reinforcing bars shall have minimum yield strength of sixty thousand (60,000) psi and shall conform to ASTM Specification A615. Detailing, fabrication and installation of reinforcing bars and accessories, unless otherwise noted, must follow ACI Manual of Concrete Practice and specifications referred to in Item 1.03 and 1.04 of this Specification.

PART 3 – EXECUTION

3.01 SHOP DRAWINGS

- A. Detailed shop drawings shall be submitted to the Landscape Architect for checking and approval before fabrication of post-tensioning tendons. Shop drawings shall describe the post-tensioning enclosures, detail of anchorage devices and tendon stressing data, including minimum final elongation of tendons. No changes shall be made in these details after approval without written permission of the Landscape Architect, nor shall any field changes or adjustments be made without the Landscape Architect's knowledge.

3.02 FABRICATION AND MARKING

- A. The tendons shall be carefully fabricated under controlled conditions. All wires in each tendon shall be stretched to the same tension before cutting to assure that all are the same length. All tendons shall be fabricated in continuous lengths without splices.
- B. All tendons shall be clearly marked and identified in accordance with the shop drawings.

3.03 TEST DATA

- A. The stress strain curve of the tendons shall be submitted from the production lot from which the project material was taken. A typical curve may be submitted when this results in a more accurate curve, provided that the basis for establishing the curve is approved. Certified mill test reports shall be submitted when requested.
- B. The amount of slip normally expected in seating anchorage devices, the friction wobble coefficient and the friction curvature shall be submitted for review. Acceptable test data substantiating the expected coefficients and anchorage slip shall be submitted.

3.04 PLACING TENDONS

- A. Care shall be taken to prevent damage to tendons during shipping and placing. The tendons shall be placed and secured in position in the forms as shown on the drawings.
- B. Supports for tendons shall be of a type to ensure that tendons remain in position both vertically and horizontally during concrete placement. Supports for tendons shall be located at not more

- than three (3") feet in center. Use plastic chairs, or an approved equal, of a design that will not penetrate the vapor barrier during placement of concrete.
- C. Vertical tendon dimensions in the slab shall not vary more than one-half (1/2") inch from the dimensions shown on the drawings. Slight horizontal deviation in spacing of tendons is permissible upon Landscape Architect approval to avoid opening and inserts that are specifically located. Vertical tolerances in beams is one (1") inch.
 - D. The intersection between tendons sheathing and anchorage devices shall be taped to prevent grout entrance.
 - E. All damaged wrapping or sheathing due to transporting or handling shall be repaired with taping prior to placing in the forms. If the combined lengths of damaged wrapping or sheathing exceeds one-half (1/2 %) percent of overall length of the tendon, the damaged sections shall be repaired prior to placing concrete.
 - F. Tendons shall not be subjected to excessive temperatures, welding sparks or ground currents. To ensure this requirement is met, burning and welding operations shall not be conducted in the vicinity of tendons without prior approval. Superfluous extensions of tendons beyond anchorage may be removed by roped oxyacetylene burning, unless such procedures are contrary to the recommendations of the manufacturer of the steel.
 - G. The bearing plates shall be perpendicular to, and concentric with, tendons and the line of action of the prestressing force.

3.05 PLACING REBAR

- A. Rebar (reinforcing steel bars) shall be placed as shown on the plans and details.

3.06 PLACING CONCRETE

- A. Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, post-tensioned cables and items to be embedded or cast in place. Notify other trades to permit installation of their work.
- B. General: Comply with ACI 304.2R-96, "Guide for Measuring, Mixing, Transporting and Placing Concrete", and as specified.
- C. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened sufficiently to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation at its final location.
- D. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction points, until completing placement of a panel or section.
 - 1. Consolidate concrete during placement operations so that concrete is thoroughly worked around reinforcement, other embedded items and into corners.
 - 2. Bring slab surfaces to correct level with a straight edge and strike off. Use bull floats or darbies to smooth surface free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.
 - 3. Maintain reinforcing in proper position on chairs during concrete placement.

- E. Cold-Weather Placement: Comply with provisions of ACI 306R-88 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions or low temperature.
 - 1. No concrete shall be placed if the air temperature is or is forecast to be below forty-five (45 deg.) degrees in the next twenty-four (24) hours.
- F. Hot-Weather Placement: When hot weather conditions exist that would impair quality and strength of concrete, place concrete complying with ACI 305 and as specified.
 - 1. No concrete shall be placed if the air temperature is or is forecast to above eighty (80 deg.) degrees in the next forty-eight (48) hours.
- G. No concrete shall be placed which is to be prestressed until the formwork, installation of tendons and conventional reinforcement has been observed and approved by the Landscape Architect, Owner or designated representative. Provide thirty (36) hours notice to the Observer.
- H. Concrete shall be placed in such a manner as to ensure that alignment of post-tensioning tendons and conventional reinforcement remains unchanged. Keep workmen off tendons and rebar.
- I. Special attention shall be taken to ensure consolidation and compaction of concrete around spread plates, bearing plates, fence posts, net posts and slab corners to eliminate honeycombing.
 - 1. Two (2) vibrators shall be kept on the job and shall be used for consolidation and compaction of concrete.
- J. The finish for the post-tensioned concrete shall be a uniform medium broom finish with brush strokes parallel to the pickleball court net. Prior to installation, a four by four (4'x4') foot sample finish panel shall be approved by the Landscape Architect and the court surfacing Contractor.

3.07 TESTING

- A. The Contractor shall employ, at his own expense, an independent testing laboratory, approved by the Landscape Architect, to inspect and calibrate all equipment proposed for use in stressing tendons. The equipment must be certified by the laboratory prior to use. The certifications and calibration sheets correlating jacking pressure to tendon force shall be furnished to the Landscape Architect.
- B. Concrete testing shall be done per paragraph 3.08 C of these Specifications.

3.08 CONCRETE CURING

- A. Concrete slabs shall be water cured. Curing shall begin after finishing is completed and as soon as concrete is sufficiently hard to resist surface damage. Exposed edges should particularly be protected from temperature extremes and from drying. **DO NOT APPLY ANY CHEMICAL CURING COMPOUND TO SLAB SURFACES.**
- B. The Contractor may select one of the following water curing methods:
 - 1. Absorptive Cover Method: Slab surfaces and edges shall be securely covered and contacted with burlap cloth made from jute or kenaf, nine (9) ounces per square yard in weight, complying with AASHTO M182, Class III, or provide cotton mats complying with ASTM C440. Absorptive cover shall be thoroughly saturated with water and shall be kept

- uniformly and continuously wet throughout the curing period with a fined spray of water from sprinkler heads or soaker hoses.
2. Polyethylene Film Cover and Soaker Hose Method: Slab surfaces and edges shall be securely covered with four (4) mil polyethylene film, lapped at the edges and ends and sealed with waterproof tape. Outer edges are to be held in place for moisture retention and wind protection by windrows of sand. Underneath the film, a series of soaker hoses shall be arranged at intervals so the entire court surface is kept uniformly and continuously wet throughout the curing period with no dry spots.
 3. Rebar or other weights shall be distributed over the entire area of the film or absorptive cover to secure in place.
- C. Curing Period: Curing shall continue uninterrupted for a minimum of seven (7) days during which the air temperatures have been above fifty (50) degrees. The Landscape Architect may direct that the curing period be extended up to three (3) days, for a total of ten (10) days, under hot weather conditions as a precaution against rapid drying. During the curing period, the Contractor shall exercise care to keep moisture distribution on the absorptive cover or under the polyethylene in a uniform and continuous condition. The Contractor must guard against an interruption in the curing process due to wind, loss of water, vandalism or other causes that might damage the covers.
1. Hot and Windy Weather Curing and Protection: During periods of hot weather of weather with drying winds, concrete shall be protected with windbreaks or covers and shall be fog-sprayed judiciously in the interval between screeding/darbying and finishing. Fast surface drying and excessive heat buildup must be prevented.
 2. Cold Weather Curing and Protection: Concrete will not be placed when the temperature is below forty (40) degrees or when it is fifty (50) degrees and dropping. When the air temperature drops to below fifty (50) degrees during the curing period, the concrete and its curing method materials shall be securely covered with insulating blankets. Blankets shall remain in place until the temperature rises to fifty (50) degrees.

3.09 STRESSING TENDONS

- A. The stressing of tendons shall be performed by personnel experienced in prestressing Work.
- B. Precautions shall be taken to ensure that stressing operations are conducted in a safe manner. Stressing shall be performed in two operations.
- C. Post-tensioning shall not start until tests on concrete cylinders, manufactured and cured under the same conditions as the members to be prestressed, indicate that the concrete of the same members has reached a strength of at least one thousand (1000) psi for initial tensioning and two thousand two hundred and fifty (2250) psi for final tensioning. Concrete test cylinders shall be tested at one (1) day, three (3) days, seven (7) days and at twenty- eight (28) days.
 1. Five (5) test cylinders shall be made in each group (four (4) for breaks and one (1) for control). One (1) group of test cylinders shall be made for each half-court section of concrete (approximate area of fifty (55') feet by sixty-one (61') feet).
- D. Immediately after tests indicate that the most recently placed section of concrete in a given slab has reached the strength called for previously, the tendons shall be stressed. Stressing shall be by means of hydraulic jacks equipped with accurately reading calibrated hydraulic pressure gauges to permit the stress in the prestressing steel to be computed at any time. The stressing operation shall be conducted by the manufacturer of prestressing materials.
 1. Tendons shall be stressed temporarily up to 216,000 psi.
 2. Tendons shall be anchored at 189,000 psi.
 3. Losses due to friction and wobble based on coefficients below:

- a. Friction Wobble Coefficient = 0.0014
 - b. Friction Curvature = 0.08
 - 4. Losses due to slab subgrade drag based on one-half (1/2) the weight of slab and coefficient of friction = 0.75
 - 5. Long term losses = 15,000 psi
 - 6. The post-tensioning Contractor/Supplier shall verify that the system can achieve the minimum effective prestress required with regard to the losses given above.
- E. The Contractor shall provide forms for post-tensioning records with spaces for each tendon to indicate tendon mark, tendon design anchorage force, jack gauge reading at transfer and actual measured final elongation. This record shall be kept by the Contractor and one (1) copy forwarded to the Landscape Architect.
- F. Tendons longer than one hundred (100") feet in length shall be stressed from both ends.

3.10 TREATMENT OF ANCHORAGES

- A. At the completion of the stressing operation, stressing assemblies shall be coated with an approved rust-preventative material and pockets for stressing heads shall be filled with non-metallic, non-shrinking grout.

PART 4 – GENERAL NOTES AND ADDITIONAL REFERENCES

- 4.01 Refer to the General notes on the Drawings for additional information.
- 4.02 Post-Tension Institute Design and Construction of Post-Tension Sport Courts shall be used as a guide and reference with the exception that the plastic cup shown in Fig. 45 shall not be used.

END OF SECTION

SECTION 321373

CONCRETE PAVING JOINT SEALANTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes the following:
 - 1. Expansion and contraction joints within cement concrete pavement.
 - 2. Joints between cement concrete and asphalt pavement.
- B. Related Sections include the following:
 - 1. Section 321313: "Concrete Pavement"

1.03 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples for Verification: For each type and color of joint sealant required. Install joint-sealant samples in 1/2-inch- (13-mm-) wide joints formed between two 6-inch- (150-mm) long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- C. Product Certificates: For each type of joint sealant and accessory, signed by product manufacturer.
- D. Qualification Data: For Installer.
- E. Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:
 - 1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
 - 2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.
- F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for sealants.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers trained and approved by manufacturer.

- B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.
- C. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.
 - 1. Use manufacturer's standard test methods to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
 - 2. Submit not fewer than eight pieces of each type of material, including joint substrates, shims, joint-sealant backings, secondary seals, and miscellaneous materials.
 - 3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
 - 4. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.
 - 5. Testing will not be required if joint-sealant manufacturers submit joint preparation data that are based on previous testing of current sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.
- D. Product Testing: Obtain test results for "Product Test Reports" Paragraph in "Submittals" Article from a qualified testing agency based on testing of current sealant products within a 36-month period preceding the commencement of the Work.
 - 1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 for testing indicated, as documented according to ASTM E 548.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multi-component materials.
- B. Store and handle materials to comply with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.06 PROJECT CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
 - 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer.
 - 2. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F (4.4 deg C).
 - 3. When joint substrates are wet or covered with frost.

4. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
5. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.
- B. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

2.02 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer based on testing and field experience.
- B. Colors of Exposed Joint Sealants: to match concrete color.

2.03 COLD-APPLIED JOINT SEALANTS

- A. Multi-component Pourable, chemically curing elastomeric formulation complying with the following requirements for formulation and with ASTM C 920 for type, grade, class, and uses indicated:
 1. Urethane Formulation: Type M; Grade P; Class 12-1/2; Uses T, M, and, as applicable to joint substrates indicated, O.
 2. Coal-Tar-Modified Polymer Formulation: Type M; Grade P; Class 25; Uses T and, as applicable to joint substrates indicated, O.
 3. Bitumen-Modified Urethane Formulation: Type M; Grade P; Class 25; Uses T, M, and, as applicable to joint substrates indicated, O.
- B. Type NS Silicone Sealant for Concrete: Single-component, low-modulus, neutral-curing, nonsag silicone sealant complying with ASTM D 5893 for Type NS.
- C. Type SL Silicone Sealant for Concrete and Asphalt: Single-component, low-modulus, neutral-curing, self-leveling silicone sealant complying with ASTM D 5893 for Type SL.
- D. Multi-component Low-Modulus Sealant for Concrete and Asphalt: Proprietary formulation consisting of reactive petropolymer and activator components producing a pourable, self-leveling sealant.

2.04 JOINT-SEALANT BACKER MATERIALS

- A. General: Provide joint-sealant backer materials that are non-staining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by joint-sealant manufacturer based on field experience and laboratory testing.
- B. Round Backer Rods for Cold- and Hot-Applied Sealants: ASTM D 5249, Type 1, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.
- C. Backer Strips for Cold- and Hot-Applied Sealants: ASTM D 5249; Type 2; of thickness and width required to control sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.
- D. Round Backer Rods for Cold-Applied Sealants: ASTM D 5249, Type 3, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

2.05 PRIMERS

Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from pre-construction joint-sealant-substrate tests and field tests.

PART 3 - EXECUTION

3.01 EXAMINATION

Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.
- B. Joint Priming: Prime joint substrates where indicated or where recommended by joint-sealant manufacturer, based on pre-construction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

3.03 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install backer materials of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability. Do not leave gaps between ends of backer materials. Do not stretch, twist, puncture, or tear backer materials. Remove absorbent backer materials that have become wet before sealant application and replace them with dry materials.
- D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
 - 1. Place sealants so they directly contact and fully wet joint substrates.
 - 2. Completely fill recesses provided for each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Use tooling agents that are approved in writing by joint-sealant manufacturer and that do not discolor sealants or adjacent surfaces.
- F. Provide joint configuration to comply with joint-sealant manufacturer's written instructions, unless otherwise indicated.
- G. Provide recessed joint configuration for silicone sealants of recess depth and at locations indicated.

3.04 CLEANING

Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

3.05 PROTECTION

Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and replace with joint sealant so installations with repaired areas are indistinguishable from the original work.

END OF SECTION 321373

SECTION 32 91 19

TOPSOIL

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Scope:
1. CONTRACTOR shall provide all labor, materials, equipment and incidentals as shown, specified and required to furnish and install topsoil Work.
 2. The types of topsoil Work required include the following:
 - a. Topsoil stockpiled for reuse under Section 31 10 00, Clearing.
 - b. Topsoil from off-site sources.
 - c. Topsoil testing to provide certified acceptability of topsoil for landscape.
 - d. Topsoil admendments, as may be required by test results to provide topsoil acceptable for landscape Work.
 - e. Spreading topsoil.
 - f. Maintenance Work.
- B. Coordination:
1. Review installation procedures under other Sections and coordinate the installation of items that must be installed with the topsoil.
 2. Notify other contractors in advance of the installation of the topsoil to provide the other contractors with sufficient time for the installation of items included in their contracts that must be installed before the topsoil.
- C. Related Sections:
1. Section 31 10 00, Site Clearing.
 2. Section 32 92 23, Sodding

1.2 QUALITY ASSURANCE

- A. Source Quality Control:
1. Analysis and Standards: Package standard products with manufacturers' certified analysis. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Analytical Chemists wherever applicable or as further specified.
- B. Reference Standards: Comply with applicable provisions and recommendations of the following, except where otherwise shown or specified:
1. ASTM C 602, Agricultural Liming Materials.
 2. ASTM D 2487, Classifications of Soils for Engineering Purposes.
 3. Association of Official Analytical Chemists, Official Methods of Analysis.

1.3 SUBMITTALS

- A. Test Reports: Before delivery of off-site topsoil submit for approval a soil analysis made by an approved soil testing laboratory stating porosity, the percentages of silt, clay, sand, and organic matter, the pH and the mineral and plant nutrient content of the topsoil.

1.4 JOB CONDITIONS

- A. Environmental Requirements: Do not spread topsoil if condition is unsuitable due to frost, excessive moisture or other conditions. Cease Work until the topsoil is in a suitable condition as determined by ENGINEER.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Topsoil:
 - 1. Fertile, friable, natural loam, surface soil, capable of sustaining vigorous plant growth, free of any admixture of subsoil, clods of hard earth, plants or roots, sticks or other extraneous material harmful to plant growth. Supply topsoil with the following analysis:
 - a. 3/4-inch mesh: 100 percent passing
 - #4 sieve: 90 to 100 percent passing
 - #200 sieve: not greater than 50 percent passing
 - b. Clay content of material passing #200 sieve not greater than 60 percent, as determined by hydrometer tests.
 - c. pH 6.0 to pH 7.0. If approved by ENGINEER, natural topsoil not having the hydrogen-ion value specified may be amended by CONTRACTOR at his own expense.
 - d. Organic content not less than 5 percent, as determined by ignition loss.
 - e. Free of pests and pest larvae.
- B. Soil Amendments:
 - 1. Lime: Natural limestone containing not less than 85 percent of total carbonates, ground so that not less than 90 percent passes a 10-mesh sieve and not less than 50 percent passes a 100-mesh sieve.
 - 2. Ferrous Sulfate: Commercial grade and unadulterated.

PART 3 - EXECUTION

3.1 INSPECTION

- A. CONTRACTOR and his installer shall examine the subgrade, verify the elevations, observe the conditions under which Work is to be performed, and notify ENGINEER of unsatisfactory conditions. Do not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to ENGINEER.

3.2 PREPARATION

- A. Remove existing grass, vegetation and turf. Dispose of such material outside of OWNER'S property in a legal manner; do not turn over into soil being prepared for topsoiling.
- B. Loosen subgrade of areas to receive topsoil to a minimum depth of 4 inches by discing, harrowing or other approved method to permit bonding of the topsoil to the subgrade. Operate the equipment used to scarify the subsoil so the ridges and depressions are parallel to the contours.
- C. Remove stones over 3/4-inches in any dimension and sticks, roots, rubbish and other extraneous matter.

3.3 INSTALLATION

- A. Place and spread topsoil, over all areas disturbed by construction activity, to a minimum depth of 4-inches after natural settlement and light rolling, in a manner that the completed work conforms to the lines and grades shown.
- B. Do not spread topsoil while in a frozen condition or when moisture content is so great that excessive compaction will occur nor when so dry that dust will form in the air or that clods will not break readily.
- C. Do not compact topsoil.
- D. After the topsoil is spread, remove all large, stiff clods, rocks, roots or other foreign matter over 2-inches.
- E. Apply soil admendments, as required by machine over all areas receiving topsoil, to bring the soil to a neutral pH. Work lightly into the top 3 inches of topsoil.
- F. Manipulate topsoil to attain a properly drained surface.
- G. Grade topsoil areas to smooth, even surface with loose, uniform, fine texture.

- H. Roll and rake and remove ridges and fill all depressions, ruts, low spots or unsuitable areas which result after settlement so that the area is suitable for subsequent work.

3.4 MAINTENANCE

- A. Maintain topsoiled areas by filling in erosion channels and correcting drainage as required.
- B. Maintain the topsoil in a loose, friable condition until the Work under other Sections begins.

3.5 CLEAN UP AND PROTECTION

- A. During topsoiling Work, store materials and equipment where directed. Keep pavements clean and areas in an orderly condition.
- B. Protection includes all temporary fences, barriers and signs and other Work incidental to proper protection.

3.6 INSPECTION AND ACCEPTANCE

- A. When the topsoiling Work is completed, including maintenance, ENGINEER will make an inspection to determine acceptability.
- B. Where inspected topsoil Work does not comply with the requirements, regrade rejected Work and maintain until reinspected by ENGINEER and found to be acceptable.

END OF SECTION

32 92 19
HYDRAULIC SEEDING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Remove stones, sticks, roots and other debris from finish graded areas to receive turf; soil preparation, fertilization, and hydraulic seeding of areas designated for hydraulic seeding or hydromulching as shown on Drawings.
- B. Establishment of permanent grassing for fields and common space.
- C. Temporary grass as needed for temporary erosion control.

1.2 DEFINITIONS

- A. Stand of Grass, Permanent: 150 growing common bermuda grass plants per square foot, to be established within two weeks of planting date, on a smooth bed free of foreign material, weeds, and rocks.
- B. Stand of Grass, Temporary: Complete coverage of the non-vegetated areas of the site at the beginning of the construction period. The temporary grass shall be maintained to a level of growth to establish and maintain erosion control.
- C. Provisional Acceptance: Approval of Hydraulic Seeding as being in conformance with these Specifications upon completion of the installation per the method outlined in Sections 3.1 through 3.5.
- D. Final Acceptance: Approval of the establishment of a "Stand of Grass" as defined herein, and the assumption of turf maintenance by the City.

1.3 SUBMITTALS

- A. Test Reports: Results of seed purity and germination tests.
- B. Certificates: Manufacturer's certification that seed and mulch meet specification requirements.
- C. File all results and certificates with Owner prior to final acceptance.
- D. Maintenance Instructions: Submit to Owner prior to final acceptance.
- E. Test Reports: Submit certification of fertilizer analysis.

1.4 QUALITY ASSURANCE

- A. Meet requirements of Official Method of Analysis of the Association of Official Analytical Chemists.
- B. Source Quality Control: Producer's test for purity and germination of seed, dated within nine months of sowing and submit to Owner.

1.5 JOB CONDITIONS

- A. Environmental Requirements:
 - 1. Seed between calendar dates from May 1 to August 1. Seeding shall commence no later than August 1.
 - 2. Do not seed when excessively wet or dry.
 - 3. Do not perform seeding or hydromulching when wind exceeds 15 mph.
- B. Do not begin hydraulic seeding operations until the permanent and temporary irrigation systems have been demonstrated to be operable and reliable.
- C. Protection: Restrict foot and vehicular traffic from seeded areas after planting and hydromulching until final inspection and acceptance.

1.6 ESTABLISHMENT AND MAINTENANCE

- A. Provisional Acceptance: Upon completion of Hydraulic Seeding operation, obtain written approval of the installation from the Landscape Architect.
- B. Establishment Period: Establish a stand of grass, as defined herein, in 90 days or less.
- C. Maintenance:
 - 1. Maintain new seeding until all turf areas are accepted by Owner.
 - 2. Reseed during this period as required to meet minimum standards at no additional expense to Owner.
 - 3. Repair damage to other plants or lawns during maintenance period at no additional expense to Owner.
 - 4. Maintenance shall consist of but not be limited to:
 - a. Weeding
 - b. Watering
 - c. Mowing and edging
 - d. Spraying
 - e. Fertilizing
 - f. Temporary Erosion Control & Erosion Repair

- D. Final Acceptance will be provided by Owner only upon establishment of a uniform stand of grass throughout the entire site. Upon Final Acceptance of the turf, Owner will assume turf maintenance operations.

1.7 RESTORATION

- A. Repair damage done to existing site improvements caused by Contractor.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Seed - Permanent Grass:
 - 1. Species: Bermuda varieties as shown on plans of 98 percent purity.
 - 2. Percent of Live Seed: 85 percent
 - 3. Clean, dry, new crop seed.
 - 4. Free of all weeds.
- B. Seed - Temporary Grass:
 - 1. Species: Annual Ryegrass (*Lolium multiflorum*) of 95% percent purity.
 - 2. Percent of Live Seed: 85 percent.
 - 3. Clean, dry, new crop seed.
 - 4. Free of all weeds.
- C. Fertilizer:
 - 1. Pelletized.
 - 2. Containing following minimum percentage of plant food by weight:
 - a. Nitrogen (N): 8 percent.
 - b. Phosphoric Acid (P_2O_5): 20 percent.
 - c. Potash (K_2O): 8 percent.
 - d. Magnesium (Mg): 5 percent.
 - 3. A minimum of 25 percent of the total Nitrogen shall be derived from Sulphur coated area: 45 percent from urea, and the remaining 30 percent from monoammonium phosphate.

4. The fertilizer shall be delivered to the site in bags or other convenient containers, each fully labeled, conforming to the applicable state fertilizer laws, and bearing the name, trade name or trademark, and warranty of the producer.
- D. Mulch:
1. Maximum Moisture Content: 12 percent plus 3 percent, VTM-47
 2. Cellulose Fiber Content: 98.6 percent plus 2 percent, ASTM D-586
 3. Ash Content: 1.6 percent maximum, ASTM D-586
 4. PH: 6.5 plus 1.
 5. Minimum Water Holding Capacity: 90 percent minimum, VTM-46
 6. Mulch shall be dyed green with a biodegradable dye that does not inhibit plant growth.
 7. Wood fiber mulch shall be packaged in units not exceeding 100 lbs. The package shall contain current labels, manufacturer's name and net weight.
- E. Tackifier: Terra Tack AR or Terra Tack II as manufactured by Grass Growers, 424 Cottage Place, Plainfield, New Jersey, 02060 or approved equal.
- F. Water: Potable, available on-site. Contractor shall furnish temporary hoses and connections as required.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Contractor shall check that preceding work affecting ground surface is completed.
- B. Contractor shall verify that soil is within allowable range of moisture content.
- C. Contractor shall see that the soil is free of weeds and foreign material immediately before seeding. Remove rocks and stones which are larger than 2 inches in diameter and remove from the site.
- D. Contractor shall not start work until conditions are satisfactory. To begin work indicates acceptance of conditions.

3.2 PREPARATION

- A. All areas to be seeded are to be bladed and graded smooth. All clods shall be removed or incorporated into existing soil and all debris shall be disposed of off the site.
- B. Soil should be watered to a minimum depth of 4 inches at least 48 hours prior to seeding.

3.3 FERTILIZER

- A. Apply fertilizer twice. The first application shall be performed in a north-south direction. The second application shall be performed in a east-west direction. Both fertilizer applications shall be performed at a rate of 560 lbs. per acre.
- B. Disc the first fertilizer application into the soil to a depth of 2 inches to 4 inches.
- C. The second fertilizer application shall be performed concurrently with hydraulic seeding and shall be a surface application.

3.4 HYDRAULIC SEEDING

- A. Apply hydraulic seeding materials with an approved spray applicator equipment suitable for the seed, mulch and stabilizer specified.
- B. Apply materials at the following rates:
 - 1. Mulch with Tackifier 1,600 pounds per acre (36.75 pounds per 1000 square feet).
 - 2. Hulled Bermuda Varieties Grass: 130 pounds per acre (3 pounds per 1000 square feet).
 - 3. Annual Ryegrass: 350 pounds per acre (8 pounds per 1000 square feet.)
 - 4. Tackifier: as specified by manufacturer.
- C. Water all hydroseeded areas to a minimum depth of 4 inches.

3.5 PROTECTION

- A. Immediately after seeding and hydromulching, erect barricades and warning signs as required to protect seeded areas from traffic until grass is established.

3.6 SEED ESTABLISHMENT

- A. Watering:
 - 1. Keep soil moist during seed germination period.
 - 2. Supplement rainfall as required until a stand of grass is established.
- B. Mowing:
 - 1. When grass reaches 3 inches in height, mow to 2-1/2 inches in height. Continue mowing operation until Final Acceptance of the turf by Owner.
 - 2. Do not cut off more than 30 percent of grass leaf in single mowing.

3. Do not remove grass clippings.
- C. Reseed all bare spots not having a uniform stand of grass at no additional expense to Owner.
- D. The Contractor will be required to establish a stand of grass prior to acceptance of the job. A uniform stand of grass shall be defined as a total coverage of the planting soil by the specified turfgrass to the satisfaction of the Owner. The Contractor is responsible for all watering, weeding, and replanting during the time which is necessary to establish a uniform stand of grass.
- E. If hydromulching must occur after the date August 1 and before May 1, a cool-season grass mixture will be used temporarily. On April 15, this stand of grass will be scalped and all areas to be seeded will be re-seeded with the previously specified turfgrass.

3.7 CLEANING

- A. Remove trash and excess materials from project site.
- B. Maintain paved areas in clean condition.
- C. Remove barriers and signs from site at termination of establishment period.

END OF SECTION

SECTION 32 92 23
SODDING

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Provide materials, labor to install and maintain for the guarantee period all areas sodded.

1.02 DEFINITIONS

- A. Sod: Thick matting of growing and living grass on a smooth bed free of foreign material, rocks larger than 1" in diameter and weeds.
- B. Stand of Grass: A uniform growth of specified grass plants covering all bare ground surface areas designated on drawings.

1.03 QUALITY ASSURANCE

- A. Reference Standards:
 - 1. Official Method of Analysis of the Association of Official Analytical Chemists.
 - 2. American Sod Producers Association (ASPA), latest edition.
- B. Source Quality Control:
 - 1. Owner reserves right to inspect and approve the sod before it is cut at the source of the sod.
 - 2. Inspection of sod at the source does not preclude the right of rejection at the job site.

1.04 PROJECT CONDITIONS

- A. Environmental Requirements:
 - 1. Sodding shall be performed between April 1 and August 15 or as approved by Owner.
 - 2. Frozen sod may not be used nor shall sod be placed on frozen ground.
 - 3. In times of drought, special provisions must be made to prevent the drying of the sod. All provisions shall be approved by the Owner.
 - 4. Do not sod when soil is excessively wet or dry.

- B. Protection: Restrict foot and vehicular traffic from sodded areas after laying until final inspection and acceptance.

1.02 GUARANTEE

- A. Substantial Completion: Sod shall be approved as being in accordance with specifications upon completion of the installation.
- B. Guarantee Period: A stand of grass for 90 days after substantial completion shall be guaranteed.
- C. Maintenance Period:
 - 1. Maintain newly laid sod until entire project is accepted by the Owner.
 - 2. Any sodded areas that become eroded, damaged or any areas of sod that fail to become established satisfactorily, according to the Owner, shall be repaired and/or replaced at no additional expense to the Owner.
 - 3. Repair construction related damage to other plants or lawns during the maintenance period at no additional expense to the Owner.
 - 4. Maintenance shall consist of, but not be limited to:
 - a. Weeding
 - b. Watering
 - c. Mowing and Edging
 - d. Spraying
 - e. Fertilizing
 - f. Repair of Erosion Damage
- D. Final Acceptance will be provided by the Owner only upon completion of the entire project and the establishment of a stand of grass as defined herein.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Sod:
 - 1. Species: ‘U3’ Bermuda (Cynodon dactylon ‘U3’).
 - 2. The sod shall be free of weeds or undesirable foreign plants, large stones, roots or other materials which might be detrimental to the development of the sod or to future maintenance.
 - 3. Sod shall be cut with approved sod cutters so that after it is placed, but before it is compacted, it shall have a uniform thickness of not less than

3/4". The sod sections shall be cut in uniform widths, not less than 10" and in lengths of not less than 18".

4. Sod shall be uniform in color, leaf texture and shoot density.

B. Fertilizer:

1. Uniform composition.

2. Pelletized.

3. Containing following minimum percentage of plant food by weight:

a. Nitrogen: 8 percent

b. Phosphoric Acid: 4 percent

c. Potash: 24 percent

4. The fertilizer shall be delivered to the site in bags or other sealed containers, each fully labeled, conforming to the applicable state fertilizer laws, and bearing the name, trade name or trademark and warranty of the producer.

C. Water: Potable, available on-site. Contractor shall furnish temporary piping, hoses and connections as required to keep sod watered.

PART 3 – EXECUTION

3.01 INSPECTION

A. Check that preceding work affecting ground surface is completed, properly graded and drains well.

B. Verify that soil is within allowable range of moisture content.

C. See that the soil is free of weeds and foreign material immediately before sodding. Remove rocks and stones which are larger than 1" in diameter, remove from the site and dispose of in an approved location.

D. Do not start work until conditions are satisfactory. To begin work indicates acceptance of conditions.

3.02 PREPARATION

A. All areas to be sodded are to be bladed and graded smooth. All clods shall be removed or be incorporated into existing soil. All debris shall be disposed of off the site at an approved location.

B. Till fertilizer into top 2" of soil at rate of 125 pounds per acre.

3.03 APPLICATION

- A. The sod shall be moist and shall be placed on a moist soil bed.
- B. Sod shall be harvested, delivered and laid within a period of 24 hours, unless a suitable preservation method is approved prior to delivery. Sod not transplanted within this period shall be inspected for acceptance by the Owner prior to its installation.
- C. The sod shall be carefully placed by hand, edge-to-edge (with no gaps), and with staggered joints in rows parallel with the contours. Do not stretch or overlap sod.
- D. The sod shall immediately be pressed firmly into contact with the sod bed by rolling with approved equipment to provide a true and even surface.
- E. Screened soil of acceptable quality shall be used to fill all cracks between pads of sod; however, the quantity of the top dressing soil shall not be so great as to smother the grass.
- F. The surface of the soil in the sod after compaction shall be flush with or just below adjacent paving.
- G. Water sodded areas to a minimum depth of 2" after planting.

3.04 PROTECTION

- A. Immediately after sodding, erect barricades and warning signs as required to protect the areas from traffic until sod is established.

3.05 SOD ESTABLISHMENT

- A. Watering:
 - 1. The sod shall be kept moist from the time of its placement until it has become established and its continued growth assured.
 - 2. Watering shall be done at a rate which will avoid erosion and excessive runoff.
- B. Mowing:
 - 1. When grass reaches approximately 4" in height, mow to 2" to 2-1/2" in height.
 - 2. Do not cut off more than 40% of grass leaf in single mowing.
 - 3. Do not remove grass clippings.

- C. Repairing: Any areas that become eroded, damaged or any areas of sod that fails to become established satisfactorily, according to the Owner, shall be repaired and/or replaced at no expense to the Owner.

3.06 RESTORATION

- A. Repair damages done to site caused by the Contractor at no additional expense to Owner.

3.07 CLEANING

- A. Remove trash and excess materials from site.
- B. Maintain paved areas in clean condition.
- C. Remove barriers and signs from site at termination of the maintenance period.

END OF SECTION

**33 40 00
DRAINAGE**

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Precast box culverts.
- B. Concrete curb inlet structures.

1.2 RELATED WORK

- A. Section 31 23 00 – Site Structure Excavation and Backfill.

1.3 LUMP SUM PRICES

- A. Box Culverts: Completed and accepted box culvert will be measured by the lineal foot of box with the total length of each segment being determined by measuring parallel to the box flow line from the open end of the box to the far end of the last box section at the inlet or outlet structure. Payment will be made at the lump sum bid for the various sizes and types of box culvert, which price shall include excavation and backfill, the sealant and primer, connecting bands, and all other materials, labor, tools, equipment and incidentals necessary to complete the Work.
- B. Curb Inlets: Completed and accepted curb inlets will be measured on a per each basis. Payment will be made at the lump sum bid per each for curb inlets, which price shall be full compensation for all excavation and backfill, all other materials, and all labor, tools, equipment and incidentals necessary to complete the Work.

PART 2 - PRODUCTS

2.1 PIPE CULVERTS

- A. Polymer Coated Corrugated Steel Pipe (CMP): AASHTO M36 and AASHTO M218.
 - 1. Material: Steel (polymeric precoat galvanized, type B 10 mil both sides).
 - 2. Type: Helically corrugated 2-2/3" x 1/2", 16 gauge unless shown otherwise on the drawings.
 - 3. Shape: Round or arch as specified on the Drawings.
 - 4. Sizes: As shown on Drawings.

2.2 CURB INLET STRUCTURE

- A. Concrete and reinforcing steel:
 - 1. Refer to Standard Detail.
 - 2. Refer to Section 03 30 01 and ACI 301.
- B. Manhole rings and covers: ASTM A 48, Class 30A.
 - 1. Material: Cast Iron, solid cover.
 - 2. Size: 24 inch diameter with ring depth equal to concrete thickness.

PART 3 - EXECUTION

3.1 CORRUGATED METAL PIPE CULVERT INSTALLATION

- A. Excavate subsoil to depth and grade line as required for proper installation of the culvert pipe. Keep trench as narrow as possible but sufficiently wide to permit tamping under the haunches and installation of connecting bands when sections are joined. Keep sidewalls as vertical as possible, at least to an elevation above top of pipe.
- B. Grade bottom of trench to provide a firm bedding surface of uniform density along the entire length of the pipe. Remove rock or soft, unstable material encountered at the excavated grade line to a minimum depth of 6 inches and replace with drainage fill material as specified in Section 03 30 01 Site Concrete Work.
- C. Shape bottom of trench to conform to bottom one quarter of the outside diameter of the circular pipe and up to widest part of arch pipe, allowing a uniform blanket of loose material to cover the shaped bedding to a depth sufficient to allow the corrugations to be filled with the material.
- D. Place corrugated metal pipe on bedding with longitudinal laps or seams, if any, at the sides. To assemble sections of pipe, place corrugated connecting band around or under the first pipe, then lay the second pipe section with the corrugations matching and the adjacent ends butting together. Keep dirt and gravel out of joint so that corrugations fit snugly. Fasten bolts on band tightly and uniformly.
- E. Place backfill material in 4 inch layer under haunches alternately on both sides of pipe, using select material. Slice-in with a shovel under the haunches to eliminate voids. Place select material in 6 inch lifts alternately on each side of pipe up to the horizontal centerline on circular and up to widest part at arch pipe, and using hand tamps or mechanical tampers, compact each lift to a minimum of 90 percent of optimum density for the material as determined by Modified Proctor procedures, ASTM D-1557. If drainage fill material is used, place the material in such manner as to eliminate voids and consolidate and interlock the material to form a stable side support for the pipe.
- F. In locations not in traffic areas, hand place select backfill to a level 12 inches above the top of the pipe in such manner as to minimize voids. Backfill up to surrounding ground surface or finished subgrade with subsoil containing no rocks or boulders larger than 6 inches in greatest dimension, except do not allow rocks or hard clumps larger than 1-1/2 inches in greatest dimension within 12 inches of the subgrade. Leave top of backfill slightly mounded to allow for settlement.
- G. Under traffic areas, backfill trench from horizontal centerline of pipe up to top of subgrade using either select backfill material or drainage fill material. If select backfill material is used, place material in 6 inch lifts and compact with mechanical tampers. Compact each layer to within 24 inches of subgrade to 90 percent optimum density for the material as determined by Modified Proctor procedures, ASTM D-1557. Compact the remaining 24 inches of subgrade to 95 percent of optimum density using the same procedures. If drainage fill material is used, place the material in such manner as to minimize voids and interlock the material to form a stable fill that will support the pavement structure and subsequent traffic loads.

- H. Patch cut edges and surface-damaged areas with specified patching material to restore protection to metal surface originally provided by polymer coating.

3.2 CONCRETE STRUCTURES INSTALLATION

- A. Forming concrete, placing reinforcing steel and placing and curing concrete: Refer to Section 03 30 01 Site Concrete Work and ACI 301.
- B. Excavation and Backfill: Refer to Section 31 23 00.

3.3 EXISTING STRUCTURE MODIFICATION

- A. Remove top and throat of existing curb inlet.
- B. Remove loose and damaged concrete material.
- C. Dispose of removed material including cast iron ring and cover.
- D. Cut and tie reinforcing steel to new steel as detailed on Drawings.
- E. Form new top and provide new cast iron ring and cover.
- F. Place steel as detailed on Drawings and place concrete to modify structure into a junction box.
- G. Patch inside face of wall to achieve smooth surface.

END OF SECTION

